

Virginia Board of Housing and Community Development
CODE AND STANDARDS COMMITTEE
2018 CODE CHANGE CYCLE – BOOK 2
September 16, 2019

Opening Statement

Tab 1 – USBC Base Document

Tab 2 – USBC Proposals Recommended by Workgroups as Consensus for Approval

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Tab 5 – IBSR Base Document

Tab 6 – IBSR Proposals Recommended by Workgroups as Consensus for Approval

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Tab 7 – VADR Base Document

Tab 8 – VADR Proposals Recommended by Workgroups as Consensus for Approval

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Tab 9 – MHSR Base Document

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MH10-18	Clarifies the requirement for a certificate of installation	1
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Tab 11 – VCS Base Document

Tab 12 – VCS Proposals Recommended by Workgroups as Consensus for Approval

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Tab 14 – Public Hearing Transcript and Public Comments

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
2018 Virginia Uniform Statewide Building Code Base Document

Summary – This document is compiled by staff of the State Building Codes Office of the Division of Building and Fire Regulation. Its purpose is to convert the 2015 USBC to the 2018 USBC by comparing the language in the 2015 USBC to the 2018 editions of the International Codes and standards which have amendments in the USBC. It is not intended to create substantive changes to the 2015 USBC. Those differences between the 2015 International Codes and standards and the 2018 International Codes and standards which are not affected by existing state amendments to the 2015 International Codes and standards are not addressed in this document. Those differences may be addressed in the full code change process for the 2018 USBC. The base document is simply to make those necessary changes to the 2015 USBC to bring in the 2018 International Codes and standards and keep the existing state amendments which were made to the 2015 International Codes and standards. If the 2018 International Codes and standards have language that is consistent with an existing state amendment to the 2015 International Codes and standards, then the existing state amendment is deleted. The staff document is intended to serve as the basis for the publishing of proposed regulations for the 2018 USBC. Once the base document is approved by the Board of Housing and Community Development, if any code change proposals are considered and approved by the Board of Housing and Community Development to also go into the proposed regulations for the 2018 USBC, those proposals would be correlated with this base document and brought back to the Board of Housing and Community Development as a separate “proposed regulations” document for review.

Part I Construction

13VAC5-63-10. Chapter 1 Administration; Section 101 General.

A. Section 101.1 Short title. The Virginia Uniform Statewide Building Code, Part I, Construction, may be cited as the Virginia Construction Code or as the VCC. The term "USBC" shall mean the VCC unless the context in which the term is used clearly indicates it to be an abbreviation for the entire Virginia Uniform Statewide Building Code or for a different part of the Virginia Uniform Statewide Building Code.

Note: This code is also known as the ~~2015~~ 2018 edition of the USBC due to the use of the ~~2015~~ 2018 editions of the model codes.

B. Section 101.2 Incorporation by reference. Chapters 2 - 35 of the ~~2015~~ 2018 International Building Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the USBC. The term "IBC" means the ~~2015~~ 2018 International Building Code, published by the International Code Council, Inc. Any codes and standards referenced in the IBC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference. In addition, any provisions of the appendices of the IBC specifically identified to be part of the USBC are also considered to be part of the incorporation by reference.

Note 1: The IBC references other International Codes and standards including the following major codes:

~~2015~~ 2018 International Plumbing Code (IPC)
~~2015~~ 2018 International Mechanical Code (IMC)
~~2015~~ 2017 NFPA 70

~~2015~~ 2018 International Fuel Gas Code (IFGC)
~~2015~~ 2018 International Energy Conservation Code (IECC)
~~2015~~ 2018 International Residential Code (IRC)

Note 2: The IRC is applicable to the construction of detached one-family and two-family dwellings and townhouses as set out in Section 310.

C. Section 101.3 Numbering system. A dual numbering system is used in the USBC to correlate the numbering system of the Virginia Administrative Code with the numbering system of the IBC. IBC numbering system designations are provided in the catchlines of the Virginia Administrative Code sections. Cross references between sections or chapters of the USBC use only the IBC numbering system designations. The term "chapter" is used in the context of the numbering system of the IBC and may mean a chapter in the USBC, a chapter in the IBC or a chapter in a referenced code or standard, depending on the context of the use of the term. The term "chapter" is not used to designate a chapter of the Virginia Administrative Code, unless clearly indicated.

D. Section 101.4 Arrangement of code provisions. The USBC is comprised of the combination of (i) the provisions of Chapter 1, Administration, which are established herein, (ii) Chapters 2 - 35 of the IBC, which are incorporated by reference in Section 101.2, and (iii) the changes to the text of the incorporated chapters of the IBC that are specifically identified. The terminology "changes to the text of the incorporated chapters of the IBC that are specifically identified" shall also be referred to as the "state amendments to the IBC." Such state amendments to the IBC are set out using corresponding chapter and section numbers of the IBC numbering system. In addition, since Chapter 1 of the IBC is not incorporated as part of the USBC, any reference to a provision of Chapter 1 of the IBC in the provisions of Chapters 2 - 35 of the IBC is generally invalid. However, where the purpose of such a reference would clearly correspond to a provision of Chapter 1 established herein, then the reference may be construed to be a valid reference to such corresponding Chapter 1 provision.

E. Section 101.5 Use of terminology and notes. The provisions of this code shall be used as follows:

1. The term "this code," or "the code," where used in the provisions of Chapter 1, in Chapters 2 - 35 of the IBC or in the state amendments to the IBC means the USBC, unless the context clearly indicates otherwise.
2. The term "this code" or "the code" where used in a code or standard referenced in the IBC means that code or standard, unless the context clearly indicates otherwise.
3. The use of notes in Chapter 1 is to provide information only and shall not be construed as changing the meaning of any code provision.
4. Notes in the IBC, in the codes and standards referenced in the IBC and in the state amendments to the IBC may modify the content of a related provision and shall be considered to be a valid part of the provision, unless the context clearly indicates otherwise.

F. Section 101.6 Order of precedence. The provisions of this code shall be used as follows:

1. The provisions of Chapter 1 of this code supersede any provisions of Chapters 2 - 35 of the IBC that address the same subject matter and impose differing requirements.
2. The provisions of Chapter 1 of this code supersede any provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements.

3. The state amendments to the IBC supersede any provisions of Chapters 2 - 35 of the IBC that address the same subject matter and impose differing requirements.

4. The state amendments to the IBC supersede any provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements.

5. The provisions of Chapters 2 - 35 of the IBC supersede any provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements.

G. Section 101.7 Administrative provisions. The provisions of Chapter 1 establish administrative requirements, which include but are not limited to provisions relating to the scope of the code, enforcement, fees, permits, inspections and disputes. Any provisions of Chapters 2 - 35 of the IBC or any provisions of the codes and standards referenced in the IBC that address the same subject matter and impose differing requirements are deleted and replaced by the provisions of Chapter 1. Further, any administrative requirements contained in the state amendments to the IBC shall be given the same precedence as the provisions of Chapter 1. Notwithstanding the above, where administrative requirements of Chapters 2 - 35 of the IBC or of the codes and standards referenced in the IBC are specifically identified as valid administrative requirements in Chapter 1 of this code or in the state amendments to the IBC, then such requirements are not deleted and replaced.

Note: The purpose of this provision is to eliminate overlap, conflicts and duplication by providing a single standard for administrative, procedural and enforcement requirements of this code.

H. Section 101.8 Definitions. The definitions of terms used in this code are contained in Chapter 2 along with specific provisions addressing the use of definitions. Terms may be defined in other chapters or provisions of the code and such definitions are also valid.

Note: The order of precedence outlined in Section 101.6 may be determinative in establishing how to apply the definitions in the IBC and in the referenced codes and standards.

13VAC5-63-20. Section 102 Purpose and scope.

A. Section 102.1 Purpose. In accordance with § 36-99 of the Code of Virginia, the purpose of the USBC is to protect the health, safety and welfare of the residents of the Commonwealth of Virginia, provided that buildings and structures should be permitted to be constructed at the least possible cost consistent with recognized standards of health, safety, energy conservation and water conservation, including provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation; and barrier-free provisions for the physically handicapped and aged.

B. Section 102.2 Scope. This section establishes the scope of the USBC in accordance with § 36-98 of the Code of Virginia. The USBC shall supersede the building codes and regulations of the counties, municipalities and other political subdivisions and state agencies. This code also shall supersede the provisions of local ordinances applicable to single-family residential construction that (i) regulate dwelling foundations or crawl spaces, (ii) require the use of specific building materials or finishes in construction, or (iii) require minimum surface area or numbers of windows; however, this code shall not supersede proffered conditions accepted as a part of a rezoning application, conditions imposed upon the grant of special exceptions, special or conditional use permits or variances, conditions imposed upon a clustering of single-family homes and preservation of open space development through standards, conditions, and criteria established by a locality pursuant to subdivision 8 of § 15.2-2242 of the Code of Virginia or § 15.2-2286.1 of the Code of Virginia, or land use requirements in airport or highway overlay districts, or historic

districts created pursuant to § 15.2-2306 of the Code of Virginia, or local flood plain regulations adopted as a condition of participation in the National Flood Insurance Program.

Note: Requirements relating to functional design are contained in Section ~~103.10~~103.5 of this code.

C. Section 102.2.1 Invalidity of provisions. To the extent that any provisions of this code are in conflict with Chapter 6 (§ 36-97 et seq.) of Title 36 of the Code of Virginia or in conflict with the scope of the USBC, those provisions are considered to be invalid to the extent of such conflict.

D. Section 102.3 Exemptions. The following are exempt from this code:

1. Equipment and wiring used for providing utility, communications, information, cable television, broadcast or radio service in accordance with all of the following conditions:

- 1.1. The equipment and wiring are located on either rights-of-way or property for which the service provider has rights of occupancy and entry.

- 1.2. Buildings housing exempt equipment and wiring shall be subject to the USBC.

- 1.3. The equipment and wiring exempted by this section shall not create an unsafe condition prohibited by the USBC.

2. Support structures owned or controlled by a provider of publicly regulated utility service or its affiliates for the transmission and distribution of electric service in accordance with all of the following conditions:

- 2.1. The support structures are located on either rights-of-way or property for which the service provider has rights of occupancy and entry.

- 2.2. The support structures exempted by this section shall not create an unsafe condition prohibited by the USBC.

3. Direct burial poles used to support equipment or wiring providing communications, information or cable television services. The poles exempted by this section shall not create an unsafe condition prohibited by the USBC.

4. Electrical equipment, transmission equipment, and related wiring used for wireless transmission of radio, broadcast, telecommunications, or information service in accordance with all of the following conditions:

- 4.1. Buildings housing exempt equipment and wiring and structures supporting exempt equipment and wiring shall be subject to the USBC.

- 4.2. The equipment and wiring exempted by this section shall not create an unsafe condition prohibited by the USBC.

5. Manufacturing, processing, and product handling machines and equipment that do not produce or process hazardous materials regulated by this code, including those portions of conveyor systems used exclusively for the transport of associated materials or products, and all of the following service equipment:

- 5.1. Electrical equipment connected after the last disconnecting means.
- 5.2. Plumbing piping and equipment connected after the last shutoff valve or backflow device and before the equipment drain trap.
- 5.3. Gas piping and equipment connected after the outlet shutoff valve.
Manufacturing and processing machines that produce or process hazardous materials regulated by this code are only required to comply with the code provisions regulating the hazardous materials.
6. Parking lots and sidewalks that are not part of an accessible route.
7. Nonmechanized playground or recreational equipment such as swing sets, sliding boards, climbing bars, jungle gyms, skateboard ramps, and similar equipment where no admission fee is charged for its use or for admittance to areas where the equipment is located.
8. Industrialized buildings subject to the Virginia Industrialized Building Safety Regulations (13VAC5-91) and manufactured homes subject to the Virginia Manufactured Home Safety Regulations (13VAC5-95); except as provided for in Section 427 and in the case of demolition of such industrialized buildings or manufactured homes.
9. Farm buildings and structures, except for a building or a portion of a building located on a farm that is operated as a restaurant as defined in § 35.1-1 of the Code of Virginia and licensed as such by the Virginia Board of Health pursuant to Chapter 2 (§ 35.1-11 et seq.) of Title 35.1 of the Code of Virginia. However, farm buildings and structures lying within a flood plain or in a mudslide-prone area shall be subject to flood-proofing regulations or mudslide regulations, as applicable.
10. Federally owned buildings and structures unless federal law specifically requires a permit from the locality. Underground storage tank installations, modifications and removals shall comply with this code in accordance with federal law.
11. Off-site manufactured intermodal freight containers, moving containers, and storage containers placed on site temporarily or permanently for use as a storage container.
12. Automotive lifts.

13VAC5-63-30. Section 103 Application of code.

A. Section 103.1 General. In accordance with § 36-99 of the Code of Virginia, the USBC shall prescribe building regulations to be complied with in the construction and rehabilitation of buildings and structures, and the equipment therein.

B. Section 103.1.1 Virginia Existing Building Code. Part II of the Virginia Uniform Statewide Building Code, also known as the "Virginia Existing Building Code," or the "VEBC" is applicable to construction and rehabilitation activities in existing buildings and structures, as those terms are defined in the VEBC, except where specifically addressed in the VCC.

C. Section 103.2 When applicable to new construction. Construction for which a permit application is submitted to the local building department on or after the effective date of the ~~2015~~ 2018 edition of the code shall comply with the provisions of this code, except for permit applications submitted during a one-year period beginning on the effective date of the ~~2015~~ 2018 edition of the code. The applicant for a permit during such one-year period shall be permitted to choose whether to comply with the provisions of this

code or the provisions of the edition of the code in effect immediately prior to the ~~2015~~ 2018 edition. This provision shall also apply to subsequent amendments to this code based on the effective date of such amendments. In addition, when a permit has been properly issued under a previous edition of this code, this code shall not require changes to the approved construction documents, design or construction of such a building or structure, provided the permit has not been suspended or revoked.

D. Section 103.3 Nonrequired equipment. The following criteria for nonrequired equipment is in accordance with § 36-103 of the Code of Virginia. Building owners may elect to install partial or full fire alarms or other safety equipment that was not required by the edition of the USBC in effect at the time a building was constructed without meeting current requirements of the code, provided the installation does not create a hazardous condition. Permits for installation shall be obtained in accordance with this code. In addition, as a requirement of this code, when such nonrequired equipment is to be installed, the building official shall notify the appropriate fire official or fire chief.

E. Section 103.3.1 Reduction in function or discontinuance of nonrequired fire protection systems. When a nonrequired fire protection system is to be reduced in function or discontinued, it shall be done in such a manner so as not to create a false sense of protection. Generally, in such cases, any features visible from interior areas shall be removed, such as sprinkler heads, smoke detectors or alarm panels or devices, but any wiring or piping hidden within the construction of the building may remain. Approval of the proposed method of reduction or discontinuance shall be obtained from the building official.

F. Section 103.4 Use of certain provisions of referenced codes. The following provisions of the IBC and of other indicated codes or standards are to be considered valid provisions of this code. Where any such provisions have been modified by the state amendments to the IBC, then the modified provisions apply.

1. Special inspection requirements in Chapters 2 - 35.
2. Testing requirements and requirements for the submittal of construction documents in any of the ICC codes referenced in Chapter 35 and in the IRC.
3. Section R301.2 of the IRC authorizing localities to determine climatic and geographic design criteria.
4. Flood load or flood-resistant construction requirements in the IBC or the IRC, including, but not limited to, any such provisions pertaining to flood elevation certificates that are located in Chapter 1 of those codes. Any required flood elevation certificate pursuant to such provisions shall be prepared by a land surveyor licensed in Virginia or an RDP.
5. Section R101.2 of the IRC.
6. Section N1102.1 of the IRC and Sections C402.1.1 and R402.1 of the IECC.

G. Section 103.5 Functional design. The following criteria for functional design is in accordance with § 36-98 of the Code of Virginia. The USBC shall not supersede the regulations of other state agencies that require and govern the functional design and operation of building related activities not covered by the USBC, including but not limited to (i) public water supply systems, (ii) waste water treatment and disposal systems, and (iii) solid waste facilities. Nor shall state agencies be prohibited from requiring, pursuant to other state law, that buildings and equipment be maintained in accordance with provisions of this code. In addition, as established by this code, the building official may refuse to issue a permit until the applicant has supplied certificates of functional design approval from the appropriate state agency or agencies. For purposes of coordination, the locality may require reports to the building official by other departments or agencies

indicating compliance with their regulations applicable to the functional design of a building or structure as a condition for issuance of a building permit or certificate of occupancy. Such reports shall be based upon review of the plans or inspection of the project as determined by the locality. All enforcement of these conditions shall not be the responsibility of the building official, but rather the agency imposing the condition.

Note: Identified state agencies with functional design approval are listed in the "Related Laws Package," which is available from DHCD.

H. Section 103.6 Amusement devices and inspections. In accordance with § 36-98.3 of the Code of Virginia, to the extent they are not superseded by the provisions of § 36-98.3 of the Code of Virginia and the VADR, the provisions of the USBC shall apply to amusement devices. In addition, as a requirement of this code, inspections for compliance with the VADR shall be conducted either by local building department personnel or private inspectors provided such persons are certified as amusement device inspectors under the VCS.

I. Section 103.7 State buildings and structures. This section establishes the application of the USBC to state-owned buildings and structures in accordance with § 36-98.1 of the Code of Virginia. The USBC shall be applicable to all state-owned buildings and structures, with the exception that §§ 2.2-1159 through 2.2-1161 of the Code of Virginia shall provide the standards for ready access to and use of state-owned buildings by the physically handicapped.

Any state-owned building or structure or building built on state-owned property for which preliminary plans were prepared or on which construction commenced after the initial effective date of the USBC, shall remain subject to the provisions of the USBC that were in effect at the time such plans were completed or such construction commenced. Subsequent reconstruction, renovation or demolition of such building or structure shall be subject to the pertinent provisions of this code.

Acting through the Division of Engineering and Buildings, the Virginia Department of General Services shall function as the building official for state-owned buildings. The department shall review and approve plans and specifications, grant modifications, and establish such rules and regulations as may be necessary to implement this section. It shall provide for the inspection of state-owned buildings and enforcement of the USBC and standards for access by the physically handicapped by delegating inspection and USBC enforcement duties to the State Fire Marshal's Office, to other appropriate state agencies having needed expertise, and to local building departments, all of which shall provide such assistance within a reasonable time and in the manner requested. State agencies and institutions occupying buildings shall pay to the local building department the same fees as would be paid by a private citizen for the services rendered when such services are requested by the department. The department may alter or overrule any decision of the local building department after having first considered the local building department's report or other rationale given for its decision. When altering or overruling any decision of a local building department, the department shall provide the local building department with a written summary of its reasons for doing so.

Notwithstanding any provision of this code to the contrary, roadway tunnels and bridges owned by the Virginia Department of Transportation shall be exempt from this code. The Virginia Department of General Services shall not have jurisdiction over such roadway tunnels, bridges and other limited access highways; provided, however, that the Department of General Services shall have jurisdiction over any occupied buildings within any Department of Transportation rights-of-way that are subject to this code.

Except as provided in subsection E of § 23.1-1016 of the Code of Virginia, and notwithstanding any provision of this code to the contrary, at the request of a public institution of higher education, the Virginia Department of General Services, as further set forth in this provision, shall authorize that institution of

higher education to contract with a building official of the locality in which the construction is taking place to perform any inspection and certifications required for the purpose of complying with this code. The department shall publish administrative procedures that shall be followed in contracting with a building official of the locality. The authority granted to a public institution of higher education under this provision to contract with a building official of the locality shall be subject to the institution meeting the conditions prescribed in subsection A of § 23.1-1002 of the Code of Virginia.

Note: In accordance with § 36-98.1 of the Code of Virginia, roadway tunnels and bridges shall be designed, constructed and operated to comply with fire safety standards based on nationally recognized model codes and standards to be developed by the Virginia Department of Transportation in consultation with the State Fire Marshal. Emergency response planning and activities related to the standards shall be developed by the Department of Transportation and coordinated with the appropriate local officials and emergency service providers. On an annual basis, the Department of Transportation shall provide a report on the maintenance and operability of installed fire protection and detection systems in roadway tunnels and bridges to the State Fire Marshal.

J. Section 103.7.1 Certification of state enforcement personnel. State enforcement personnel shall comply with the applicable requirements of Section 105 for certification.

13VAC5-63-40. Section 104 Enforcement, generally.

A. Section 104.1 Scope of enforcement. This section establishes the requirements for enforcement of the USBC in accordance with § 36-105 of the Code of Virginia. Enforcement of the provisions of the USBC for construction and rehabilitation shall be the responsibility of the local building department. Whenever a county or municipality does not have such a building department, the local governing body shall enter into an agreement with the local governing body of another county or municipality or with some other agency, or a state agency approved by DHCD for such enforcement. For the purposes of this section, towns with a population of less than 3,500 may elect to administer and enforce the USBC; however, where the town does not elect to administer and enforce the code, the county in which the town is situated shall administer and enforce the code for the town. In the event such town is situated in two or more counties, those counties shall administer and enforce the USBC for that portion of the town situated within their respective boundaries.

However, upon a finding by the local building department, following a complaint by a tenant of a residential dwelling unit that is the subject of such complaint, that there may be a violation of the unsafe structures provisions of Part III of the Virginia Uniform Statewide Building Code, also known as the "Virginia Maintenance Code," or the "VMC," the local building department shall enforce such provisions.

If the local building department receives a complaint that a violation of the VMC exists that is an immediate and imminent threat to the health or safety of the owner, tenant, or occupants of any building or structure, or the owner, occupant, or tenant of any nearby building or structure, and the owner, occupant, or tenant of the building or structure that is the subject of the complaint has refused to allow the local building official or his agent to have access to the subject building or structure, the local building official or his agent may make an affidavit under oath before a magistrate or a court of competent jurisdiction and request that the magistrate or court grant the local building official or his agent an inspection warrant to enable the building official or his agent to enter the subject building or structure for the purpose of determining whether violations of the VMC exist. After issuing a warrant under this section, the magistrate or judge shall file the affidavit in the manner prescribed by § 19.2-54 of the Code of Virginia. After executing the warrant, the local building official or his agents shall return the warrant to the clerk of the circuit court of the city or county wherein the inspection was made. The local building official or his agent shall make a reasonable

effort to obtain consent from the owner, occupant, or tenant of the subject building or structure prior to seeking the issuance of an inspection warrant under this section.

The local governing body shall, however, inspect and enforce the provisions of the VMC for elevators, escalators, and related conveyances, except for elevators in single-family and two-family homes and townhouses. Such inspection and enforcement shall be carried out by an agency or department designated by the local governing body.

B. Section 104.2 Interagency coordination. When any inspection functions under this code are assigned to a local agency other than the local building department, such agency shall coordinate its reports of inspection with the local building department.

13VAC5-63-50. Section 105 Local building department.

A. Section 105.1 Appointment of building official. Every local building department shall have a building official as the executive official in charge of the department. The building official shall be appointed in a manner selected by the local governing body. After permanent appointment, the building official shall not be removed from office except for cause after having been afforded a full opportunity to be heard on specific and relevant charges by and before the appointing authority. DHCD shall be notified by the appointing authority within 30 days of the appointment or release of a permanent or acting building official.

Note: Building officials are subject to sanctions in accordance with the VCS.

B. Section 105.1.1 Qualifications of building official. The building official shall have at least five years of building experience as a licensed professional engineer or architect, building, fire or trade inspector, contractor, housing inspector or superintendent of building, fire or trade construction or at least five years of building experience after obtaining a degree in architecture or engineering, with at least three years in responsible charge of work. Any combination of education and experience that would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The building official shall have general knowledge of sound engineering practice in respect to the design and construction of structures, the basic principles of fire prevention, the accepted requirements for means of egress and the installation of elevators and other service equipment necessary for the health, safety and general welfare of the occupants and the public. The local governing body may establish additional qualification requirements.

C. Section 105.1.2 Certification of building official. An acting or permanent building official shall be certified as a building official in accordance with the VCS within one year after being appointed as acting or permanent building official.

Exception: A building official in place prior to April 1, 1983, shall not be required to meet the certification requirements in this section while continuing to serve in the same capacity in the same locality.

D. Section 105.1.3 Noncertified building official. Except for a building official exempt from certification under the exception to Section 105.1.2, any acting or permanent building official who is not certified as a building official in accordance with the VCS shall attend the core module of the Virginia Building Code Academy or an equivalent course in an individual or regional code academy accredited by DHCD within 180 days of appointment. This requirement is in addition to meeting the certification requirement in Section 105.1.2.

Note: Continuing education and periodic training requirements for DHCD certifications are set out in the VCS.

E. Section 105.2 Technical assistants. The building official, subject to any limitations imposed by the locality, shall be permitted to utilize technical assistants to assist the building official in the enforcement of the USBC. DHCD shall be notified by the building official within 60 days of the employment of, contracting with or termination of all technical assistants.

Note: Technical assistants are subject to sanctions in accordance with the VCS.

F. Section 105.2.1 Qualifications of technical assistants. A technical assistant shall have at least three years of experience and general knowledge in at least one of the following areas: building construction; building construction conceptual and administrative processes; building, fire or housing inspections; plumbing, electrical or mechanical trades; or fire protection, elevator or property maintenance work. Any combination of education and experience that would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The locality may establish additional qualification requirements.

G. Section 105.2.2 Certification of technical assistants. A technical assistant shall be certified in the appropriate subject area within 18 months after becoming a technical assistant. When required by local policy to have two or more certifications, a technical assistant shall obtain the additional certifications within three years from the date of such requirement.

Exceptions:

1. A technical assistant in place prior to March 1, 1988, shall not be required to meet the certification requirements in this section while continuing to serve in the same capacity in the same locality.
2. A permit technician in place prior to the effective date of the ~~2015~~ 2018 edition of the code shall not be required to meet the certification requirements in this section while continuing to serve in the same capacity in the same locality.

Note: Continuing education and periodic training requirements for DHCD certifications are set out in the VCS.

H. Section 105.3 Conflict of interest. The standards of conduct for building officials and technical assistants shall be in accordance with the provisions of the State and Local Government Conflict of Interests Act, Chapter 31 (§ 2.2-3100 et seq.) of Title 2.2 of the Code of Virginia.

I. Section 105.4 Records. The local building department shall retain a record of applications received, permits, certificates, notices and orders issued, fees collected and reports of inspection in accordance with The Library of Virginia's General Schedule Number Six.

13VAC5-63-60. Section 106 Powers and duties of the building official.

A. Section 106.1 Powers and duties, generally. The building official shall enforce this code as set out herein and as interpreted by the State Review Board.

B. Section 106.2 Delegation of authority. The building official may delegate powers and duties except where such authority is limited by the local government. However, such limitations of authority by the local government are not applicable to the third-party inspector policy required by Section 113.7.1 nor shall such limitations of authority by the local government have the effect of altering the provisions of this code or creating building regulations. When such delegations are made, the building official shall be responsible for assuring that they are carried out in accordance with the provisions of this code.

C. Section 106.3 Issuance of modifications. Upon written application by an owner or an owner's agent, the building official may approve a modification of any provision of the USBC provided the spirit and functional intent of the code are observed and public health, welfare and safety are assured. The decision of the building official concerning a modification shall be made in writing and the application for a modification and the decision of the building official concerning such modification shall be retained in the permanent records of the local building department.

Note: The USBC references nationally recognized model codes and standards. Future amendments to such codes and standards are not automatically included in the USBC; however the building official should give them due consideration in deciding whether to approve a modification.

D. Section 106.3.1 Substantiation of modification. The building official may require or may consider a statement from an RDP or other person competent in the subject area of the application as to the equivalency of the proposed modification. In addition, the building official may require the application to include construction documents sealed by an RDP.

E. Section 106.3.2 Use of performance code. Compliance with the provisions of a nationally recognized performance code when approved as a modification shall be considered to constitute compliance with this code. All documents submitted as part of such consideration shall be retained in the permanent records of the local building department.

13VAC5-63-70. Section 107 Fees.

A. Section 107.1 Authority for charging fees. In accordance with § 36-105 of the Code of Virginia, fees may be levied by the local governing body in order to defray the cost of enforcement of the USBC.

Note: See subsection D of § 36-105 of the Code of Virginia for rules for permit fees involving property with easements or liens.

B. Section 107.1.1 Fee schedule. The local governing body shall establish a fee schedule incorporating unit rates, which may be based on square footage, cubic footage, estimated cost of construction or other appropriate criteria. A permit or any amendments to an existing permit shall not be issued until the designated fees have been paid, except that the building official may authorize the delayed payment of fees.

C. Section 107.1.2 Refunds. When requested in writing by a permit holder, the locality shall provide a fee refund in the case of the revocation of a permit or the abandonment or discontinuance of a building project. The refund shall not be required to exceed an amount which correlates to work not completed.

D. Section 107.1.3 Fees for generators used with amusement devices. Fees for generators and associated wiring used with amusement devices shall only be charged under the Virginia Amusement Device Regulations (13VAC5-31).

E. Section 107.2 Code academy fee levy. In accordance with subdivision 7 of § 36-137 of the Code of Virginia, the local building department shall collect a 2.0% levy of fees charged for permits issued under this code and transmit it quarterly to DHCD to support training programs of the Virginia Building Code Academy. Localities that maintain individual or regional training academies accredited by DHCD shall retain such levy.

13VAC5-63-80. Section 108 Application for permit.

A. Section 108.1 When applications are required. Application for a permit shall be made to the building official and a permit shall be obtained prior to the commencement of any of the following activities, except that applications for emergency construction, alterations or equipment replacement shall be submitted by the end of the first working day that follows the day such work commences. In addition, the building official may authorize work to commence pending the receipt of an application or the issuance of a permit.

1. Construction or demolition of a building or structure. Installations or alterations involving (i) the removal or addition of any wall, partition or portion thereof, (ii) any structural component, (iii) the repair or replacement of any required component of a fire or smoke rated assembly, (iv) the alteration of any required means of egress system, (v) water supply and distribution system, sanitary drainage system or vent system, (vi) electric wiring, (vii) fire protection system, mechanical systems, or fuel supply systems, or (viii) any equipment regulated by the USBC.

2. For change of occupancy, application for a permit shall be made when a new certificate of occupancy is required by the VEBC.

3. Movement of a lot line that increases the hazard to or decreases the level of safety of an existing building or structure in comparison to the building code under which such building or structure was constructed.

4. Removal or disturbing of any asbestos containing materials during the construction or demolition of a building or structure, including additions.

B. Section 108.2 Exemptions from application for permit. Notwithstanding the requirements of Section 108.1, application for a permit and any related inspections shall not be required for the following; however, this section shall not be construed to exempt such activities from other applicable requirements of this code. In addition, when an owner or an owner's agent requests that a permit be issued for any of the following, then a permit shall be issued and any related inspections shall be required.

1. Installation of wiring and equipment that (i) operates at less than 50 volts, (ii) is for broadband communications systems, (iii) is exempt under Section 102.3(1) or 102.3(4), or (iv) is for monitoring or automation systems in dwelling units, except when any such installations are located in a plenum, penetrate fire rated or smoke protected construction or are a component of any of the following:

- 1.1. Fire alarm system.

- 1.2. Fire detection system.

- 1.3. Fire suppression system.

- 1.4. Smoke control system.

- 1.5. Fire protection supervisory system.

- 1.6. Elevator fire safety control system.

- 1.7. Access or egress control system or delayed egress locking or latching system.

- 1.8. Fire damper.

1.9. Door control system.

2. One story detached structures used as tool and storage sheds, playhouses or similar uses, provided the building area does not exceed 256 square feet (23.78 m²) and the structures are not classified as a Group F-1 or H occupancy.

3. Detached prefabricated buildings housing the equipment of a publicly regulated utility service, provided the floor area does not exceed 150 square feet (14 m²).

4. Tents or air-supported structures, or both, that cover an area of 900 square feet (84 m²) or less, including within that area all connecting areas or spaces with a common means of egress or entrance, provided such tents or structures have an occupant load of 50 or less persons.

5. Fences of any height unless required for pedestrian safety as provided for by Section 3306, or used for the barrier for a swimming pool.

6. Concrete or masonry walls, provided such walls do not exceed six feet in height above the finished grade. Ornamental column caps shall not be considered to contribute to the height of the wall and shall be permitted to extend above the six feet height measurement.

7. Retaining walls supporting less than three feet of unbalanced fill that are not constructed for the purpose of impounding Class I, II or III-A liquids or supporting a surcharge other than ordinary unbalanced fill.

8. Swimming pools that have a surface area not greater than 150 square feet (13.95 m²), do not exceed 5,000 gallons (19 000 L) and are less than 24 inches (610 mm) deep.

9. Signs under the conditions in Section H101.2 of Appendix H.

10. Replacement of above-ground existing LP-gas containers of the same capacity in the same location and associated regulators when installed by the serving gas supplier.

11. Flagpoles 30 feet (9144 mm) or less in height.

12. Temporary ramps serving dwelling units in Group R-3 and R-5 occupancies where the height of the entrance served by the ramp is no more than 30 inches (762 mm) above grade.

13. Construction work deemed by the building official to be minor and ordinary and which does not adversely affect public health or general safety.

14. Ordinary repairs that include the following:

14.1. Replacement of windows and doors with windows and doors of similar operation and opening dimensions that do not require changes to the existing framed opening and that are not required to be fire rated in Group R-2 where serving a single dwelling unit and in Groups R-3, R-4 and R-5.

14.2. Replacement of plumbing fixtures and well pumps in all groups without alteration of the water supply and distribution systems, sanitary drainage systems or vent systems.

14.3. Replacement of general use snap switches, dimmer and control switches, 125 volt-15 or 20 ampere receptacles, luminaires (lighting fixtures) and ceiling (paddle) fans in Group R-2 where serving a single dwelling unit and in Groups R-3, R-4 and R-5.

14.4. Replacement of mechanical appliances provided such equipment is not fueled by gas or oil in Group R-2 where serving a single-family dwelling and in Groups R-3, R-4 and R-5.

14.5. Replacement of an unlimited amount of roof covering or siding in Groups R-3, R-4 or R-5 provided the building or structure is not in an area where the nominal design wind speed is greater than 100 miles per hour (44.7 meters per second) and replacement of 100 square feet (9.29 m²) or less of roof covering in all groups and all wind zones.

14.6. Replacement of 256 square feet 23.78 m² or less of roof decking in Groups R-3, R-4 or R-5 unless the decking to be replaced was required at the time of original construction to be fire-retardant-treated or protected in some other way to form a fire-rated wall termination.

14.7. Installation or replacement of floor finishes in all occupancies.

14.8. Replacement of Class C interior wall or ceiling finishes installed in Groups A, E and I and replacement of all classes of interior wall or ceiling finishes in other groups.

14.9. Installation or replacement of cabinetry or trim.

14.10. Application of paint or wallpaper.

14.11. Other repair work deemed by the building official to be minor and ordinary which does not adversely affect public health or general safety.

15. Crypts, mausoleums, and columbaria structures not exceeding 1500 square feet (139.35 m²) in area if the building or structure is not for occupancy and used solely for the interment of human or animal remains and is not subject to special inspections.

16. Billboard safety upgrades to add or replace steel catwalks, steel ladders, or steel safety cable.

Exceptions:

1. Application for a permit may be required by the building official for the installation of replacement siding, roofing and windows in buildings within a historic district designated by a locality pursuant to § 15.2-2306 of the Code of Virginia.

2. Application for a permit may be required by the building official for any items exempted in this section which are located in a special flood hazard area.

C. Section 108.3 Applicant information, processing by mail. Application for a permit shall be made by the owner or lessee of the relevant property or the agent of either or by the RDP, contractor or subcontractor associated with the work or any of their agents. The full name and address of the owner, lessee and applicant shall be provided in the application. If the owner or lessee is a corporate body, when and to the extent determined necessary by the building official, the full name and address of the responsible officers shall also be provided.

A permit application may be submitted by mail and such permit applications shall be processed by mail, unless the permit applicant voluntarily chooses otherwise. In no case shall an applicant be required to appear in person.

The building official may accept applications for a permit through electronic submissions provided the information required by this section is obtained.

D. Section 108.4 Prerequisites to obtaining permit. In accordance with § 54.1-1111 of the Code of Virginia, any person applying to the building department for the construction, removal or improvement of any structure shall furnish prior to the issuance of the permit either (i) satisfactory proof to the building official that he is duly licensed or certified under the terms of Chapter 11 (§ 54.1-1000 et seq.) of Title 54.1 of the Code of Virginia to carry out or superintend the same or (ii) file a written statement, supported by an affidavit, that he is not subject to licensure or certification as a contractor or subcontractor pursuant to Chapter 11 of Title 54.1 of the Code of Virginia. The applicant shall also furnish satisfactory proof that the taxes or license fees required by any county, city, or town have been paid so as to be qualified to bid upon or contract for the work for which the permit has been applied.

E. Section 108.5 Mechanics' lien agent designation. In accordance with § 36-98.01 of the Code of Virginia, a building permit issued for any one-family or two-family residential dwelling shall at the time of issuance contain, at the request of the applicant, the name, mailing address, and telephone number of the mechanics' lien agent as defined in § 43-1 of the Code of Virginia. If the designation of a mechanics' lien agent is not so requested by the applicant, the building permit shall at the time of issuance state that none has been designated with the words "None Designated."

Note: In accordance with § 43-4.01A of the Code of Virginia, a permit may be amended after it has been initially issued to name a mechanics' lien agent or a new mechanics' lien agent.

F. Section 108.6 Application form, description of work. The application for a permit shall be submitted on a form or forms supplied by the local building department. The application shall contain a general description and location of the proposed work and such other information as determined necessary by the building official.

G. Section 108.7 Amendments to application. An application for a permit may be amended at any time prior to the completion of the work governed by the permit. Additional construction documents or other records may also be submitted in a like manner. All such submittals shall have the same effect as if filed with the original application for a permit and shall be retained in a like manner as the original filings.

H. Section 108.8 Time limitation of application. An application for a permit for any proposed work shall be deemed to have been abandoned six months after the date of filing unless such application has been pursued in good faith or a permit has been issued, except that the building official is authorized to grant one or more extensions of time if a justifiable cause is demonstrated.

13VAC5-63-90. Section 109 Construction documents.

A. Section 109.1 Submittal of documents. Construction documents shall be submitted with the application for a permit. The number of sets of such documents to be submitted shall be determined by the locality.

Construction documents for one- and two-family dwellings may have floor plans reversed provided an accompanying site plan is approved.

Exception: Construction documents do not need to be submitted when the building official determines the proposed work is of a minor nature.

Note: Information on the types of construction required to be designed by an RDP is included in the "Related Laws Package" available from DHCD.

B. Section 109.2 Site plan. When determined necessary by the building official, a site plan shall be submitted with the application for a permit. The site plan shall show to scale the size and location of all proposed construction, including any associated wells, septic tanks or drain fields. The site plan shall also show to scale the size and location of all existing structures on the site, the distances from lot lines to all proposed construction, the established street grades and the proposed finished grades. When determined necessary by the building official, the site plan shall contain the elevation of the lowest floor of any proposed buildings. The site plan shall also be drawn in accordance with an accurate boundary line survey. When the application for a permit is for demolition, the site plan shall show all construction to be demolished and the location and size of all existing structures that are to remain on the site.

Note: Site plans are generally not necessary for alterations, renovations, repairs or the installation of equipment.

C. Section 109.3 Engineering details. When determined necessary by the building official, construction documents shall include adequate detail of the structural, mechanical, plumbing or electrical components. Adequate detail may include computations, stress diagrams or other essential technical data and when proposed buildings are more than two stories in height, adequate detail may specifically be required to include where floor penetrations will be made for pipes, wires, conduits, and other components of the electrical, mechanical and plumbing systems and how such floor penetrations will be protected to maintain the required structural integrity or fire-resistance rating, or both. All engineered documents, including relevant computations, shall be sealed by the RDP responsible for the design.

D. Section 109.4 Examination of documents. The building official shall examine or cause to be examined all construction documents or site plans, or both, within a reasonable time after filing. If such documents or plans do not comply with the provisions of this code, the permit applicant shall be notified in writing of the reasons, which shall include any adverse construction document review comments or determinations that additional information or engineering details need to be submitted. The review of construction documents for new one- and two-family dwellings for determining compliance with the technical provisions of this code not relating to the site, location or soil conditions associated with the dwellings shall not be required when identical construction documents for identical dwellings have been previously approved in the same locality under the same edition of the code and such construction documents are on file with the local building department.

E. Section 109.4.1 Expedited construction document review. The building official may accept reports from an approved person or agency that the construction documents have been examined and conform to the requirements of the USBC and may establish requirements for the person or agency submitting such reports. In addition, where such reports have been submitted, the building official may expedite the issuance of the permit.

F. Section 109.5 Approval of construction documents. The approval of construction documents shall be limited to only those items within the scope of the USBC. Either the word "Approved" shall be stamped on all required sets of approved construction documents or an equivalent endorsement in writing shall be

provided. One set of the approved construction documents shall be retained for the records of the local building department and one set shall be kept at the building site and shall be available to the building official at all reasonable times.

G. Section 109.6 Phased approval. The building official is authorized to issue a permit for the construction of foundations or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

13VAC5-63-100. Section 110 Permits.

A. Section 110.1 Approval and issuance of permits. The building official shall examine or cause to be examined all applications for permits or amendments to such applications within a reasonable time after filing. If the applications or amendments do not comply with the provisions of this code or all pertinent laws and ordinances, the permit shall not be issued and the permit applicant shall be notified in writing of the reasons for not issuing the permit. If the application complies with the applicable requirements of this code, a permit shall be issued as soon as practicable. The issuance of permits shall not be delayed in an effort to control the pace of construction of new detached one- or two-family dwellings.

B. Section 110.2 Types of permits. Separate or combined permits may be required for different areas of construction such as building construction, plumbing, electrical, and mechanical work, or for special construction as determined appropriate by the locality. In addition, permits for two or more buildings or structures on the same lot may be combined. Annual permits may also be issued for any construction regulated by this code. The annual permit holder shall maintain a detailed record of all alterations made under the annual permit. Such record shall be available to the building official and shall be submitted to the local building department if requested by the building official.

C. Section 110.3 Asbestos inspection in buildings to be renovated or demolished; exceptions. In accordance with § 36-99.7 of the Code of Virginia, the local building department shall not issue a building permit allowing a building for which an initial building permit was issued before January 1, 1985, to be renovated or demolished until the local building department receives certification from the owner or his agent that the affected portions of the building have been inspected for the presence of asbestos by an individual licensed to perform such inspections pursuant to § 54.1-503 of the Code of Virginia and that no asbestos-containing materials were found or that appropriate response actions will be undertaken in accordance with the requirements of the Clean Air Act National Emission Standard for the Hazardous Air Pollutant (NESHAPS) (40 CFR Part 6, Subpart M), and the asbestos worker protection requirements established by the U.S. Occupational Safety and Health Administration for construction workers (29 CFR 1926.1101). Local educational agencies that are subject to the requirements established by the Environmental Protection Agency under the Asbestos Hazard Emergency Response Act (AHERA) shall also certify compliance with 40 CFR Part 763 and subsequent amendments thereto.

To meet the inspection requirements above, except with respect to schools, asbestos inspection of renovation projects consisting only of repair or replacement of roofing, floorcovering, or siding materials may be satisfied by a statement that the materials to be repaired or replaced are assumed to contain friable asbestos and that asbestos installation, removal, or encapsulation will be accomplished by a licensed asbestos contractor.

The provisions of this section shall not apply to single-family dwellings or residential housing with four or fewer units unless the renovation or demolition of such buildings is for commercial or public development

purposes. The provisions of this section shall not apply if the combined amount of regulated asbestos-containing material involved in the renovation or demolition is less than 260 linear feet on pipes or less than 160 square feet on other facility components or less than 35 cubic feet off facility components where the length or area could not be measured previously.

An abatement area shall not be reoccupied until the building official receives certification from the owner that the response actions have been completed and final clearances have been measured. The final clearance levels for reoccupancy of the abatement area shall be 0.01 or fewer asbestos fibers per cubic centimeter if determined by Phase Contrast Microscopy analysis (PCM) or 70 or fewer structures per square millimeter if determined by Transmission Electron Microscopy analysis (TEM).

D. Section 110.4 Fire apparatus access road requirements. The permit applicant shall be informed of any requirements for providing or maintaining fire apparatus access roads prior to the issuance of a building permit.

E. Section 110.5 Signature on and posting of permits; limitation of approval. The signature of the building official or authorized representative shall be on or affixed to every permit. A copy of the permit shall be posted on the construction site for public inspection until the work is completed. Such posting shall include the street or lot number, if one has been assigned, to be readable from a public way. In addition, each building or structure to which a street number has been assigned shall, upon completion, have the number displayed so as to be readable from the public way.

A permit shall be considered authority to proceed with construction in accordance with this code, the approved construction documents, the permit application and any approved amendments or modifications. The permit shall not be construed to otherwise authorize the omission or amendment of any provision of this code.

F. Section 110.6 Abandonment of work. A building official shall be permitted to revoke a permit if work on the site authorized by the permit is not commenced within six months after issuance of the permit, or if the authorized work on the site is suspended or abandoned for a period of six months after the permit is issued; however, permits issued for plumbing, electrical and mechanical work shall not be revoked if the building permit is still in effect. It shall be the responsibility of the permit applicant to prove to the building official that authorized work includes substantive progress, characterized by approved inspections as specified in Section 113.3 of at least one inspection within a period of six months or other evidence that would indicate substantial work has been performed. Upon written request, the building official may grant one or more extensions of time, not to exceed one year per extension.

G. Section 110.7 Single-family dwelling permits. The building official shall be permitted to require a three year time limit to complete construction of new detached single-family dwellings, additions to detached single-family dwellings and residential accessory structures. The time limit shall begin from the issuance date of the permit. The building official may grant extensions of time if the applicant can demonstrate substantive progress, characterized by approved inspections as specified in Section 113.3 of at least one inspection within a period of six months or other evidence that would indicate substantial work has been performed.

H. Section 110.8 Revocation of a permit. The building official may revoke a permit or approval issued under this code in the case of any false statement, misrepresentation of fact, abandonment of work, failure

to complete construction as required by Section 110.7 or incorrect information supplied by the applicant in the application or construction documents on which the permit or approval was based.

13VAC5-63-110. Section 111 RDP services.

A. Section 111.1 When required. In accordance with § 54.1-410 of the Code of Virginia and under the general authority of this code, the local building department shall establish a procedure to ensure that construction documents under Section 109 are prepared by an RDP in any case in which the exemptions contained in § 54.1-401, 54.1-402 or 54.1-402.1 of the Code of Virginia are not applicable or in any case where the building official determines it necessary. When required under § 54.1-402 of the Code of Virginia or when required by the building official, or both, construction documents shall bear the name and address of the author and his occupation.

Note: Information on the types of construction required to be designed by an RDP is included in the "Related Laws Package" available from DHCD.

B. Section 111.2 Special inspection requirements. Special inspections shall be conducted when required by Section 1704. Individuals or agencies, or both, conducting special inspections shall meet the qualification requirements of Sections 1703 and 1704.2.1. The permit applicant shall submit a completed statement of special inspections with the permit application. The building official shall review, and if satisfied that the requirements have been met, approve the statement of special inspections as required in Sections 1704.2.3 and 1705 as a requisite to the issuance of a building permit. The building official may require interim inspection reports. The building official shall receive, and if satisfied that the requirements have been met, approve a final report of special inspections as specified in Section 1704.2.4. All fees and costs related to the special inspections shall be the responsibility of the building owner.

13VAC5-63-120. Section 112 Workmanship, materials and equipment.

A. Section 112.1 General. It shall be the duty of any person performing work covered by this code to comply with all applicable provisions of this code and to perform and complete such work so as to secure the results intended by the USBC. Damage to regulated building components caused by violations of this code or by the use of faulty materials or installations shall be considered as separate violations of this code and shall be subject to the applicable provisions of Section 115.

B. Section 112.2 Alternative methods or materials. In accordance with § 36-99 of the Code of Virginia, where practical, the provisions of this code are stated in terms of required level of performance so as to facilitate the prompt acceptance of new building materials and methods. When generally recognized standards of performance are not available, this section and other applicable requirements of this code provide for acceptance of materials and methods whose performance is substantially equal in safety to those specified on the basis of reliable test and evaluation data presented by the proponent. In addition, as a requirement of this code, the building official shall require that sufficient technical data be submitted to substantiate the proposed use of any material, equipment, device, assembly or method of construction.

C. Section 112.3 Documentation and approval. In determining whether any material, equipment, device, assembly or method of construction complies with this code, the building official shall approve items listed by nationally recognized testing laboratories, when such items are listed for the intended use and application, and in addition, may consider the recommendations of RDPs. Approval shall be issued when the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code and that the material, equipment, device, assembly or method of construction offered is, for the purpose intended, at least the equivalent of that prescribed by the code. Such approval is subject to all applicable requirements of this code and the material, equipment, device, assembly or method of

construction shall be installed in accordance with the conditions of the approval and their listings. In addition, the building official may revoke such approval whenever it is discovered that such approval was issued in error or on the basis of incorrect information, or where there are repeated violations of the USBC.

D. Section 112.3.1 Conditions of listings. Where conflicts between this code and conditions of the listing or the manufacturer's installation instructions occur, the provisions of this code shall apply.

Exception: Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.

E. Section 112.4 Used material and equipment. Used materials, equipment and devices may be approved provided they have been reconditioned, tested or examined and found to be in good and proper working condition and acceptable for use by the building official.

F. Section 112.5 Defective materials. Notwithstanding any provision of this code to the contrary, where action has been taken and completed by the BHCD under subsection D of § 36-99 of the Code of Virginia establishing new performance standards for identified defective materials, this section sets forth the new performance standards addressing the prospective use of such materials and establishes remediation standards for the removal of any defective materials already installed, which when complied with enables the building official to certify that the building is deemed to comply with the edition of the USBC under which the building was originally constructed with respect to the remediation of the defective materials.

G. Section 112.5.1 Drywall, performance standard. All newly installed gypsum wallboard shall not be defective drywall as defined in Section 112.5.1.1.1.

H. Section 112.5.1.1 Remediation standards. The following provisions establish remediation standards where defective drywall was installed in buildings.

I. Section 112.5.1.1.1 Definition. For the purposes of this section the term "defective drywall" means gypsum wallboard that (i) contains elemental sulfur exceeding 10 parts per million that when exposed to heat or humidity, or both, emits volatile sulfur compounds in quantities that cause observable corrosion on electrical wiring, plumbing pipes, fuel gas lines, or HVAC equipment, or any components of the foregoing or (ii) has been designated by the U.S. Consumer Product Safety Commission as a product with a product defect that constitutes a substantial product hazard within the meaning of § 15(a)(2) of the Consumer Product Safety Act (15 USC § 2064(a)(2)).

J. Section 112.5.1.1.2 Permit. Application for a permit shall be made to the building official, and a permit shall be obtained prior to the commencement of remediation work undertaken to remove defective drywall from a building and for the removal, replacement, or repair of corroded electrical, plumbing, mechanical, or fuel gas equipment and components.

K. Section 112.5.1.1.3 Protocol. Where remediation of defective drywall is undertaken, the following standards shall be met. The building official shall be permitted to consider and approve modifications to these standards in accordance with Section 106.3.

L. Section 112.5.1.1.3.1 Drywall. Drywall in the building, whether defective or nondefective, shall be removed and discarded, including fasteners that held any defective drywall to prevent small pieces of drywall from remaining under fasteners.

Exceptions:

1. Nondefective drywall not subject to the corrosive effects of any defective drywall shall be permitted to be left in place in buildings where the defective drywall is limited to a defined room or space or isolated from the rest of the building and the defective drywall can be positively identified. If the room or space containing the defective drywall also contains any nondefective drywall, the nondefective drywall in that room or space shall also be removed.
2. In multifamily buildings where defective drywall was not used in the firewalls between units and there are no affected building systems behind the firewalls, the firewalls shall be permitted to be left in place.

M. Section 112.5.1.1.3.2 Insulation and other building components. Insulation in walls and ceilings shall be removed and discarded. Carpet and vinyl flooring shall be removed and discarded. Woodwork, trim, cabinets, and tile or wood floors may be left in place or may be reused.

Exceptions:

1. Closed-cell foam insulation is permitted to be left in place if testing for off-gassing from defective drywall is negative, unless its removal is required to gain access.
2. Insulation, carpet, or vinyl flooring in areas not exposed to defective drywall or to the effects of defective drywall, may be left in place or reused.

N. Section 112.5.1.1.3.3 Electrical wiring, equipment, devices, and components. All electrical wiring regulated by this code shall be permitted to be left in place, but removal or cleaning of exposed ends of the wiring to reveal clean or uncorroded surfaces is required. All electrical equipment, devices, and components of the electrical system of the building regulated by this code shall be removed and discarded. This shall include all smoke detectors.

Exceptions:

1. Electrical equipment, devices, or components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused. Electrical equipment, devices, or components in areas exposed to the corrosive effects of defective drywall shall be cleaned, repaired, or replaced.
2. Cord and plug connected appliances are not subject to this code and, therefore, cannot be required to be removed or replaced.

Note: All low-voltage wiring associated with security systems, door bells, elevator controls, and other such components shall be removed and replaced or repaired.

O. Section 112.5.1.1.3.4 Plumbing and fuel gas piping, fittings, fixtures, and equipment. All copper fuel gas piping and all equipment utilizing fuel gas with copper, silver, or aluminum components shall be

removed and discarded. All copper plumbing pipes and fittings shall be removed and discarded. Plumbing fixtures with copper, silver, or aluminum components shall be removed and discarded.

Exception: Plumbing or fuel gas piping, fittings, fixtures, equipment, or components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused.

P. Section 112.5.1.1.3.5 Mechanical systems. All heating, air-conditioning, and ventilation system components, including but not limited to ductwork, air-handling units, furnaces, heat pumps, refrigerant lines, and thermostats and associated wiring, shall be removed and discarded.

Exception: Mechanical system components in areas not exposed to the corrosive effects of defective drywall shall be permitted to be left in place or reused.

Q. Section 112.5.1.1.3.6 Cleaning. Following the removal of all materials and components in accordance with Sections 112.5.1.1.3.1 through 112.5.1.1.3.5, the building shall be thoroughly cleaned to remove any particulate matter and dust.

R. Section 112.5.1.1.3.7 Airing out. Following cleaning in accordance with Section 112.5.1.1.3.6, the building shall be thoroughly aired out with the use of open windows and doors and fans.

S. Section 112.5.1.1.3.8 Pre-rebuilding clearance testing. Following the steps outlined above for removal of all materials and components, cleaning and airing out, a pre-rebuilding clearance test shall be conducted with the use of copper or silver coupons and the methodology outlined in the April 2, 2010, joint report by the Consumer Products Safety Commission and the Department of Housing and Urban Development "Interim Remediation Guidance for Homes with Corrosion from Problem Drywall" or with the use of a copper probe and dosimeter. The clearance testing shall confirm that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report, certifying compliance, shall be submitted to the building official.

Notes:

1. Where the building is served by a well and prior to conducting clearance tests, all outlets in piping served by the well should be capped or otherwise plugged to prevent contamination of the air sample.
2. To prevent siphoning and evaporation of the trap seals, fixtures should be capped or otherwise plugged to prevent sewer gases from contaminating the air sample.

T. Section 112.5.1.1.3.9 Testing agencies and personnel. Agencies and personnel performing pre-rebuilding or post-rebuilding clearance testing shall be independent of those responsible for all other remediation work and the agencies and personnel shall be appropriately certified or accredited by the Council of Engineering and Scientific Specialty Boards, the American Indoor Air Quality Council, or the World Safety Organization.

Exception: Testing agencies and personnel shall be accepted if certified by an RDP or if the agency employs an RDP to be in responsible charge of the work.

U. Section 112.5.1.1.3.10 Rebuilding standards. The rebuilding of the building shall comply with the edition of the USBC that was in effect when the building was originally built.

V. Section 112.5.1.1.3.11 Post-rebuilding clearance testing. A post-rebuilding clearance test prior to reoccupancy of the building or structure shall be conducted with the use of copper or silver coupons and the methodology outlined in the April 2, 2010, joint report by the Consumer Products Safety Commission and by the Department of Housing and Urban Development "Interim Remediation Guidance for Homes with Corrosion from Problem Drywall" or with the use of a copper probe and dosimeter. The clearance testing shall confirm that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report certifying compliance shall be submitted to the building official.

Notes:

1. Where the building is served by a well and prior to conducting clearance tests, all outlets in piping served by the well should be capped or otherwise plugged to prevent contamination of the air sample.
2. To prevent siphoning and evaporation of the trap seals, fixtures should be capped or otherwise plugged to prevent sewer gases from contaminating the air sample.

W. Section 112.5.1.1.4 Final approval by the building official. Once remediation has been completed in accordance with this section, a certificate or letter of approval shall be issued by the building official. The certificate or letter shall state that the remediation and rebuilding is deemed to comply with this code.

X. Section 112.5.1.1.4.1 Approval of remediation occurring prior to these standards. The building official shall issue a certificate or letter of approval for remediation of defective drywall that occurred prior to the effective date of these standards provided post-rebuilding clearance testing has been performed in accordance with Section 112.5.1.1.3.11, by agencies and personnel complying with Section 112.5.1.1.3.9, and the clearance testing confirms that all airborne compounds associated with the defective drywall are at usual environmental background levels. The clearance testing report certifying compliance shall be submitted to the building official.

13VAC5-63-130. Section 113 Inspections.

A. Section 113.1 General. In accordance with § 36-105 of the Code of Virginia, any building or structure may be inspected at any time before completion, and shall not be deemed in compliance until approved by the inspecting authority. Where the construction cost is less than \$2,500, however, the inspection may, in the discretion of the inspecting authority, be waived. The building official shall coordinate all reports of inspections for compliance with the USBC, with inspections of fire and health officials delegated such authority, prior to the issuance of an occupancy permit.

B. Section 113.1.1 Equipment required. Any ladder, scaffolding or test equipment necessary to conduct or witness a requested inspection shall be provided by the permit holder.

C. Section 113.1.2 Duty to notify. When construction reaches a stage of completion that requires an inspection, the permit holder shall notify the building official.

D. Section 113.1.3 Duty to inspect. Except as provided for in Section 113.7, the building official shall perform the requested inspection in accordance with Section 113.6 when notified in accordance with Section 113.1.2.

E. Section 113.2 Prerequisites. The building official may conduct a site inspection prior to issuing a permit. When conducting inspections pursuant to this code, all personnel shall carry proper credentials.

F. Section 113.3 Minimum inspections. The following minimum inspections shall be conducted by the building official when applicable to the construction or permit:

1. Inspection of footing excavations and reinforcement material for concrete footings prior to the placement of concrete.
2. Inspection of foundation systems during phases of construction necessary to assure compliance with this code.
3. Inspection of preparatory work prior to the placement of concrete.
4. Inspection of structural members and fasteners prior to concealment.
5. Inspection of electrical, mechanical and plumbing materials, equipment and systems prior to concealment.
6. Inspection of energy conservation material prior to concealment.
7. Final inspection.

G. 113.3.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing Group R-5 occupancies, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with the IRC.
2. Vent or chimney systems are clean, free of any obstruction or blockages, defects, or deterioration, and are in operable condition. Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

H. Section 113.4 Additional inspections. The building official may designate additional inspections and tests to be conducted during the construction of a building or structure and shall so notify the permit holder.

I. Section 113.5 In-plant and factory inspections. When required by the provisions of this code, materials, equipment or assemblies shall be inspected at the point of manufacture or fabrication. The building official shall require the submittal of an evaluation report of such materials, equipment or assemblies. The evaluation report shall indicate the complete details of the assembly including a description of the assembly and its components, and describe the basis upon which the assembly is being evaluated. In addition, test results and other data as necessary for the building official to determine conformance with the USBC shall be submitted. For factory inspections, an identifying label or stamp permanently affixed to materials, equipment or assemblies indicating that a factory inspection has been made shall be acceptable instead of a written inspection report, provided the intent or meaning of such identifying label or stamp is properly substantiated.

J. Section 113.6 Approval or notice of defective work. The building official shall either approve the work in writing or give written notice of defective work to the permit holder. Upon request of the permit holder, the notice shall reference the USBC section that serves as the basis for the defects and such defects shall be

corrected and reinspected before any work proceeds that would conceal such defects. A record of all reports of inspections, tests, examinations, discrepancies and approvals issued shall be maintained by the building official and shall be communicated promptly in writing to the permit holder. Approval issued under this section may be revoked whenever it is discovered that such approval was issued in error or on the basis of incorrect information, or where there are repeated violations of the USBC. Notices issued pursuant to this section shall be permitted to be communicated electronically, provided the notice is reasonably calculated to get to the permit holder.

K. Section 113.7 Approved inspection agencies. The building official may accept reports of inspections and tests from individuals or inspection agencies approved in accordance with the building official's written policy required by Section 113.7.1. The individual or inspection agency shall meet the qualifications and reliability requirements established by the written policy. Under circumstances where the building official is unable to make the inspection or test required by Section 113.3 or 113.4 within two working days of a request or an agreed upon date or if authorized for other circumstances in the building official's written policy, the building official shall accept reports for review. The building official shall approve the report from such approved individuals or agencies unless there is cause to reject it. Failure to approve a report shall be in writing within two working days of receiving it stating the reason for the rejection. Reports of inspections conducted by approved third-party inspectors or agencies shall be in writing, shall indicate if compliance with the applicable provisions of the USBC have been met and shall be certified by the individual inspector or by the responsible officer when the report is from an agency.

Exception: The licensed mechanical contractor installing the mechanical system shall be permitted to perform duct tests required by Section R403.3.3 of the IECC or Section N1103.3.3 of the IRC. The contractor shall have been trained on the equipment used to perform the test.

Note: Photographs, videotapes or other sources of pertinent data or information may be considered as constituting such reports and tests.

L. Section 113.7.1 Third-party inspectors. Each building official charged with the enforcement of the USBC shall have a written policy establishing the minimum acceptable qualifications for third-party inspectors. The policy shall include the format and time frame required for submission of reports, any prequalification or preapproval requirements before conducting a third-party inspection and any other requirements and procedures established by the building official.

M. Section 113.7.2 Qualifications. In determining third-party inspector qualifications, the building official may consider such items as DHCD inspector certification, other state or national certifications, state professional registrations, related experience, education and any other factors that would demonstrate competency and reliability to conduct inspections.

N. Section 113.8 Final inspection. Upon completion of a building or structure and before the issuance of a certificate of occupancy, a final inspection shall be conducted to ensure that any defective work has been corrected and that all work complies with the USBC and has been approved, including any work associated with modifications under Section 106.3. The building official shall be permitted to require the electrical service to a building or structure to be energized prior to conducting the final inspection. The approval of a final inspection shall be permitted to serve as the new certificate of occupancy required by Section 116.1 in the case of additions or alterations to existing buildings or structures that already have a certificate of occupancy.

13VAC5-63-140. Section 114 Stop work orders.

A. Section 114.1 Issuance of order. When the building official finds that work on any building or structure is being executed contrary to the provisions of this code or any pertinent laws or ordinances, or in a manner endangering the general public, a written stop work order may be issued. The order shall identify the nature of the work to be stopped and be given either to the owner of the property involved, to the owner's agent or to the person performing the work. Following the issuance of such an order, the affected work shall cease immediately. The order shall state the conditions under which such work may be resumed.

B. Section 114.2 Limitation of order. A stop work order shall apply only to the work identified in the order, provided that other work on the building or structure may be continued if not concealing the work covered by the order.

13VAC5-63-150. Section 115 Violations.

A. Section 115.1 Violation a misdemeanor; civil penalty. In accordance with § 36-106 of the Code of Virginia, it shall be unlawful for any owner or any other person, firm or corporation, on or after the effective date of any code provisions, to violate any such provisions. Any locality may adopt an ordinance that establishes a uniform schedule of civil penalties for violations of specified provisions of the code that are not abated or remedied promptly after receipt of a notice of violation from the local enforcement officer.

Note: See the full text of § 36-106 of the Code of Virginia for additional requirements and criteria pertaining to legal action relative to violations of the code.

B. Section 115.2 Notice of violation. The building official shall issue a written notice of violation to the responsible party if any violations of this code or any directives or orders of the building official have not been corrected or complied with in a reasonable time. The notice shall reference the code section or sections upon which the notice is based and direct the correction of the violation or the compliance with such directive or order and specify a reasonable time period within which the corrections or compliance must occur. The notice shall be issued by either delivering a copy to the responsible party by mail to the last known address or delivering the notice in person or by leaving it in the possession of any person in charge of the premises, or by posting the notice in a conspicuous place if the person in charge of the premises cannot be found. The notice of violation shall indicate the right of appeal by referencing the appeals section. When the owner of the building or structure, or the permit holder for the construction in question, or the tenants of such building or structure, are not the responsible party to whom the notice of violation is issued, then a copy of the notice shall also be delivered to the such owner, permit holder or tenants.

Note: A notice of unsafe building or structure for structures that become unsafe during the construction process are issued in accordance with Section 118.

C. Section 115.2.1 Notice not to be issued under certain circumstances. When violations are discovered more than two years after the certificate of occupancy is issued or the date of initial occupancy, whichever occurred later, or more than two years after the approved final inspection for an alteration or renovation, a notice of violation shall only be issued upon advice from the legal counsel of the locality that action may be taken to compel correction of the violation. When compliance can no longer be compelled by prosecution under § 36-106 of the Code of Virginia, the building official, when requested by the building owner, shall document in writing the existence of the violation noting the edition of the USBC the violation is under.

D. Section 115.3 Further action when violation not corrected. If the responsible party has not complied with the notice of violation, the building official may initiate legal proceedings by requesting the legal counsel

of the locality to institute the appropriate legal proceedings to restrain, correct or abate the violation or to require the removal or termination of the use of the building or structure involved. In cases where the locality so authorizes, the building official may issue or obtain a summons or warrant. Compliance with a notice of violation notwithstanding, the building official may request legal proceedings be instituted for prosecution when a person, firm or corporation is served with three or more notices of violation within one calendar year for failure to obtain a required construction permit prior to commencement of work subject to this code.

Note: See § 19.2-8 of the Code of Virginia concerning the statute of limitations for building code prosecutions.

E. Section 115.4 Penalties and abatement. Penalties for violations of the USBC shall be as set out in § 36-106 of the Code of Virginia. The successful prosecution of a violation of the USBC shall not preclude the institution of appropriate legal action to require correction or abatement of a violation.

F. Section 115.5 Transfer of ownership. In accordance with § 36-105 of the Code of Virginia, if the local building department has initiated an enforcement action against the owner of a building or structure and such owner subsequently transfers the ownership of the building or structure to an entity in which the owner holds an ownership interest greater than 50%, the pending enforcement action shall continue to be enforced against the owner.

13VAC5-63-160. Section 116 Certificates of occupancy.

A. Section 116.1 General; when to be issued. A certificate of occupancy indicating completion of the work for which a permit was issued shall be obtained prior to the occupancy of any building or structure, except as provided for in this section generally and as specifically provided for in Section 113.8 for additions or alterations. The certificate shall be issued after completion of the final inspection and when the building or structure is in compliance with this code and any pertinent laws or ordinances, or when otherwise entitled. The building official shall, however, issue a certificate of occupancy within five working days after being requested to do so, provided the building or structure meets all of the requirements for a certificate.

Exception: A certificate of occupancy is not required for an accessory structure as defined in the IRC.

B. Section 116.1.1 Temporary certificate of occupancy. Upon the request of a permit holder, a temporary certificate of occupancy may be issued before the completion of the work covered by a permit, provided that such portion or portions of a building or structure may be occupied safely prior to full completion of the building or structure without endangering life or public safety.

C. Section 116.2 Contents of certificate. A certificate of occupancy shall specify the following:

1. The edition of the USBC under which the permit is issued.
2. The group classification and occupancy in accordance with the provisions of Chapter 3.
3. The type of construction as defined in Chapter 6.
4. If an automatic sprinkler system is provided and whether or not such system was required.

5. Any special stipulations and conditions of the building permit and if any modifications were issued under the permit, there shall be a notation on the certificate that modifications were issued.

6. Group R-5 occupancies complying with Section R320.2 of the IRC shall have a notation of compliance with that section on the certificate.

D. Section 116.3 Suspension or revocation of certificate. A certificate of occupancy may be revoked or suspended whenever the building official discovers that such certificate was issued in error or on the basis of incorrect information, or where there are repeated violations of the USBC after the certificate has been issued or when requested by the code official under Section 106.7 of the VMC. The revocation or suspension shall be in writing and shall state the necessary corrections or conditions for the certificate to be reissued or reinstated in accordance with Section 116.3.1.

E. Section 116.3.1 Reissuance or reinstatement of certificate of occupancy. When a certificate of occupancy has been revoked or suspended, it shall be reissued or reinstated upon correction of the specific condition or conditions cited as the cause of the revocation or suspension and the revocation or suspension of a certificate of occupancy shall not be used as justification for requiring a building or structure to be subject to a later edition of the code than that under which such building or structure was initially constructed.

F. Section 116.4 Issuance of certificate for pre-USBC buildings or structures. When a building or structure was constructed prior to being subject to the initial edition of the USBC and the local building department does not have a certificate of occupancy for the building or structure, the owner or owner's agent may submit a written request for a certificate to be created. The building official, after receipt of the request, shall issue a certificate provided a determination is made that there are no current violations of the VMC or the Virginia Statewide Fire Prevention Code (13VAC5-51) and the occupancy classification of the building or structure has not changed. Such buildings and structures shall not be prevented from ~~Occupied~~ ^{Exception} use. When no certificate exists, but the local building department has records indicating that a certificate did exist, then the building official may either verify in writing that a certificate did exist or issue a certificate based upon the records.

13VAC5-63-170. Section 117 Temporary and moved buildings and structures; demolition.

A. Section 117.1 Temporary buildings and structures. The building official is authorized to issue a permit for temporary buildings or structures. Such permits shall be limited as to time of service, but shall not be permitted for more than one year, except that upon the permit holder's written request, the building official may grant one or more extensions of time, not to exceed one year per extension. The building official is authorized to terminate the approval and order the demolition or removal of temporary buildings or structures during the period authorized by the permit when determined necessary.

B. Section 117.1.1 Temporary uses within existing buildings and structures. The building official shall review and may approve conditions or modifications for temporary uses, including hypothermia and hyperthermia shelters, that may be necessary as long as the use meets the spirit and functional intent intended by this code. The building official is authorized to terminate the approval and order the discontinuance of the temporary use during the period authorized by the permit when determined necessary. The building official shall notify the appropriate fire official or fire chief of the approved temporary use.

C. Section 117.2 Moved buildings and structures. Any building or structure moved into a locality or moved to a new location within a locality shall not be occupied or used until a certificate of occupancy is issued

for the new location. Such moved buildings or structures shall be required to comply with the requirements of the VEBC.

D. Section 117.3 Demolition of buildings and structures. Prior to the issuance of a permit for the demolition of any building or structure, the owner or the owner's agent shall provide certification to the building official that all service connections of utilities have been removed, sealed or plugged satisfactorily and a release has been obtained from the associated utility company. The certification shall further provide that written notice has been given to the owners of adjoining lots and any other lots that may be affected by the temporary removal of utility wires or the temporary disconnection or termination of other services or facilities relative to the demolition. In addition, the requirements of Chapter 33 of the IBC for any necessary retaining walls or fences during demolition shall be applicable and when a building or structure is demolished or removed, the established grades shall be restored.

13VAC5-63-180. Section 118 Unsafe buildings or structures.

A. Section 118.1 Applicability. This section applies to unsafe buildings or structures.

Note: Existing buildings and structures other than those under construction or subject to this section are subject to the VMC, which also has requirements for unsafe conditions.

B. Section 118.2 Repair or removal of unsafe buildings or structures. Any unsafe building or structure shall be made safe through compliance with this code or shall be taken down and removed if determined necessary by the building official.

C. Section 118.3 Inspection report. The building official shall inspect any reported unsafe building or structure and shall prepare a report to be filed in the records of the local building department. In addition to a description of any unsafe conditions found, the report shall include the occupancy classification of the building or structure and the nature and extent of any damages caused by collapse or failure of any building components.

D. Section 118.4 Notice of unsafe building or structure. When a building or structure is determined by the building official to be an unsafe building or structure, a written notice of unsafe building or structure shall be issued by personal service to the owner, the owner's agent, or the person in control of such building or structure. The notice shall specify the corrections necessary to comply with this code and specify the time period within which the repairs must occur, or if the notice specifies that the unsafe building or structure is required to be demolished, the notice shall specify the time period within which demolition must occur.

Note: Whenever possible, the notice should also be given to any tenants or occupants of the unsafe building or structure.

E. Section 118.4.1 Vacating unsafe building or structure. If the building official determines there is actual and immediate danger to the occupants or public, or when life is endangered by the occupancy of an unsafe building or structure, the building official shall be authorized to order the occupants to immediately vacate

the unsafe building or structure. When an unsafe building or structure is ordered to be vacated, the building official shall post a notice at each entrance that reads as follows:

"This Building (or Structure) is Unsafe and its Occupancy (or Use) is Prohibited by the Building Official."

After posting, occupancy or use of the unsafe building or structure shall be prohibited except when authorized to enter to conduct inspections, make required repairs, or as necessary to demolish the building or structure.

F. Section 118.5 Posting of notice. If the notice is unable to be issued by personal service as required by Section 118.4, then the notice shall be sent by registered or certified mail to the last known address of the responsible party and a copy of the notice shall be posted in a conspicuous place on the premises.

G. Section 118.6 Posting of placard. In the case of an unsafe building or structure, if the notice is not complied with, a placard with the following wording shall be posted at the entrance to the building or structure:

"This Building (or Structure) is Unfit for Habitation and its Use or Occupancy has been Prohibited by the Building Official."

After an unsafe building or structure is placarded, entering the unsafe building or structure shall be prohibited except as authorized by the building official to make inspections, to perform required repairs, or to demolish the unsafe building or structure. In addition, the placard shall not be removed until the unsafe building or structure is determined by the building official to be safe to occupy. The placard shall not be defaced.

H. Section 118.7 Emergency repairs and demolition. To the extent permitted by the locality, the building official may authorize emergency repairs to unsafe buildings or structures when it is determined that there is an immediate danger of any portion of the unsafe building or structure collapsing or falling and when life is endangered. Emergency repairs may also be authorized when there is a code violation resulting in a serious and imminent threat to the life and safety of the occupants or public. The building official shall be permitted to authorize the necessary work to make the unsafe building or structure temporarily safe whether or not legal action to compel compliance has been instituted.

In addition, whenever an owner of an unsafe building or structure fails to comply with a notice to demolish issued under Section 118.4 in the time period stipulated, the building official shall be permitted to cause the unsafe building or structure to be demolished. In accordance with §§ 15.2-906 and 15.2-1115 of the Code of Virginia, the legal counsel of the locality may be requested to institute appropriate action against the property owner to recover the costs associated with any such emergency repairs or demolition and every such charge that remains unpaid shall constitute a lien against the property on which the emergency repairs or demolition were made and shall be enforceable in the same manner as provided in Articles 3 (§ 58.1-3940 et seq.) and 4 (§ 58.1-3965 et seq.) of Chapter 39 of Title 58.1 of the Code of Virginia.

Note: Building officials and local governing bodies should be aware that other statutes and court decisions may impact on matters relating to demolition, in particular whether newspaper publication is required if the owner cannot be located and whether the demolition order must be delayed until the owner has been given the opportunity for a hearing.

I. Section 118.8 Closing of streets. When necessary for public safety, the building official shall be permitted to order the temporary closing of sidewalks, streets, public ways, or premises adjacent to unsafe buildings or structures and prohibit the use of such spaces.

13VAC5-63-190. Section 119 Appeals.

A. Section 119.1 Establishment of appeals board. In accordance with § 36-105 of the Code of Virginia, there shall be established within each local building department a LBBCA. Whenever a county or a municipality does not have such a LBBCA, the local governing body shall enter into an agreement with the local governing body of another county or municipality or with some other agency, or a state agency approved by DHCD for such appeals resulting therefrom. Fees may be levied by the local governing body in order to defray the cost of such appeals. In addition, as an authorization in this code, separate LBBCAs may be established to hear appeals of different enforcement areas such as electrical, plumbing or mechanical requirements. Each such LBBCA shall comply with the requirements of this section. The locality is responsible for maintaining a duly constituted LBBCA prepared to hear appeals within the time limits established in this section. The LBBCA shall meet as necessary to assure a duly constituted board, appoint officers as necessary, and receive such training on the code as may be appropriate or necessary from staff of the locality.

B. Section 119.2 Membership of board. The LBBCA shall consist of at least five members appointed by the locality for a specific term of office established by written policy. Alternate members may be appointed to serve in the absence of any regular members and as such, shall have the full power and authority of the regular members. Regular and alternate members may be reappointed. Written records of current membership, including a record of the current chairman and secretary shall be maintained in the office of the locality. In order to provide continuity, the terms of the members may be of different length so that less than half will expire in any one-year period.

C. Section 119.3 Officers and qualifications of members. The LBBCA shall annually select one of its regular members to serve as chairman. When the chairman is not present at an appeal hearing, the members present shall select an acting chairman. The locality or the chief executive officer of the locality shall appoint a secretary to the LBBCA to maintain a detailed record of all proceedings. Members of the LBBCA shall be selected by the locality on the basis of their ability to render fair and competent decisions regarding application of the USBC and shall to the extent possible, represent different occupational or professional fields relating to the construction industry. At least one member should be an experienced builder; at least one member should be an RDP, and at least one member should be an experienced property manager. Employees or officials of the locality shall not serve as members of the LBBCA.

D. Section 119.4 Conduct of members. No member shall hear an appeal in which that member has a conflict of interest in accordance with the State and Local Government Conflict of Interests Act (§ 2.2-3100 et seq. of the Code of Virginia). Members shall not discuss the substance of an appeal with any other party or their representatives prior to any hearings.

E. Section 119.5 Right of appeal; filing of appeal application. Any person aggrieved by the local building department's application of the USBC or the refusal to grant a modification to the provisions of the USBC may appeal to the LBBCA. The applicant shall submit a written request for appeal to the LBBCA within 30 calendar days of the receipt of the decision being appealed. The application shall contain the name and address of the owner of the building or structure and in addition, the name and address of the person appealing, when the applicant is not the owner. A copy of the building official's decision shall be submitted along with the application for appeal and maintained as part of the record. The application shall be marked

by the LBBCA to indicate the date received. Failure to submit an application for appeal within the time limit established by this section shall constitute acceptance of a building official's decision.

Note: To the extent that a decision of a building official pertains to amusement devices there may be a right of appeal under the VADR.

F. Section 119.6 Meetings and postponements. The LBBCA shall meet within 30 calendar days after the date of receipt of the application for appeal, except that a period of up to 45 calendar days shall be permitted where the LBBCA has regularly scheduled monthly meetings. A longer time period shall be permitted if agreed to by all the parties involved in the appeal. A notice indicating the time and place of the hearing shall be sent to the parties in writing to the addresses listed on the application at least 14 calendar days prior to the date of the hearing, except that a lesser time period shall be permitted if agreed to by all the parties involved in the appeal. When a quorum of the LBBCA is not present at a hearing to hear an appeal, any party involved in the appeal shall have the right to request a postponement of the hearing. The LBBCA shall reschedule the appeal within 30 calendar days of the postponement, except that a longer time period shall be permitted if agreed to by all the parties involved in the appeal.

G. Section 119.7 Hearings and decision. All hearings before the LBBCA shall be open meetings and the appellant, the appellant's representative, the locality's representative and any person whose interests are affected by the building official's decision in question shall be given an opportunity to be heard. The chairman shall have the power and duty to direct the hearing, rule upon the acceptance of evidence and oversee the record of all proceedings. The LBBCA shall have the power to uphold, reverse or modify the decision of the official by a concurring vote of a majority of those present. Decisions of the LBBCA shall be final if no further appeal is made. The decision of the LBBCA shall be explained in writing, signed by the chairman and retained as part of the record of the appeal. Copies of the written decision shall be sent to all parties by certified mail. In addition, the written decision shall contain the following wording: "Any person who was a party to the appeal may appeal to the State Review Board by submitting an application to such Board within 21 calendar days upon receipt by certified mail of this decision. Application forms are available from the Office of the State Review Board, 600 East Main Street, Richmond, Virginia 23219, (804) 371-7150."

H. Section 119.8 Appeals to the State Review Board. After final determination by the LBBCA in an appeal, any person who was a party to the appeal may further appeal to the State Review Board. In accordance with § 36-98.2 of the Code of Virginia for state-owned buildings and structures, appeals by an involved state agency from the decision of the building official for state-owned buildings or structures shall be made directly to the State Review Board. The application for appeal shall be made to the State Review Board within 21 calendar days of the receipt of the decision to be appealed. Failure to submit an application within that time limit shall constitute an acceptance of the building official's decision. For appeals from a LBBCA, a copy of the building official's decision and the written decision of the LBBCA shall be submitted with the application for appeal to the State Review Board. Upon request by the office of the State Review Board, the LBBCA shall submit a copy of all pertinent information from the record of the appeal. In the case of appeals involving state-owned buildings or structures, the involved state agency shall submit a copy of the building official's decision and other relevant information with the application for appeal to the State Review Board. Procedures of the State Review Board are in accordance with Article 2 (§ 36-108 et seq.) of Chapter 6 of Title 36 of the Code of Virginia. Decisions of the State Review Board shall be final if no further appeal is made.

13VAC5-63-200. Chapter 2 Definitions.

A. Add the following definitions to Section 202 of the IBC to read:

Aboveground liquid fertilizer storage tank (ALFST). A device that contains an accumulation of liquid fertilizer (i) constructed of nonearthen materials, such as concrete, steel or plastic, that provide structural support; (ii) having a capacity of 100,000 gallons (378 500 L) or greater; and (iii) the volume of which is more than 90% above the surface of the ground. The term does not include any wastewater treatment or wastewater storage tank, utility or industry pollution control equipment.

Building regulations. Any law, rule, resolution, regulation, ordinance or code, general or special, or compilation thereof, heretofore or hereafter enacted or adopted by the Commonwealth or any county or municipality, including departments, boards, bureaus, commissions, or other agencies thereof, relating to construction, reconstruction, alteration, conversion, repair, maintenance, or use of structures and buildings and installation of equipment therein. The term does not include zoning ordinances or other land use controls that do not affect the manner of construction or materials to be used in the erection, alteration or repair of a building or structure.

Chemical fume hood. A ventilated enclosure designed to contain and exhaust fumes, gases, vapors, mists, and particulate matter generated within the hood.

Construction. The construction, reconstruction, alteration, repair, or conversion of buildings and structures.

Day-night average sound level (Ldn). A 24-hour energy average sound level expressed in dBA, with a 10 decibel penalty applied to noise occurring between 10 p.m. and 7 a.m.

DHCD. The Virginia Department of Housing and Community Development.

Emergency communication equipment. Emergency communication equipment, includes but is not limited to two-way radio communications, signal booster, bi-directional amplifiers, radiating cable systems, or internal multiple antenna, or a combination of the foregoing.

Emergency public safety personnel. Emergency public safety personnel includes firefighters, emergency medical personnel, law-enforcement officers, and other emergency public safety personnel routinely called upon to provide emergency assistance to members of the public in a wide variety of emergency situations, including but not limited to fires, medical emergencies, violent crimes, and terrorist attacks.

Equipment. Plumbing, heating, electrical, ventilating, air-conditioning and refrigeration equipment, elevators, dumbwaiters, escalators, and other mechanical additions or installations.

Farm building or structure. A building or structure not used for residential purposes, located on property where farming operations take place, and used primarily for any of the following uses or combination thereof:

1. Storage, handling, production, display, sampling or sale of agricultural, horticultural, floricultural or silvicultural products produced in the farm.
2. Sheltering, raising, handling, processing or sale of agricultural animals or agricultural animal products.
3. Business or office uses relating to the farm operations.
4. Use of farm machinery or equipment or maintenance or storage of vehicles, machinery or equipment on the farm.

5. Storage or use of supplies and materials used on the farm.

6. Implementation of best management practices associated with farm operations.

Hospice facility. An institution, place, or building owned or operated by a hospice provider and licensed by the Virginia Department of Health as a hospice facility to provide room, board, and palliative and supportive medical and other health services to terminally ill patients and their families, including respite and symptom management, on a 24-hour basis to individuals requiring such care pursuant to the orders of a physician.

Industrialized building. A combination of one or more sections or modules, subject to state regulations and including the necessary electrical, plumbing, heating, ventilating and other service systems, manufactured off-site and transported to the point of use for installation or erection, with or without other specified components, to comprise a finished building. Manufactured homes shall not be considered industrialized buildings for the purpose of this code.

Laboratory suite. A fire-rated enclosed laboratory area that will provide one or more laboratory spaces, within a Group B educational occupancy, that are permitted to include ancillary uses such as offices, bathrooms, and corridors that are contiguous with the laboratory area and are constructed in accordance with Section 430.3.

LBBCA. Local board of building code appeals.

Liquid fertilizer. A fluid in which a fertilizer is in true solution. This term does not include anhydrous ammonia or a solution used in pollution control.

Local building department. The agency or agencies of any local governing body charged with the administration, supervision, or enforcement of this code, approval of construction documents, inspection of buildings or structures, or issuance of permits, licenses, certificates or similar documents.

Local governing body. The governing body of any city, county or town in this Commonwealth.

Locality. A city, county or town in this Commonwealth.

Manufactured home. A structure subject to federal regulation, which is transportable in one or more sections; is eight body feet or more in width and 40 body feet or more in length in the traveling mode, or is 320 or more square feet when erected on site; is built on a permanent chassis; is designed to be used as a single-family dwelling, with or without a permanent foundation, when connected to the required utilities; and includes the plumbing, heating, air-conditioning, and electrical systems contained in the structure.

Marina. Any installation, operating under public or private ownership, that has a structure providing dockage or moorage for boats, other than paddleboats or rowboats, and provides, through sale, rental, fee, or on a free basis, any equipment, supply, or service, including fuel, electricity, or water, for the convenience of the public or its lessees, renters, or users of its facilities. A dock or pier with or without slips that exclusively serves a single-family residential lot for the use of the owner of the lot is not a marina.

Night club. Any building in which the main use is a place of public assembly that provides exhibition, performance or other forms of entertainment; serves alcoholic beverages; and provides music and space for dancing.

Permissible fireworks. Any sparklers, fountains, Pharaoh's serpents, caps for pistols, or pinwheels commonly known as whirligigs or spinning jennies.

Short-term holding area. An area containing a holding cell or cells, or a holding room or rooms, including associated rooms or spaces where the occupants are restrained or detained by the use of security measures not under the occupant's control for less than 24 hours.

Skirting. A weather-resistant material used to enclose the space from the bottom of the manufactured home to grade.

Slip. A berth or space where a boat may be secured to a fixed or floating structure, including a dock, finger pier, boat lift, or mooring buoy.

Sound transmission class (STC) rating. A single number characterizing the sound reduction performance of a material tested in accordance with ASTM E90-90, "Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions."

State regulated care facility (SRCF). A building with an occupancy in Group R-2, R-3, R-4 or R-5 occupied by persons in the care of others where program oversight is provided by the Virginia Department of Social Services, the Virginia Department of Behavioral Health and Developmental Services, the Virginia Department of Education or the Virginia Department of Juvenile Justice.

State Review Board. The Virginia State Building Code Technical Review Board as established under § 36-108 of the Code of Virginia.

Teaching and research laboratory. A building or portion of a building where hazardous materials are stored, used, and handled for the purpose of testing, analysis, teaching, research, or developmental activities on a nonproduction basis rather than in a manufacturing process.

Technical assistant. Any person employed by or under an extended contract to a local building department or local enforcing agency for enforcing the USBC, including but not limited to inspectors, plans reviewers and permit technicians. For the purpose of this definition, an extended contract shall be a contract with an aggregate term of 18 months or longer.

Tenable environmental. An environment in which the products of combustion, including smoke, toxic gases, particulates, and heat, are limited or otherwise restricted in order to maintain the impact on occupants, including those in the area of fire origin, to a level that is not life threatening and permits the rescue of occupants for a limited time.

Unsafe building or structure. Any building or structure that is under construction and has not received a permanent certificate of occupancy, final inspection, or for which a permit was never issued or has expired and has been determined by the building official to be of faulty construction that is so damaged, decayed, dilapidated, structurally unsafe, or of such faulty construction or unstable foundation that partial or complete collapse is likely, or any unfinished construction that does not have a valid permit, or the permit has been revoked, and the condition of the unfinished construction presents an immediate serious and imminent threat to the life and safety of the occupants or the public.

VADR. The Virginia Amusement Device Regulations (13VAC5-31).

VCS. The Virginia Certification Standards (13VAC5-21).

Working day. A day other than Saturday, Sunday or a legal local, state or national holiday.

B. Change the following definitions in Section 202 of the IBC to read:

Addition. An extension or increase in floor area, number of stories, or height of a building or structure.

Ambulatory care facility. Buildings or portions thereof used to provide medical care on less than a 24-hour basis that are licensed by the Virginia Department of Health as outpatient surgical hospitals.

Automatic fire-extinguishing system. An approved system of devices and equipment that automatically detects a fire and discharges an approved fire-extinguishing agent onto or in the area of a fire and includes among other systems an automatic sprinkler system, unless otherwise expressly stated.

Building. A combination of materials, whether portable or fixed, having a roof to form a structure for the use or occupancy by persons, or property. The word "building" shall be construed as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning. "Building" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.

For application of this code, each portion of a building that is completely separated from other portions by fire walls complying with Section 706 shall be considered as a separate building (see Section 503.1).

Change of occupancy. See Section 202 of the VNBC.

Clinic, outpatient. Buildings or portions thereof used to provide medical care on less than a 24-hour basis that are not licensed by the Virginia Department of Health as outpatient surgical hospitals.

Custodial care. Assistance with day-to-day living tasks, such as assistance with cooking, taking medication, bathing, using toilet facilities, and other tasks of daily living. In other than in hospice facilities, custodial care includes occupants that have the ability to respond to emergency situations and evacuate at a slower rate or who have mental and psychiatric complications, or both.

Existing structure. A structure (i) for which a legal building permit has been issued under any edition of the USBC, (ii) which has been previously approved, or (iii) which was built prior to the initial edition of the USBC. For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first flood plain management code, ordinance, or standard.

Owner. The owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee or lessee in control of a building or structure.

Registered Design Professional (RDP). An architect or professional engineer, licensed to practice architecture or engineering, as defined under § 54.1-400 of the Code of Virginia.

Substantial damage. For the purpose of determining compliance with the flood provisions of this code, damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

Substantial improvement. For the purpose of determining compliance with the flood provisions of this code, any improvement, including repair, reconstruction, rehabilitation, alteration, or addition, or other improvement of a building or structure or a portion thereof the cost of which equals or exceeds 50% of the

market value of the building or structure before the improvement or repair is started. If the building or structure or portion thereof has sustained substantial damage, any improvements are considered substantial improvements regardless of the actual improvement performed. The term does not, however, include either:

1. Any project for improvement of a building or a structure or portion thereof required to correct existing health, sanitary, or safety code violations identified by the building official and that is the minimum necessary to assure safe living conditions; or
2. Any alteration of a historic structure, provided that the alteration will not preclude the building or structure's continued designation as a historic building or structure.

Swimming pool. A pool or spa as defined in the International Swimming Pool and Spa Code (ISPSC).

Structure. An assembly of materials forming a construction for occupancy or use including stadiums, gospel and circus tents, reviewing stands, platforms, stagings, observation towers, radio towers, water tanks, storage tanks (underground and aboveground), trestles, piers, wharves, swimming pools, amusement devices, storage bins, and other structures of this general nature but excluding water wells. The word "structure" shall be construed as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning. "Structure" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.

C. Delete the following definitions from Section 202 of the IBC:

Agricultural, building

~~Approved~~

Historic buildings

13VAC5-63-210. Chapter 3 Use and occupancy classification.

A. Change Sections 303.1.1 and 303.1.2 of the IBC to read:

303.1.1 Small buildings and tenant spaces. A building or tenant space used for assembly purposes with an occupant load of less than 50 persons shall be permitted to be classified as a Group B occupancy.

303.1.2 Small assembly spaces. The following rooms and spaces shall be permitted to be classified as Group B occupancies or as part of the assembly occupancy:

1. A room or space used for assembly purposes with an occupant load of less than 50 persons and ancillary to another occupancy.
2. A room or space used for assembly purposes that is less than 750 square feet (70 m²) in area and ancillary to another occupancy.

B. Change Section 303.6 of the IBC to read:

303.6 Assembly Group A-5. Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures

Bleachers

Grandstands

Stadiums

Swimming pools

C. Add Section 304.1.1 to the IBC to read:

304.1.1 Day support and day treatment facilities. Day support and day treatment facilities licensed by the Virginia Department of Behavioral Health and Developmental Services shall be permitted to be classified as Group B occupancies provided all of the following conditions are met:

1. Participants who may require physical assistance from staff to respond to an emergency situation shall be located on the level of exit discharge.
2. Any change in elevation within the exit access on the level of exit discharge shall be made by means of a ramp or sloped walkway.
3. Where the facilities are located more than two stories above grade, an automatic sprinkler system shall be provided throughout the building in accordance with Section 903.3.1.1.

D. Change exception 14 of Section 307.1.1 of the IBC and add exception ~~15~~ 18 to Section 307.1.1 of the IBC to read:

14. The storage of black powder, smokeless propellant and small arms primers in Groups M, R-3 and R-5 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the IFC, as amended in Section 307.9.

~~15~~ 18. The storage of distilled spirits and wines in wooden barrels and casks. Distillation, blending, bottling, and other hazardous materials storage or processing shall be in separate control areas complying with Section 414.2.

E. Change the "Flammable liquid, combination (IA, IB, IC)" row in Table 307.1(1), add a new "Permissible fireworks" row to Table 307.1(1) of the IBC, and add footnote "r" to Table 307.1(1) of the IBC to read:

Flammable liquid, combination (IA, IB, IC)	NA	H-2 or H-3	NA	120 ^{d,e,h}	NA	NA	120 ^{d,h}	NA	NA	30 ^{d,h,r}
Permissible fireworks	1.4G	H-3	125 ^{d,e,l}	NA	NA	NA	NA	NA	NA	NA
r. The tabular value for distilled spirit distillation and blending rooms is 120 gallons.										

F. Add Section 307.9 to the IBC to read:

307.9 Amendments. The following changes shall be made to the IFC for the use of Exception 14 in Section 307.1.1:

1. Change the following definition in Section 202 of the IFC to read:

Smokeless propellants. Solid propellants, commonly referred to as smokeless powders, or any propellants classified by DOTn as smokeless propellants in accordance with NA3178 (Smokeless Powder for Small Arms), used in small arms ammunition, firearms, cannons, rockets, propellant-actuated devices, and similar articles.

2. Change Section 314.1 of the IFC to read as follows:

314.1 General. Indoor displays constructed within any building or structure shall comply with Sections 314.2 through 314.5.

3. Add new Section 314.5 to the IFC to read as follows:

314.5 Smokeless powder and small arms primers. Vendors shall not store, display or sell smokeless powder or small arms primers during trade shows inside exhibition halls except as follows:

1. The amount of smokeless powder each vender may store is limited to the storage arrangements and storage amounts established in Section 5606.5.2.1.
2. Smokeless powder shall remain in the manufacturer's original sealed container and the container shall remain sealed while inside the building. The repackaging of smokeless powder shall not be performed inside the building. Damaged containers shall not be repackaged inside the building and shall be immediately removed from the building in such manner to avoid spilling any powder.
3. There shall be at least 50 feet separation between vendors and 20 feet from any exit.
4. Small arms primers shall be displayed and stored in the manufacturer's original packaging and in accordance with the requirements of Section 5606.5.2.3.

4. Change Exception 4 and add Exceptions 10 and 11 to Section 5601.1 of the IFC as follows:

4. The possession, storage and use of not more than 15 pounds (6.75 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and any amount of small arms primers for hand loading of small arms ammunition for personal consumption.

10. The display of small arms primers in Group M when in the original manufacturer's packaging.

11. The possession, storage and use of not more than 50 pounds (23 kg) of commercially manufactured sporting black powder, 100 pounds (45 kg) of smokeless powder, and small arms primers for hand loading of small arms ammunition for personal consumption in Group R-3 or R-5, or 200 pounds (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet (3048 mm) from inhabited buildings and are accessory to Group R-3 or R-5.

5. Change Section 5606.4 of the IFC to read as follows:

5606.4 Storage in residences. Propellants for personal use in quantities not exceeding 50 pounds (23 kg) of black powder or 100 pounds (45 kg) of smokeless powder shall be stored in original containers in occupancies limited to Group R-3 and R-5 or 200 pounds (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet (3048 mm) from inhabited buildings and are accessory to Group R-3 or R-5. In other than Group R-3 or R-5, smokeless powder in quantities exceeding 20 pounds (9 kg) but not exceeding 50 pounds (23 kg) shall be kept in a wooden box or cabinet having walls of at least one inch (25 mm) nominal thickness or equivalent.

6. Delete Sections 5606.4.1 and 5606.4.2 of the IFC.

7. Change Section 5606.5.1.1 of the IFC to read as follows:

5606.5.1.1 Smokeless propellant. No more than 100 pounds (45 kg) of smokeless propellants in containers of eight pounds (3.6 kg) or less capacity shall be displayed in Group M occupancies.

8. Delete Section 5606.5.1.3 of the IFC.

9. Change Section 5606.5.2.1 of the IFC as follows:

5606.5.2.1 Smokeless propellant. Commercial stocks of smokeless propellants shall be stored as follows:

1. Quantities exceeding 20 pounds (9 kg), but not exceeding 100 pounds (45 kg) shall be stored in portable wooden boxes having walls of at least one inch (25 mm) nominal thickness or equivalent.

2. Quantities exceeding 100 pounds (45 kg), but not exceeding 800 pounds (363 kg), shall be stored in storage cabinets having walls at least one inch (25 mm) nominal thickness or equivalent. Not more than 400 pounds (182 kg) shall be stored in any one cabinet, and cabinets shall be separated by a distance of at least 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of at least one hour.

3. Storage of quantities exceeding 800 pounds (363 kg), but not exceeding 5,000 pounds (2270 kg) in a building shall comply with all of the following:

3.1. The warehouse or storage room is ~~inaccessible~~ not open to unauthorized personnel.

3.2. Smokeless propellant shall be stored in nonportable storage cabinets having wood walls at least one inch (25 mm) nominal thickness or equivalent and having shelves with no more than 3 feet (914 mm) of vertical separation between shelves.

3.3. No more than 400 pounds (182 kg) is stored in any one cabinet.

3.4. Cabinets shall be located against walls with at least 40 feet (12 192 mm) between cabinets. The minimum required separation between cabinets may be reduced to 20 feet (6096 mm) provided that barricades twice the height of the cabinets are attached to the wall, midway between each cabinet. The barricades must extend a minimum of 10 feet (3048 mm) outward, be firmly attached to the wall, and be constructed of steel not less than 0.25 inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick, or concrete block.

3.5. Smokeless propellant shall be separated from materials classified as combustible liquids, flammable liquids, flammable solids, or oxidizing materials by a distance of 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of 1 hour.

3.6. The building shall be equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

4. Smokeless propellants not stored according to Item 1, 2, or 3 above shall be stored in a Type 2 or 4 magazine in accordance with Section 5604 and NFPA 495.

~~G.H. Add the following to the list of terms in Section 308.2 of the IBC:~~

~~Hospice facility~~ Change Section ~~308.3~~ 308.2 of the IBC to read:

~~308.3~~ 308.2 Institutional Group I-1. This occupancy shall include buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1, other than assisted living facilities licensed by the Virginia Department of Social Services, shall be classified as the occupancy condition indicated in Section ~~308.3.1~~ 308.2.1. Assisted living facilities licensed by the Virginia Department of Social Services shall be classified as one of the occupancy conditions indicated in Section ~~308.3.1~~ 308.2.1 or ~~308.3.2~~ 308.2.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

~~I.~~ H. Change Sections ~~308.3.1~~ 308.2.1 and ~~308.3.2~~ 308.2.2 of the IBC to read:

~~308.3.1~~ 308.2.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation. Not more than five of the residents may require physical assistance from staff to respond to an emergency situation when all residents who may require the physical assistance reside on a single level of exit discharge.

~~308.3.2~~ 308.2.2 Condition 2. This occupancy condition shall include buildings in which there are persons receiving custodial care who require assistance by not more than one staff member while responding to an emergency situation to complete building evacuation. Five of the residents may require physical assistance from more than one staff member to respond to an emergency.

~~J.~~ I. Change Section ~~308.4~~ 308.3 of the IBC to read:

~~308.4~~ 308.3 Group I-2. This occupancy shall include buildings and structures used for medical care on a 24-hour basis for more than five persons who are incapable of self-preservation. This group shall include, but not be limited to, the following:

Convalescent facilities

Detoxification facilities

Foster care facilities

Hospice facilities

Hospitals

Nursing homes

Psychiatric hospitals

Exception: Hospice facilities occupied by 16 or less occupants, excluding staff, are permitted to be classified as Group R-4.

~~K.~~ J. Add an exception to Section ~~308.6~~ 308.5 of the IBC to read:

Exception: Family day homes under Section ~~310.9~~ 310.8.

~~L.~~ K. Change Section ~~310.3~~ 310.2 of the IBC to read:

~~310.3~~ 310.2 Residential Group R-1. Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient) with more than 10 occupants

Congregate living facilities (transient) with more than 10 occupants

Hotels (transient)

Motels (transient)

Exceptions:

1. Nonproprietor occupied bed and breakfast and other transient boarding facilities not more than three stories above grade plane in height with a maximum of 10 occupants total are permitted to be classified as either Group R-3 or R-5 provided that smoke alarms are installed in compliance with Section ~~907.2.11.2~~ 907.2.10.2 for Group R-3 or Section R314 of the IRC for Group R-5.

2. Proprietor occupied bed and breakfast and other transient boarding facilities not more than three stories above grade plane in height, that are also occupied as the residence of the proprietor, with a maximum of five guest room sleeping units provided for the transient occupants are permitted to be classified as either Group R-3 or R-5 provided that smoke alarms are installed in compliance with Section ~~907.2.11.2~~ 907.2.10.2 for Group R-3 or Section R314 of the IRC for Group R-5.

~~M.~~ L. Change Section ~~310.6~~ 310.5 of the IBC to read:

~~310.6~~ 310.5 Residential Group R-4. This occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group R-4, other than assisted living facilities licensed by the Virginia Department of Social Services, shall be classified as the occupancy condition indicated in Section ~~310.6.1~~ 310.5.1. Assisted living facilities licensed by the Virginia Department of Social Services shall be classified as one of the occupancy conditions indicated in Section ~~310.6.1~~ 310.5.1 or ~~310.6.2~~ 310.5.2. This group shall include, but not be limited to the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

This occupancy shall also include hospice facilities with not more than 16 occupants, excluding staff.

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

Exceptions:

1. Group homes licensed by the Virginia Department of Behavioral Health and Developmental Services that house no more than eight persons with one or more resident counselors shall be classified as Group

R-2, R-3, R-4 or R-5. Not more than five of the persons may require physical assistance from staff to respond to an emergency situation.

2. In Group R-4 occupancies classified as the occupancy condition indicated in Section ~~310.6.1~~ 310.5.1, other than in hospice facilities, not more than five of the residents may require physical assistance from staff to respond to an emergency situation when all residents who may require the physical assistance from staff reside on a single level of exit discharge and other than using a ramp, a change of elevation using steps or stairs is not within the path of egress to an exit door.

3. Assisted living facilities licensed by the Virginia Department of Social Services that house no more than eight persons, with one or more resident counselors, and all of the residents are capable of responding to an emergency situation without physical assistance from staff, may be classified as Group R-2, R-3 or R-5.

4. Assisted living facilities licensed by the Virginia Department of Social Services that house no more than eight persons, with one or more resident counselors, may be classified as Group R-5 when in compliance with all of the following:

4.1. The building is protected by an automatic sprinkler system installed in accordance with Section 903.3 or Section P2904 of the IRC.

4.2. Not more than five of the residents may require physical assistance from staff to respond to an emergency situation.

4.3. All residents who may require physical assistance from staff to respond to an emergency situation reside on a single level of exit discharge and other than using a ramp, a change in elevation using steps or stairs is not within the path of egress to an exit door.

5. Hospice facilities with five or fewer occupants are permitted to comply with the IRC provided the building is protected by an automatic sprinkler system in accordance with IRC Section P2904 or IBC Section 903.3.

~~N. M.~~ Add Sections ~~310.6.1~~ 310.5.1 and ~~310.6.2~~ 310.5.2 to the IBC to read:

~~310.6.1~~ 310.5.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation and hospice facilities.

~~310.6.2~~ 310.5.2 Condition 2. This occupancy condition shall include buildings in which there are persons receiving custodial care who require assistance by not more than one staff member while responding to an emergency situation to complete building evacuation.

~~O. N.~~ Add Section ~~310.7~~ 310.6 to the IBC to read:

~~310.7~~ 310.6 Residential Group R-5. Residential occupancies in detached single-family and two-family dwellings, townhouses and accessory structures within the scope of the IRC.

~~P. O.~~ Add Section ~~310.8~~ 310.7 to the IBC to read:

~~310.8~~ 310.7 Group R-5. The construction of Group R-5 structures shall comply with the IRC. The amendments to the IRC set out in Section ~~310.11~~ 310.10 shall be made to the IRC for its use as part of this code. In addition, all references to the IRC in the IBC shall be considered to be references to this section.

~~Q. P.~~ Add Section ~~310.8.1~~ 310.7.1 to the IBC to read:

~~310.8.1~~ 310.7.1 Additional requirements. Methods of construction, materials, systems, equipment or components for Group R-5 structures not addressed by prescriptive or performance provisions of the IRC shall comply with applicable IBC requirements.

~~R. Q.~~ Add Section ~~310.9~~ 310.8 to the IBC to read:

~~310.9~~ 310.8 Family day homes. Family day homes where program oversight is provided by the Virginia Department of Social Services shall be classified as Group R-2, R-3 or R-5.

Note: Family day homes may generally care for up to 12 children. See the DHCD Related Laws Package for additional information.

~~S. R.~~ Add Section ~~310.10~~ 310.9 to the IBC to read:

~~310.10~~ 310.9 Radon-resistant construction in Groups R-3 and R-4 structures. Groups R-3 and R-4 structures shall be subject to the radon-resistant construction requirements in Appendix F of the IRC in localities enforcing such requirements pursuant to Section R324 of the IRC.

~~T. S.~~ Add Section ~~310.11~~ 310.10 to the IBC to read:

~~310.11~~ 310.10 Amendments to the IRC. The following changes shall be made to the IRC for its use as part of this code:

1. Add the following definitions to read:

Living area. Space within a dwelling unit utilized for living and entertainment, including family rooms, great rooms, living rooms, dens, media rooms, and similar spaces.

Nonpotable fixtures and outlets. Fixtures and outlets that are not dependent on potable water for the safe operation to perform their intended use. Such fixtures and outlets may include, but are not limited to water closets, urinals, irrigation, mechanical equipment, and hose connections to perform operations, such as vehicle washing and lawn maintenance.

Nonpotable water systems. Water systems for the collection, treatment, storage, distribution, and use or reuse of nonpotable water. Nonpotable systems include reclaimed water, rainwater, and gray water systems.

Rainwater. Natural precipitation, including snow melt, from roof surfaces only.

Stormwater. Precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

2. Change the following definitions to read:

Attic, habitable. A finished or unfinished area, not considered a story, complying with all of the following requirements:

1. The occupiable floor area is at least 70 square feet (17 m²), in accordance with Section R304,
2. The occupiable floor area has a ceiling height in accordance with Section R305, and
3. The occupiable space is enclosed by the roof assembly above, knee walls (if applicable) on the sides and the floor-ceiling assembly below.

Habitable attics greater than two-thirds of the area of the story below or over 400 square feet (37.16 m²) shall not be permitted in dwellings or townhouses that are three stories above grade plane in height.

Gray water. Water discharged from lavatories, bathtubs, showers, clothes washers, and laundry trays.

3. Delete the following definition:

Living space

4. Change Section R301.2.1 to read:

R301.2.1 Wind design criteria. Buildings and portions thereof shall be constructed in accordance with the wind provisions of this code using the ultimate design wind speed in Table R301.2(1) as determined from Figure R301.2(4)A. The structural provisions of this code for wind loads are not permitted where wind design is required as specified in Section R301.2.1.1. Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where not otherwise specified, the wind loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors, and exterior doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.4. A continuous load path shall be provided to transmit the applicable uplift forces in Section R802.11.1 from the roof assembly to the foundation. Wind speeds for localities in special wind regions, near mountainous terrain, and near gorges shall be based on elevation. Areas at 4,000 feet in elevation or higher shall use the nominal design wind speed of 110 mph (48.4 m/s) and areas under 4,000 feet in elevation shall use nominal design wind speed of 90 mph (39.6 m/s). Gorge areas shall be based on the highest recorded speed per locality or in accordance with local jurisdiction requirements determined in accordance with Section 26.5.1 of ASCE 7.

4. 5. Add Exceptions 6 and 7 to Section R302.1 to read:

6. Decks and open porches.

7. Walls of dwellings and accessory structures located on lots in subdivisions or zoning districts where building setbacks established by local ordinance prohibit the walls of the structures on adjacent lots from being closer than 10 feet (3048 mm) to each other at any point along the exterior walls.

~~5.~~ 6. Add the following sentence to the end of Section R302.3 to read:

Dwelling unit separation wall assemblies that are constructed on a lot line shall be constructed as required in Section R302.2 for townhouses.

~~6.~~ 7. Change Section R302.5.1 to read and delete Section R302.13 in its entirety:

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1-3/8 inches (35 mm) thickness, solid or honeycomb-core steel doors not less than 1-3/8 inches (35 mm) thick, or 20-minute fire-rated doors.

~~7.~~ 8. Change Section R303.4 to read:

R303.4 Mechanical ventilation. Dwelling units shall be provided with mechanical ventilation in accordance with Section ~~M1507~~ M1505.4.

~~8.~~ 9. Add an exception to Section ~~R303.9~~ 303.10 to read:

Exception: Seasonal structures not used as a primary residence for more than 90 days per year, unless rented, leased or let on terms expressed or implied to furnish heat, shall not be required to comply with this section.

~~9.~~ 10. Add Section ~~R303.9.1~~ R303.10.1 to read:

~~R303.9.1~~ R303.10.1 Nonowner occupied required heating. Every dwelling unit or portion thereof which is to be rented, leased or let on terms either expressed or implied to furnish heat to the occupants thereof shall be provided with facilities in accordance with Section R303.9 during the period from October 15 to May 1.

~~10.~~ 11. Add Section ~~R303.10~~ R303.11 to read:

~~R303.10~~ R303.11 Insect screens. Every door, window and other outside opening required for ventilation purposes shall be supplied with approved tightly fitted screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device.

~~11.~~ 12. Add Section R306.5 to read:

R306.5 Water supply sources and sewage disposal systems. The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.5 of Part I of the Virginia Uniform Statewide Building Code (13VAC5-63), for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.

Note: See also the Memorandums of Agreement in the "Related Laws Package," which is available from the Virginia Department of Housing and Community Development.

~~12.~~ 13. Change Section R308.4.5 to read:

R308.4.5 Glazing and wet surfaces. Glazing in walls, enclosures or fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools shall be considered a hazardous location if located less than 60 inches (1524 mm) measured horizontally, in a straight line, from the water's edge and the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface. This shall apply to single glazing and each pane in multiple glazing.

~~43.~~ 14. Change Section R310.1 to read:

R310.1 Emergency escape and rescue opening required. Basements, habitable attics, and every sleeping room designated on the construction documents shall have not less than one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, an emergency egress and rescue opening shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

Exceptions:

1. Dwelling units equipped throughout with an approved automatic sprinkler system installed in accordance with NFPA 13, 13R, or 13D or Section P2904.
2. Storm shelters and basements used only to house mechanical equipment and not exceeding total floor area of 200 square feet (18.58 m²).

~~44.~~ 15. Change Section R310.2.1 to read:

R310.2.1 Minimum opening area. Emergency and escape rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m²). The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside, including the tilting or removal of the sash as the normal operation. The net clear height opening shall be not less than 24 inches (610 mm), and the net clear width shall be not less than 20 inches (508 mm).

Exception: Grade floor or below grade openings shall have a net clear opening of not less than 5 square feet (0.465 m²).

~~45.~~ 16. Change the exception in Section R311.3.1 to read:

Exception: The landing or floor on the exterior side shall not be more than 8-1/4 inches (210 mm) below the top of the threshold provided the door does not swing over the landing or floor.

~~46.~~ 17. Change Section R311.7.5.1 to read:

R311.7.5.1 Risers. The riser height shall be not more than 8-1/4 inches (210 mm). The riser shall be measured vertically between the leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (763 mm), as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:

1. The opening between adjacent treads is not limited on spiral stairways.
2. The riser height of spiral stairways shall be in accordance with Section R311.7.10.1.

~~47.~~ 18. Change Section R311.7.5.2 to read:

R311.7.5.2 Treads. The tread depth shall be not less than 9 inches (229 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

~~48.~~ 19. Change Section R311.7.7 to read:

R311.7.7 Stairway walking surface. The walking surface of treads and landings of stairways shall be level or sloped no steeper than one unit vertical in 48 units horizontal (2.0% slope).

~~49.~~ 20. Change Section R312.2.1 to read:

R312.2.1 Window sills. In dwelling units, where the top of the sill of an operable window opening is located less than 18 inches (457 mm) above the finished floor and greater than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building, the operable window shall comply with one of the following:

1. Operable windows with openings that will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening where the opening is in its largest opened position.
2. Operable windows that are provided with window fall prevention devices that comply with ASTM F 2090.
3. Operable windows that are provided with window opening control devices that comply with Section R312.2.2.

~~20.~~ 21. Replace Section R313 with the following:

Section R313. Automatic Fire Sprinkler Systems.

R313.1 Townhouse automatic fire sprinkler systems. Notwithstanding the requirements of Section 103.3, where installed, an automatic residential fire sprinkler system for townhouses shall be designed and installed in accordance with NFPA 13D or Section P2904.

Exception: An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

R313.2 One-family and two-family dwellings automatic fire sprinkler systems. Notwithstanding the requirements of Section 103.3, where installed, an automatic residential fire sprinkler system shall be designed and installed in accordance with NFPA 13D or Section P2904.

Exception: An automatic residential fire sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with an automatic residential fire sprinkler system.

~~21.~~ 22. Delete Section R314.2.2.

~~22.~~ 23. Change Section R314.7.3 to read:

R314.7.3 Permanent fixture. Where a household fire alarm system is installed, it shall become a permanent fixture of the dwelling unit.

~~23.~~ 24. Change Section R315.1.1 to read:

R315.1.1 Listings. Carbon monoxide alarms shall be hard wired, plug-in or battery type; listed as complying with UL 2034; and installed in accordance with this code and the manufacturer's installation instructions. Combination carbon monoxide and smoke alarms shall be listed in accordance with UL 2034 and UL 217.

~~24.~~ 25. Change Section R315.2 to read:

R315.2 Where required. Carbon monoxide alarms shall be provided in accordance with this section.

~~25.~~ 26. Delete Section R315.2.2.

~~26.~~ 27. Delete Section ~~R315.5~~ R315.6.

~~27.~~ 28. Change Section ~~R315.6.3~~ R315.7.3 to read:

~~R315.6.3~~ R315.7.3 Permanent fixture. Where a household carbon monoxide detection system is installed, it shall become a permanent fixture of the occupancy.

~~28.~~ 29. Add Section R320.2 to read:

R320.2 Universal design features for accessibility in dwellings. Dwellings constructed under the IRC not subject to Section R320.1 may comply with Section 1109.16 of the USBC and be approved by the local building department as dwellings containing universal design features for accessibility.

~~29.~~ 30. Add Section R326.1.1 to read:

R326.1.1 Changes to the ISPSC. The following change shall be made to the ISPSC:

1. Change Section 305.2.9 to read:

305.2.9 Equipment clear zone. Equipment, including pool equipment such as pumps, filters and heaters shall not be installed within 36 inches (914 mm) of the exterior of the barrier when located on the same property.

~~30.~~ 31. Add Section ~~R327~~ R328 Radon-Resistant Construction.

~~31.~~ 32. Add Section ~~R327.1~~ R328.1 to read:

~~R327.1~~ R328.1 Local enforcement of radon requirements. Following official action under Article 7 (§ 15.2-2280 et seq.) of Chapter 22 of Title 15.2 of the Code of Virginia by a locality in areas of high radon potential, as indicated by Zone 1 on the U.S. EPA Map of Radon Zones (IRC Figure AF101), such locality shall enforce the provisions contained in Appendix F.

Exception: Buildings or portions thereof with crawl space foundations which are ventilated to the exterior, shall not be required to provide radon-resistant construction.

~~32. 33.~~ Add Section ~~R328~~ R329 Patio Covers.

~~33. 34.~~ Add Section ~~R328.1~~ R329.1 to read:

~~R328.1~~ R329.1 Use of Appendix H for patio covers. Patio covers shall comply with the provisions in Appendix H.

~~34. 35.~~ Add Section ~~R329~~ R330 Sound Transmission.

~~35. 36.~~ Add Section ~~R329.1~~ R330.1 to read:

~~R329.1~~ R330.1 Sound transmission between dwelling units. Construction assemblies separating dwelling units shall provide airborne sound insulation as required in Appendix K.

~~36. 37.~~ Add Section ~~R329.2~~ R330.2 to read:

~~R329.2~~ R330.2 Airport noise attenuation. This section applies to the construction of the exterior envelope of detached one-family and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress within airport noise zones when enforced by a locality pursuant to § 15.2-2295 of the Code of Virginia. The exterior envelope of such structures shall comply with Section ~~1207.4~~ 1206.4 of the state amendments to the IBC.

~~37. 38.~~ Add Section ~~R330~~ R331 Fire Extinguishers.

~~38. 39.~~ Add Section ~~R330.1~~ R331.1 to read:

~~R330.1~~ R331.1 Kitchen areas. Other than where the dwelling is equipped with an approved sprinkler system in accordance with Section R313, a fire extinguisher having a rating of 2-A:10-B:C or an approved equivalent type of fire extinguisher shall be installed in the kitchen area.

~~39. 40.~~ Add Section ~~R331~~ R332 Interior Passage.

~~40. 41.~~ Add Sections ~~R331.1~~ R332.1 through ~~R331.6~~ R332.6 to read:

R331.1 General. This section applies to new dwelling units that have both a kitchen and a living area on the same floor level as the egress door required by Section R311.2. This section is not applicable to additions, reconstruction, alteration, or repair.

R331.2 Kitchen. One interior passage route from the egress door to the kitchen shall comply with R331.6.

R331.3 Living area. One interior passage route from the egress door to at least one living area shall comply with R331.6.

R331.4 Bedroom. Where the dwelling unit has a bedroom on the same floor level as the egress door, one interior passage route from the egress door to at least one bedroom shall comply with R331.6.

R331.5 Bathroom. Where a dwelling unit has a bathroom on the same floor level as the egress door, and the bathroom contains a water closet, lavatory, and bathtub or shower, one interior passage route from the egress door to at least one bathroom shall comply with R331.6. Bathroom fixture clearances shall comply with R307 and access to fixtures is not required to comply with R331.6.

R331.6 Opening widths. Opening widths along the interior passage route required by this section shall comply with the following:

1. Cased openings shall provide a minimum 34 inch (864 mm) clear width.
2. Doors shall be a nominal 34 inch (864 mm) minimum width. Double doors are permitted to be used to meet this requirement.

~~41.~~ 42. Change Section R401.3 to read:

R401.3 Drainage. Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard to the dwelling unit. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of six inches (152 mm) within the first 10 feet (3048 mm).

Exception: Where lot lines, walls, slopes or other physical barriers prohibit six inches (152 mm) of fall within 10 feet (3048 mm), drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2.0% away from the building.

~~42.~~ 43. Add the following exceptions to Section R403.1 to read:

Exceptions:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, not exceeding 256 square feet (23.7824 m²) of building area, provided all of the following conditions are met:
 - 1.1. The building eave height is 10 feet or less.
 - 1.2. The maximum height from the finished floor level to grade does not exceed 18 inches.
 - 1.3. The supporting structural elements in direct contact with the ground shall be placed level on firm soil and when such elements are wood they shall be approved pressure preservative treated suitable for ground contact use.
 - 1.4. The structure is anchored to withstand wind loads as required by this code.

1.5. The structure shall be of light-frame construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or light gauge steel framing members, with walls and roof of light weight material, not slate, tile, brick or masonry.

2. Footings are not required for ramps serving dwelling units in Group R-3 and R-5 occupancies where the height of the entrance is no more than 30 inches (762 mm) above grade.

~~43.~~ 44. Delete Section R404.1.9.2.

~~44.~~ 45. Change the exception to Section R408.2 to read:

Exception: The total area of ventilation openings shall be permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is covered with an approved Class I vapor retarder material and the required openings are placed to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited nor shall the required openings need to be within three feet (915 mm) of each corner provided there is cross ventilation of the space.

~~45.~~ 46. Add Section R408.3.1 to read:

R408.3.1 Termite inspection. Where an unvented crawl space is installed and meets the criteria in Section R408, the vertical face of the sill plate shall be clear and unobstructed and an inspection gap shall be provided below the sill plate along the top of any interior foundation wall covering. The gap shall be a minimum of one inch (25.4 mm) and a maximum of two inches (50.8 mm) in width and shall extend throughout all parts of any foundation that is enclosed. Joints between the sill plate and the top of any interior wall covering may be sealed.

Exceptions:

1. In areas not subject to damage by termites as indicated by Table R301.2(1).
2. Where other approved means are provided to inspect for potential damage.

Where pier and curtain foundations are installed as depicted in Figure R404.1.5(1), the inside face of the rim joist and sill plate shall be clear and unobstructed except for construction joints which may be sealed.

Exception: Fiberglass or similar insulation may be installed if easily removable.

~~46.~~ 47. Change Section R506.2.1 to read:

R506.2.1 Fill. Fill material shall be free of vegetation and foreign material and shall be natural nonorganic material that is not susceptible to swelling when exposed to moisture. The fill shall be compacted to assure uniform support of the slab, and except where approved, the fill depth shall not exceed 24 inches (610 mm) for clean sand or gravel and 8 inches (203 mm) for earth.

Exception: Material other than natural material may be used as fill material when accompanied by a certification from an RDP and approved by the building official.

~~47.~~ 48. Change Section R506.2.2 to read:

R506.2.2 Base. A 4-inch-thick (102 mm) base course consisting of clean graded sand, gravel or crushed stone passing a 2-inch (51 mm) sieve shall be placed on the prepared subgrade when the slab is below grade.

Exception: A base course is not required when the concrete slab is installed on well drained or sand-gravel mixture soils classified as Group I according to the United Soil Classification System in accordance with Table R405.1. Material other than natural material may be used as base course material when accompanied by a certification from an RDP and approved by the building official.

48. Change Item 4 in Table R602.3(1) to read:

4	Ceiling joist attached to parallel rafter (heel joint) (see Sections R802.3.1 and R802.3.2 and Table R802.5.1(9))	Table R802.5.2	Face nail

49. Change Table R602.7(1) to read:

Table R602.7(1) Girder Spans ^a and Header Spans ^a for Exterior Bearing Walls (Maximum spans for Douglas Fir Larch, Hem Fir, Southern Pine, and Spruce Pine Fir ^b and required number of jack studs)																			
Girder s and Header Supporting	Size	Ground Snow Load (psf) ^c																	
		30						50						70					
		Building Width ^c (feet)																	
		12		24		36		12		24		36		12		24		36	
		S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d
Roof and ceiling	1 - 2 x 6	4 - 0	1	3 - 1	2	2 - 7	2	3 - 5	1	2 - 8	2	2 - 3	2	3 - 0	2	2 - 4	2	2 - 0	2
	1 - 2 x 8	5 - 1	2	3 - 1 1	2	3 - 3	2	4 - 4	2	3 - 4	2	2 - 1 0	2	3 - 1 0	2	3 - 0	2	2 - 6	3
	1 - 2 x 10	6 - 0	2	4 - 8	2	3 - 1 1	2	5 - 2	2	4 - 0	2	3 - 4	2	4 - 7	2	3 - 6	3	3 - 0	3
	1 - 2	7 - 1	2	5 - 5	2	4 - 7	3	6 - 1	2	4 - 8	3	3 - -	3	5 - 5	2	4 - 2	3	3 - 6	3

$\frac{1}{2}$											$\frac{1}{2}$							
$\frac{2}{2} \times 4$	$\frac{4}{0}$	$\frac{1}{1}$	$\frac{3}{1}$	$\frac{1}{1}$	$\frac{2}{7}$	$\frac{1}{1}$	$\frac{3}{5}$	$\frac{1}{1}$	$\frac{2}{7}$	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{1}{1}$	$\frac{3}{0}$	$\frac{1}{1}$	$\frac{2}{4}$	$\frac{1}{1}$	$\frac{2}{0}$	$\frac{1}{1}$
$\frac{2}{2} \times 6$	$\frac{6}{0}$	$\frac{1}{1}$	$\frac{4}{7}$	$\frac{1}{1}$	$\frac{3}{10}$	$\frac{1}{1}$	$\frac{5}{1}$	$\frac{1}{1}$	$\frac{3}{11}$	$\frac{1}{1}$	$\frac{3}{3}$	$\frac{2}{2}$	$\frac{4}{6}$	$\frac{1}{1}$	$\frac{3}{6}$	$\frac{2}{2}$	$\frac{2}{11}$	$\frac{2}{2}$
$\frac{2}{2} \times 8$	$\frac{7}{7}$	$\frac{1}{1}$	$\frac{5}{9}$	$\frac{1}{1}$	$\frac{4}{10}$	$\frac{2}{2}$	$\frac{6}{5}$	$\frac{1}{1}$	$\frac{5}{0}$	$\frac{2}{2}$	$\frac{4}{2}$	$\frac{2}{2}$	$\frac{5}{9}$	$\frac{1}{1}$	$\frac{4}{5}$	$\frac{2}{2}$	$\frac{3}{9}$	$\frac{2}{2}$
$\frac{2}{2} \times 10$	$\frac{9}{0}$	$\frac{1}{1}$	$\frac{6}{10}$	$\frac{2}{2}$	$\frac{5}{9}$	$\frac{2}{2}$	$\frac{7}{8}$	$\frac{2}{2}$	$\frac{5}{11}$	$\frac{2}{2}$	$\frac{4}{11}$	$\frac{2}{2}$	$\frac{6}{9}$	$\frac{2}{2}$	$\frac{5}{3}$	$\frac{2}{2}$	$\frac{4}{5}$	$\frac{2}{2}$
$\frac{2}{2} \times 12$	$\frac{10}{7}$	$\frac{2}{2}$	$\frac{8}{1}$	$\frac{2}{2}$	$\frac{6}{10}$	$\frac{2}{2}$	$\frac{9}{0}$	$\frac{2}{2}$	$\frac{6}{11}$	$\frac{2}{2}$	$\frac{5}{10}$	$\frac{2}{2}$	$\frac{8}{0}$	$\frac{2}{2}$	$\frac{6}{2}$	$\frac{2}{2}$	$\frac{5}{2}$	$\frac{3}{3}$
$\frac{3}{2} \times 8$	$\frac{9}{5}$	$\frac{1}{1}$	$\frac{7}{3}$	$\frac{1}{1}$	$\frac{6}{1}$	$\frac{1}{1}$	$\frac{8}{1}$	$\frac{1}{1}$	$\frac{6}{3}$	$\frac{1}{1}$	$\frac{5}{3}$	$\frac{2}{2}$	$\frac{7}{2}$	$\frac{1}{1}$	$\frac{5}{6}$	$\frac{2}{2}$	$\frac{4}{8}$	$\frac{2}{2}$
$\frac{3}{2} \times 10$	$\frac{11}{3}$	$\frac{1}{1}$	$\frac{8}{7}$	$\frac{1}{1}$	$\frac{7}{3}$	$\frac{2}{2}$	$\frac{9}{7}$	$\frac{1}{1}$	$\frac{7}{4}$	$\frac{2}{2}$	$\frac{6}{2}$	$\frac{2}{2}$	$\frac{8}{6}$	$\frac{1}{1}$	$\frac{6}{7}$	$\frac{2}{2}$	$\frac{5}{6}$	$\frac{2}{2}$
$\frac{3}{2} \times 12$	$\frac{13}{2}$	$\frac{1}{1}$	$\frac{10}{1}$	$\frac{2}{2}$	$\frac{8}{6}$	$\frac{2}{2}$	$\frac{11}{3}$	$\frac{2}{2}$	$\frac{8}{8}$	$\frac{2}{2}$	$\frac{7}{4}$	$\frac{2}{2}$	$\frac{10}{0}$	$\frac{2}{2}$	$\frac{7}{9}$	$\frac{2}{2}$	$\frac{6}{6}$	$\frac{2}{2}$
$\frac{4}{2}$	$\frac{10}{-}$	$\frac{1}{1}$	$\frac{8}{4}$	$\frac{1}{1}$	$\frac{7}{0}$	$\frac{1}{1}$	$\frac{9}{4}$	$\frac{1}{1}$	$\frac{7}{2}$	$\frac{1}{1}$	$\frac{6}{0}$	$\frac{1}{1}$	$\frac{8}{3}$	$\frac{1}{1}$	$\frac{6}{4}$	$\frac{1}{1}$	$\frac{5}{4}$	$\frac{2}{2}$

Ro of, ceil ing, and one cen ter- bea rin g flo or	$\frac{1}{8}$	$\frac{1}{1}$																
	$\frac{4}{2}$	$\frac{1}{2}$	$\frac{1}{1}$	$\frac{9}{1}$	$\frac{1}{1}$	$\frac{8}{4}$	$\frac{1}{1}$	$\frac{1}{1}$	$\frac{8}{6}$	$\frac{1}{1}$	$\frac{7}{2}$	$\frac{2}{1}$	$\frac{9}{1}$	$\frac{1}{1}$	$\frac{7}{7}$	$\frac{2}{1}$	$\frac{6}{4}$	$\frac{2}{2}$
	$\frac{4}{2}$	$\frac{1}{5}$	$\frac{1}{1}$	$\frac{1}{1}$	$\frac{1}{1}$	$\frac{9}{1}$	$\frac{1}{3}$	$\frac{1}{1}$	$\frac{1}{0}$	$\frac{2}{1}$	$\frac{8}{5}$	$\frac{2}{1}$	$\frac{1}{1}$	$\frac{1}{1}$	$\frac{8}{1}$	$\frac{2}{1}$	$\frac{7}{6}$	$\frac{2}{2}$
	$\frac{1}{2}$	$\frac{3}{3}$	$\frac{2}{1}$	$\frac{2}{7}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{3}{0}$	$\frac{2}{2}$	$\frac{2}{4}$	$\frac{2}{2}$	$\frac{2}{0}$	$\frac{2}{2}$	$\frac{2}{9}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{1}{1}$	$\frac{2}{0}$
	$\frac{1}{2}$	$\frac{4}{1}$	$\frac{3}{2}$	$\frac{3}{3}$	$\frac{2}{9}$	$\frac{2}{2}$	$\frac{3}{9}$	$\frac{3}{2}$	$\frac{3}{0}$	$\frac{2}{2}$	$\frac{2}{6}$	$\frac{3}{3}$	$\frac{3}{6}$	$\frac{2}{2}$	$\frac{2}{9}$	$\frac{2}{2}$	$\frac{2}{4}$	$\frac{3}{3}$
	$\frac{1}{2}$	$\frac{4}{1}$	$\frac{3}{2}$	$\frac{3}{1}$	$\frac{3}{3}$	$\frac{4}{6}$	$\frac{2}{2}$	$\frac{3}{6}$	$\frac{3}{3}$	$\frac{3}{0}$	$\frac{3}{3}$	$\frac{4}{1}$	$\frac{2}{2}$	$\frac{3}{3}$	$\frac{3}{3}$	$\frac{2}{9}$	$\frac{3}{3}$	$\frac{3}{3}$
Ro of, ceil ing, and one cen ter- bea rin g flo or	$\frac{1}{2}$	$\frac{5}{9}$	$\frac{4}{2}$	$\frac{4}{6}$	$\frac{3}{1}$	$\frac{3}{3}$	$\frac{5}{3}$	$\frac{2}{2}$	$\frac{4}{2}$	$\frac{3}{3}$	$\frac{3}{6}$	$\frac{3}{3}$	$\frac{4}{1}$	$\frac{3}{3}$	$\frac{3}{1}$	$\frac{3}{3}$	$\frac{3}{3}$	$\frac{4}{4}$
	$\frac{2}{2}$	$\frac{3}{3}$	$\frac{2}{1}$	$\frac{2}{6}$	$\frac{2}{1}$	$\frac{2}{2}$	$\frac{3}{0}$	$\frac{1}{1}$	$\frac{2}{4}$	$\frac{1}{1}$	$\frac{2}{0}$	$\frac{2}{1}$	$\frac{2}{8}$	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{1}{1}$	$\frac{1}{1}$	$\frac{1}{0}$
	$\frac{2}{2}$	$\frac{4}{1}$	$\frac{3}{1}$	$\frac{3}{9}$	$\frac{3}{1}$	$\frac{3}{3}$	$\frac{4}{5}$	$\frac{1}{1}$	$\frac{3}{6}$	$\frac{2}{2}$	$\frac{3}{0}$	$\frac{2}{2}$	$\frac{4}{1}$	$\frac{1}{1}$	$\frac{3}{3}$	$\frac{2}{2}$	$\frac{2}{9}$	$\frac{2}{2}$
	$\frac{2}{2}$	$\frac{6}{1}$	$\frac{4}{1}$	$\frac{4}{1}$	$\frac{4}{2}$	$\frac{5}{7}$	$\frac{2}{2}$	$\frac{4}{5}$	$\frac{3}{2}$	$\frac{2}{2}$	$\frac{3}{9}$	$\frac{2}{2}$	$\frac{5}{2}$	$\frac{2}{2}$	$\frac{4}{1}$	$\frac{2}{2}$	$\frac{3}{6}$	$\frac{2}{2}$

* 8																		
2 - 2 * 1 0	7 - 3	2	5 - 8	2	4 - 1 0	2	6 - 8	2	5 - 3	2	4 - 5	2	6 - 1	2	4 - 1 0	2	4 - 1	2
2 - 2 * 1 2	8 - 6	2	6 - 8	2	5 - 8	2	7 - 1 0	2	6 - 2	2	5 - 3	3	7 - 2	2	5 - 8	2	4 - 1 0	3
3 - 2 * 8	7 - 8	1	6 - 0	1	5 - 1	2	7 - 0	1	5 - 6	2	4 - 8	2	6 - 5	1	5 - 1	2	4 - 4	2
3 - 2 * 1 0	9 - 1	1	7 - 2	2	6 - 1	2	8 - 4	1	6 - 7	2	5 - 7	2	7 - 8	2	6 - 1	2	5 - 2	2
3 - 2 * 1 2	1 0 - 8	2	8 - 5	2	7 - 2	2	9 - 1 0	2	7 - 8	2	6 - 7	2	9 - 0	2	7 - 1	2	6 - 1	2
4 - 2 * 8	8 - 1 0	1	6 - 1 1	1	5 - 1 1	1	8 - 1	1	6 - 4	1	5 - 5	2	7 - 5	1	5 - 1 1	1	5 - 0	2
4 - 2 * 1 0	1 0 - 6	1	8 - 3	2	7 - 0	2	9 - 8	1	7 - 7	2	6 - 5	2	8 - 1 0	1	7 - 0	2	6 - 0	2
4 - 2 * 1 2	1 2 - 4	1	9 - 8	2	8 - 3	2	1 1 - 4	2	8 - 1 1	2	7 - 7	2	1 0 - 4	2	8 - 3	2	7 - 0	2

Ro of, ceil ing, and one ele ar spa n roo f	$\frac{1}{2} - \frac{2}{1} \times \frac{1}{6}$	$\frac{2}{1} - \frac{1}{1}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{1} - \frac{1}{1}$	$\frac{2}{3}$	$\frac{2}{9}$	$\frac{2}{3}$	$\frac{2}{1}$	$\frac{2}{3}$	$\frac{1}{9}$	$\frac{2}{7}$	$\frac{2}{3}$	$\frac{2}{0}$	$\frac{2}{3}$	$\frac{1}{8}$	$\frac{2}{3}$
	$\frac{1}{2} - \frac{2}{9} \times \frac{1}{8}$	$\frac{3}{9}$	$\frac{2}{10}$	$\frac{2}{5}$	$\frac{2}{5}$	$\frac{3}{6}$	$\frac{2}{8}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{3}{3}$	$\frac{3}{3}$	$\frac{2}{6}$	$\frac{3}{3}$	$\frac{2}{2}$	$\frac{2}{3}$	
	$\frac{1}{2} - \frac{2}{5} \times \frac{1}{0}$	$\frac{4}{5}$	$\frac{3}{5}$	$\frac{3}{10}$	$\frac{2}{10}$	$\frac{4}{2}$	$\frac{3}{2}$	$\frac{3}{3}$	$\frac{2}{8}$	$\frac{3}{11}$	$\frac{2}{11}$	$\frac{3}{11}$	$\frac{3}{0}$	$\frac{3}{6}$	$\frac{2}{6}$	$\frac{3}{3}$	
	$\frac{1}{2} - \frac{2}{2} \times \frac{1}{2}$	$\frac{5}{2}$	$\frac{4}{0}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{4}{10}$	$\frac{3}{9}$	$\frac{3}{3}$	$\frac{3}{2}$	$\frac{4}{7}$	$\frac{4}{6}$	$\frac{3}{6}$	$\frac{3}{0}$	$\frac{3}{0}$	$\frac{3}{0}$	$\frac{4}{4}$	
	$\frac{2}{2} - \frac{2}{1} \times \frac{1}{4}$	$\frac{2}{1} - \frac{1}{1}$	$\frac{2}{3}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{2}{9}$	$\frac{2}{11}$	$\frac{1}{9}$	$\frac{1}{7}$	$\frac{2}{7}$	$\frac{2}{0}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$		
	$\frac{2}{2} - \frac{2}{4} \times \frac{1}{6}$	$\frac{4}{4}$	$\frac{3}{4}$	$\frac{2}{10}$	$\frac{2}{10}$	$\frac{4}{11}$	$\frac{3}{2}$	$\frac{2}{8}$	$\frac{3}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{3}{0}$	$\frac{3}{0}$	$\frac{2}{6}$	$\frac{2}{6}$		
	$\frac{2}{2} - \frac{2}{6} \times \frac{1}{8}$	$\frac{5}{6}$	$\frac{4}{3}$	$\frac{3}{7}$	$\frac{2}{7}$	$\frac{5}{2}$	$\frac{4}{0}$	$\frac{3}{4}$	$\frac{4}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{3}{9}$	$\frac{3}{9}$	$\frac{3}{2}$	$\frac{3}{2}$		
	$\frac{2}{2} - \frac{2}{7} \times \frac{1}{0}$	$\frac{6}{7}$	$\frac{5}{0}$	$\frac{4}{2}$	$\frac{4}{2}$	$\frac{6}{11}$	$\frac{4}{9}$	$\frac{4}{0}$	$\frac{5}{9}$	$\frac{4}{5}$	$\frac{5}{9}$	$\frac{4}{5}$	$\frac{3}{9}$	$\frac{3}{9}$	$\frac{3}{3}$		
	$\frac{2}{2} - \frac{2}{9} \times \frac{1}{2}$	$\frac{7}{9}$	$\frac{5}{11}$	$\frac{4}{11}$	$\frac{3}{3}$	$\frac{7}{2}$	$\frac{5}{7}$	$\frac{4}{8}$	$\frac{6}{9}$	$\frac{5}{3}$	$\frac{6}{9}$	$\frac{5}{3}$	$\frac{4}{5}$	$\frac{4}{5}$	$\frac{3}{3}$		

	3 - 2 * 8	6 - 1 1	1	5 - 3	2	4 - 5	2	6 - 5	1	5 - 0	2	4 - 2	2	6 - 1	1	4 - 8	2	4 - 0	2
	3 - 2 * 1 0	8 - 3	2	6 - 3	2	5 - 3	2	7 - 8	2	5 - 1 1	2	5 - 0	2	7 - 3	2	5 - 7	2	4 - 8	2
	3 - 2 * 1 2	9 - 8	2	7 - 5	2	6 - 2	2	9 - 0	2	7 - 0	2	5 - 1 0	2	8 - 6	2	6 - 7	2	5 - 6	3
	4 - 2 * 8	8 - 0	1	6 - 1	1	5 - 1	2	7 - 5	1	5 - 9	2	4 - 1 0	2	7 - 0	1	5 - 5	2	4 - 7	2
	4 - 2 * 1 0	9 - 6	1	7 - 3	2	6 - 1	2	8 - 1 0	1	6 - 1 0	2	5 - 9	2	8 - 4	1	6 - 5	2	5 - 5	2
	4 - 2 * 1 2	1 1 - 2	2	8 - 6	2	7 - 2	2	1 0 - 5	2	8 - 0	2	6 - 9	2	9 - 1 0	2	7 - 7	2	6 - 5	2
Ro of, ceil ing, and two cen ter bea rin g flo ors	1 - 2 * 6	2 - 8	2	2 - 1	2	1 - 1 0	2	2 - 7	2	2 - 0	2	1 - 9	2	2 - 5	2	1 - 1 1	2	1 - 8	2
	1 - 2 * 8	3 - 5	2	2 - 8	2	2 - 4	3	3 - 3	2	2 - 7	2	2 - 2	3	3 - 1	2	2 - 5	3	2 - 1	3
	1 - 2 * 1 0	4 - 0	2	3 - 2	3	2 - 9	3	3 - 1 0	2	3 - 1	3	2 - 7	3	3 - 8	2	2 - 1 1	3	2 - 5	3

$\frac{1}{2} \times \frac{1}{2}$	$\frac{4}{9}$	$\frac{3}{9}$	$\frac{3}{9}$	$\frac{3}{2}$	$\frac{4}{6}$	$\frac{3}{7}$	$\frac{3}{7}$	$\frac{3}{1}$	$\frac{4}{3}$	$\frac{3}{5}$	$\frac{3}{1}$	$\frac{2}{1}$	$\frac{4}{1}$
$\frac{2}{2} \times \frac{4}{4}$	$\frac{2}{8}$	$\frac{1}{1}$	$\frac{2}{1}$	$\frac{1}{9}$	$\frac{2}{6}$	$\frac{2}{0}$	$\frac{1}{8}$	$\frac{2}{5}$	$\frac{1}{1}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{1}$	
$\frac{2}{2} \times \frac{6}{6}$	$\frac{4}{0}$	$\frac{1}{1}$	$\frac{3}{2}$	$\frac{2}{8}$	$\frac{3}{9}$	$\frac{3}{0}$	$\frac{2}{7}$	$\frac{3}{7}$	$\frac{2}{10}$	$\frac{2}{5}$	$\frac{2}{2}$		
$\frac{2}{2} \times \frac{8}{8}$	$\frac{5}{0}$	$\frac{2}{2}$	$\frac{4}{0}$	$\frac{3}{5}$	$\frac{4}{10}$	$\frac{3}{10}$	$\frac{4}{7}$	$\frac{3}{7}$	$\frac{2}{2}$	$\frac{3}{1}$	$\frac{2}{2}$		
$\frac{2}{2} \times \frac{10}{10}$	$\frac{6}{0}$	$\frac{2}{2}$	$\frac{4}{9}$	$\frac{4}{0}$	$\frac{5}{8}$	$\frac{4}{6}$	$\frac{3}{10}$	$\frac{5}{5}$	$\frac{4}{3}$	$\frac{3}{8}$	$\frac{3}{3}$		
$\frac{2}{2} \times \frac{12}{12}$	$\frac{7}{0}$	$\frac{2}{2}$	$\frac{5}{7}$	$\frac{4}{9}$	$\frac{6}{8}$	$\frac{5}{4}$	$\frac{4}{6}$	$\frac{6}{4}$	$\frac{5}{0}$	$\frac{4}{3}$	$\frac{3}{3}$		
$\frac{3}{2} \times \frac{8}{8}$	$\frac{6}{4}$	$\frac{1}{1}$	$\frac{5}{0}$	$\frac{4}{3}$	$\frac{6}{0}$	$\frac{4}{9}$	$\frac{4}{1}$	$\frac{5}{8}$	$\frac{4}{2}$	$\frac{4}{6}$	$\frac{3}{10}$	$\frac{2}{2}$	
$\frac{3}{2} \times \frac{10}{10}$	$\frac{7}{6}$	$\frac{2}{2}$	$\frac{5}{1}$	$\frac{5}{1}$	$\frac{7}{1}$	$\frac{5}{8}$	$\frac{4}{10}$	$\frac{6}{9}$	$\frac{5}{4}$	$\frac{4}{7}$	$\frac{2}{2}$		
$\frac{3}{2} \times \frac{12}{12}$	$\frac{8}{10}$	$\frac{2}{2}$	$\frac{7}{0}$	$\frac{5}{1}$	$\frac{8}{5}$	$\frac{6}{8}$	$\frac{5}{8}$	$\frac{8}{0}$	$\frac{6}{4}$	$\frac{5}{4}$	$\frac{3}{3}$		

	4 - 2 * 8	7 - 3	1	5 - 9	1	4 - 1 1	2	5 - 1 1	1	5 - 6	2	4 - 8	2	6 - 7	1	5 - 2	2	4 - 5	2
	4 - 2 * 1 0	8 - 8	1	6 - 1 0	2	5 - 1 0	2	8 - 3	2	6 - 6	2	5 - 7	2	7 - 1 0	2	6 - 2	2	5 - 3	2
	4 - 2 * 1 2	1 0 - 2	2	8 - 1	2	6 - 1 0	2	9 - 8	2	7 - 8	2	6 - 7	2	9 - 2	2	7 - 3	2	6 - 2	2
Ro of, ceil ing, and two ele ar spa n flo ors	1 - 2 * 6	2 - 3	2	1 - 9	2	1 - 5	2	2 - 3	2	1 - 9	2	1 - 5	3	2 - 2	2	1 - 8	2	1 - 5	3
	1 - 2 * 8	2 - 1 0	2	2 - 2	3	1 - 1 0	3	2 - 1 0	2	2 - 2	3	1 - 1 0	3	2 - 9	2	2 - 1	3	1 - 1 0	3
	1 - 2 * 1 0	3 - 4	2	2 - 7	3	2 - 2	3	3 - 4	3	2 - 7	3	2 - 2	4	3 - 3	3	2 - 6	3	2 - 2	4
	1 - 2 * 1 2	4 - 0	3	3 - 0	3	2 - 7	4	4 - 0	3	3 - 0	4	2 - 7	4	3 - 1 0	3	3 - 0	4	2 - 6	4
	2 - 2 * 4	2 - 3	1	1 - 8	1	1 - 4	1	2 - 3	1	1 - 8	1	1 - 4	1	2 - 2	1	1 - 8	1	1 - 4	2
	2 - 2 * 6	3 - 4	1	2 - 6	2	2 - 2	2	3 - 4	2	2 - 6	2	2 - 2	2	3 - 3	2	2 - 6	2	2 - 1	2

$\frac{2}{-2} \times \frac{8}{8}$	$\frac{4}{-3}$	$\frac{2}{-3}$	$\frac{3}{-3}$	$\frac{2}{-8}$	$\frac{2}{-3}$	$\frac{4}{-3}$	$\frac{3}{-3}$	$\frac{2}{-8}$	$\frac{2}{-1}$	$\frac{3}{-2}$	$\frac{2}{-2}$	$\frac{3}{-2}$	$\frac{2}{-8}$	$\frac{2}{-8}$
$\frac{2}{-2} \times \frac{1}{0}$	$\frac{5}{-0}$	$\frac{3}{-10}$	$\frac{3}{-2}$	$\frac{5}{-0}$	$\frac{3}{-2}$	$\frac{5}{-0}$	$\frac{3}{-10}$	$\frac{2}{-2}$	$\frac{4}{-10}$	$\frac{3}{-9}$	$\frac{3}{-2}$	$\frac{3}{-2}$	$\frac{3}{-9}$	$\frac{3}{-2}$
$\frac{2}{-2} \times \frac{1}{2}$	$\frac{5}{-11}$	$\frac{4}{-6}$	$\frac{3}{-9}$	$\frac{5}{-11}$	$\frac{4}{-6}$	$\frac{3}{-9}$	$\frac{5}{-11}$	$\frac{2}{-6}$	$\frac{3}{-9}$	$\frac{5}{-8}$	$\frac{4}{-5}$	$\frac{3}{-9}$	$\frac{3}{-9}$	$\frac{3}{-9}$
$\frac{3}{-2} \times \frac{8}{8}$	$\frac{5}{-3}$	$\frac{4}{-0}$	$\frac{3}{-5}$	$\frac{5}{-3}$	$\frac{4}{-0}$	$\frac{3}{-5}$	$\frac{5}{-3}$	$\frac{2}{-0}$	$\frac{3}{-5}$	$\frac{5}{-1}$	$\frac{3}{-11}$	$\frac{3}{-4}$	$\frac{3}{-4}$	$\frac{2}{-4}$
$\frac{3}{-2} \times \frac{1}{0}$	$\frac{6}{-3}$	$\frac{4}{-9}$	$\frac{4}{-0}$	$\frac{6}{-3}$	$\frac{4}{-9}$	$\frac{4}{-0}$	$\frac{6}{-3}$	$\frac{2}{-9}$	$\frac{4}{-0}$	$\frac{6}{-1}$	$\frac{4}{-8}$	$\frac{4}{-0}$	$\frac{4}{-0}$	$\frac{3}{-0}$
$\frac{3}{-2} \times \frac{1}{2}$	$\frac{7}{-5}$	$\frac{5}{-8}$	$\frac{4}{-9}$	$\frac{7}{-5}$	$\frac{5}{-8}$	$\frac{4}{-9}$	$\frac{7}{-5}$	$\frac{2}{-8}$	$\frac{4}{-9}$	$\frac{7}{-2}$	$\frac{5}{-6}$	$\frac{4}{-8}$	$\frac{4}{-8}$	$\frac{3}{-8}$
$\frac{4}{-2} \times \frac{8}{8}$	$\frac{6}{-1}$	$\frac{4}{-8}$	$\frac{3}{-11}$	$\frac{6}{-1}$	$\frac{4}{-8}$	$\frac{3}{-11}$	$\frac{6}{-1}$	$\frac{2}{-8}$	$\frac{3}{-11}$	$\frac{5}{-11}$	$\frac{4}{-7}$	$\frac{3}{-11}$	$\frac{3}{-11}$	$\frac{2}{-11}$
$\frac{4}{-2} \times \frac{1}{0}$	$\frac{7}{-3}$	$\frac{5}{-6}$	$\frac{4}{-8}$	$\frac{7}{-3}$	$\frac{5}{-6}$	$\frac{4}{-8}$	$\frac{7}{-3}$	$\frac{2}{-6}$	$\frac{4}{-8}$	$\frac{7}{-0}$	$\frac{5}{-5}$	$\frac{4}{-7}$	$\frac{4}{-7}$	$\frac{2}{-7}$
$\frac{4}{-2} \times$	$\frac{8}{-6}$	$\frac{6}{-6}$	$\frac{5}{-6}$	$\frac{8}{-6}$	$\frac{6}{-6}$	$\frac{5}{-6}$	$\frac{8}{-6}$	$\frac{2}{-6}$	$\frac{5}{-6}$	$\frac{8}{-3}$	$\frac{6}{-4}$	$\frac{5}{-4}$	$\frac{5}{-4}$	$\frac{3}{-4}$

- a. Spans are given in feet and inches.
- b. Spans are based on the minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem Fir, Southern Pine, and Spruce-Pine Fir.
- c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.
- d. NJ Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full height wall stud and to the header.
- e. Spans are calculated assuming the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (e.g., cripple studs bearing on the header), tabulated spans for headers consisting of 2x8, 2x10, or 2x12 sizes shall be multiplied by 0.70 or the header shall be designed.

~~51.~~ 49. Change Section R602.10 to read:

R602.10 Wall bracing. Buildings shall be braced in accordance with this section or Section R602.12. Where a building, or portion thereof, does not comply with one or more of the bracing requirements in this section, those portions shall be designed and constructed in accordance with Section R301.1.

The building official shall be permitted to require the permit applicant to identify braced wall lines and braced wall panels on the construction documents as described in this section and provide associated analysis. The building official shall be permitted to waive the analysis of the upper floors where the cumulative length of wall openings of each upper floor wall is less than or equal to the length of the openings of the wall directly below.

~~52.~~ 50. Change Section R602.10.9 to read:

R602.10.9 Braced wall panel support. Braced wall panel support shall be provided as follows:

1. Cantilevered floor joists complying with Section R502.3.3 shall be permitted to support braced wall panels.
2. Raised floor system post or pier foundations supporting braced wall panels shall be designed in accordance with accepted engineering practice.
3. Masonry stem walls with a length of 48 inches (1219 mm) or less supporting braced wall panels shall be reinforced in accordance with Figure R602.10.9. Masonry stem walls with a length greater than 48 inches (1219 mm) supporting braced wall panels shall be constructed in accordance with Section R403.1 Methods ABW and PFH shall not be permitted to attach to masonry stem walls.
4. Concrete stem walls with a length of 48 inches (1219 mm) or less, greater than 12 inches (305 mm) tall and less than 6 inches (152 mm) thick shall have reinforcement sized and located in accordance with Figure R602.10.9.

Exception: For masonry stem walls, an approved post-installed adhesive anchoring system shall be permitted as an alternative to the Optional Stem Wall Reinforcement detail in Figure R602.10.9. A minimum of two anchors shall be installed as indicated in Figure R602.10.9. Anchors shall be located not more than 4 inches (102 mm) from each end of the stem wall. Anchors shall be installed into the concrete footing as follows:

1. Five-eighth inch (16 mm) treaded rod using a 3/4 inch (19 mm) diameter drilled hole with a minimum embedment of 6 inches (152 mm).
2. Number 4 size reinforcing bar using a 5/8 inch (16 mm) diameter drilled hole with a minimum embedment of 4-1/2 inches (114 mm).

A minimum footing thickness of 8 inches (203 mm) is required and the minimum distance from each anchor to the edge of the footing shall be 3-3/4 inches (95 mm). The anchoring adhesive and anchors shall be installed in accordance with the manufacturer's instructions and have a minimum tensile capacity of 5,000 lbs. (22 kN). The bond beam reinforcement and attachment of braced wall panels to the stem wall shall be as shown in Figure R602.10.9.

~~53.~~ 51. Replace Section R602.12, including all subsections, with the following:

R602.12 Practical wall bracing. All buildings in Seismic Design Categories A and B and detached buildings in Seismic Design Category C shall be permitted to be braced in accordance with this section as an alternative to the requirements of Section R602.10. Where a building, or portion thereof, does not comply with one or more of the bracing requirements in this section, those portions shall be designed and constructed in accordance with Section R301.1. The use of other bracing provisions of Section R602.10, except as specified herein, shall not be permitted.

The building official shall be permitted to require the permit applicant to identify bracing on the construction documents and provide associated analysis. The building official shall be permitted to waive the analysis of the upper floors where the cumulative length of wall openings of each upper floor wall is less than or equal to the length of the openings of the wall directly below.

R602.12.1 Sheathing materials. The following materials shall be permitted for use as sheathing for wall bracing. Exterior walls shall be sheathed on all sheathable surfaces, including infill areas between bracing locations, above and below wall openings, and on gable end walls.

1. Wood structural panels with a minimum thickness of 7/16 inch (9.5 mm) fastened in accordance with Table R602.3(3).
2. Structural fiberboard sheathing with a minimum thickness of 1/2 inch (12.7 mm) fastened in accordance with Table R602.3(1).
3. Gypsum board with a minimum thickness of 1/2 inch (12.7 mm) fastened in accordance with Table R702.3.5 on interior walls only.

R602.12.2 Braced wall panels. Braced wall panels shall be full-height wall sections sheathed with the materials listed in Section R602.12.1 and complying with the following:

1. Exterior braced wall panels shall have a minimum length based on the height of the adjacent opening as specified in Table R602.12.2. Panels with openings on both sides of differing heights shall be governed by the taller opening when determining panel length.
2. Interior braced wall panels shall have a minimum length of 48 inches (1220 mm) when sheathing material is applied to one side. Doubled-sided applications shall be permitted to be considered two braced wall panels.

3. Braced wall panels shall be permitted to be constructed of Methods ABW, PFH, PFG, and CS-PF in accordance with Section R602.10.4.

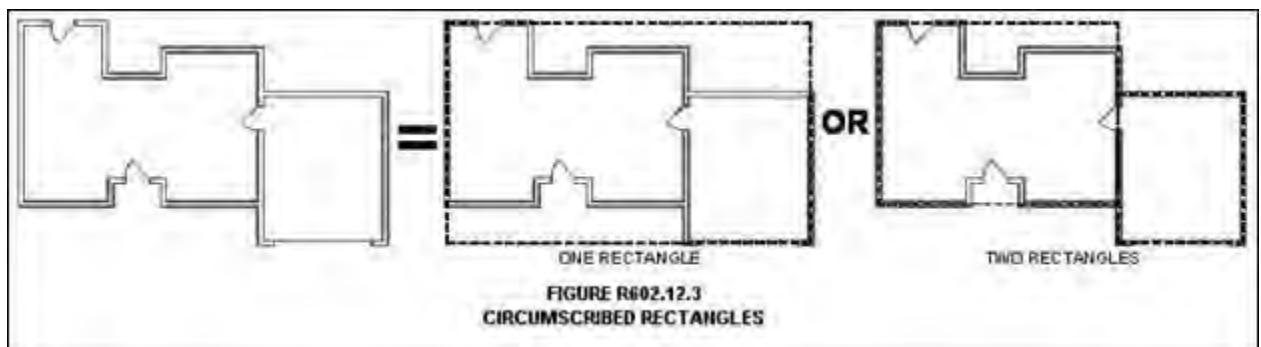
4. Exterior braced wall panels, other than the methods listed in Item 3 above shall have a finish material installed on the interior. The finish material shall consist of 1/2 inch (12.7 mm) gypsum board or equivalent and shall be permitted to be omitted where the required length of bracing, as determined in Section R602.12.4, is multiplied by 1.40, unless otherwise required by Section R302.6.

5. Vertical sheathing joints shall occur over and be fastened to common studs.

6. Horizontal sheathing joints shall be edge nailed to 1-1/2 inch (38 mm) minimum thick common blocking.

Table R602.12.2 Braced Wall Panel Lengths					
Location	Wall Height (feet)				
	8	9	10	11	12
	Minimum Panel Length (inches)				
Adjacent garage door of one-story garage ^a	24	27	30	33	36
Adjacent all other openings ^b					
Clear opening height (inches) ≤ 64	24	27	30	33	36
Clear opening height (inches) ≤ 72	27	27	30	33	36
Clear opening height (inches) ≤ 80	30	30	30	33	36
Clear opening height (inches) > 80	36	36	36	40	40
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.					
a. Braced wall panels supporting a gable end wall or roof load only.					
b. Interpolation shall be permitted.					

R602.12.3 Circumscribed rectangle. Required length of bracing shall be determined by circumscribing one or more rectangles around the entire building or portions thereof as shown in Figure R602.12.3. Rectangles shall surround all enclosed offsets and projections such as sunrooms and attached garages. Chimneys, partial height projections, and open structures, such as carports and decks, shall be excluded from the rectangle. Each rectangle shall have no side greater than 80 feet (24 384 mm) with a maximum 3:1 ratio between the long and short side. Rectangles shall be permitted to be skewed to accommodate angled projections as shown in Figure R602.12.4.3.



R602.12.4 Required length of bracing. The required length of bracing for each side of a circumscribed rectangle shall be determined using Table R602.12.4. Where multiple rectangles share a common side or sides, the required length of bracing shall equal the sum of the required lengths from all shared rectangle sides.

Table R602.12.4 Required Length of Bracing Along Each Side of a Circumscribed Rectangle ^{a,b,c}																		
Wind Speed	Eave-to-Ridge Height (feet)	Number of Floor Levels Above ^{e,f}	Required Length of Bracing on Front/Rear Side (feet)								Required Length of Bracing on Left/Right Side (feet)							
			Length of Left/Right Side (feet)								Length of Front/Rear Side (feet)							
			10	20	30	40	50	60	70	80	10	20	30	40	50	60	70	80
115	10	0	2.0	3.5	5.0	6.0	7.5	9.0	10.5	12.0	2.0	3.5	5.0	6.0	7.5	9.0	10.5	12.0
		1 ^d	3.5	6.5	9.0	12.0	14.5	17.0	19.8	22.6	3.5	6.5	9.0	12.0	14.5	17.0	19.8	22.6
		2 ^d	5.0	9.5	13.5	17.5	21.5	25.0	29.2	33.4	5.0	9.5	13.5	17.5	21.5	25.0	29.2	33.4
	15	0	2.6	4.6	6.5	7.8	9.8	11.7	13.7	15.7	2.6	4.6	6.5	7.8	9.8	11.7	13.7	15.7
		1 ^d	4.0	7.5	10.4	13.8	16.7	19.6	22.9	26.0	4.0	7.5	10.4	13.8	16.7	19.6	22.9	26.0
		2 ^d	5.5	10.5	14.9	19.3	23.7	27.5	32.1	36.7	5.5	10.5	14.9	19.3	23.7	27.5	32.1	36.7
	20	0	2.9	5.2	7.3	8.8	11.1	13.2	15.4	17.6	2.9	5.2	7.3	8.8	11.1	13.2	15.4	17.6
		1 ^d	4.5	8.5	11.8	15.6	18.9	22.1	25.8	29.5	4.5	8.5	11.8	15.6	18.9	22.1	25.8	29.5
		2 ^d	6.2	11.9	16.8	21.8	27.3	31.1	36.3	41.5	6.2	11.9	16.8	21.8	27.3	31.1	36.3	41.5
130	10	0	2.5	4.0	6.0	7.5	9.5	11.0	12.8	14.6	2.5	4.0	6.0	7.5	9.5	11.0	12.8	14.6
		1 ^d	4.5	8.0	11.0	14.5	18.0	21.0	24.5	28.0	4.5	8.0	11.0	14.5	18.0	21.0	24.5	28.0
		2 ^d	6.0	11.5	16.5	21.5	26.5	31.0	36.2	41.4	6.0	11.5	16.5	21.5	26.5	31.0	36.2	41.4
	15	0	3.4	5.2	7.8	9.8	12.4	14.3	16.7	19.4	3.4	5.2	7.8	9.8	12.4	14.3	16.7	19.4
		1 ^d	5.2	9.2	12.7	16.7	20.7	24.2	28.2	32.2	5.2	9.2	12.7	16.7	20.7	24.2	28.2	32.2
		2 ^d	6.6	12.7	18.2	23.7	29.2	34.1	39.8	45.5	6.6	12.7	18.2	23.7	29.2	34.1	39.8	45.5
	20	0	3.8	5.9	8.8	11.1	14.0	16.2	18.9	21.6	3.8	5.9	8.8	11.1	14.0	16.2	18.9	21.6
		1 ^d	5.9	10.4	14.4	18.9	23.4	27.3	31.8	36.3	5.9	10.4	14.4	18.9	23.4	27.3	31.8	36.3

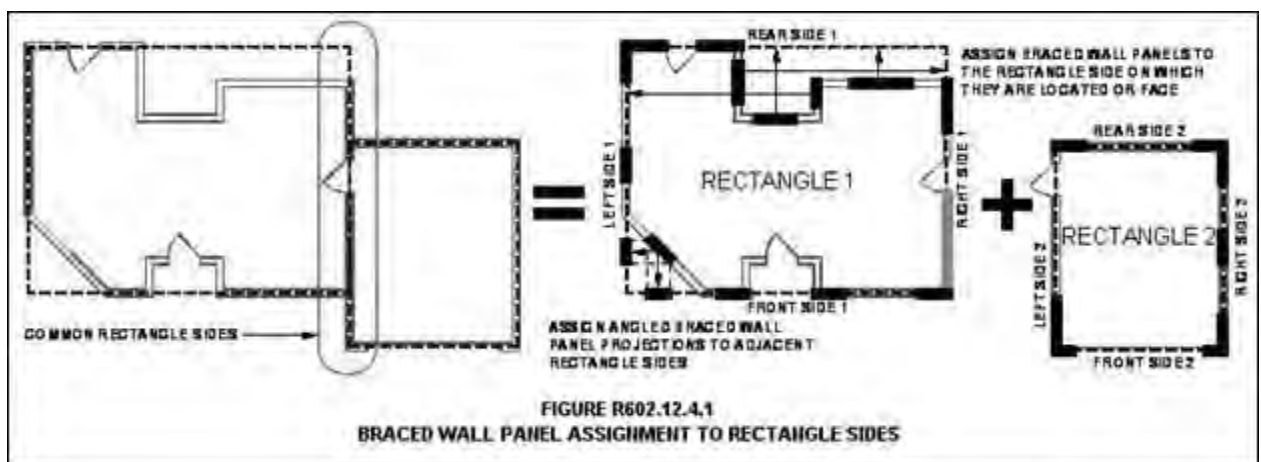
		2 ^d	7. 5	14. 4	20. 6	26. 8	33. 0	38. 5	44. 9	51. 3	7. 5	14. 4	20. 6	26. 8	33. 0	38. 5	44. 9	51. 3

For SI: 1 ft = 304.8 mm.

- a. Interpolation shall be permitted; extrapolation shall be prohibited.
- b. For Exposure Category C, multiply the required length of bracing by a factor of 1.20 for a one-story building, 1.30 for a two-story building, and 1.40 for a three-story building.
- c. For wall height adjustments multiply the required length of bracing by the following factors: 0.90 for 8 feet (2438 mm), 0.95 for 9 feet (2743 mm), 1.0 for 10 feet (3048 mm), 1.05 for 11 feet (3353 mm), and 1.10 for 12 feet (3658 mm).
- d. Where braced wall panels supporting stories above have been sheathed in wood structural panels with edge fasteners spaced at 4 inches (102 mm) on center, multiply the required length of bracing by 0.83.
- e. A floor level, habitable or otherwise, contained wholly within the roof rafters or trusses shall not be considered a floor level for purposes of determining the required length of bracing.
- f. A rectangle side with differing number of floor levels above shall use the greatest number when determining the required length of bracing.

R602.12.4.1 Braced wall panel assignment to rectangle sides. Braced wall panels shall be assigned to the applicable rectangle side and contribute to its required length of bracing. Panels shall be assigned as specified below and as shown in Figure R602.12.4.1.

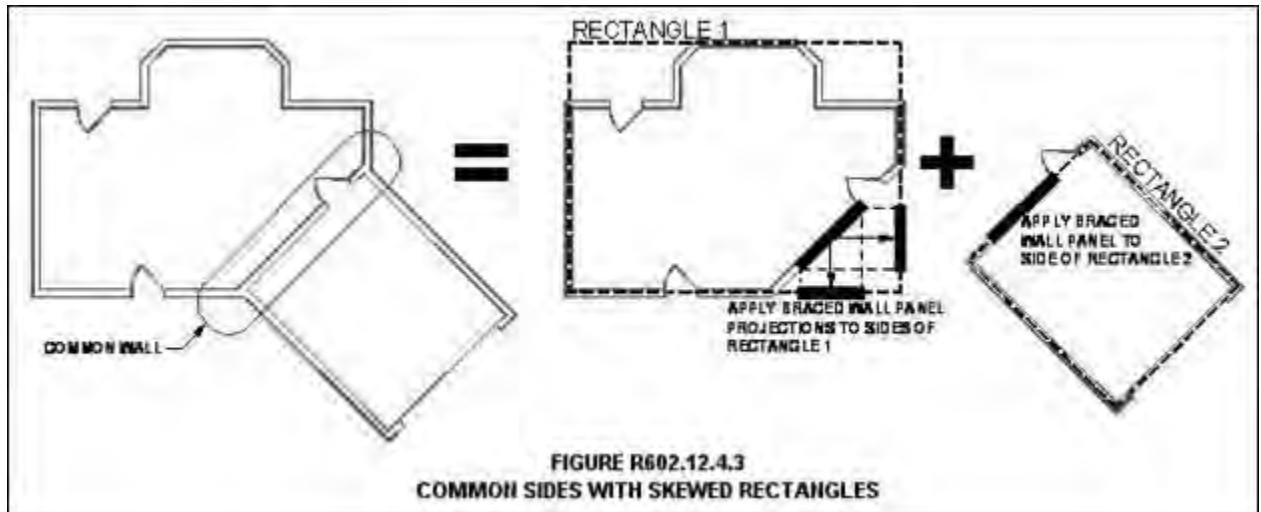
1. Exterior braced wall panels shall be assigned to the parallel rectangle side on which they are located or in which they face.
2. Interior braced wall panels shall be assigned to the parallel rectangle side on which they are located or in which they face up to 4 feet (1220 mm) away. Interior braced wall panels more than 4 feet (1220 mm) away from a parallel rectangle side shall not contribute.
3. The projections of angled braced wall panels shall be assigned to the adjacent rectangle sides.



R602.12.4.2 Contributing length. The cumulative contributing length of braced wall panels assigned to a rectangle side shall be greater than or equal to the required length of bracing as determined in Section R602.12.4. The contributing length of a braced wall panel shall be as specified below. When applying contributing length to angled braced wall panels, apply the requirements below to each projection:

1. Exterior braced wall panels shall contribute their actual length.
2. Interior braced wall panels shall contribute one-half of their actual length.
3. The contributing length of Methods ABW, PFH, PFG, and CS-PF shall be in accordance with Table R602.10.5.

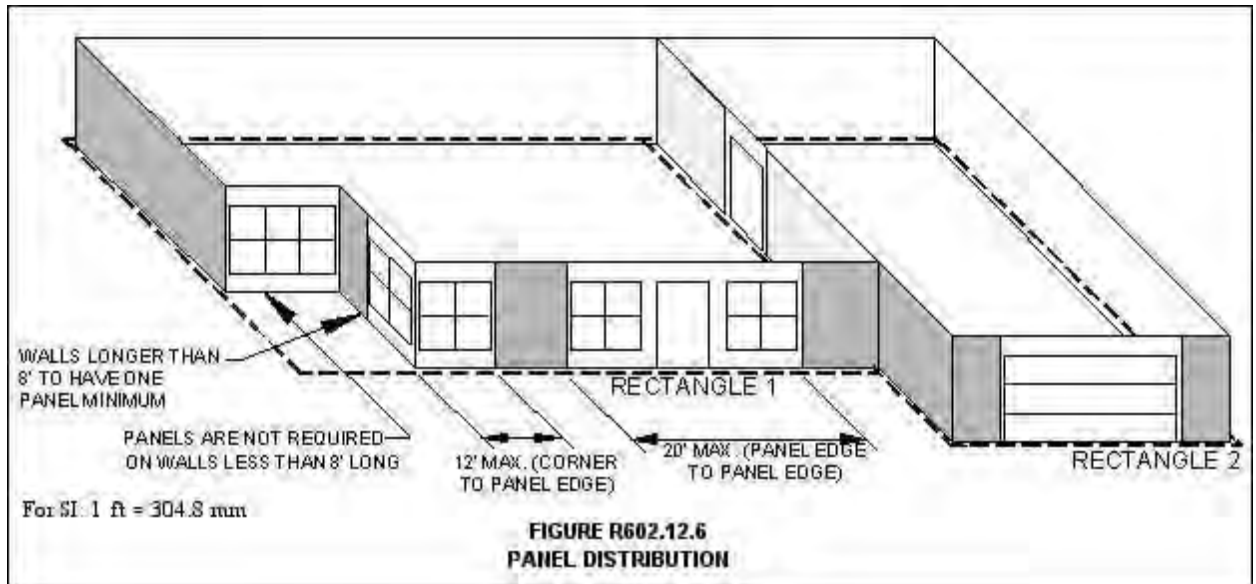
R602.12.4.3 Common sides with skewed rectangles. Braced wall panels located on a common wall where skewed rectangles intersect, as shown in Figure R602.12.4.3, shall be permitted to be assigned to the parallel rectangle side, and their projections shall be permitted to be assigned to the adjacent skewed rectangle sides.



R602.12.5 Cripple walls and framed walls of walk-out basements. For rectangle sides with cripple walls having a maximum height of 48 inches (1220 mm), the required length of bracing shall be as determined in Section R602.12.4. For rectangle sides with cripple walls having a height greater than 48 inches (1220 mm) at any location or framed walls of a walk-out basement, the required length of bracing shall be determined using Table R602.12.4. Braced wall panels within cripple walls and walls of walk-out basements shall comply with Item 4 of Section R602.12.2.

R602.12.6 Distribution of braced wall panels. Braced wall panels shall be distributed in accordance with the following requirements as shown in Figure R602.12.6.

1. The edge of a braced wall panel shall be no more than 12 feet (3658 mm) from any building corner or rectangle corner.
2. The distance between adjacent edges of braced wall panels shall be no more than 20 feet (6096 mm).
3. Segments of exterior walls greater than 8 feet (2438 mm) in length shall have a minimum of one braced wall panel.
4. Segments of exterior wall 8 feet (2438 mm) or less in length shall be permitted to have no braced wall panels.



R602.12.6.1 Panels adjacent to balloon framed walls. Braced wall panels shall be placed on each side of each story adjacent to balloon framed walls designed in accordance with Section R602.3 with a maximum height of two stories.

R602.12.7 Braced wall panel connection. Braced wall panels shall be connected to other structural elements in accordance with Section R602.10.8.

R602.12.8 Braced wall panel support. Braced wall panels shall be supported in accordance with Section R602.10.9.

54. Change Sections R802.2 and R802.3 to read:

~~R802.2 Design and construction. The roof and ceiling assembly shall provide continuous ties across the structure to prevent roof thrust from being applied to the supporting walls. The assembly shall be designed and constructed in accordance with the provisions of this chapter and Figures R606.11(1), R606.11(2) and R606.11(3) or in accordance with AWC NDS.~~

~~R802.3 Ridge. A ridge board used to connect opposing rafters shall be not less than 1 inch (25 mm) nominal thickness and not less in depth than the cut end of the rafter. Where ceiling joist or rafter ties do not provide a continuous ties across the structure, a ridge beam shall be provided and supported on each end by a wall or girder.~~

55. Delete Sections R802.3.1, R802.3.2 and R802.3.3.

56. Change Section R802.4 and add Section R802.4.1 to read:

~~R802.4 Rafters. Rafters shall be in accordance with this section.~~

~~R802.4.1 Rafter size. Rafters shall be sized based on the rafter spans in Tables~~

~~R802.4.1(1) through R802.4.1(8). Rafter spans shall be measured along the horizontal projection of the rafter. For other grades and species and for other loading conditions, refer to the AWC STJR.~~

~~57. Change the titles of Tables R802.4(1) and R802.4(2) to Tables R802.5.1(1) and R802.5.1(2), respectively, and change the titles of Tables R802.5.1(1) through R802.5.1(8) to Tables R802.4.1(1) through R802.4.1(8), respectively.~~

~~58. Add Sections R802.4.2 through R802.4.5 to read:~~

~~R802.4.2 Framing details. Rafters shall be framed not more than 1 1/2 inches (38 mm) offset from each other to a ridge board or directly opposite from each other with a collar tie, gusset plate or ridge strap in accordance with Table R602.3(1). Rafters shall be nailed to the top wall plates in accordance with Table R602.3(1) unless the roof assembly is required to comply with the uplift requirements of Section R802.11.~~

~~R802.4.3 Hips and valleys. Hip and valley rafters shall be not less than 2 inches (51 mm) nominal in thickness and not less in depth than the cut end of the rafter. Hip and valley rafters shall be supported at the ridge by a brace to a bearing partition or be designed to carry and distribute the specific load at that point.~~

~~R802.4.4 Rafter supports. Where the roof pitch is less than 3:12 (25 percent slope), structural members that support rafters, such as ridges, hips and valleys, shall be designed as beams, and bearing shall be provided for rafters in accordance with Section R802.6.~~

~~R802.4.5 Purlins. Installation of purlins to reduce the span of rafters is permitted as shown in Figure R802.4.5. Purlins shall be sized not less than the required size of the rafters that they support. Purlins shall be continuous and shall be supported by 2 inch by 4 inch (51 mm by 102 mm) braces installed to bearing walls at a slope not less than 45 degrees (0.79 rad) from the horizontal. The braces shall be spaced not more than 4 feet (1219 mm) on center and the unbraced length of braces shall not exceed 8 feet (2438 mm).~~

~~59. Add Figure R802.4.5 to read:~~

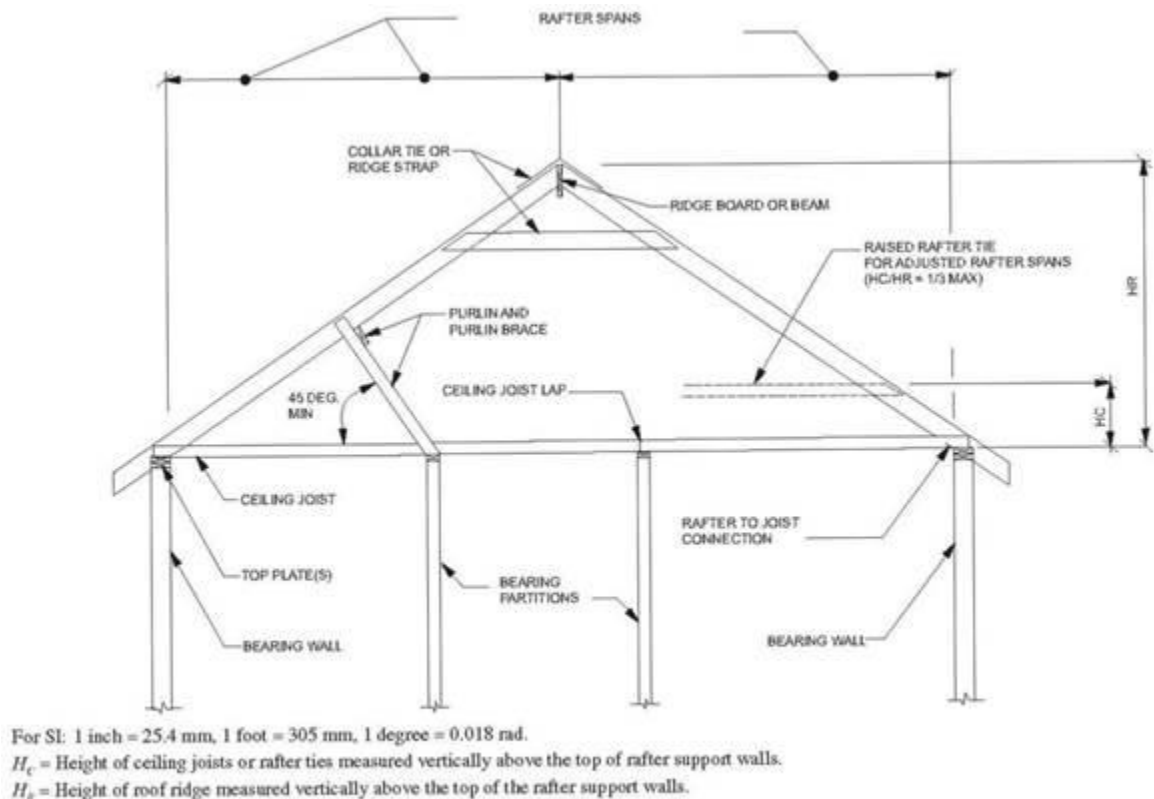


**FIGURE R802.4.5
BRACED RAFTER CONSTRUCTION**

60. Add Section R802.4.6 to read:

R802.4.6 Collar ties. Where collar ties are used to connect opposing rafters, they shall be located in the upper third of the attic space and fastened in accordance with Table R602.3(1). Collar ties shall be not less than 1 inch by 4 inches (25 mm by 102 mm) nominal, spaced not more than 4 feet (1219 mm) on center. Ridge straps in accordance with Table R602.3(1) shall be permitted to replace collar ties.

61. Change Sections R802.5 and R802.5.1 to read:

R802.5 Ceiling joists. Ceiling joists shall be continuous across the structure or securely joined where they meet over interior partitions in accordance with Table R802.5.2.

R802.5.1 Ceiling joist size. Ceiling joists shall be sized based on the joist spans in Tables R802.4(1) and R802.4(2). For other grades and species and for other loading conditions, refer to the AWC STJR.

62. Delete Figure R802.5.1 and change the title of Table R802.5.1(9) to Table R802.5.2.

63. Add Section R802.5.2 to read:

R802.5.2 Ceiling joist and rafter connections. Where ceiling joists run parallel to rafters, they shall be connected to rafters at the top wall plate in accordance with Table R802.5.2. Where ceiling joists are not connected to the rafters at the top wall plate, they shall be installed in the bottom third of the rafter height in accordance with Figure R802.4.5 and Table R802.5.2. Where the ceiling joists

~~are installed above the bottom third of the rafter height, the ridge shall be designed as a beam. Where ceiling joists do not run parallel to rafters, the ceiling joists shall be connected to top plates in accordance with Table R602.3(1). Each rafter shall be tied across the structure with a rafter tie or a 2-inch by 4-inch (51 mm x 102 mm) kicker connected to the ceiling diaphragm with nails equivalent in capacity to Table R802.5.2.~~

64. Add Sections R802.5.2.1 through R802.5.2.3 to read:

~~R802.5.2.1 Ceiling joists lapped. Ends of ceiling joists shall be lapped a minimum of 3 inches (76 mm) or butted over bearing partitions or beams and toenailed to the bearing member. Where ceiling joists are used to provide resistance to rafter thrust, lapped joists shall be nailed together in accordance with Table R802.5.2, and butted joists shall be tied together in a manner to resist such thrust. Joists that do not resist thrust shall be permitted to be nailed in accordance with Table R602.3(1). Wood structural panel roof sheathing, in accordance with Table R503.2.1.1(1), shall not cantilever more than 9 inches (229 mm) beyond the gable endwall unless supported by gable overhang framing.~~

~~R802.5.2.2 Rafter ties. Wood rafter ties shall be not less than 2 inches by 4 inches (51 mm by 102 mm) installed in accordance with Table R802.5.2 at each rafter. Other approved rafter tie methods shall be permitted.~~

~~R802.5.2.3 Blocking. Blocking shall be not less than utility grade lumber.~~

65. ~~52.~~ Delete Section R905.2.8.5.

66. ~~53.~~ Change Section R1001.8 to read:

R1001.8 Smoke chamber. Smoke chamber walls shall be constructed of solid masonry units, hollow masonry units grouted solid, stone, or concrete. The total minimum thickness of front, back, and side walls shall be 8 inches (203 mm) of solid masonry. When the inside surface of the smoke chamber is formed by corbelled masonry, the inside surface shall be parged smooth. When a lining of firebrick at least 2 inches (51 mm) thick, or a lining of vitrified clay at least 5/8 inch (16 mm) thick, is provided, the total minimum thickness of front, back, and side walls shall be 6 inches (152 mm) of solid masonry, including the lining. Firebrick shall conform to ASTM C 1261 and shall be laid with medium duty refractory mortar conforming to ASTM C 199. Vitrified clay linings shall conform to ASTM C 315.

67. ~~54.~~ Change Section N1101.13 (R401.2) to read:

N1101.13 (R401.2) Compliance. Projects shall comply with all provisions of Chapter 11 labeled "Mandatory" and one of the following:

1. Sections N1101.14 through N1104.
2. Section N1105.
3. Section N1106.
4. The most recent version of REScheck, keyed to the ~~2015~~ 2018 IECC.

Note: See REScheck compliance guidance issued by DHCD, available at the Department's website.

~~68.~~ 55. Delete Section N1101.14 (R401.3).

~~69.~~ 56. Change the ceiling R-value and wood frame wall R-value categories for climate zone "4 except Marine" in Table N1102.1.2 (R402.1.2) to read:

Ceiling R-Value	Wood Frame Wall R-Value
38	15 or 13 + 1 ^h

~~70.~~ 57. Change the ceiling U-factor and frame wall U-factor categories for climate zone "4 except Marine" in Table N1102.1.4 (R402.1.4) to read:

Ceiling U-Factor	Frame Wall U-Factor
0.030	0.079

~~71.~~ 58. Change Section N1102.2.4 (R402.2.4) to read:

N1102.2.4 (R402.2.4) Access hatches and doors. Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weatherstripped and insulated in accordance with the following values:

1. Hinged vertical doors shall have a minimum overall R-5 insulation value;
2. Hatches and scuttle hole covers shall be insulated to a level equivalent to the insulation on the surrounding surfaces; and
3. Pull down stairs shall have a minimum of 75% of the panel area having R-5 rigid insulation.

Access shall be provided to all equipment that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the attic access is opened, and to provide a permanent means of maintaining the installed R-value of the loose fill insulation.

~~72.~~ 59. Change Sections N1102.4 (R402.4) and N1102.4.1.1 (R402.4.1.1) to read:

N1102.4 (R402.4) Air leakage. The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections N1102.4.1 through N1102.4.4.

N1102.4.1.1 (R402.4.1.1) Installation (Mandatory). The components of the building thermal envelope as listed in Table N1102.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table N1102.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

~~73.~~ 60. Change the title of the "Insulation Installation Criteria" category of Table N1102.4.1.1 (R402.4.1.1); change the "Shower/tub on exterior wall" category of Table N1102.4.1.1 (R402.4.1.1), and add footnotes "b" and "c" to Table N1102.4.1.1 (R402.4.1.1) to read:

Component	Air Barrier Criteria	Insulation Installation Criteria ^b
Shower/tub on exterior wall ^c	The air barrier installed at exterior walls adjacent to showers and tubs shall be installed on the interior side and separate the exterior walls from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.
b. Structural integrity of headers shall be in accordance with the applicable building code. c. Air barriers used behind showers and tubs on exterior walls shall be of a permeable material that does not cause the entrapment of moisture in the stud cavity.		

~~74.~~ 61. Change Section N1102.4.1.2 (R402.4.1.2) and add Sections N1102.4.1.2.1 (R402.4.1.2.1), N1102.4.1.2.2 (R402.4.1.2.2), and N1102.4.1.3 (R402.4.1.3) to read:

N1102.4.1.2 (R402.4.1.2) Air sealing. Building envelope air tightness shall be demonstrated to comply with either Section N1102.4.1.2.1 or N1102.4.1.2.2.

N1102.4.1.2.1 (R402.4.1.2.1) Testing option. The building or dwelling unit shall be tested for air leakage. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pa). Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

1. Exterior windows and doors and fireplace and stove doors shall be closed, but not sealed beyond the intended weatherstripping or other infiltration control measures;
2. Dampers, including exhaust, intake, makeup air, backdraft, and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open;
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
6. Supply and return registers, if installed at the time of the test, shall be fully open.

N1102.4.1.2.2 (R402.4.1.2.2) Visual inspection option. Building envelope tightness shall be considered acceptable when the items listed in Table N1102.4.1.1, applicable to the method of construction, are field verified. Where required by the building official, an approved party, independent from the installer, shall inspect the air barrier. When this option is chosen, whole-house mechanical ventilation shall be provided in accordance with Section ~~M1507.3~~ M1505.4.

N1102.4.1.3 (R402.4.1.3) Leakage rate (Prescriptive). The building or dwelling unit shall have an air leakage rate less than 5 changes per hour as verified in accordance with Section N1102.4.1.2.

~~75.~~ 62. Change Section N1103.3.3 (R403.3.3) to read:

N1103.3.3 (R403.3.3) Duct testing (Mandatory). Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exception: A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. The licensed mechanical contractor installing the mechanical system shall be permitted to perform the duct testing. The contractor shall have been trained on the equipment used to perform the test.

~~76.~~ 63. Change Section N1103.7 (R403.7) to read:

N1103.7 (R403.7) Equipment and appliance sizing. Heating and cooling equipment and appliances shall be sized in accordance with ACCA Manual S or other approved sizing methodologies based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.

Exception: Heating and cooling equipment and appliance sizing shall not be limited to the capacities determined in accordance with Manual S or other approved sizing methodologies where any of the following conditions apply:

1. The specified equipment or appliance utilizes multi-stage technology or variable refrigerant flow technology and the loads calculated in accordance with the approved heating and cooling methodology fall within the range of the manufacturer's published capacities for that equipment or appliance.
2. The specified equipment or appliance manufacturer's published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with the approved heating and cooling methodology and the next larger standard size unit is specified.
3. The specified equipment or appliance is the lowest capacity unit available from the specified manufacturer.

~~77.~~ 64. Change footnote for Table N1106.4 (R406.4) to read:

Table N1106.4 (R406.4) Maximum Energy Rating Index ^a	
Climate Zone	Energy Rating Index

1	52
2	52
3	51
4	62
5	55
6	54
7	53
8	53
a. When on-site renewable energy is included for compliance using the ERI analysis per Section N1106.4 (R406.4), the building shall meet the mandatory requirements of Section N1106.2 (R406.2) and the building thermal envelope shall be greater than or equal to levels of energy efficiency and solar heat gain coefficient in Table N1102.1.2 (R402.1.2), with a ceiling R-value of 49 and a wood frame wall R-value of 20 or 13+5, or Table N1102.1.4 (R402.1.4), with a ceiling U-factor of 0.026 and a frame wall U-factor of 0.060.	

~~78.~~ 65. Delete Section N1109.1.1.1 (R503.1.1.1).

~~79.~~ 66. Change Section M1401.3 to read:

M1401.3 Equipment and appliance sizing. Heating and cooling equipment and appliances shall be sized in accordance with ACCA Manual S or other approved sizing methodologies based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.

Exception: Heating and cooling equipment and appliance sizing shall not be limited to the capacities determined in accordance with Manual S or other approved sizing methodologies where any of the following conditions apply:

1. The specified equipment or appliance utilizes multi-stage technology or variable refrigerant flow technology and the loads calculated in accordance with the approved heating and cooling methodology fall within the range of the manufacturer's published capacities for that equipment or appliance.
2. The specified equipment or appliance manufacturer's published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with the approved heating and cooling methodology, and the next larger standard size unit is specified.
3. The specified equipment or appliance is the lowest capacity unit available from the specified manufacturer.

~~80.~~ 67. Add Section M1501.2 to read:

M1501.2 Transfer air. Air transferred from occupiable spaces other than kitchens, baths, and toilet rooms shall not be prohibited from serving as makeup air for exhaust systems. Transfer openings between spaces shall be of the same cross-sectional area as the free area of the makeup air openings. Where louvers and grilles are installed, the required size of openings shall be based on the net free area of each opening. Where the design and free area of louvers and grilles are not known, it shall be assumed that wood louvers will have 25% free area and metal louvers and grilles will have 75% free area.

~~81-~~ 68. Change Section M1502.4.2 to read:

M1502.4.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

~~82-~~ 69. Change Section ~~M1503.4~~ M1503.6 to read:

~~M1503.4~~ M1503.6 Makeup air required. Exhaust hood systems capable of exhausting more than 400 cubic feet per minute (0.19 m³/s) shall be provided with makeup air at a rate approximately equal to the exhaust air rate in excess of 400 cubic feet per minute (0.19 m³/s). Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

Exception: Intentional openings for makeup air are not required for kitchen exhaust systems capable of exhausting not greater than 600 cubic feet per minute (0.28 m³/s) provided that one of the following conditions is met:

1. Where the floor area within the air barrier of a dwelling unit is at least 1500 square feet (139.35 m²), and where natural draft or mechanical draft space-heating or water-heating appliances are not located within the air barrier.
2. Where the floor area within the air barrier of a dwelling unit is at least 3000 square feet (278.71 m²), and where natural draft space-heating or water-heating appliances are not located within the air barrier.

~~83-~~ 70. Add Section M1801.1.1 to read:

M1801.1.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with this code.
2. Vent or chimney systems are clean, free of any obstruction or blockages, defects or deterioration and are in operable condition.

Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

~~84-~~ 71. Change Sections G2411.1 and ~~G2411.1.1~~ G2411.2 to read:

G2411.1 Pipe and tubing. Each above-group portion of a gas piping system that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. Gas piping shall be considered to be bonded where it is connected to appliances that are connected to the equipment grounding conductor of the circuit supplying that appliance. Corrugated stainless steel tubing (CSST) piping systems listed with an arc resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26 shall comply with this section. Where any CSST segments

of a piping system are not listed with an arc resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26, Section ~~G2411.1.1~~ G2411.2 shall apply.

~~G2411.1.1~~ G2411.2 CSST without arc resistant jacket or coating system. CSST gas piping systems and piping systems containing one or more segments of CSST not listed with an arc resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26 shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection electrode system and shall comply with Sections ~~G2411.1.1.1~~ G2411.2.1 through ~~G2411.1.1.5~~ G2411.2.5.

~~85~~ 72. Add Section G2425.1.1 to read:

G2425.1.1 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted to ensure that the connected vent or chimney systems comply with the following:

1. Vent or chimney systems are sized in accordance with this code.
2. Vent or chimney systems are clean, free of any obstruction or blockages, defects, or deterioration and are in operable condition.

Where not inspected by the local building department, persons performing such changes or installations shall certify to the building official that the requirements of Items 1 and 2 of this section are met.

~~86~~ 73 Change Section G2439.7.2 to read:

G2439.7.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

~~87~~ 74. Change Section P2601.2 to read:

P2601.2 Connections. Plumbing fixtures, drains and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent indirect waste systems.

Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved nonpotable gray water system in accordance with the applicable provisions of Sections P2910, P2911, and P2912.

~~88~~ 75. Change Section P2602.1 to read:

P2602.1 General. The water and drainage system of any building or premises where plumbing fixtures are installed shall be connected to a public or private water supply and a public or private sewer system. As provided for in Section 103.5 of Part I of the Virginia Uniform Statewide Building Code (13VAC5-63) for functional design, water supply sources and sewage disposal systems are

regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality.

Note: See also the Memorandums of Agreement in the "Related Laws Package," which is available from the Virginia Department of Housing and Community Development.

~~89.~~ 76. Add Section P2602.3 to read:

P2602.3 Tracer wire. Nonmetallic water service piping that connects to public systems shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product, shall be utilized. The wire shall be installed in the same trench as the water service piping and within 12 inches (305 mm) of the pipe and shall be installed to within five feet (1524 mm) of the building wall to the point where the building water service pipe intersects with the public water supply. At a minimum, one end of the wire shall terminate above grade to provide access to the wire in a location that is resistant to physical damage, such as with a meter vault or at the building wall.

~~90.~~ 77. Add Section P2901.1.1 to read:

P2901.1.1 Nonpotable fixtures and outlets. Nonpotable water shall be permitted to serve nonpotable type fixtures and outlets in accordance with the applicable provisions of Sections P2910, P2911, and P2912.

~~91.~~ 78. Change Section P2903.5 to read:

P2903.5 Water hammer. The flow velocity of the water distribution system shall be controlled to reduce the possibility of water hammer. A water-hammer arrestor shall be installed where quick-closing valves are utilized, unless otherwise approved. Water hammer arrestors shall be installed in accordance with manufacturer's specifications. Water hammer arrestors shall conform to ASSE 1010.

~~92.~~ 79. Change Sections P2910.1 through P2910.14, including subsections, to read:

P2910.1 Scope. The provisions of this section shall govern the materials, design, construction, and installation of nonpotable water systems subject to this code.

P2910.1.1 Design of nonpotable water systems. All portions of nonpotable water systems subject to this code shall be constructed using the same standards and requirements for the potable water systems or drainage systems as provided for in this code unless otherwise specified in this section or Section P2911 or P2912, as applicable.

P2910.2 Makeup water. Makeup water shall be provided for all nonpotable water supply systems. The makeup water system shall be designed and installed to provide supply of water in the amounts and at the pressures specified in this code. The makeup water supply shall be potable and be protected against backflow in accordance with the applicable requirements of Section P2902.

P2910.2.1 Makeup water sources. Nonpotable water shall be permitted to serve as makeup water for gray water and rainwater systems.

P2910.2.2 Makeup water supply valve. A full-open valve shall be provided on the makeup water supply line.

P2910.2.3 Control valve alarm. Makeup water systems shall be fitted with a warning mechanism that alerts the user to a failure of the inlet control valve to close correctly. The alarm shall activate before the water within the storage tank begins to discharge into the overflow system.

P2910.3 Sizing. Nonpotable water distribution systems shall be designed and sized for peak demand in accordance with approved engineering practice methods that comply with the applicable provisions of this chapter.

P2910.4 Signage required. All nonpotable water outlets, other than water closets and urinals, such as hose connections, open ended pipes, and faucets shall be identified at the point of use for each outlet with signage that reads as follows: "Nonpotable water is utilized for (insert application name). Caution: nonpotable water. DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and in colors in contrast to the background on which they are applied. The pictograph shown in Figure P2910.4 shall appear on the signage required by this section.



P2910.5 Potable water supply system connections. Where a potable water supply system is connected to a nonpotable water system, the potable water supply shall be protected against backflow in accordance with the applicable provisions of Section P2902.

P2910.6 Nonpotable water system connections. Where a nonpotable water system is connected and supplies water to another nonpotable water system, the nonpotable water system that supplies water shall be protected against backflow in accordance with the applicable provisions of Section P2902.

P2910.7 Approved components and materials. Piping, plumbing components, and materials used in the nonpotable water drainage and distribution systems shall be approved for the intended application and compatible with the water and any disinfection or treatment systems used.

P2910.8 Insect and vermin control. Nonpotable water systems shall be protected to prevent the entrance of insects and vermin into storage and piping systems. Screen materials shall be compatible with system material and shall not promote corrosion of system components.

P2910.9 Freeze protection. Nonpotable water systems shall be protected from freezing in accordance with the applicable provisions of Chapter 26.

P2910.10 Nonpotable water storage tanks. Nonpotable water storage tanks shall be approved for the intended application and comply with Sections P2910.10.1 through P2910.10.12.

P2910.10.1 Sizing. The holding capacity of storage tanks shall be sized for the intended use.

P2910.10.2 Inlets. Storage tank inlets shall be designed to introduce water into the tank and avoid agitating the contents of the storage tank. The water supply to storage tanks shall be controlled by fill valves or other automatic supply valves designed to stop the flow of incoming water before the tank contents reach the overflow pipes.

P2910.10.3 Outlets. Outlets shall be located at least 4 inches (102 mm) above the bottom of the storage tank and shall not skim water from the surface.

P2910.10.4 Materials and location. Storage tanks shall be constructed of material compatible with treatment systems used to treat water. Above grade storage vessels shall be constructed using opaque, UV-resistant materials such as tinted plastic, lined metal, concrete, or wood or painted to prevent algae growth. Above grade storage tanks shall be protected from direct sunlight unless their design specifically incorporates the use of the sunlight heat transfer. Wooden storage tanks shall be provided with a flexible liner. Storage tanks and their manholes shall not be located directly under soil or waste piping or sources of contamination.

P2910.10.5 Foundation and supports. Storage tanks shall be supported on a firm base capable of withstanding the storage tank's weight when filled to capacity. Storage tanks shall be supported in accordance with the applicable provisions of the IBC.

P2910.10.5.1 Ballast. Where the soil can become saturated, an underground storage tank shall be ballasted, or otherwise secured, to prevent the effects of buoyancy. The combined weight of the tank and hold down ballast shall meet or exceed the buoyancy force of the tank. Where the installation requires a foundation, the foundation shall be flat and shall be designed to support the storage tank weight when full, consistent with the bearing capability of adjacent soil.

P2910.10.5.2 Structural support. Where installed below grade, storage tank installations shall be designed to withstand earth and surface structural loads without damage.

P2910.10.6 Overflow. The storage tank shall be equipped with an overflow pipe having a diameter not less than that shown in Table P2910.10.6. The overflow outlet shall discharge at a point not less than 6 inches (152 mm) above the roof or roof drain, floor or floor drain, or over an open water-supplied fixture. The overflow outlet shall terminate through a check valve. Overflow pipes shall not be directed on walkways. The overflow drain shall not be equipped with a shutoff valve. A minimum of one cleanout shall be provided on each overflow pipe in accordance with the applicable provisions of Section P3005.2.

Table P2910.10.6 Sizes for Overflow Pipes for Water Supply Tanks	
Maximum Capacity of Water Supply Line to Tank (gpm)	Diameter of Overflow Pipe (inches)
0 - 50	2
50 - 150	2-1/2
150 - 200	3

200 - 400	4
400 - 700	5
700 - 1,000	6
Over 1,000	8
For SI: 1 inch = 25.4 mm, 1 gallon per minute = 3.785 L/m.	

P2910.10.7 Access. A minimum of one access opening shall be provided to allow inspection and cleaning of the tank interior. Access openings shall have an approved locking device or other approved method of securing access. Below grade storage tanks, located outside of the building, shall be provided with either a manhole not less than 24 inches (610 mm) square or a manhole with an inside diameter not less than 24 inches (610 mm). The design and installation of access openings shall prohibit surface water from entering the tank. Each manhole cover shall have an approved locking device or other approved method of securing access.

Exception: Storage tanks under 800 gallons (3028 L) in volume installed below grade shall not be required to be equipped with a manhole, but shall have an access opening not less than 8 inches (203 mm) in diameter to allow inspection and cleaning of the tank interior.

P2910.10.8 Venting. Storage tanks shall be vented. Vents shall not be connected to the sanitary drainage system. Vents shall be at least equal in size to the internal diameter of the drainage inlet pipe or pipes connected to the tank. Where installed at grade, vents shall be protected from contamination by means of a U-bend installed with the opening directed downward. Vent outlets shall extend a minimum of 12 inches (304.8 mm) above grade, or as necessary to prevent surface water from entering the storage tank. Vent openings shall be protected against the entrance of vermin and insects. Vents serving gray water tanks shall terminate in accordance with the applicable provisions of Sections P3103 and P2910.8.

P2910.10.9 Drain. Where drains are provided, they shall be located at the lowest point of the storage tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table P2910.10.6. A minimum of one cleanout shall be provided on each drain pipe in accordance with Section P3005.2.

P2910.10.10 Labeling and signage. Each nonpotable water storage tank shall be labeled with its rated capacity and the location of the upstream bypass valve. Underground and otherwise concealed storage tanks shall be labeled at all access points. The label shall read: "CAUTION: NONPOTABLE WATER - DO NOT DRINK." Where an opening is provided that could allow the entry of personnel, the opening shall be marked with the words: "DANGER - CONFINED SPACE." Markings shall be indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material mounted on the tank or shall be indelibly printed on the tank. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and shall be of a color in contrast with the background on which they are applied.

P2910.10.11 Storage tank tests. Storage tanks shall be tested in accordance with the following:

1. Storage tanks shall be filled with water to the overflow line prior to and during inspection. All seams and joints shall be left exposed and the tank shall remain water tight without leakage for a period of 24 hours.
2. After 24 hours, supplemental water shall be introduced for a period of 15 minutes to verify proper drainage of the overflow system and verify that there are no leaks.

3. Following a successful test of the overflow system, the water level in the tank shall be reduced to a level that is at 2 inches (50.8 mm) below the makeup water offset point. The tank drain shall be observed for proper operation. The makeup water system shall be observed for proper operation, and successful automatic shutoff of the system at the refill threshold shall be verified. Water shall not be drained from the overflow at any time during the refill test.

4. Air tests shall be permitted in lieu of water testing as recommended by the tank manufacturer or the tank standard.

P2910.10.12 Structural strength. Storage tanks shall meet the applicable structural strength requirements of the IBC.

P2910.11 Trenching requirements for nonpotable water system piping. Underground nonpotable water system piping shall be horizontally separated from the building sewer and potable water piping by 5 feet (1524 mm) of undisturbed or compacted earth. Nonpotable water system piping shall not be located in, under, or above sewage systems cesspools, septic tanks, septic tank drainage fields, or seepage pits. Buried nonpotable water system piping shall comply with the requirements of this code for the piping material installed.

Exceptions:

1. The required separation distance shall not apply where the bottom of the nonpotable water pipe within 5 feet (1524 mm) of the sewer is equal to or greater than 12 inches (305 mm) above the top of the highest point of the sewer and the pipe materials conforms to Table P3002.2.

2. The required separation distance shall not apply where the bottom of the potable water service pipe within 5 feet (1524 mm) of the nonpotable water pipe is a minimum of 12 inches (305 mm) above the top of the highest point of the nonpotable water pipe and the pipe materials comply with the requirements of Table P2906.5.

3. Nonpotable water pipe is permitted to be located in the same trench with building sewer piping, provided that such sewer piping is constructed of materials that comply with the requirements of Table P3002.1(2).

4. The required separation distance shall not apply where a nonpotable water pipe crosses a sewer pipe, provided that the pipe is sleeved to at least 5 feet (1524 mm) horizontally from the sewer pipe centerline on both sides of such crossing with pipe materials that comply with Table P3002.1(2).

5. The required separation distance shall not apply where a potable water service pipe crosses a nonpotable water pipe provided that the potable water service pipe is sleeved for a distance of at least 5 feet (1524 mm) horizontally from the centerline of the nonpotable pipe on both sides of such crossing with pipe materials that comply with Table P3002.1(2).

P2910.12 Outdoor outlet access. Sillcocks, hose bibs, wall hydrants, yard hydrants, and other outdoor outlets that are supplied by nonpotable water shall be located in a locked vault or shall be operable only by means of a removable key.

P2910.13 Drainage and vent piping and fittings. Nonpotable drainage and vent pipe and fittings shall comply with the applicable material standards and installation requirements in accordance with provisions of Chapter 30.

P2910.13.1 Labeling and marking. Identification of nonpotable drainage and vent piping shall not be required.

P2910.14 Pumping and control system. Mechanical equipment, including pumps, valves, and filters, shall be accessible and removable in order to perform repair, maintenance, and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be designed for the intended application in accordance with the applicable provisions of Section P2903.

~~93.~~ 80. Add Sections P2910.15 through P2910.18, including subsections, to read:

P2910.15 Water-pressure reducing valve or regulator. Where the water pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the nonpotable water distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with the applicable provisions of Section P2903.3.1.

P2910.16 Distribution pipe. Distribution piping utilized in nonpotable water stems shall comply with Sections P2910.16.1 through P2910.16.4.

P2910.16.1 Materials, joints, and connections. Distribution piping and fittings shall comply with the applicable material standards and installation requirements in accordance with applicable provisions of Chapter 29.

P2910.16.2 Design. Distribution piping shall be designed and sized in accordance with the applicable provisions of Chapter 29.

P2910.16.3 Labeling and marking. Distribution piping labeling and marking shall comply with Section ~~P2901.4~~ P2901.2.

P2910.16.4 Backflow prevention. Backflow preventers shall be installed in accordance with the applicable provisions of Section P2902.

P2910.17 Tests and inspections. Tests and inspections shall be performed in accordance with Sections P2910.17.1 through P2910.17.5.

P2910.17.1 Drainage and vent pipe test. Drain, waste, and vent piping used for gray water and rainwater nonpotable water systems shall be tested in accordance with the applicable provisions of Section P2503.

P2910.17.2 Storage tank test. Storage tanks shall be tested in accordance with the Section P2910.10.11.

P2910.17.3 Water supply system test. Nonpotable distribution piping shall be tested in accordance with Section P2503.7.

P2910.17.4 Inspection and testing of backflow prevention assemblies. The testing of backflow preventers and backwater valves shall be conducted in accordance with Section P2503.8.

P2910.17.5 Inspection of vermin and insect protection. Inlets and vent terminations shall be visually inspected to verify that each termination is installed in accordance with Section P2910.10.8.

P2910.18 Operation and maintenance manuals. Operations and maintenance materials for nonpotable water systems shall be provided as prescribed by the system component manufacturers and supplied to the owner to be kept in a readily accessible location.

~~94.~~ 81. Change the title of Section P2911 to "Gray Water Nonpotable Water Systems."

~~95.~~ 82. Change Sections P2911.1 through P2911.6, including subsections, to read:

P2911.1 Gray water nonpotable water systems. This code is applicable to the plumbing fixtures, piping or piping systems, storage tanks, drains, appurtenances, and appliances that are part of the distribution system for gray water within buildings and to storage tanks and associated piping that are part of the distribution system for gray water outside of buildings. This code does not regulate equipment used for, or the methods of, processing, filtering, or treating gray water, which may be regulated by the Virginia Department of Health or the Virginia Department of Environmental Quality.

P2911.1.1 Separate systems. Gray water nonpotable water systems, unless approved otherwise under the permit from the Virginia Department of Health, shall be separate from the potable water system of a building with no cross connections between the two systems except as permitted by the Virginia Department of Health.

P2911.2 Water quality. Each application of gray water reuse shall meet the minimum water quality requirements set forth in Sections P2911.2.1 through P2911.2.4 unless otherwise superseded by other state agencies.

P2911.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

P2911.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

P2911.2.3 Filtration. Water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

P2911.2.4 Filtration required. Gray water utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

P2911.3 Storage tanks. Storage tanks utilized in gray water nonpotable water systems shall comply with Section P2910.10.

P2911.4 Retention time limits. Untreated gray water shall be retained in storage tanks for a maximum of 24 hours.

P2911.5 Tank location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table P2911.5.1.

Table P2911.5.1 Location of Nonpotable Gray Water Reuse Storage Tanks	
Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5
Septic tanks	5
Water wells	50
Streams and lakes	50
Water service	5
Public water main	10

P2911.6 Valves. Valves shall be supplied on gray water nonpotable water drainage systems in accordance with Sections P2911.6.1 and P2911.6.2.

P2911.6.1 Bypass valve. One three-way diverter valve certified to NSF 50 or other approved device shall be installed on collection piping upstream of each storage tank, or drainfield, as applicable, to divert untreated gray water to the sanitary sewer to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be labeled to indicate the direction of flow, connection, and storage tank or drainfield connection. Bypass valves shall be provided with access for operation and maintenance. Two shutoff valves shall not be installed to serve as a bypass valve.

P2911.6.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section P3008.

83. Delete Sections P2911.7 through P2911.13, including subsections.

~~96.~~ 84. Change the title of Section P2912 to "Rainwater Nonpotable Water Systems."

~~97.~~ 85. Change Sections P2912.1 through P2912.10, including subsections, to read:

P2912.1 General. The provisions of this section shall govern the design, construction, installation, alteration, and repair of rainwater nonpotable water systems for the collection, storage, treatment, and distribution of rainwater for nonpotable applications.

P2912.2 Water quality. Each application of rainwater reuse shall meet the minimum water quality requirements set forth in Sections P2912.2.1 through P2912.2.4 unless otherwise superseded by other state agencies.

P2912.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

P2912.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

P2912.2.3 Filtration. Water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

P2912.2.4 Filtration required. Rainwater utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

P2912.3 Collection surface. Rainwater shall be collected only from aboveground impervious roofing surfaces constructed from approved materials. Overflow or discharge piping from appliances or equipment or both, including but not limited to evaporative coolers, water heaters, and solar water heaters shall not discharge onto rainwater collection surfaces.

P2912.4 Collection surface diversion. At a minimum, the first 0.04 inches (1.016 mm) of each rain event of 25 gallons (94.6 L) per 1000 square feet (92.9 m²) shall be diverted from the storage tank by automatic means and not require the operation of manually operated valves or devices. Diverted water shall not drain onto other collection surfaces that are discharging to the rainwater system or to the sanitary sewer. Such water shall be diverted from the storage tank and discharged in an approved location.

P2912.5 Pre-tank filtration. Downspouts, conductors, and leaders shall be connected to a pre-tank filtration device. The filtration device shall not permit materials larger than 0.015 inches (0.4 mm).

P2912.6 Roof gutters and downspouts. Gutters and downspouts shall be constructed of materials that are compatible with the collection surface and the rainwater quality for the desired end use. Joints shall be made watertight.

P2912.6.1 Slope. Roof gutters, leaders, and rainwater collection piping shall slope continuously toward collection inlets. Gutters and downspouts shall have a slope of not less than 1 unit in 96 units along their entire length, and shall not permit the collection or pooling of water at any point.

P2912.6.2 Size. Gutters and downspouts shall be installed and sized in accordance with local rainfall rates.

P2912.6.3 Cleanouts. Cleanouts or other approved openings shall be provided to permit access to all filters, flushes, pipes, and downspouts.

P2912.7 Storage tanks. Storage tanks utilized in rainwater nonpotable water systems shall comply with Section P2910.10.

P2912.8 Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table P2912.8.1.

Table P2912.8.1 Location of Rainwater Storage Tanks	
Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5
Septic tanks	5

P2912.9 Valves. Valves shall be installed in collection and conveyance drainage piping of rainwater nonpotable water systems in accordance with Sections P2912.9.1 and P2912.9.2.

P2912.9.1 Influent diversion. A means shall be provided to divert storage tank influent to allow maintenance and repair of the storage tank system.

P2912.9.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section P3008.

P2912.10 Tests and inspections. Tests and inspections shall be performed in accordance with Sections P2912.10.1 and P2912.10.2.

P2912.10.1 Roof gutter inspection and test. Roof gutters shall be inspected to verify that the installation and slope is in accordance with Section P2912.6.1. Gutters shall be tested by pouring a minimum of one gallon of water into the end of the gutter opposite the collection point. The gutter being tested shall not leak and shall not retain standing water.

P2912.10.2 Collection surface diversion test. A collection surface diversion test shall be performed by introducing water into the gutters or onto the collection surface area. Diversion of the first quantity of water in accordance with the requirements of Section P2912.4 shall be verified.

~~98.~~ 96. Delete Sections P2912.11 through P2912.16, including subsections.

~~99.~~ 97. Delete Section P2913 in its entirety.

~~400.~~ 98. Add Section P3002.2.2 to read:

P3002.2.2 Tracer wire. Nonmetallic sanitary sewer piping that discharges to public systems shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product, shall be utilized. The wire shall be installed in the same trench as the sewer within 12 inches (305 mm) of the pipe and shall be installed from within five feet of the building wall to the point where the building sewer intersects with the public system. At a minimum, one end of the wire shall terminate above grade in an accessible location that is resistant to physical damage, such as with a cleanout or at the building wall.

~~401.~~ 99. Add an exception to Section P3301.1 to read:

Exception: Rainwater nonpotable water systems shall be permitted in accordance with the applicable provisions of Sections P2910 and P2912.

~~402.~~ 100. Add Section E3601.8 to read:

E3601.8 Energizing service equipment. The building official shall give permission to energize the electrical service equipment of a one-family or two-family dwelling unit when all of the following requirements have been approved:

1. The service wiring and equipment, including the meter socket enclosure, shall be installed and the service wiring terminated.
2. The grounding electrode system shall be installed and terminated.
3. At least one receptacle outlet on a ground fault protected circuit shall be installed and the circuit wiring terminated.
4. Service equipment covers shall be installed.
5. The building roof covering shall be installed.
6. Temporary electrical service equipment shall be suitable for wet locations unless the interior is dry and protected from the weather.

~~403.~~ 101. Change Section E3802.4 to read:

E3802.4 In unfinished basements. Where Type SE or NM cable is run at angles with joists in unfinished basements, cable assemblies containing two or more conductors of sizes 6 AWG and larger and assemblies containing three or more conductors of sizes 8 AWG and larger shall not require additional protection where attached directly to the bottom of the joists. Smaller cables shall be run either through bored holes in joists or on running boards. Type NM or SE cable installed on the wall of an unfinished basement shall be permitted to be installed in a listed conduit or tubing or shall be protected in accordance with Table E3802.1. Conduit or tubing shall be provided with a suitable insulating bushing or adapter at the point the where cable enters the raceway. The sheath of the Type NM or SE cable shall extend through the conduit or tubing and into the outlet or device box not less than 1/4 inch (6.4 mm). The cable shall be secured within 12 inches (305 mm) of the point where the cable enters the conduit or tubing. Metal conduit, tubing, and metal outlet boxes shall be connected to an equipment grounding conductor complying with Section E3908.13.

~~404.~~ 102. Change Section E3902.16 to read:

E3902.16 Arc-fault protection of bedroom outlets. Branch circuits that supply 120-volt, single phase, 15-ampere and 20-ampere outlets installed in bedrooms shall be protected by any of the following:

1. A listed combination-type arc-fault circuit interrupter installed to provide protection of the entire branch circuit.
2. A listed branch/feeder-type AFCI installed at the origin of the branch-circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet

box on the branch circuit. The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.

3. A listed supplemental arc protection circuit breaker installed at the origin of the branch circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit where all of the following conditions are met:

3.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.

3.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.

3.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit.

4. A listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet on the branch circuit in combination with a listed branch-circuit overcurrent protective device where all of the following conditions are met:

4.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.

4.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.

4.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit.

4.4. The combination of the branch-circuit overcurrent device and outlet branch-circuit AFCI shall be identified as meeting the requirements for a system combination-type AFCI and shall be listed as such.

5. Where metal outlet boxes and junction boxes and RMC, IMC, EMT, Type MC or steel-armored Type AC cables meeting the requirements of Section E3908.8, metal wireways or metal auxiliary gutters are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit.

6. Where a listed metal or nonmetallic conduit or tubing or Type MC cable is encased in not less than two inches (50.8 mm) of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit.

Exception:

AFCI protection is not required for an individual branch circuit supplying only a fire alarm system where the branch circuit is wired with metal outlet and junction boxes and RMC, IMC, EMT or steel-sheathed armored cable Type AC, or Type MC meeting the requirements of Section E3908.8.

~~405.~~ 103. Change the referenced standards in Chapter 44 as follows (standards not shown remain the same):

Standard Reference Number	Title	Referenced in Code Section Number
ANSI LC1/CSA 6.26-14	Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST)	G2411.1, G2411.1.1, G2414.5.3
NSF 50-09	~~Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities~~	~~P2911.6.1~~

~~U. T.~~ Add "Marinas" to the list of occupancies in Section 312.1 of the IBC.

13VAC5-63-220. Chapter 4 Special detailed requirements based on use and occupancy.

A. Delete Section 403.4.5 of the IBC.

B. Change Section 407.4.1.1 of the IBC to read:

407.4.1.1 Special locking arrangement. Means of egress doors shall be permitted to contain locking devices restricting the means of egress in areas in which the clinical needs of the patients require restraint of movement, where all of the following conditions are met:

1. The locks release upon activation of the fire alarm system or the loss of power.
2. The building is equipped with an approved automatic sprinkler system in accordance with Section 903.3.1.1.
3. A manual release device is provided at a nursing station responsible for the area.
4. A key-operated switch or other manual device is provided adjacent to each door equipped with the locking device. Such switch or other device, when operated, shall result in direct interruption of power to the lock -- independent of the control system electronics.
5. All staff shall have keys or other means to unlock the switch or other device or each door provided with the locking device.

C. Add Section ~~407.11~~ 407.12 to the IBC to read:

~~407.11~~ 407.12 Emergency power systems. Emergency power shall be provided for medical life support equipment, operating, recovery, intensive care, emergency rooms, fire detection and alarm systems in any Group I-2 occupancy licensed by the Virginia Department of Health as a hospital, nursing home or hospice facility.

D. Add Section 408.2.1 to the IBC to read:

408.2.1 Short-term holding areas. Short-term holding areas shall be permitted to comply with Section 429.

E. Change Section 408.6 of the IBC to read:

408.6 Smoke barrier. Occupancies classified as Group I-3 shall have smoke barriers complying with Sections 408.8 and 709 to divide every story occupied by residents for sleeping, or any other story having an occupant load of 50 or more persons, into no fewer than two smoke compartments.

F. Change Section 408.9 of the IBC and add Sections 408.9.1 through 408.9.3 to the IBC to read:

408.9 Smoke control. Smoke control for each smoke compartment shall be in accordance with Sections 408.9.1 through 408.9.3.

Exception: Smoke compartments with operable windows or windows that are readily breakable.

408.9.1 Locations. An engineered smoke control system shall comply with Section 909 and shall be provided in the following locations:

1. Dormitory areas.
2. Celled areas.
3. General housing areas.
4. Intake areas.
5. Medical celled or medical dormitory areas.
6. Interior recreation areas.

408.9.2 Compliance. The engineered smoke control system shall provide and maintain a tenable environment in the area of origin and shall comply with all of the following:

1. Shall facilitate the timely evacuation and relocation of occupants from the area of origin.
2. Shall be independent of exhaust systems under Chapter 5 of the IMC.
3. Duration of operation in accordance with Section 909.4.6.
4. The pressurization method shall be permitted and shall provide a minimum of 24 air changes per hour of exhaust, and 20 air changes per hour of makeup, and shall comply with Section 909.6. If the pressurization method is not utilized, the exhaust method shall be provided and shall comply with Section 909.8.

408.9.3 Corridors. Egress corridors within smoke compartments shall be kept free and clear of smoke.

G. ~~Add an~~ Change exception to Section 414.2 of the IBC to read:

Exception: Higher education teaching and research laboratories shall be permitted to comply with Section 430.

H. Add Section 414.6.2 to the IBC to read:

414.6.2 Other regulations. The installation, repair, upgrade, and closure of underground and aboveground storage tanks subject to the Virginia State Water Control Board regulations 9VAC25-91 and 9VAC25-580 shall be governed by those regulations, which are hereby incorporated by reference to be an enforceable part of this code. Where differences occur between the provisions of this code and the incorporated provisions of the State Water Control Board regulations, the provisions of the State Water Control Board regulations shall apply. Provisions of the International Fire Code addressing closure of such tanks that are subject to the Virginia State Water Control Board regulations 9VAC25-91 and 9VAC25-580 shall not be applicable.

I. ~~Add~~ Replace IBC Section 427 428 with the following

Section 428 Manufactured Homes and Industrialized Buildings.

~~J. Add Section 427.1 to the IBC to read:~~

~~427.1~~ 428.1 General. The provisions of this section shall apply to the installation or erection of manufactured homes subject to the Virginia Manufactured Home Safety Regulations (13VAC5-95) and industrialized buildings subject to the Virginia Industrialized Building Safety Regulations (13VAC5-91).

Note: Local building departments are also responsible for the enforcement of certain provisions of the Virginia Manufactured Home Safety Regulations (13VAC5-95) and the Virginia Industrialized Building Safety Regulations (13VAC5-91) as set out in those regulations.

~~K. Add Section 427.2 to the IBC to read:~~

~~427.2~~ 428.2 Site work for manufactured homes. Footing design, basements, grading, drainage, decks, stoops, porches and utility connections shall comply with the provisions of this code applicable to Group R-5 occupancies. Additionally, all applicable provisions of Chapter 1 of this code, including but not limited to requirements for permits, inspections, certificates of occupancy and requiring compliance, are applicable to the installation and set-up of a manufactured home. Where the installation or erection of a manufactured home utilizes components that are to be concealed, the installer shall notify the building official that an inspection is necessary and assure that an inspection is performed and approved prior to concealment of such components, unless the building official has agreed to an alternative method of verification.

~~L. Add Section 427.2.1 to the IBC to read:~~

~~427.2.1~~ 428.2.1 Relocated manufactured homes. Installation, set-up, and site work for relocated manufactured homes shall comply with the provisions of this code and shall include the option of using the manufacturer's installations instructions or the federal Model Manufactured Home Installation Standards (24 CFR Part 3285) for the technical requirements.

~~M. Add Section 427.2.2 to the IBC to read:~~

~~427.2.2~~ 428.2.2 Alterations and repairs to manufactured homes. Alterations and repairs to manufactured homes shall either be in accordance with federal Manufactured Home Construction and Safety Standards (24 CFR Part 3280) or in accordance with the alteration and repair provisions this code.

~~N. Add Section 427.2.3 to the IBC to read:~~

~~427.2.3~~ 428.2.3 Additions to manufactured homes. Additions to manufactured homes shall comply with this code and shall be structurally independent of the manufactured home, or when not structurally independent, shall be evaluated by an RDP to determine that the addition does not cause the manufactured home to become out of compliance with federal Manufactured Home Construction and Safety Standards (24 CFR Part 3280).

~~O. Add Section 427.3 to the IBC to read:~~

~~427.3~~ 428.3 Wind load requirements for manufactured homes. Manufactured homes shall be anchored to withstand the wind loads established by the federal regulation for the area in which the manufactured home is installed. For the purpose of this code, Wind Zone II of the federal regulation shall include the cities of Chesapeake, Norfolk, Portsmouth, and Virginia Beach.

~~P. Add Section 427.4 to the IBC to read:~~

~~427.4~~ 428.4 Skirting requirements for manufactured homes. As used in this section, "skirting" means a weather-resistant material used to enclose the space from the bottom of the manufactured home to grade. In accordance with § 36-99.8 of the Code of Virginia, manufactured homes installed or relocated shall have skirting installed within 60 days of occupancy of the home. Skirting materials shall be durable, suitable for exterior exposures and installed in accordance with the manufacturer's installation instructions. Skirting shall be secured as necessary to ensure stability, to minimize vibrations, to minimize susceptibility to wind damage and to compensate for possible frost heave. Each manufactured home shall have a minimum of one opening in the skirting providing access to any water supply or sewer drain connections under the home. Such openings shall be a minimum of 18 inches (457 mm) in any dimension and not less than three square feet (.28 m²) in area. The access panel or door shall not be fastened in a manner requiring the use of a special tool to open or remove the panel or door. On-site fabrication of the skirting by the owner or installer of the home shall be acceptable, provided that the material meets the requirements of this code. In addition, as a requirement of this code, skirting for the installation and set-up of a new manufactured home shall also comply with the requirements of 24 CFR Part 3285 – Model Manufactured Home Installation Standards.

~~Q. Add Section 427.5 to the IBC to read:~~

~~427.5–~~ 428.5 Site work for industrialized buildings. Site work for the erection and installation of an industrialized building shall comply with the manufacturer's installation instructions. To the extent that any aspect of the erection or installation of an industrialized building is not covered by the manufacturer's installation instructions, this code shall be applicable, including the use of the IRC for any construction work where the industrialized building would be classified as a Group R-5 building. In addition, all administrative requirements of this code for permits, inspections, and certificates of occupancy are also applicable. Further, the building official may require the submission of plans and specifications for details of items needed to comprise the finished building that are not included or specified in the manufacturer's instructions, including, but not limited to, footings, foundations, supporting structures, proper anchorage, and the completion of the plumbing, mechanical, and electrical systems. Where the installation or erection of an industrialized building utilizes components that are to be concealed, the installer shall notify the building official that an inspection is necessary and assure that an inspection is performed and approved prior to concealment of such components, unless the building official has agreed to an alternative method of verification.

Exception: Temporary family health care structures installed pursuant to § 15.2-2292.1 of the Code of Virginia shall not be required or permitted to be placed on a permanent foundation, but shall otherwise remain subject to all pertinent provisions of this section.

~~R. Add Section 427.6 to the IBC to read:~~

~~427.6~~ 428.6 Relocated industrialized buildings; alterations and additions. Industrialized buildings constructed prior to January 1, 1972, shall be subject to Section 117 when relocated. Alterations and additions to any existing industrialized buildings shall be subject to pertinent provisions of this code. Building officials shall be permitted to require the submission of plans and specifications for the model to aid in the evaluation of the proposed alteration or addition. Such plans and specifications shall be permitted to be submitted in electronic or other available format acceptable to the building official.

~~S. Add Section 427.7 to the IBC to read:~~

~~427.7~~ 428.7 Change of occupancy of industrialized buildings. Change of occupancy of industrialized buildings is regulated by the Virginia Industrialized Building Safety Regulations (13VAC5-91). When the industrialized building complies with those regulations for the new occupancy, the building official shall issue a new certificate of occupancy under the USBC.

~~T.J. Add IBC Section 428~~ 429 Aboveground Liquid Fertilizer Tanks- to the IBC to read:

~~U. Add Sections 428.1 through 428.6 to the IBC to read:~~

~~428.1~~ 429.1 General. This section shall apply to the construction of ALFSTs and shall supersede any conflicting requirements in other provisions of this code. ALFSTs shall also comply with any applicable nonconflicting requirements of this code.

~~428.1.1~~ 429.1.1 When change of occupancy rules apply. A change of occupancy to use a tank as an ALFST occurs when there is a change in the use of a tank from storing liquids other than liquid fertilizers to a use of storing liquid fertilizer and when the type of liquid fertilizer being stored has a difference of at least 20% of the specific gravity or operating temperature, or both, or a significant change in the material's compatibility.

~~428.2~~ 429.2 Standards. Newly constructed welded steel ALFSTs shall comply with API 650 and TFI RMIP, as applicable. Newly constructed ALFSTs constructed of materials other than welded steel shall be constructed in accordance with accepted engineering practice to prevent the discharge of liquid fertilizer and shall be constructed of materials that are resistant to corrosion, puncture or cracking. In addition, newly constructed ALFSTs constructed of materials other than welded steel shall comply with TFI RMIP, as applicable. For the purposes of this code, the use of TFI RMIP shall be construed as mandatory and any language in TFI RMIP, such as, but not limited to, the terms "should" or "may" which indicate that a provision is only a recommendation or a guideline shall be taken as a requirement. ALFSTs shall be placarded in accordance with NFPA 704.

Exception: Sections 4.1.4, 4.2.5, 5.1.2, 5.2.8, 5.3 and 8.1(d)(i) of TFI RMIP shall not be construed as mandatory.

~~428.3~~ 429.3 Secondary containment. When ALFSTs are newly constructed and when there is a change of occupancy to use a tank as an ALFST, a secondary containment system designed and constructed to prevent any liquid fertilizer from reaching the surface water, groundwater or adjacent land before cleanup occurs shall be provided. The secondary containment system may include dikes, berms or retaining walls, curbing,

diversion ponds, holding tanks, sumps, vaults, double-walled tanks, liners external to the tank, or other approved means and shall be capable of holding up to 110% of the capacity of the ALFST as certified by an RDP.

~~428.4~~ 429.4 Repair, alteration and reconstruction of ALFSTs. Repair, alteration and reconstruction of ALFSTs shall comply with applicable provisions of API 653 and TFI RMIP.

~~428.5~~ 429.5 Inspection. Applicable inspections as required by and in accordance with API 653 and TFI RMIP shall be performed for repairs and alterations to ALFSTs, the reconstruction of ALFSTs and when there is a change of occupancy to use a tank as an ALFST. When required by API 653 or TFI RMIP, such inspections shall occur prior to the use of the ALFST.

~~428.6~~ 429.6 Abandoned ALFSTs. Abandoned ALFSTs shall comply with applicable provisions of Section 5704.2.13.2 of the IFC.

~~V.~~ Add IBC Section 429 Short term Holding Areas.

~~W.~~ Add Section 429.1 to the IBC to read:

~~429.1 General. In all groups other than Group E, short term holding areas shall be permitted to be classified as the main occupancy, provided all of the following are met:~~

- ~~1. Provisions are made for the release of all restrained or detained occupants of short term holding areas at all times.~~
- ~~2. Aggregate area of short term holding areas shall not occupy more than 10% of the building area of the story in which they are located and shall not exceed the tabular values for building area in Table 506.2, without building area increases.~~
- ~~3. Restrained or detained occupant load of each short term holding area shall not exceed 20.~~
- ~~4. Aggregate restrained or detained occupant load in short term holding areas per building shall not exceed 80.~~
- ~~5. Compliance with Sections 408.3.7, 408.3.8, 408.4, and 408.7, as would be applicable to I-3 occupancies.~~
- ~~6. Requirements of the main occupancy in which short term holding areas are located shall be met.~~
- ~~7. Fire areas containing short term holding areas shall be provided with a fire alarm system and automatic smoke detection system complying with Section 907.2.6.3, as would be applicable to I-3 occupancies.~~
- ~~8. Where each fire area containing short term holding areas exceeds 12,000 square feet (1115 m²), such fire areas shall be provided with an automatic sprinkler system complying with Section 903.3.~~
- ~~9. Short term holding areas shall be separated from other short term holding areas and adjacent spaces by smoke partitions complying with Section 710.~~

~~X.~~ K. Add IBC Section 430 Higher Education Laboratories to the IBC to read:

~~Y. Add Sections 430.1 through 430.4 to the IBC to read:~~

430.1 Scope. Group B teaching and research laboratories in educational occupancies above the 12th grade complying with the requirements of this section shall be permitted to comply with Table 430.3, 430.4(1), or 430.4(2) without requiring classification as a Group H occupancy. Except as specified in this section, such laboratories shall comply with all applicable provisions of this code. In addition, as set out in Section 5001.7 of the SFPC, approval under this section is contingent upon operational requirements in the SFPC being complied with and maintained.

430.2 Application. The provisions of this section shall be applied as exceptions or additions to applicable requirements of this code.

430.3 Laboratory suite construction. Where laboratory suites are provided, they shall be constructed in accordance with this section. The number of laboratory suites and percentage of maximum allowable quantities of hazardous materials in laboratory suites shall be in accordance with Table 430.3.

430.3.1 Separation from adjacent areas. Laboratory suites shall be separated from other portions of the building in accordance with the most restrictive of either (i) Table 430.3 with fire barriers constructed in accordance with Section 707 and horizontal assemblies constructed in accordance with Section 711 or (ii) Section 508.4. Where individual laboratories within a laboratory suite are separated from each other, the separation shall consist of one-hour fire barriers.

Exception: Where an individual laboratory suite occupies more than one story, the fire resistance rating of intermediate floors contained within the laboratory suite shall comply with the requirements of this code.

430.3.2 Separation from other laboratory suites. Laboratory suites shall be separated from other laboratory suites in accordance with Table 430.3.

430.3.3 Floor assembly fire resistance. The floor assembly supporting the laboratory suite and the construction supporting the floor of the laboratory suite shall have a fire resistance rating of not less than two hours.

Exception: The floor assembly of the laboratory suite and the construction supporting the floor of the laboratory suite are allowed to be one-hour fire resistance rated in buildings of Types IIA, IIIA, and VA construction, provided that the building is three or fewer stories.

430.3.4 Maximum number. The maximum number of laboratory suites per floor shall be in accordance with Table 430.3. Where a building contains both laboratory suites complying with Section 430.3 and control areas complying with Section 414.2, the total number of laboratory suites and control areas shall not exceed the maximum number of laboratory suites in accordance with Table 430.3.

430.3.5 Standby or emergency power. Standby or emergency power shall be provided in accordance with Section 414.5.2 where laboratory suites are located above the sixth story above grade plane or located in a story below grade plane.

430.3.6 Ventilation. Ventilation shall be in accordance with the International Mechanical Code. The design and installation of ducts from chemical fume hoods shall be in accordance with NFPA 91.

430.3.7 Liquid tight floor. Portions of the laboratory suite where hazardous materials are present shall be provided with a liquid tight floor.

430.3.8 Automatic fire sprinkler systems. Buildings shall be equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

430.3.9 Automatic fire alarm and detection system. Laboratory suites shall be equipped throughout with an automatic fire detection system in accordance with Section 907.2. The building shall be equipped throughout with an automatic fire alarm system in accordance with Section 907.2.

430.3.10 Percentage of maximum allowable quantity in each laboratory suite. The percentage of maximum allowable quantities in each laboratory suite shall be in accordance with Table 430.3.

Table 430.3 Design and Number of Laboratory Suites Per Floor				
Floor Level		Percentage of the Maximum Allowable Quantity per Lab Suite ^a	Number of Lab Suites per Floor	Fire-Resistance Rating for Fire Barriers in Hours ^b
Above Grade Plane	21+	5	1	2
	16-20	25	1	2
	11-15	50	1	2
	7-10	50	2	2
	4-6	75	4	1
	3	100	6	1
	1-2	100	8	1
Below Grade Plane	1	75	4	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed
a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the notes to those tables. b. Fire barriers shall include walls, floors, and ceilings necessary to provide separation from other portions of the building.				

430.4 Teaching and research laboratories utilizing control areas. Group B teaching and research laboratories in educational occupancies above the 12th grade utilizing control areas are permitted to increase amounts of hazardous materials stipulated in Section 414.2 without the laboratories being classified as Group H. The percentage of maximum allowable quantities of hazardous materials per control area and the number of control areas permitted at each floor level within a building shall be permitted to comply with Table 430.4(1) in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or shall be permitted to comply with Table 430.4(2) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. In addition, as set out in Section 5001.7 of the SFPC, approval under this section is contingent upon operational requirements in the SFPC being complied with and maintained.

Table 430.4(1) Design and Number of Control Areas in Buildings Equipped Throughout with an Automatic Sprinkler System in Accordance with Section 903.3.1.1 with Group B Teaching and Research Laboratories in Educational Occupancies above the 12th Grade				
Floor Level		Percentage of the Maximum Allowable Quantity per Control Area ^a	Number of Control Areas per Floor	Fire-Resistance Rating for Fire Barriers and Horizontal Assemblies in Hours ^b
Above Grade Plane	Higher than 20	5	1	2
	11-20	10	1	2
	7-10	25	2	2
	4-6	50	2	2
	3	75	3	1
	1-2	100	4	1
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed
a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the notes to those tables. b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.				

Table 430.4(2) Design and Number of Control Areas in Buildings Not Equipped Throughout with an Automatic Sprinkler System in Accordance with Section 903.3.1.1 with Group B Teaching and Research Laboratories in Educational Occupancies above the 12th Grade				
Floor Level		Percentage of the Maximum Allowable Quantity per Control Area ^a	Number of Control Areas per Floor	Fire-Resistance Rating for Fire Barriers and Horizontal Assemblies in Hours ^b
Above Grade Plane	Higher than 9	5	1	2
	7-9	10	2	2
	4-6	25	2	2
	3	75	2	1
	1-2	100	4	1
	1	75	3	1

Below Grade Plane	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed
a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the notes to those tables. b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.				

430.4.1 Separation requirements. Control areas shall be separated from each other and from other non-control areas by fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

430.4.2 Fire resistance rating requirements. The required fire-resistance rating for fire barriers shall be in accordance with Table 430.4(1) in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or in accordance with Table 430.4(2) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The floor assembly of the control area and the construction supporting the floor of the control area shall have a fire-resistance rating in accordance with Table 430.4(1) in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or in accordance with Table 430.4(2) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

Exception: The floor assembly of the control area and the construction supporting the floor of the control area are allowed to be one-hour fire resistance rated in buildings of Types IIA, IIIA, and VA construction, provided that the building is three or fewer stories.

430.4.3 Standby or emergency power. Standby or emergency power shall be provided where control areas are located above the sixth floor level above grade plane or located in a floor level below grade plane.

430.4.4 Restricted materials in storage and use. Where approved by the building official, the storage and use of the following hazardous materials prohibited by Table 307.1(1) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, shall be allowed within a control area at 25% of Table 307.1(1) limits for a building equipped throughout with an automatic sprinkler system:

1. Pyrophorics.
2. Class 4 oxidizers.

No additional quantity increases shall be allowed. All such materials shall be stored and used in accordance with Section 5001.7 of the SFPC.

430.4.5 Automatic fire alarm and detection system. The building shall be equipped throughout with an automatic fire alarm system in accordance with Section 907.2, and control areas where hazardous materials are used or stored shall be equipped throughout with an automatic fire detection system in accordance with Section 907.2.

430.4.6 Ventilation. Ventilation shall be in accordance with the International Mechanical code.

L. Add Section 431 Short-term Holding Areas to the IBC to read:

431.1 General. In all groups other than Group E, short-term holding areas shall be permitted to be classified as the main occupancy, provided all of the following are met:

1. Provisions are made for the release of all restrained or detained occupants of short-term holding areas at all times.
2. Aggregate area of short-term holding areas shall not occupy more than 10% of the building area of the story in which they are located and shall not exceed the tabular values for building area in Table 506.2, without building area increases.
3. Restrained or detained occupant load of each short-term holding area shall not exceed 20.
4. Aggregate restrained or detained occupant load in short-term holding areas per building shall not exceed 80.
5. Compliance with Sections 408.3.7, 408.3.8, 408.4, and 408.7, as would be applicable to I-3 occupancies.
6. Requirements of the main occupancy in which short-term holding areas are located shall be met.
7. Fire areas containing short-term holding areas shall be provided with a fire alarm system and automatic smoke detection system complying with Section 907.2.6.3, as would be applicable to I-3 occupancies.
8. Where each fire area containing short-term holding areas exceeds 12,000 square feet (1115 m²), such fire areas shall be provided with an automatic sprinkler system complying with Section 903.3.
9. Short-term holding areas shall be separated from other short-term holding areas and adjacent spaces by smoke partitions complying with Section 710.

13VAC5-63-230. Chapter 7 Fire and smoke protection features.

A. Change Section 703.7 of the IBC to read:

703.7 Fire-resistance assembly marking. Where there is a concealed floor, floor-ceiling, or attic space, the fire walls, fire barriers, fire partitions, smoke barriers, or any other wall required to have protected openings or penetrations shall be designated above ceilings and on the inside of all ceiling access doors that provide access to such fire rated assemblies by signage having letters no smaller than one inch (25.4 mm) in height. Such signage shall indicate the fire-resistance rating of the assembly and the type of assembly and be provided at horizontal intervals of no more than eight feet (2438 mm).

Note: An example of suggested formatting for the signage would be "ONE HOUR FIRE PARTITION."

B. Change the exceptions to Section 705.2 of the IBC to read:

Exceptions:

1. Buildings on the same lot and considered as portions of one building in accordance with Section 705.3 are not required to comply with this section.

2. Decks and open porches of buildings of Groups R-3 and R-4.

C. Add Exception 4 to Section 706.5.2 of the IBC to read:

4. Decks and open porches of buildings in Groups R-3 and R-4.

D. Change Section ~~716.5.3.1~~ 716.2.1.4 of the IBC to read:

~~716.5.3.1~~ 716.2.1.4 Smoke and draft control. Fire door assemblies located in smoke barrier walls shall also meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. ~~The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m³/s · m²) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.~~

E. Change Section 717.5.3 of the IBC to read:

717.5.3 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

1. Fire and smoke dampers are not required where steel exhaust subducts extend at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
2. Fire dampers are not required where penetrations are tested in accordance with ASTM E119 as part of the fire resistance-rated assembly.
3. Fire and smoke dampers are not required where ducts are used as part of an approved smoke control system in accordance with Section 909.
4. Fire and smoke dampers are not required where the penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than two-hour fire-resistance-rated construction.
5. Smoke dampers are not required where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

F. Add Section 717.6.2.2 to the IBC to read:

717.6.2.2 Equipment shutdown. Where ceiling radiation dampers are listed as static dampers, the HVAC equipment shall be effectively shut down to stop the airflow prior to the damper closing using one of the following methods:

1. A duct detector installed in the return duct.
2. An area smoke detector interlocked with the HVAC equipment.
3. A listed heat sensor installed in the return duct.

13VAC5-63-235. Chapter 8 Interior finishes.

Change Section ~~806.3~~ 806.2 of the IBC to read:

~~806.3~~ 806.2 Combustible decorative materials. In other than Group I-3, curtains, draperies, fabric hangings, and similar combustible decorative materials suspended from walls or ceilings shall comply with Section 806.4 and shall not exceed 10% of the specific wall or ceiling area to which it is attached. Fixed or movable walls and partitions, paneling, wall pads, and crash pads applied structurally or for decoration, acoustical correction, surface insulation, or other purposes shall be considered interior finish, shall comply with Section 803, and shall not be considered decorative materials or furnishings.

Exceptions:

1. In auditoriums or similar types of spaces in Group A, the permissible amount of curtains, draperies, fabric hangings, and similar combustible decorative materials suspended from walls or ceilings shall not exceed 75% of the aggregate wall area where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, and where the material is installed in accordance with Section ~~803.13~~ 803.15 of this code.
2. In auditoriums or similar types of spaces in Group A, the permissible amount of decorative materials suspended from the ceiling, located no more than 12 inches (305 mm) from the wall, not supported by the floor, and meeting the flame propagation performance criteria of NFPA 701, shall not exceed 75% of the aggregate wall area when the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. In Group R-2 dormitories, within sleeping units and dwelling units, the permissible amount of curtains, draperies, fabric hangings, and similar decorative materials suspended from walls or ceiling shall not exceed 50% of the aggregate walls areas where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.
4. In Group B and M occupancies, the amount of combustible fabric partitions suspended from the ceiling and not supported by the floor shall comply with Section 806.4 and shall not be limited.

13VAC5-63-240. Chapter 9 Fire protection systems.

~~A. Add the following to the list of terms in Section 902.1 of the IBC:~~

~~Emergency communication equipment.~~

~~Emergency public safety personnel.~~

~~B.~~ Change Item 2 of Section 903.2.1.2 of the IBC to read:

~~903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for fire areas containing Group A-2 occupancies and intervening floors of the building where one of the following conditions exists:~~

- ~~1. The fire area exceeds 5,000 square feet (464.5m²).~~
2. The fire area has an occupant load of 100 or more in night clubs or 300 or more in other Group A-2 occupancies.

~~3. The fire area is located on a floor other than a level of exit discharge serving such occupancies.~~

~~4. The fire area contains a multitheater complex.~~

~~C. B.~~ Change Item 2 of Section 903.2.1.3 of the IBC to read:

2. In Group A-3 occupancies other than places of religious worship, the fire area has an occupant load of 300 or more.

~~D. C.~~ Change Item 1 of Section 903.2.3 of the IBC to read:

~~903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:~~

1. Throughout all Group E fire areas greater than 20,000 square feet (1858 m²) in area.

~~2. Throughout every portion of educational buildings below the lowest level of exit discharge serving that portion of the building.~~

~~Exception: An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has at least one exterior exit door at ground level.~~

~~E. D.~~ Add Exception 4 to Section 903.2.6 to read:

4. An automatic sprinkler system shall not be required for open-sided or chain link-sided buildings and overhangs over exercise yards 200 square feet (18.58 m²) or less in Group I-3 facilities, provided such buildings and overhangs are of noncombustible construction.

~~F. E.~~ Change Delete Item 4 of Section 903.2.7 of the IBC ~~to read:~~ .

~~903.2.7 Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:~~

~~1. A Group M fire area exceeds 12,000 square feet (1115 m²).~~

~~2. A Group M fire area is located more than three stories above grade plane.~~

~~3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²).~~

~~G. F.~~ Change Section 903.2.8 of the IBC to read:

903.2.8 Group R. An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area, except for Group R-2 occupancies listed in the exceptions to this section when the necessary water pressure or volume, or both, for the system is not available:

Exceptions:

1. Group R-2 occupancies that do not exceed two stories, including basements that are not considered as a story above grade, and with a maximum of 16 dwelling units per fire area. Each dwelling unit shall have at least one door opening to an exterior exit access that leads directly to the exits required to serve that dwelling unit.

2. Group R-2 occupancies where all dwelling units are not more than two stories above the lowest level of exit discharge and not more than one story below the highest level of exit discharge of exits serving the dwelling unit and a two-hour fire barrier is provided between each pair of dwelling units. Each bedroom of a dormitory or boarding house shall be considered a dwelling unit under this exception.

~~H. G. Add~~ Change Section ~~903.3.1.2.2~~ 903.3.1.2.3 to the IBC to read:

~~903.3.1.2.2~~ 903.3.1.2.3 Attics. Sprinkler protection shall be provided for attics in buildings of Type III, IV or V construction in Group R-2 occupancies that are designed or developed and marketed to senior citizens 55 years of age or older and in Group I-1 occupancies in accordance with Section 7.2 of NFPA 13R.

~~I. H.~~ Add Section 903.3.5.1.1 to the IBC and change Section 903.3.5.2 of the IBC to Section 903.3.5.1.2; both to read as follows:

903.3.5.1.1 Limited area sprinkler systems. Limited area sprinkler systems serving fewer than 20 sprinklers on any single connection are permitted to be connected to the domestic service where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:

1. Valves shall not be installed between the domestic water riser control valve and the sprinklers.

Exception: An approved indicating control valve supervised in the open position in accordance with Section 903.4.

2. The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13R, or NFPA 13D.

903.3.5.1.2 Residential combination services. A single combination water supply shall be allowed provided that the domestic demand is added to the sprinkler demand as required by NFPA 13R.

~~J. I.~~ Delete Section ~~903.3.5.2~~ of the IBC and Sections 903.3.8 through 903.3.8.5 of the IBC.

~~K. J.~~ Change Section 903.4.2 of the IBC to read:

903.4.2 Alarms. Approved audible devices shall be connected to every automatic sprinkler system. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system. Group R-2 occupancies that contain 16 or more dwelling units or sleeping units, any dwelling unit or sleeping unit two or more stories above the lowest level of exit discharge, or any dwelling unit or sleeping unit more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit shall provide a manual fire alarm box at an approved location to activate the suppression system alarm.

~~L. K.~~ Change Section 905.3.1 of the IBC to read:

905.3.1 Height. Class III standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.

Exceptions:

1. Class I standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Class I manual wet standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1 or Section 903.3.2 and where the highest floor is located not more than 150 feet (45 720 mm) above the lowest level of fire department vehicle access.
3. Class I manual standpipes are allowed in open parking garages where the highest floor is located not more than 150 feet (45 720 mm) above the lowest level of fire department vehicle access.
4. Class I manual dry standpipes are allowed in open parking garages that are subject to freezing temperatures, provided that the hose connections are located as required for Class II standpipes in accordance with Section 905.5.
5. Class I standpipes are allowed in basements equipped throughout with an automatic sprinkler system.
6. In determining the lowest level of fire department vehicle access, it shall not be required to consider either of the following:
 - 6.1. Recessed loading docks for four vehicles or less.
 - 6.2. Conditions where topography makes access from the fire department vehicle to the building impractical or impossible.

~~M.~~ L. Change Item 1 of Section 906.1 of the IBC to read:

1. In Groups A, B, E, F, H, I, M, R-1, R-4, and S occupancies.

Exceptions:

1. In Groups A, B, and E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.
2. In Group I-3 occupancies, portable fire extinguishers shall be permitted to be located at staff locations and the access to such extinguishers shall be permitted to be locked.

~~N.~~ M. Change Section 907.2.1.1 of the IBC to read:

907.2.1.1 System initiation in Group A occupancies with an occupant load of 1,000 or more and in certain night clubs. Activation of the fire alarm in Group A occupancies with an occupant load of 1,000 or more and in night clubs with an occupant load of 300 or more shall initiate a signal using an emergency voice and alarm communications system in accordance with Section 907.5.2.2.

Exception: Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed three minutes, for the sole purpose of allowing a live voice announcement from an approved, constantly attended location.

~~Ø. N.~~ Add Section 907.2.2.2 to the IBC to read:

907.2.2.2 Higher education laboratories. An automatic fire alarm and detection system shall be provided in Group B occupancies where an increase in hazardous materials is permitted in accordance with Section 430.

~~P. Q.~~ Change Section 907.2.3 of the IBC to read:

907.2.3 Group E. A manual fire alarm system that activates the occupant notification system meeting the requirements of Section 907.5 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.
2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
 - 2.1. Interior corridors are protected by smoke detectors.
 - 2.2. Auditoriums, cafeterias, gymnasiums, and similar areas are protected by heat detectors or other approved detection devices.
 - 2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the occupant notification system will activate on sprinkler water flow and manual activation is provided from a normally occupied location.

~~Q. P.~~ Add an exception to Section 907.5.2.1.1 of the IBC to read:

Exception: Sound pressure levels in Group I-3 occupancies shall be permitted to be limited to only the notification of occupants in the affected smoke compartment.

~~R. Q.~~ Change Section 909.6 of the IBC to read:

909.6 Pressurization method. When approved by the building official, the means of controlling smoke shall be permitted by pressure differences across smoke barriers. Maintenance of a tenable environment is not required in the smoke-control zone of fire origin.

~~S.~~ R. Change Section 911.1.3 of the IBC to read:

911.1.3 Size. The fire command center shall be a minimum of 96 square feet (9 m²) in area with a minimum dimension of eight feet (2438 mm).

Exception: Where it is determined by the building official, after consultation with the fire chief, that specific building characteristics require a larger fire command center, the building official may increase the minimum required size of the fire command center up to 200 square feet (19 m²) in area with a minimum dimension of up to 10 feet (3048 mm).

~~T.~~ S. Change Sections 912.4 and 912.4.2 of the IBC to read:

912.4 Access. Immediate access to fire department connections shall be provided without obstruction by fences, bushes, trees, walls or any other fixed or moveable object. Access to fire department connections shall be approved by the fire ~~chief~~ official.

Exception: Fences, where provided with an access gate equipped with a sign complying with the legend requirements of this section and a means of emergency operation. The gate and the means of emergency operation shall be approved by the fire chief.

912.4.2 Clear space around connections. A working space of not less than 36 inches (762 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections, except as otherwise required or approved by the fire ~~chief~~ official.

~~U.~~ T. Replace Section 915 of the IBC with the following:

915.1 Carbon monoxide alarms. Carbon monoxide alarms shall comply with this section.

915.2 Group I or R. Group I or R occupancies located in a building containing a fuel-burning appliance or in a building that has an attached garage shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2, or an enclosed parking garage ventilated in accordance with Section 404 of the IMC shall not be considered an attached garage.

Exception: Sleeping units or dwelling units that do not themselves contain a fuel-burning appliance or have an attached garage but that are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The sleeping unit or dwelling unit is located more than one story above or below any story that contains a fuel-burning appliance or an attached garage;
2. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

915.3 Group E. Classrooms in E occupancies located in a building containing a fuel-burning appliance or in a building that has an attached garage or small engine or vehicle shop shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2, or an enclosed parking garage ventilated in accordance with Section 404 of the IMC shall not be considered an attached garage.

Exception: Classrooms that do not themselves contain a fuel-burning appliance or have an attached garage but are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The classroom is located more than 100 feet from the fuel burning appliance or attached garage or located more than one story above or below any story which contains a fuel-burning appliance or attached garage; and
2. The classroom is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance.

915.4 Carbon monoxide detection systems. Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

~~V. U.~~ Change the title of IBC Section ~~946~~ 918 to read:

In-Building Emergency Communications Coverage.

~~W. V.~~ Change Section ~~946.1~~ 918.1 of the IBC to read:

~~946.1~~ 918.1 General. For localities utilizing public safety wireless communications, dedicated infrastructure to accommodate and perpetuate continuous in-building emergency communication equipment to allow emergency public safety personnel to send and receive emergency communications shall be provided in new buildings and structures in accordance with this section.

Exceptions:

1. Buildings of Use Groups A-5, I-4, within dwelling units of R-2, R-3, R-4, R-5, and U.
2. Buildings of Types IV and V construction without basements, that are not considered unlimited area buildings in accordance with Section 507.
3. Above grade single story buildings of less than 20,000 square feet.
4. Buildings or leased spaces occupied by federal, state, or local governments, or the contractors thereof, with security requirements where the building official has approved an alternative method to provide emergency communication equipment for emergency public safety personnel.
5. Where the owner provides technological documentation from a qualified individual that the structure or portion thereof does not impede emergency communication signals.

~~X. W.~~ Add Sections ~~916.1.1~~ 918.1.1, ~~916.1.2~~ 918.1.2, and ~~916.1.3~~ 918.1.3 to the IBC to read:

~~916.1.1~~ 918.1.1 Installation. The building owner shall install radiating cable, such as coaxial cable or equivalent. The radiating cable shall be installed in dedicated conduits, raceways, plenums, attics, or roofs, compatible for these specific installations as well as other applicable provisions of this code. The locality shall be responsible for the installation of any additional communication equipment required for the operation of the system.

~~916.1.2~~ 918.1.2 Operations. The locality will assume all responsibilities for the operation and maintenance of the emergency communication equipment. The building owner shall provide sufficient operational space within the building to allow the locality access to and the ability to operate in-building emergency communication equipment.

~~916.1.3~~ 918.1.3 Inspection. In accordance with Section 113.3, all installations shall be inspected prior to concealment.

~~Y. X.~~ Add Section ~~916.2~~ 918.2 to the IBC to read:

~~916.2~~ 918.2 Acceptance test. Upon completion of installation, after providing reasonable notice to the owner or their representative, emergency public safety personnel shall have the right during normal business hours, or other mutually agreed upon time, to enter onto the property to conduct field tests to verify that the required level of radio coverage is present at no cost to the owner. Any noted deficiencies in the installation of the radiating cable or operational space shall be provided in an inspection report to the owner or the owner's representative.

13VAC5-63-245. Chapter 10 Means of egress.

A. Delete Section ~~1001.4~~ 1002.2 of the IBC.

B. Change Section ~~1004.3~~ 1004.9 of the IBC to read:

~~1004.3~~ 1004.9 Posting of occupant load. Every room or space that is an assembly occupancy and where the occupant load of that room or space is 50 or more shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space, for the intended configurations. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or the owner's authorized agent.

C. Change Exception 1 of Section 1005.3.1 of the IBC to read:

1. For other than Groups H and I-2 occupancies, the capacity, in inches (mm), of means of egress stairways shall be calculated by multiplying the occupant load served by such stairway by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

D. Change Exception 1 of Section 1005.3.2 of the IBC to read:

1. For other than Groups H and I-2 occupancies, the capacity, in inches (mm), of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

E. Change Exception 1 of Section 1006.2.1 of the IBC to read:

1. In Group R-2 and R-3 occupancies, one means of egress is permitted within and from individual dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and the common path of egress travel does not exceed 125 feet (38 100 mm). This exception shall also apply to Group R-2 occupancies where Section 903.2.8, Exception 1 or 2 is applicable.

F. Change the number "49" to "50" in the "Maximum Occupant Load of Space" column in the "A^c, E, M," "B," "F," and "U" rows of Table 1006.2.1 of the IBC.

G. Change the number "49" to "50" in the "Maximum Occupant Load per Story" column of the "A, B^b, E, F, M, U" row of Table ~~1006.3.2(2)~~ 1006.3.3(2).

H. Change Exception 2 of Section 1007.1.1 of the IBC to read:

2. Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the exit doors or exit access doorways shall not be less than one-fourth of the length of the maximum overall diagonal dimension of the area served.

I. Change Section 1009.6.4 of the IBC to read:

1009.6.4 Separation. Each area of refuge shall be separated from the remainder of the story by a smoke barrier complying with Section 709 or a horizontal exit complying with Section 1026. Each area of refuge shall be designed to minimize the intrusion of smoke.

Exceptions:

1. Areas of refuge located within an enclosure for interior exit stairways complying with Section 1023.
2. Areas of refuge in outdoor facilities where exit access is essentially open to the outside.
3. Areas of refuge where the area of refuge and areas served by the area of refuge are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

J. Change Item 2 of Section ~~1010.1.9.3~~ 1010.1.9.4 of the IBC to read:

2. In buildings in occupancy Groups B, F, M and S, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:

2.1. The locking device is readily distinguishable as locked.

2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters one inch (25 mm) high on a contrasting background.

2.3. The use of the key-operated locking device is revokable by the building official for due cause.

K. Delete Section ~~1010.1.9.6~~ 1010.1.9.7 of the IBC.

L. Add an exception 2 to Section ~~1010.1.9.7~~ 1010.1.9.8 of the IBC to read:

2. Exception: Approved, listed, delayed egress locks shall be permitted to be installed on doors serving Group A-3 airport facilities, provided they are installed in accordance with this section.

M. Change Section 1010.1.6 of the IBC to read:

1010.1.6 Landings at doors. Landings shall have a width not less than the width of the stairway or the door, whichever is greater. Doors in the fully open position shall not reduce a required dimension by more than 7 inches (178 mm). Where a landing serves an occupant load of 50 or more, other doors, gates, or turnstiles in any position shall not reduce the landing to less than one-half its required width nor prevent a door, gate, or turnstile from opening to less than one-half of the required landing width. Landings shall have a length measured in the direction of travel of not less than 44 inches (1118 mm).

Exception: Landing length in the direction of travel in Groups R-3 and U and within individual units of Group R-2 need not exceed 36 inches (914 mm).

N. ~~Change~~ Delete Exception 1 from Section 1010.1.10 of the IBC ~~to read:~~ .

~~1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.~~

~~Exception: Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.~~

O. Add Section 1010.1.11 to the IBC to read:

1010.1.11 Locking certain residential sliding doors. In dwelling units of Group R-2 buildings, exterior sliding doors which are one story or less above grade, or shared by two dwelling units, or are otherwise accessible from the outside, shall be equipped with locks. The mounting screws for the lock case shall be inaccessible from the outside. The lock bolt shall engage the strike in a manner that will prevent it from being disengaged by movement of the door. ~~2~~

Exception: Exterior sliding doors which are equipped with removable metal pins or charlie bars.

P. Add Section 1010.1.12 to the IBC to read:

1010.1.12 Door viewers in certain residential buildings. Entrance doors to dwelling units of Group R-2 buildings shall be equipped with door viewers with a field of vision of not less than 180 degrees.

Exception: Entrance doors having a vision panel or side vision panels.

Q. Change Exception 3 of Section 1011.5.2 of the IBC to read:

3. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 8.25 inches (210 mm); the minimum

tread depth shall be 9 inches (229 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).

R. ~~Change~~ Add Exception 2 to Section 1011.6 of the IBC to read:

~~1011.6 Stairway landings. There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall be not less than the width of stairways served. Every landing shall have a minimum width measured perpendicular to the direction of travel equal to the width of the stairway. Where the stairway has a straight run the depth need not exceed 48 inches (1219 mm). Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.~~

Exceptions:

- ~~1. Where stairways connect stepped aisles to cross aisles or concourses, stairway landings are not required at the transition between stairways and stepped aisles constructed in accordance with Section 1029.~~
2. A floor or landing is not required at the top of an interior flight of exit access stairs within individual dwelling units and sleeping units of Group R-2 occupancies and dwelling units of Group R-3 occupancies, including stairs in an enclosed private garage serving only an individual dwelling unit, provided that a door does not swing over the stairs.

S. ~~Change~~ Delete Item 6 from Section 1011.16 of the IBC: .

~~1011.16 Ladders. Permanent ladders shall not serve as a part of the means of egress from occupied spaces within a building. Permanent ladders shall be permitted to provide access to the following areas:~~

- ~~1. Spaces frequented only by personnel for maintenance, repair or monitoring of equipment.~~
- ~~2. Nonoccupiable spaces accessed only by catwalks, crawl spaces, freight elevators or very narrow passageways.~~
- ~~3. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands.~~
- ~~4. Elevated levels in Group U not open to the general public.~~
- ~~5. Nonoccupied roofs that are not required to have stairway access in accordance with Section 1011.12.1.~~

T. Change Section 1015.8 of the IBC to read:

1015.8 Window openings. Windows in Group R-2 and R-3 buildings including dwelling units where the top of the sill of an operable window opening is located less than 18 inches (457 mm) above the finished floor and more than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building shall comply with one of the following:

1. Operable windows where the top of the sill of the opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows where the openings will not allow a 4-inch diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position.
3. Operable windows where the openings are provided with window fall prevention devices that comply with ASTM F 2090.
4. Operable windows that are provided with window opening control devices that comply with Section 1015.8.1.

U. Add Exception 3 to Item 5 of Section 1016.2 of the IBC to read:

3. A maximum of one exit access is permitted to pass through kitchens, store rooms, closets or spaces used for similar purposes provided such a space is not the only means of exit access.

V. Change the following rows and delete footnote b. in Table 1020.1 of the IBC ~~to read:~~

Table 1020.1 Corridor Fire-Resistance Rating			
Occupancy	Occupant Load Served By Corridor	Required Fire-Resistance Rating (hours)	
		Without sprinkler system	With sprinkler system ^b
~~H 1, H 2, H 3~~	~~All~~	~~Not Permitted~~	~~1~~
~~H 4, H 5~~	~~Greater than 30~~	~~Not Permitted~~	~~1~~
~~A, B, E, F, M, S, U~~	~~Greater than 30~~	~~1~~	~~0~~
R	Greater than 10	1	0.5
~~I 2^a, I 4~~	~~All~~	~~Not Permitted~~	~~0~~
I-1, I-3	All	Not Permitted	0
a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3. b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.			

W. Add an additional row to Table 1020.2 of the IBC to read:

Occupancy	Width (minimum)
In corridors of Group I-2 assisted living facilities licensed by the Virginia Department of Social Services serving areas with wheelchair, walker, and gurney traffic where residents are capable of self-preservation or where resident rooms have a means of egress door leading directly to the outside.	44 inches

X. ~~Change~~ Add exception 2. to Section 1023.5 of the IBC to read:

~~1023.5 Penetrations. Penetrations into or through interior exit stairways and ramps are prohibited except for equipment and ductwork necessary for independent ventilation or pressurization, sprinkler piping,~~

~~standpipes, electrical raceway for fire department communication systems and electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m²). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communication openings, whether protected or not, between adjacent interior exit stairways and ramps.~~

~~Exceptions:~~

~~1. Membrane penetrations shall be permitted on the outside of the interior exit stairway and ramp. Such penetrations shall be protected in accordance with Section 714.3.2.~~

2. For buildings in other than Group H, with no more than two stories above grade plane and are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, structural members, other than columns, which are part of the primary structural frame supporting the roof sheathing, roof slab or roof deck only and structural members which are secondary members supporting the roof sheathing, roof slab or roof deck only, shall be permitted to penetrate an interior exit stairway enclosure or a ramp enclosure. Such penetrations shall be protected in accordance with Section 714.

Y. Change Section 1023.9 of the IBC to read:

1023.9 Floor identification signs. A sign shall be provided at each floor landing in exit enclosures connecting more than three stories designating the floor level, the terminus of the top and bottom of the exit enclosure and the identification of the stair or ramp by designation with a letter of the alphabet. The signage shall also state the story of, and the direction to, the exit discharge and the availability of roof access from the enclosure for the fire department. The sign shall be located five feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. Floor level identification signs in tactile characters complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the enclosure into the corridor to identify the floor level.

Z. ~~Change~~ Add Exception 2 to Section 1024.6 of the IBC to read:

~~1024.6 Penetrations. Penetrations into or through an exit passageway are prohibited except for equipment and ductwork necessary for independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit passageway and terminating at a steel box not exceeding 16 square inches (0.010 m²). Such penetrations shall be protected in accordance with Section 714. There shall not be penetrations or communicating openings, whether protected or not, between adjacent exit passageways.~~

~~Exceptions:~~

~~1. Membrane penetrations shall be permitted on the outside of the exit passageway. Such penetrations shall be protected in accordance with Section 714.3.2.~~

2. For buildings in other than Group H, with no more than two stories above grade plane and are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, structural members, other than columns, which are part of the primary structural frame supporting the roof sheathing, roof slab or roof deck only and structural members which are secondary members supporting the roof sheathing, roof slab or roof deck only, shall be permitted to penetrate an interior exit stairway enclosure or a ramp enclosure. Such penetrations shall be protected in accordance with Section 714.

AA. Change Section 1025.1 of the IBC to read:

1025.1 General. Approved luminous egress path markings delineating the exit path shall be provided in buildings of Groups A, B, E, I, M and R-1 having occupied floors located more than 420 feet (128 016 mm) above the lowest level of fire department vehicle access in accordance with ~~Sections 1025.1 through 1025.5~~ this section.

Exception: Luminous egress path markings shall not be required on the level of exit discharge in lobbies that serve as part of the exit path in accordance with Section 1028.1, Exception 1.

~~AA. Change Section 1030.1 of the IBC to read:~~

~~1030.1 General. In addition to the means of egress required by this chapter, provisions shall be made for emergency escape and rescue openings in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and in Group R-3 and R-4 occupancies. Basements and sleeping rooms below the fourth story above grade plane shall have at least one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way.~~

~~Exceptions:~~

- ~~1. Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have emergency escape and rescue openings.~~
- ~~2. Emergency escape and rescue openings are not required from basements or sleeping rooms that have an exit door or exit access door that opens directly into a public way or to a yard, court or exterior exit balcony that opens to a public way.~~
- ~~3. Basements without habitable spaces and having not more than 200 square feet (18.6 m²) in floor area shall not be required to have emergency escape and rescue openings.~~

13VAC5-63-250. Chapter 11 Accessibility.

A. Add an exception to Section ~~1101.2~~ 1102.1 of the IBC to read:

Exception: Wall-mounted visible alarm notification appliances in Group I-3 occupancies shall be permitted to be a maximum of 120 inches (3048 mm) above the floor or ground, measured to the bottom of the appliance. Such appliances shall otherwise comply with all applicable requirements.

B. Change Section to 1103.2.8 of the IBC to read:

1103.2.8 Raised and lowered areas in places of religious worship. Raised or lowered areas in places of religious worship are not required to be accessible or to be served by an accessible route provided such areas are used exclusively for the performance of religious ceremonies and are located within an accessible story or mezzanine.

C. Change Section 1106.1 of the IBC and replace Table 1106.1 of the IBC with Tables 1106.1(1) and 1106.1(2) to read:

1106.1 Required. Where parking is provided, accessible parking spaces shall be provided in compliance with Tables 1106.1(1) and 1106.1(2), as applicable, except as required by Sections 1106.2 through 1106.4. Where more than one parking facility is provided on a site, the number of parking spaces required to be accessible shall be calculated separately for each parking facility.

Exception: This section does not apply to parking spaces used exclusively for buses, trucks, other delivery vehicles, law-enforcement vehicles, or vehicular impound and motor pools where lots accessed by the public are provided with an accessible passenger loading zone.

Table 1106.1(1) Accessible Parking Spaces for Groups A, B, E, M, R-1, R-2, and I ^a	
Total Parking Spaces Provided	Required Minimum Number of Accessible Spaces
1 - 25	1
26 - 50	2
51 - 75	3
76 - 100	4
101 - 125	5
126 - 150	6
151 - 200	7
201 - 300	8
301 - 400	9
401 - 500	10
501 - 1,000	2.33% of total
1,001 and over	23, plus one for each 100, or fraction thereof, over 1,000
a. Condominium parking in Group R-2 occupancies where parking is part of the unit purchase shall be in accordance with Table 1106.1(2).	

Table 1106.1(2) Accessible Parking Spaces for Groups F, S, H, R-3, R-4, and U	
Total Parking Spaces Provided	Required Minimum Number of Accessible Spaces
1 - 25	1
26 - 50	2
51 - 75	3
76 - 100	4
101 - 150	5
151 - 200	6
201 - 300	7
301 - 400	8
401 - 500	9
501 - 1,000	2.0% of total
1,001 and over	20, plus one for each 100, or fraction thereof, over 1,000

D. Add Section 1106.8 to the IBC to read:

1106.8 Identification of accessible parking spaces. In addition to complying with applicable provisions of this chapter, all accessible parking spaces shall be identified by above grade signs. A sign or symbol painted or otherwise displayed on the pavement of a parking space shall not constitute an above grade sign. All above grade parking space signs shall have the bottom edge of the sign no lower than four feet (1219 mm) nor higher than seven feet (2133 mm) above the parking surface. All disabled parking signs shall include the following language: PENALTY, \$100-500 Fine, TOW-AWAY ZONE. Such language may be placed on a separate sign and attached below existing above grade disabled parking signs, provided that the bottom edge of the attached sign is no lower than four feet above the parking surface.

E. Add Sections 1109.16 and 1109.16.1 to the IBC to read:

1109.16 Dwellings containing universal design features for accessibility. Group R-5 occupancies not subject to Section R320.1 of the IRC and Group R-3 occupancies not subject to Section 1107.6.3 may comply with this section and be approved by the local building department as dwellings containing universal design features for accessibility.

1109.16.1 Standards for dwellings containing universal design features for accessibility. When the following requirements are met, approval shall be issued by the local building department indicating that a dwelling has been constructed in accordance with these standards and is deemed to be a dwelling containing universal design features for accessibility.

1. The dwelling must comply with the requirements for Type C units under Section 1005 of ICC A117.1 with the following changes to those requirements:

1.1. That at least one bedroom be added to the interior spaces required by Section 1005.4 of ICC A117.1.

1.2. In the toilet room or bathroom required by Section 1005 of ICC A117.1, in addition to the lavatory and water closet, a shower or bathtub complying with Section 1004.11.3.2.3 of ICC A117.1 shall be provided and shall include reinforcement for future installation of grab bars in accordance with Section 1004.11.1 of ICC A117.1.

1.3. That the exception to Section 1005.4 of ICC A117.1 is not applicable.

1.4. That there be a food preparation area complying with Section 1005.7 of ICC A117.1 on the entrance level.

1.5. That any thermostat for heating or cooling on the entrance level comply with Section 1005.8 of ICC A117.1.

F. ~~Change~~ Delete the Exception for Item 1 of Section 1111.1 of the IBC to read:

~~1. Accessible parking spaces required by Section 1106.1.~~

13VAC5-63-260. Chapter 12 Interior environment.

A. ~~Add the following to the list of terms in Section 1202.1 of the IBC:~~

~~Day-night average sound level (L_{dn}).~~

~~Sound transmission class (STC) rating.~~

~~B.~~ Add Section ~~1203.5.4~~ 1202.5.4 to the IBC to read:

~~1203.5.4~~ 1202.5.4 Insect screens in occupancies other than Group R. Every door, window and other outside opening for natural ventilation serving structures classified as other than a residential group containing habitable rooms, food preparation areas, food service areas, or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged, or stored, shall be supplied with approved tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device.

Exception: Screen doors shall not be required for out swinging doors or other types of openings which make screening impractical, provided other approved means, such as air curtains or insect repellent fans are provided.

~~C.~~ B. Add Section ~~1203.5.5~~ 1202.5.5 to the IBC to read:

~~1203.5.5~~ 1202.5.5 Insect screens in Group R occupancies. Every door, window and other outside opening required for natural ventilation purposes which serves a structure classified as a residential group shall be supplied with approved tightly fitted screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device.

~~D.~~ C. Add Section ~~1203.7~~ 1202.7 to the IBC to read:

~~1203.7~~ 1202.7 Smoking areas in restaurants. Smoking areas in restaurants, as defined in § 15.2-2820 of the Code of Virginia, shall comply with the following:

1. The area where smoking may be permitted shall be structurally separated from the portion of the restaurant in which smoking is prohibited. For the purposes of this section, structurally separated means a stud wall covered with drywall or other building material or like barrier, which, when completed, extends from the floor to the ceiling, resulting in a physically separated room. Such wall or barrier may include portions that are glass or other gas-impervious building material and shall be permitted to have a door leading to areas in which smoking is prohibited, provided the door is capable of being closed at all times.
2. The area where smoking may be permitted shall be separately vented to prevent the recirculation of air from such area to the area of the restaurant where smoking is prohibited.

Exception: The above requirements do not apply if a restaurant is exempt from, or meets any of the exceptions to, the Virginia Indoor Clean Air Act (Chapter 28.2 of Title 15.2 (§ 15.2-2820 et seq.) of the Code of Virginia).

~~E.~~ D. Change Section ~~1207.1~~ 1206.1 of the IBC to read:

~~1207.1~~ 1206.1 Scope. Sections ~~1207.2~~ 1206.2 and ~~1207.3~~ 1206.3 shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public areas such as halls, corridors, stairs or service areas. Section ~~1207.4~~ 1206.4 applies to the construction of the exterior envelope of Group R occupancies within airport noise zones and to the exterior envelope of Group A, B, E, I and M occupancies in any locality in whose jurisdiction, or adjacent jurisdiction, is located a United States Master Jet Base, a licensed airport or United States government or military air facility, when such requirements are enforced by a locality pursuant to § 15.2-2295 of the Code of Virginia.

~~F.~~ E. Add Section ~~1207.4~~ 1206.4 to the IBC to read:

~~1207.4~~ 1206.4 Airport noise attenuation standards. Where the Ldn is determined to be 65 dBA or greater, the minimum STC rating of structure components shall be provided in compliance with Table ~~1207.4~~ 1206.4. As an alternative to compliance with Table ~~1207.4~~ 1206.4, structures shall be permitted to be designed and constructed so as to limit the interior noise level to no greater than 45 Ldn. Exterior structures, terrain and permanent plantings shall be permitted to be included as part of the alternative design. The alternative design shall be certified by an RDP.

~~G.~~ F. Add Table ~~1207.4~~ 1206.4 to the IBC to read:

Table ~~1207.4~~ <u>1206.4</u> Airport Noise Attenuation Standards		
Ldn	STC of exterior walls and roof/ceiling assemblies	STC of doors and windows
65 - 69	39	25
70 - 74	44	33
75 or greater	49	38

13VAC5-63-264. Chapter 13 Energy efficiency.

Add Section 1301.1.1.1 to the IBC to read:

1301.1.1.1 Changes to the IECC. The following changes shall be made to the IECC:

1. Change Climate Zone 4 (Except Marine) of Table C402.4 to read:

Table C402.4 Building Envelope Requirements: Fenestration								
Climate Zone				4 (Except Marine)				
Vertical fenestration								
U-factor								
Fixed fenestration				0.38				
Operable fenestration				0.45				
Entrance doors				0.77				
SHGC								
SHGC				0.40				
Skylights								
U-factor				0.50				
SHGC				0.40				
NR = No requirement.								

2. Change Section C402.4.3 to read:

C402.4.3 Maximum U-factor and SHGC. The maximum U-factor and solar heat gain coefficient (SHGC) for fenestration shall be as specified in Table C402.4.

The window projection factor shall be determined in accordance with Equation 4-5. (Equation 4-5) $PF = A/B$ where:

PF = Projection factor (decimal).

A = Distance measured horizontally from the furthest continuous extremity of any overhand, eave or permanently attached shading device to the vertical surface of the glazing.

B = Distance measured vertically from the bottom of the glazing to the underside of the overhang, eave or permanently attached shading device.

Where different windows or glass doors have different PF values, they shall each be evaluated separately.

Where the fenestration projection factor for a specific vertical fenestration product is greater than or equal to 0.20, the required maximum SHGC from Table C402.4 shall be adjusted by multiplying the required maximum SHGC by the multiplier specified in Table C402.4.3 corresponding with the orientation of the fenestration product and the projection factor.

3. Add Table C402.4.3 to read:

Table C402.4.3 SHGC Adjustment Multipliers		
Projection factor	Oriented within 45 degrees of true north	All other orientations
$0.2 \leq PF < 0.5$	1.1	1.2
$PF \leq 0.5$	1.2	1.6

4. Add an exception to the first paragraph of Section ~~C403.2.4.3~~ 403.7.7 to read:

Exception: Any grease duct serving a Type I hood installed in accordance with IMC Section 506.3 shall not be required to have a motorized or gravity damper.

5. Add Section ~~C403.2.6.3~~ C403.2.2.1 to read:

~~C403.2.6.3~~ C403.2.2.1 Dwelling unit mechanical ventilation. Mechanical ventilation shall be provided for dwelling units in accordance with the IMC.

6. Change Section ~~C405.5~~ C405.4 to read:

~~C405.5~~ C405.4 Exterior lighting (Mandatory). All exterior lighting, other than low-voltage landscape lighting, shall comply with Section ~~C405.5.1~~ C405.4.1.

Exception: Where approved because of historical, safety, signage, or emergency considerations.

7. Change Section R401.2 to read:

R401.2 Compliance. Projects shall comply with all provisions of Chapter 4 labeled "Mandatory" and one of the following:

1. Sections R401 through R404.
2. Section R405.
3. Section R406.
4. The most recent version of REScheck, keyed to the ~~2015~~ 2018 IECC.

Note: See REScheck compliance guidance issued by DHCD, available at the Department's website.

8. Delete Section R401.3.

9. Change the ceiling R-value and wood frame wall R-value categories for climate zone "4 except Marine" in Table R402.1.2 to read:

Ceiling R-Value	Wood Frame Wall R-Value
38	15 or $13 + 1^h$

10. Change the ceiling U-factor and frame wall U-factor categories for climate zone "4 except Marine" in Table R402.1.4 to read:

Ceiling U-Factor	Frame Wall U-Factor
0.030	0.079

11. Change Section R402.2.4 to read:

R402.2.4 Access hatches and doors. Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weatherstripped and insulated in accordance with the following values:

1. Hinged vertical doors shall have a minimum overall R-5 insulation value;
2. Hatches and scuttle hole covers shall be insulated to a level equivalent to the insulation on the surrounding surfaces; and
3. Pull down stairs shall have a minimum of 75% of the panel area having R-5 rigid insulation.

Access shall be provided to all equipment that prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer is required to be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the attic access is opened and to provide a permanent means of maintaining the installed R-value of the loose fill insulation.

12. Change Sections R402.4 and R402.4.1.1 to read:

R402.4 Air leakage. The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.4.

R402.4.1.1 Installation (Mandatory). The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.

13. Change the title of the "Insulation Installation Criteria" category of Table R402.4.1.1; change the "Shower/tub on exterior wall" category of Table R402.4.1.1, and add footnotes "b" and "c" to Table R402.4.1.1 to read:

Component	Air Barrier Criteria	Insulation Installation Criteria ^b
Shower/tub on exterior wall ^c	The air barrier installed at exterior walls adjacent to showers and tubs shall be installed on the interior side and separate the exterior walls from the showers and tubs.	Exterior walls adjacent to showers and tubs shall be insulated.
b. Structural integrity of headers shall be in accordance with the applicable building code. c. Air barriers used behind showers and tubs on exterior walls shall be of a permeable material that does not cause the entrapment of moisture in the stud cavity.		

14. Change Section R402.4.1.2 and add Sections R402.4.1.2.1, R402.4.1.2.2, and R402.4.1.3 to read:

R402.4.1.2 Air sealing. Building envelope air tightness shall be demonstrated to comply with either Section R402.4.1.2.1 or R402.4.1.2.2.

R402.4.1.2.1 Testing option. The building or dwelling unit shall be tested for air leakage. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

1. Exterior windows and doors and fireplace and stove doors shall be closed, but not sealed beyond the intended weatherstripping or other infiltration control measures;
2. Dampers, including exhaust, intake, makeup air, backdraft, and flue dampers, shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open;

4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
6. Supply and return registers, if installed at the time of the test, shall be fully open.

R402.4.1.2.2 Visual inspection option. Building envelope tightness shall be considered acceptable when the items listed in Table R402.4.1.1, applicable to the method of construction, are field verified. Where required by the building official, an approved party, independent from the installer, shall inspect the air barrier. When this option is chosen, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403 of the IMC.

R402.4.1.3 Leakage rate (Prescriptive). The building or dwelling unit shall have an air leakage rate not exceeding 5 changes per hour as verified in accordance with Section R402.4.1.2.

15. Change Section R403.3.3 to read:

R403.3.3 Duct testing (Mandatory). Ducts shall be pressure tested to determine air leakage by one of the following methods:

1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exception: A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. The licensed mechanical contractor installing the mechanical system shall be permitted to perform the duct testing. The contractor shall have been trained on the equipment used to perform the test.

16. Change Section R403.7 to read:

R403.7 Equipment and appliance sizing. Heating and cooling equipment and appliances shall be sized in accordance with ACCA Manual S or other approved sizing methodologies based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies.

Exception: Heating and cooling equipment and appliance sizing shall not be limited to the capacities determined in accordance with Manual S or other approved sizing methodologies where any of the following conditions apply:

1. The specified equipment or appliance utilizes multi-stage technology or variable refrigerant flow technology and the loads calculated in accordance with the approved heating and cooling methodology fall within the range of the manufacturer's published capacities for that equipment or appliance.

2. The specified equipment or appliance manufacturer's published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with the approved heating and cooling methodology and the next larger standard size unit is specified.

3. The specified equipment or appliance is the lowest capacity unit available from the specified manufacturer.

17. Change footnote for Table R406.4 to read:

Table R406.4 Maximum Energy Rating Index ^a	
Climate Zone	Energy Rating Index
1	52
2	52
3	51
4	62
5	55
6	54
7	53
8	53
a. When on-site renewable energy is included for compliance using the ERI analysis per Section R406.4, the building shall meet the mandatory requirements of Section R406.2 and the building thermal envelope shall be greater than or equal to levels of energy efficiency and solar heat gain coefficient in Table R402.1.2, with a ceiling R-value of 49 and a wood frame wall R-value of 20 or 13+5, or Table R402.1.4, with a ceiling U-factor of 0.026 and a frame wall U-factor of 0.060.	

18. Delete Section R503.1.1.1.

13VAC5-63-267. Chapter 14 Exterior walls.

A. Delete Section ~~1403.5~~ 1402.5 of the IBC.

B. Add Section ~~1403.8~~ 1402.8 to the IBC to read:

~~1403.8~~ 1402.8 Air barriers. The exterior wall envelope shall be designed and constructed by providing air barriers that comply with the IECC.

C. Change Section ~~1407.10.4~~ 1406.10.4 of the IBC to read:

~~1407.10.4~~ 1406.10.4 Full-scale test. The MCM system shall be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Such testing shall be performed on the MCM system with the MCM in the maximum thickness intended for use. Where noncombustible materials or combustible materials permitted by Sections 603, 803, 806, or 1406 differ from assembly to assembly or within an assembly, multiple tests shall not be required.

Exception: The MCM system is not required to be tested in accordance with, and comply with, acceptance criteria of NFPA 285 in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

13VAC5-63-268. Chapter 15 Roof assemblies and rooftop structures.

A. Change the title of IBC Section 1511 to read:

Roofing and Roofing Repair.

B. Change Section 1511.1 of the IBC to read as follows and delete the remainder of Section 1511 of the IBC:

1511.1 General. Materials and methods of application used for reroofing and roof repair shall comply with the applicable requirements of Chapter 15 and the requirements of Section ~~303~~ 307 of the VEBC.

13VAC5-63-270. Chapter 16 Structural design.

A. Change Section 1609.3 of the IBC to read:

1609.3 Basic wind speed. The ultimate design wind speed, V_{ult} , in miles per hour (mph), for the determination of the wind loads shall be determined by Figures 1609.3(1), 1609.3(2), and 1609.3(3). The ultimate design wind speed, V_{ult} , for use in the design of Risk Category II buildings and structures shall be obtained from Figure 1609.3(1). The ultimate design wind speed, V_{ult} , for use in the design of Risk Categories III and IV buildings and structures shall be obtained from Figure 1609.3(2). The ultimate design wind speed, V_{ult} , for use in the design of Risk Category I buildings and structures shall be obtained from Figure 1609.3(3). The ultimate design wind speeds for localities in special wind regions, near mountainous terrains, and near gorges shall be based on elevation. Areas at 4,000 feet in elevation or higher shall use 142 V mph (62.5 m/s) and areas under 4,000 feet in elevation shall use 116 V mph (51 m/s). Gorge areas shall be based on the highest recorded speed per locality or in accordance with local jurisdiction requirements determined in accordance with Section 26.5.1 of ASCE 7.

In nonhurricane-prone regions, when the ultimate design wind speed, V_{ult} , is estimated from regional climatic data, the ultimate design wind speed, V_{ult} , shall be determined in accordance with Section 26.5.3 of ASCE 7.

B. Add Section 1612.1.1 to the IBC to read:

1612.1.1 Elevation of manufactured homes. New or replacement manufactured homes to be located in any flood hazard zone shall be placed in accordance with the applicable elevation requirements of this code.

Exception: Manufactured homes installed on sites in an existing manufactured home park or subdivision shall be permitted to be placed so that the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches (914 mm) above grade in lieu of being elevated at or above the base flood elevation provided no manufactured home at the same site has sustained flood damage exceeding 50% of the market value of the home before the damage occurred.

13VAC5-63-280. Chapter 17 Special inspections and tests.

A. Change Section 1703.1 of the IBC to read:

1703.1 Approved agency. An approved agency responsible for laboratory testing or special inspections, or both, must comply with the qualification, certification and experience requirements of ASTM E329 or the alternatives listed herein.

B. Change Section 1703.1.1 of the IBC to read:

1703.1.1 Independence. An approved agency shall be objective and competent. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed. The special inspector and their agents shall be independent from the person, persons or contractor responsible for the physical construction of the project requiring special inspections.

C. Change Section 1703.1.3 of the IBC to read:

1703.1.3 Personnel. An approved agency shall employ experienced personnel educated in conducting, supervising and evaluating tests or inspections, or both. Upon request by the building official, documentation shall be provided demonstrating the applicable agency's accreditation as noted in ASTM E329 and individuals' resumes indicating pertinent training, certifications and other qualifications for special inspection personnel associated with the proposed construction requiring special inspections. The building official may prescribe the manner of qualification documentation and frequency of updating information regarding agency or individual inspector approval.

Firms providing special inspection services or individual inspectors seeking approval of alternative certifications or qualifications, or both, listed in ASTM E329 may submit documentation demonstrating equivalency. This documentation may include evidence of meeting other recognized standards or alternative certifications to demonstrate that the minimum qualifications, certification and experience intended by ASTM E329 have been met. The building official may, if satisfied that equivalency has been demonstrated, approve the credentials of the firm or individual.

D. Change Section 1704.2 of the IBC to read:

1704.2 Special inspections. Where application is made for construction as described in this section, the owner shall employ one or more special inspectors to provide inspections and tests during construction on the types of work listed under Section 1705. All individuals or agents performing special inspection functions shall operate under the direct supervision of an RDP in responsible charge of special inspection activities, also known as the "special inspector." The special inspector shall ensure that the individuals under their charge are performing only those special inspections or laboratory testing that are consistent with their knowledge, training and certification for the specified inspection or laboratory testing.

Exceptions:

1. The building official shall be permitted to waive special inspections and tests .
2. Special inspections and tests are not required for:
 - 2.1. One story buildings under 20 feet (6096 mm) in height which do not exceed 5000 square feet (565 m²) in building area; or
 - 2.2. Alterations to Group U structures which do not increase loads in accordance with Sections ~~403.3~~ 603.7.3 and ~~403.4~~ 603.7.4 of the VEBC.

3. Unless otherwise required by the building official, special inspections and tests are not required for occupancies in Groups R-3, R-4 or R-5 and occupancies in Group U that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1.

4. Special inspections and tests are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section ~~2211.7~~ 2211.1.2 or the conventional light-frame construction provisions of Section 2308.

5. The contractor is permitted to employ the approved agencies where the contractor is also the owner.

E. Change Section 1704.2.3 of the IBC to read:

1704.2.3 Statement of special inspections. The permit applicant shall submit a statement of special inspections prepared by the RDP in responsible charge in accordance with Section 111.1. This statement shall be in accordance with Section 1704.3.

Exception: The statement of special inspections is permitted to be prepared by a qualified person approved by the building official for construction not designed by a registered design professional.

F. Change category "12" of Table 1705.3 of the IBC to read:

Type	Continuous Special Inspection	Periodic Special Inspection	Referenced Standard ^a	IBC Reference
12. Inspect formwork for shape, location and dimensions of the concrete member being formed, shoring and reshoring.	--	X	ACI 318: ~~26.10.1(b)~~ <u>26.11.1.2(b)</u>	--

G. Delete Sections 1705.17, 1705.17.1, and 1705.17.2 of the IBC.

13VAC5-63-290. Chapter 18 Soils and foundations.

A. Change the exception to Section 1804.6 of the IBC to read:

Exception: Compacted fill material less than 12 inches (305 mm) in depth need not comply with an approved report, provided it is a natural non-organic material that is not susceptible to swelling when exposed to moisture and it has been compacted to a minimum of 90% Modified Proctor in accordance with ASTM D1557. The compaction shall be verified by a qualified inspector approved by the building official. Material other than natural material may be used as fill material when accompanied by a certification from an RDP and approved by the building official.

B. Add an exception to Section 1808.1 of the IBC to read:

Exception: One-story detached accessory structures not exceeding 256 square feet (23.78m²) of building area, provided all of the following conditions are met:

1. The building eave height is 10 feet (3048 mm) or less.

2. The maximum height from the finished floor level to grade does not exceed 18 inches (457.2 mm).
3. The supporting structural elements in direct contact with the ground shall be placed level on firm soil and when such elements are wood they shall be approved pressure preservative treated suitable for ground contact use.
4. The structure is anchored to withstand wind loads as required by this code.
5. The structure shall be of light-frame construction with walls and roof of light weight material, not slate, tile, brick or masonry.

13VAC5-63-295. Chapter 23 Wood.

A. ~~Change Item~~ Add exception 2 to Item 2 of Section 2308.2.3 of the IBC to read:

~~2. Live loads shall not exceed 40 psf (1916 N/m²) for floors.~~

~~Exception:~~

2. Concrete slab-on-grade live load limited only by allowable soil bearing pressure.

B. Change Table 2308.4.1.1(1) of the IBC to read:

Table 2308.4.1.1(1) Header and Girder Spans ^{a, b} for Exterior Bearing Walls (Maximum spans for Douglas Fir Larch, Hem Fir, Southern Pine, and Spruce Pine Fir ^b and required number of jack studs)																			
Girder s and Header s Supporting	Size	Ground Snow Load (psf) ^e																	
		30						50						70					
		Building Width ^e (feet)																	
		12		24		36		12		24		36		12		24		36	
		S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d	S p a n f	N J d
Roof and ceiling	1 - 2 x 6	4 - 0	1	3 - 1	2	2 - 7	2	3 - 5	1	2 - 8	2	2 - 3	2	3 - 0	2	2 - 4	2	2 - 0	2
	1 - 2 x 8	5 - 1	2	3 - 1 1	2	3 - 3	2	4 - 4	2	3 - 4	2	2 - 1 0	2	3 - 1 0	2	3 - 0	2	2 - 6	3

$\frac{1}{2} \times \frac{1}{0}$	$\frac{6}{0}$	2	$\frac{4}{8}$	2	$\frac{3}{11}$	2	$\frac{5}{2}$	2	$\frac{4}{0}$	2	$\frac{3}{4}$	2	$\frac{4}{7}$	2	$\frac{3}{6}$	3	$\frac{3}{0}$	3
$\frac{1}{2} \times \frac{1}{2}$	$\frac{7}{1}$	2	$\frac{5}{5}$	2	$\frac{4}{7}$	3	$\frac{6}{1}$	2	$\frac{4}{8}$	3	$\frac{3}{11}$	3	$\frac{5}{5}$	2	$\frac{4}{2}$	3	$\frac{3}{6}$	3
$\frac{2}{2} \times \frac{4}{4}$	$\frac{4}{0}$	1	$\frac{3}{1}$	1	$\frac{2}{7}$	1	$\frac{3}{5}$	1	$\frac{2}{7}$	1	$\frac{2}{2}$	1	$\frac{3}{0}$	1	$\frac{2}{4}$	1	$\frac{2}{0}$	1
$\frac{2}{2} \times \frac{6}{6}$	$\frac{6}{0}$	1	$\frac{4}{7}$	1	$\frac{3}{10}$	1	$\frac{5}{1}$	1	$\frac{3}{11}$	1	$\frac{3}{3}$	2	$\frac{4}{6}$	1	$\frac{3}{6}$	2	$\frac{2}{11}$	2
$\frac{2}{2} \times \frac{8}{8}$	$\frac{7}{7}$	1	$\frac{5}{9}$	1	$\frac{4}{10}$	2	$\frac{6}{5}$	1	$\frac{5}{0}$	2	$\frac{4}{2}$	2	$\frac{5}{9}$	1	$\frac{4}{5}$	2	$\frac{3}{9}$	2
$\frac{2}{2} \times \frac{1}{0}$	$\frac{9}{0}$	1	$\frac{6}{10}$	2	$\frac{5}{9}$	2	$\frac{7}{8}$	2	$\frac{5}{11}$	2	$\frac{4}{11}$	2	$\frac{6}{9}$	2	$\frac{5}{3}$	2	$\frac{4}{5}$	2
$\frac{2}{2} \times \frac{1}{2}$	$\frac{1}{07}$	2	$\frac{8}{1}$	2	$\frac{6}{10}$	2	$\frac{9}{0}$	2	$\frac{6}{11}$	2	$\frac{5}{10}$	2	$\frac{8}{0}$	2	$\frac{6}{2}$	2	$\frac{5}{2}$	3
$\frac{3}{2} \times \frac{8}{8}$	$\frac{9}{5}$	1	$\frac{7}{3}$	1	$\frac{6}{1}$	1	$\frac{8}{1}$	1	$\frac{6}{3}$	1	$\frac{5}{3}$	2	$\frac{7}{2}$	1	$\frac{5}{6}$	2	$\frac{4}{8}$	2
$\frac{3}{2} \times \frac{1}{0}$	$\frac{1}{13}$	1	$\frac{8}{7}$	1	$\frac{7}{3}$	2	$\frac{9}{7}$	1	$\frac{7}{4}$	2	$\frac{6}{2}$	2	$\frac{8}{6}$	1	$\frac{6}{7}$	2	$\frac{5}{6}$	2

	3 - 2 * 1 2	1 3 - 2	1	1 0 - 1	2	8 - 6	2	1 1 - 3	2	8 - 8	2	7 - 4	2	1 0 - 0	2	7 - 9	2	6 - 6	2
	4 - 2 * 8	1 0 - 1 1	1	8 - 4	1	7 - 0	1	9 - 4	1	7 - 2	1	6 - 0	1	8 - 3	1	6 - 4	1	5 - 4	2
	4 - 2 * 1 0	1 2 - 1 1	1	9 - 1 1	1	8 - 4	1	1 1 - 1	1	8 - 6	1	7 - 2	2	9 - 1 0	1	7 - 7	2	6 - 4	2
	4 - 2 * 1 2	1 5 - 3	1	1 1 - 8	1	9 - 1 0	2	1 3 - 0	1	1 0 - 0	2	8 - 5	2	1 1 - 7	1	8 - 1 1	2	7 - 6	2
Ro of, ceil ing, and one cen ter- bea rin g flo or	1 - 2 * 6	3 - 3	1	2 - 7	2	2 - 2	2	3 - 0	2	2 - 4	2	2 - 0	2	2 - 9	2	2 - 2	2	1 - 1 0	2
	1 - 2 * 8	4 - 1	2	3 - 3	2	2 - 9	2	3 - 9	2	3 - 0	2	2 - 6	3	3 - 6	2	2 - 9	2	2 - 4	3
	1 - 2 * 1 0	4 - 1 1	2	3 - 1 0	2	3 - 3	3	4 - 6	2	3 - 6	3	3 - 0	3	4 - 1	2	3 - 3	3	2 - 9	3
	1 - 2 * 1 2	5 - 9	2	4 - 6	3	3 - 1 0	3	5 - 3	2	4 - 2	3	3 - 6	3	4 - 1 0	3	3 - 1 0	3	3 - 3	4
	2 - 2 * 4	3 - 3	1	2 - 6	1	2 - 2	1	3 - 0	1	2 - 4	1	2 - 0	1	2 - 8	1	2 - 2	1	1 - 1 0	1

$\frac{2}{-2} \times \frac{6}{6}$	$\frac{4}{-1} \frac{0}{0}$	1	$\frac{3}{-9}$	1	$\frac{3}{-3}$	2	$\frac{4}{-5}$	1	$\frac{3}{-6}$	2	$\frac{3}{-0}$	2	$\frac{4}{-1}$	1	$\frac{3}{-3}$	2	$\frac{2}{-9}$	2
$\frac{2}{-2} \times \frac{8}{8}$	$\frac{6}{-1} \frac{1}{0}$	1	$\frac{4}{-1} \frac{0}{0}$	2	$\frac{4}{-1}$	2	$\frac{5}{-7}$	2	$\frac{4}{-5}$	2	$\frac{3}{-9}$	2	$\frac{5}{-2}$	2	$\frac{4}{-1}$	2	$\frac{3}{-6}$	2
$\frac{2}{-2} \times \frac{1}{1} \frac{0}{0}$	$\frac{7}{-3}$	2	$\frac{5}{-8}$	2	$\frac{4}{-1} \frac{0}{0}$	2	$\frac{6}{-8}$	2	$\frac{5}{-3}$	2	$\frac{4}{-5}$	2	$\frac{6}{-1}$	2	$\frac{4}{-1} \frac{0}{0}$	2	$\frac{4}{-1}$	2
$\frac{2}{-2} \times \frac{1}{1} \frac{2}{2}$	$\frac{8}{-6}$	2	$\frac{6}{-8}$	2	$\frac{5}{-8}$	2	$\frac{7}{-1} \frac{0}{0}$	2	$\frac{6}{-2}$	2	$\frac{5}{-3}$	3	$\frac{7}{-2}$	2	$\frac{5}{-8}$	2	$\frac{4}{-1} \frac{0}{0}$	3
$\frac{3}{-2} \times \frac{8}{8}$	$\frac{7}{-8}$	1	$\frac{6}{-0}$	1	$\frac{5}{-1}$	2	$\frac{7}{-0}$	1	$\frac{5}{-6}$	2	$\frac{4}{-8}$	2	$\frac{6}{-5}$	1	$\frac{5}{-1}$	2	$\frac{4}{-4}$	2
$\frac{3}{-2} \times \frac{1}{1} \frac{0}{0}$	$\frac{9}{-1} \frac{1}{0}$	1	$\frac{7}{-2}$	2	$\frac{6}{-1}$	2	$\frac{8}{-4}$	1	$\frac{6}{-7}$	2	$\frac{5}{-7}$	2	$\frac{7}{-8}$	2	$\frac{6}{-1}$	2	$\frac{5}{-2}$	2
$\frac{3}{-2} \times \frac{1}{1} \frac{2}{2}$	$\frac{1}{0} \frac{-8}{8}$	2	$\frac{8}{-5}$	2	$\frac{7}{-2}$	2	$\frac{9}{-1} \frac{0}{0}$	2	$\frac{7}{-8}$	2	$\frac{6}{-7}$	2	$\frac{9}{-0}$	2	$\frac{7}{-1}$	2	$\frac{6}{-1}$	2
$\frac{4}{-2} \times \frac{8}{8}$	$\frac{8}{-1} \frac{0}{0}$	1	$\frac{6}{-1} \frac{1}{1}$	1	$\frac{5}{-1} \frac{1}{1}$	1	$\frac{8}{-1}$	1	$\frac{6}{-4}$	1	$\frac{5}{-5}$	2	$\frac{7}{-5}$	1	$\frac{5}{-1} \frac{1}{1}$	1	$\frac{5}{-0}$	2
$\frac{4}{-2} \times \frac{1}{1} \frac{0}{0}$	$\frac{1}{0} \frac{-6}{6}$	1	$\frac{8}{-3}$	2	$\frac{7}{-0}$	2	$\frac{9}{-8}$	1	$\frac{7}{-7}$	2	$\frac{6}{-5}$	2	$\frac{8}{-1} \frac{0}{0}$	1	$\frac{7}{-0}$	2	$\frac{6}{-0}$	2

	4 - 2 * 1 2	1 2 - 4	1	9 - 8	2	8 - 3	2	1 1 - 4	2	8 - 1 1	2	7 - 7	2	1 0 - 4	2	8 - 3	2	7 - 0	2
Ro of, ceil ing, and one ele ar spa n roo f	1 - 2 * 6	2 - 1 1	2	2 - 3	2	1 - 1 1	2	2 - 9	2	2 - 1	2	1 - 9	2	2 - 7	2	2 - 0	2	1 - 8	2
	1 - 2 * 8	3 - 9	2	2 - 1 0	2	2 - 5	3	3 - 6	2	2 - 8	2	2 - 3	3	3 - 3	2	2 - 6	3	2 - 2	3
	1 - 2 * 1 0	4 - 5	2	3 - 5	3	2 - 1 0	3	4 - 2	2	3 - 2	3	2 - 8	3	3 - 1 1	2	3 - 0	3	2 - 6	3
	1 - 2 * 1 2	5 - 2	2	4 - 0	3	3 - 4	3	4 - 1 0	3	3 - 9	3	3 - 2	4	4 - 7	3	3 - 6	3	3 - 0	4
	2 - 2 * 4	2 - 1 1	1	2 - 3	1	1 - 1 0	1	2 - 9	1	2 - 1	1	1 - 9	1	2 - 7	1	2 - 0	1	1 - 8	1
	2 - 2 * 6	4 - 4	1	3 - 4	2	2 - 1 0	2	4 - 1	1	3 - 2	2	2 - 8	2	3 - 1 0	1	3 - 0	2	2 - 6	2
	2 - 2 * 8	5 - 6	2	4 - 3	2	3 - 7	2	5 - 2	2	4 - 0	2	3 - 4	2	4 - 1 0	2	3 - 9	2	3 - 2	2
	2 - 2 * 1 0	6 - 7	2	5 - 0	2	4 - 2	2	6 - 1	2	4 - 9	2	4 - 0	2	5 - 9	2	4 - 5	2	3 - 9	3

	2 - 2 * 1 2	7 - 9	2	5 - 1 1	2	4 - 1 1	3	7 - 2	2	5 - 7	2	4 - 8	3	6 - 9	2	5 - 3	3	4 - 5	3
	3 - 2 * 8	6 - 1 1	1	5 - 3	2	4 - 5	2	6 - 5	1	5 - 0	2	4 - 2	2	6 - 1	1	4 - 8	2	4 - 0	2
	3 - 2 * 1 0	8 - 3	2	6 - 3	2	5 - 3	2	7 - 8	2	5 - 1 1	2	5 - 0	2	7 - 3	2	5 - 7	2	4 - 8	2
	3 - 2 * 1 2	9 - 8	2	7 - 5	2	6 - 2	2	9 - 0	2	7 - 0	2	5 - 1 0	2	8 - 6	2	6 - 7	2	5 - 6	3
	4 - 2 * 8	8 - 0	1	6 - 1	1	5 - 1	2	7 - 5	1	5 - 9	2	4 - 1 0	2	7 - 0	1	5 - 5	2	4 - 7	2
	4 - 2 * 1 0	9 - 6	1	7 - 3	2	6 - 1	2	8 - 1 0	1	6 - 1 0	2	5 - 9	2	8 - 4	1	6 - 5	2	5 - 5	2
	4 - 2 * 1 2	1 1 - 2	2	8 - 6	2	7 - 2	2	1 0 - 5	2	8 - 0	2	6 - 9	2	9 - 1 0	2	7 - 7	2	6 - 5	2
Ro of, ceil ing, and two cen ter- bea rin	1 - 2 * 6	2 - 8	2	2 - 1	2	1 - 1 0	2	2 - 7	2	2 - 0	2	1 - 9	2	2 - 5	2	1 - 1 1	2	1 - 8	2
	1 - 2 * 8	3 - 5	2	2 - 8	2	2 - 4	3	3 - 3	2	2 - 7	2	2 - 2	3	3 - 1	2	2 - 5	3	2 - 1	3

8 flo ors	1 - 2 * 1 0	4 - 0	2	3 - 2	3	2 - 9	3	3 - 1 0	2	3 - 1	3	2 - 7	3	3 - 8	2	2 - 1 1	3	2 - 5	3
	1 - 2 * 1 2	4 - 9	3	3 - 9	3	3 - 2	4	4 - 6	3	3 - 7	3	3 - 1	4	4 - 3	3	3 - 5	3	2 - 1 1	4
	2 - 2 * 4	2 - 8	1	2 - 1	1	1 - 9	1	2 - 6	1	2 - 0	1	1 - 8	1	2 - 5	1	1 - 1 1	1	1 - 7	1
	2 - 2 * 6	4 - 0	1	3 - 2	2	2 - 8	2	3 - 9	1	3 - 0	2	2 - 7	2	3 - 7	1	2 - 1 0	2	2 - 5	2
	2 - 2 * 8	5 - 0	2	4 - 0	2	3 - 5	2	4 - 1 0	2	3 - 1 0	2	3 - 3	2	4 - 7	2	3 - 7	2	3 - 1	2
	2 - 2 * 1 0	6 - 0	2	4 - 9	2	4 - 0	2	5 - 8	2	4 - 6	2	3 - 1 0	3	5 - 5	2	4 - 3	2	3 - 8	3
	2 - 2 * 1 2	7 - 0	2	5 - 7	2	4 - 9	3	6 - 8	2	5 - 4	3	4 - 6	3	6 - 4	2	5 - 0	3	4 - 3	3
	3 - 2 * 8	6 - 4	1	5 - 0	2	4 - 3	2	6 - 0	1	4 - 9	2	4 - 1	2	5 - 8	2	4 - 6	2	3 - 1 0	2
	3 - 2 * 1 0	7 - 6	2	5 - 1 1	2	5 - 1	2	7 - 1	2	5 - 8	2	4 - 1 0	2	6 - 9	2	5 - 4	2	4 - 7	2

	3 - 2 * 1 2	8 - 1 0	2	7 - 0	2	5 - 1 1	2	8 - 5	2	6 - 8	2	5 - 8	3	8 - 0	2	6 - 4	2	5 - 4	3
	4 - 2 * 8	7 - 3	1	5 - 9	1	4 - 1 1	2	5 - 1 1	1	5 - 6	2	4 - 8	2	6 - 7	1	5 - 2	2	4 - 5	2
	4 - 2 * 1 0	8 - 8	1	6 - 1 0	2	5 - 1 0	2	8 - 3	2	6 - 6	2	5 - 7	2	7 - 1 0	2	6 - 2	2	5 - 3	2
	4 - 2 * 1 2	1 0 - 2	2	8 - 1	2	6 - 1 0	2	9 - 8	2	7 - 8	2	6 - 7	2	9 - 2	2	7 - 3	2	6 - 2	2
Ro of, ceil ing, and two ele ar spa n flo ors	1 - 2 * 6	2 - 3	2	1 - 9	2	1 - 5	2	2 - 3	2	1 - 9	2	1 - 5	3	2 - 2	2	1 - 8	2	1 - 5	3
	1 - 2 * 8	2 - 1 0	2	2 - 2	3	1 - 1 0	3	2 - 1 0	2	2 - 2	3	1 - 1 0	3	2 - 9	2	2 - 1	3	1 - 1 0	3
	1 - 2 * 1 0	3 - 4	2	2 - 7	3	2 - 2	3	3 - 4	3	2 - 7	3	2 - 2	4	3 - 3	3	2 - 6	3	2 - 2	4
	1 - 2 * 1 2	4 - 0	3	3 - 0	3	2 - 7	4	4 - 0	3	3 - 0	4	2 - 7	4	3 - 1 0	3	3 - 0	4	2 - 6	4
	2 - 2 * 4	2 - 3	1	1 - 8	1	1 - 4	1	2 - 3	1	1 - 8	1	1 - 4	1	2 - 2	1	1 - 8	1	1 - 4	2

$\frac{2}{-2} \times 6$	$\frac{3}{-4}$	1	$\frac{2}{-6}$	2	$\frac{2}{-2}$	2	$\frac{3}{-4}$	2	$\frac{2}{-6}$	2	$\frac{2}{-2}$	2	$\frac{3}{-3}$	2	$\frac{2}{-6}$	2	$\frac{2}{-1}$	2
$\frac{2}{-2} \times 8$	$\frac{4}{-3}$	2	$\frac{3}{-3}$	2	$\frac{2}{-8}$	2	$\frac{4}{-3}$	2	$\frac{3}{-3}$	2	$\frac{2}{-8}$	2	$\frac{4}{-1}$	2	$\frac{3}{-2}$	2	$\frac{2}{-8}$	3
$\frac{2}{-2} \times 10$	$\frac{5}{-0}$	2	$\frac{3}{-10}$	2	$\frac{3}{-2}$	3	$\frac{5}{-0}$	2	$\frac{3}{-10}$	2	$\frac{3}{-2}$	2	$\frac{4}{-10}$	2	$\frac{3}{-9}$	3	$\frac{3}{-2}$	3
$\frac{2}{-2} \times 12$	$\frac{5}{-11}$	2	$\frac{4}{-6}$	3	$\frac{3}{-9}$	3	$\frac{5}{-11}$	2	$\frac{4}{-6}$	3	$\frac{3}{-9}$	3	$\frac{5}{-8}$	2	$\frac{4}{-5}$	3	$\frac{3}{-9}$	3
$\frac{3}{-2} \times 8$	$\frac{5}{-3}$	1	$\frac{4}{-0}$	2	$\frac{3}{-5}$	2	$\frac{5}{-3}$	2	$\frac{4}{-0}$	2	$\frac{3}{-5}$	2	$\frac{5}{-1}$	2	$\frac{3}{-11}$	2	$\frac{3}{-4}$	2
$\frac{3}{-2} \times 10$	$\frac{6}{-3}$	2	$\frac{4}{-9}$	2	$\frac{4}{-0}$	2	$\frac{6}{-3}$	2	$\frac{4}{-9}$	2	$\frac{4}{-0}$	2	$\frac{6}{-1}$	2	$\frac{4}{-8}$	2	$\frac{4}{-0}$	3
$\frac{3}{-2} \times 12$	$\frac{7}{-5}$	2	$\frac{5}{-8}$	2	$\frac{4}{-9}$	3	$\frac{7}{-5}$	2	$\frac{5}{-8}$	2	$\frac{4}{-9}$	3	$\frac{7}{-2}$	2	$\frac{5}{-6}$	3	$\frac{4}{-8}$	3
$\frac{4}{-2} \times 8$	$\frac{6}{-1}$	1	$\frac{4}{-8}$	2	$\frac{3}{-11}$	2	$\frac{6}{-1}$	1	$\frac{4}{-8}$	2	$\frac{3}{-11}$	2	$\frac{5}{-11}$	1	$\frac{4}{-7}$	2	$\frac{3}{-11}$	2
$\frac{4}{-2} \times 10$	$\frac{7}{-3}$	2	$\frac{5}{-6}$	2	$\frac{4}{-8}$	2	$\frac{7}{-3}$	2	$\frac{5}{-6}$	2	$\frac{4}{-8}$	2	$\frac{7}{-0}$	2	$\frac{5}{-5}$	2	$\frac{4}{-7}$	2

4	8	2	6	2	5	2	8	2	6	2	5	2	8	2	6	2	5	3
-	-		-		-		-		-		-		-		-		-	
2	6		6		6		6		6		6		3		4		4	
1																		
2																		

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

a. Spans are given in feet and inches.

b. Spans are based on the minimum design properties for No. 2 grade lumber of Douglas Fir-Larch, Hem Fir, Southern Pine, and Spruce Pine Fir.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ—Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full height wall stud and to the header.

e. Use 30 psf ground snow load for cases in which ground snow load is less than 30 psf and the roof live load is equal to or less than 20 psf.

f. Spans are calculated assuming the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (e.g. cripple studs bearing on the header), tabulated spans for headers consisting of 2x8, 2x10, or 2x12 sizes shall be multiplied by 0.70 or the header shall be designed.

C. Change Table 2308.4.1.1(2) of the IBC to read:

Table 2308.4.1.1(2) Header and Girder Spans ^{a, b} for Interior Bearing Walls (Maximum spans for Douglas Fir-Larch, Hem Fir, Southern Pine, and Spruce Pine Fir ^b and required number of jack studs)							
Headers and Girders Supporting	Size	Building Width ^c (feet)					
		12		24		36	
		Span ^e	NJ ^d	Span ^e	NJ ^d	Span ^e	NJ ^d
One floor only	2-2 x 4	4-1	1	2-10	1	2-4	1
	2-2 x 6	6-1	1	4-4	1	3-6	1
	2-2 x 8	7-9	1	5-5	1	4-5	2
	2-2 x 10	9-2	1	6-6	2	5-3	2
	2-2 x 12	10-9	1	7-7	2	6-3	2
	3-2 x 8	9-8	1	6-10	1	5-7	1
	3-2 x 10	11-5	1	8-1	1	6-7	2
	3-2 x 12	13-6	1	9-6	2	7-9	2
	4-2 x 8	11-2	1	7-11	1	6-5	1
	4-2 x 10	13-3	1	9-4	1	7-8	1
	4-2 x 12	15-7	1	11-0	1	9-0	2
Two floors	2-2 x 4	2-7	1	1-11	1	1-7	1
	2-2 x 6	3-11	1	2-11	2	2-5	2
	2-2 x 8	5-0	1	3-8	2	3-1	2
	2-2 x 10	5-11	2	4-4	2	3-7	2
	2-2 x 12	6-11	2	5-2	2	4-3	3
	3-2 x 8	6-3	1	4-7	2	3-10	2
	3-2 x 10	7-5	1	5-6	2	4-6	2

3-2 x 12	8-8	2	6-5	2	5-4	2
4-2 x 8	7-2	1	5-4	1	4-5	2
4-2 x 10	8-6	1	6-4	2	5-3	2
4-2 x 12	10-1	1	7-5	2	6-2	2

- a. Spans are given in feet and inches.
- b. Spans are based on the minimum design properties for No. 2 grade lumber of Douglas Fir Larch, Hem Fir, Southern Pine, and Spruce Pine Fir.
- c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.
- d. NJ—Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an approved framing anchor attached to the full height wall stud and to the header.
- e. Spans are calculated assuming the top of the header or girder is laterally braced by perpendicular framing. Where the top of the header or girder is not laterally braced (e.g., cripple studs bearing on the header), tabulated spans for headers consisting of 2x8, 2x10, or 2x12 sizes shall be multiplied by 0.70 or the header shall be designed.

13VAC5-63-298. Chapter 26 Plastic.

Change Section 2603.5.5 of the IBC to read:

2603.5.5 Vertical and lateral fire propagation. Exterior wall assemblies shall be tested in accordance with, and comply with, acceptance criteria of NFPA 285. Where noncombustible materials or combustible materials permitted by Sections 603, 803, 806 or 1406 differ from assembly to assembly or within an assembly, multiple tests shall not be required.

Exceptions:

1. One-story buildings where the exterior wall covering is noncombustible.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
 - 2.1. There is no air space between the insulation and the concrete or masonry.
 - 2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum air space between the insulation and the concrete or masonry is not more than 1 inch (25 mm).
3. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

13VAC5-63-300. Chapter 27 Electrical.

A. Change Section 2701.1 of the IBC to read:

2701.1 Scope. This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of this code and NFPA 70.

B. Add Section 2701.1.1 to the IBC to read:

2701.1.1 Changes to NFPA 70. The following change shall be made to NFPA 70:

1. Change Sections 334.10(2) and 334.10(3) of NFPA 70 to read:

(2) Multifamily dwellings not exceeding four floors above grade and multifamily dwellings of any height permitted to be of Types III, IV and V construction except in any case as prohibited in 334.12.

(3) Other structures not exceeding four floors above grade and other structures of any height permitted to be of Types III, IV and V construction except in any case as prohibited in 334.12. In structures exceeding four floors above grade, cables shall be concealed within walls, floors or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.

For the purpose of Items 2 and 3 above, the first floor of a building shall be that floor that has 50% or more of the exterior wall surface area level with or above finished grade. One additional level that is the first level and not designed for human habitation and used only for vehicle parking, storage or similar use shall be permitted.

2. Change Section 700.12(F)(2)(6) of NFPA 70 to read:

(6) Where the normal power branch circuits that supply luminaires providing illumination immediately on the inside and outside of exit doors are supplied by the same service or feeder, the remote heads providing emergency illumination for the exterior of an exit door shall be permitted to be supplied by the unit equipment serving the area immediately inside the exit door.

C. Add Section 2701.1.2 to the IBC to read:

2701.1.2 Temporary connection to dwelling units. The building official shall give permission to energize the electrical service equipment of a one-family or two-family dwelling unit when all of the following requirements have been approved:

1. The service wiring and equipment, including the meter socket enclosure, shall be installed and the service wiring terminated.

2. The grounding electrode system shall be installed and terminated.

3. At least one receptacle outlet on a ground fault protected circuit shall be installed and the circuit wiring terminated.

4. Service equipment covers shall be installed.

5. The building roof covering shall be installed.

6. Temporary electrical service equipment shall be suitable for wet locations unless the interior is dry and protected from the weather.

D. Add Section 2701.1.3 to the IBC to read:

2701.1.3 Assisted living facility generator requirements. Generators installed to comply with regulations for assisted living facilities licensed by the Virginia Department of Social Services shall be permitted to be optional standby systems.

E. Change Sections ~~2702.2.17~~ 2702.2.8 and 2702.2.9 of the IBC to read:

~~2702.2.17~~ 2702.2.8 Group I-2 ~~and I-3~~ occupancies. Emergency power shall be provided in accordance with Section ~~407.10~~ 407.11 for Group I-2 occupancies licensed by the Virginia Department of Health as a hospital, nursing or hospice facility.

2702.2.9 Group I-3 occupancies. Emergency power shall be provided for doors in Group I-3 occupancies in accordance with Section 408.4.2.

13VAC5-63-310. Chapter 28 Mechanical systems.

A. Change Section 2801.1 of the IBC to read:

2801.1 Scope. Mechanical appliances, equipment and systems shall be constructed and installed in accordance with this chapter, the IMC and the IFGC. Masonry chimneys, fireplaces and barbecues shall comply with the IMC and Chapter 21 of this code.

Exception: This code shall not govern the construction of water heaters, boilers and pressure vessels to the extent which they are regulated by the Virginia Boiler and Pressure Vessel Regulations (16VAC25-50). However, the building official may require the owner of a structure to submit documentation to substantiate compliance with those regulations.

B. Add Section 2801.1.1 to the IBC to read:

2801.1.1 Required heating in dwelling units. Heating facilities shall be required in every dwelling unit or portion thereof which is to be rented, leased or let on terms, either expressed or implied, to furnish heat to the occupants thereof. The heating facilities shall be capable of maintaining the room temperature at 65°F (18°C) during the period from October 15 to May 1 during the hours between 6:30 a.m. and 10:30 p.m. of each day and not less than 60°F (16°C) during other hours when measured at a point three feet (914 mm) above the floor and three feet (914 mm) from the exterior walls. The capability of the heating system shall be based on the outside design temperature required for the locality by this code.

C. Add Section 2801.1.2 to the IBC to read:

2801.1.2 Required heating in nonresidential structures. Heating facilities shall be required in every enclosed occupied space in nonresidential structures. The heating facilities shall be capable of producing sufficient heat during the period from October 1 to May 15 to maintain a temperature of not less than 65°F (18°C) during all working hours. The required room temperature shall be measured at a point three feet (914 mm) above the floor and three feet (914 mm) from the exterior walls.

Processing, storage and operation areas that require cooling or special temperature conditions and areas in which persons are primarily engaged in vigorous physical activities are exempt from these requirements.

D. Add Section 2801.1.3 to the IBC to read:

2801.1.3 Changes to the IMC. The following changes shall be made to the IMC:

1. ~~Add the following definition to Section 202 of the IMC to read:~~

~~Pollution control unit. Manufactured equipment that is installed in a grease exhaust duct system for the purpose of extracting smoke, grease particles, and odors from the exhaust flow by means of a series of filters.~~

2. ~~Change Section 401.2 of the IMC to read:~~

~~401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403. Group R dwelling unit units shall be ventilated by mechanical means in accordance with Section 403. Ambulatory care facilities and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407.~~

3. ~~2.~~ Change Section 403.3.1.1 of the IMC to read:

403.3.1.1 Outdoor airflow rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with this section. In each occupiable space, the ventilation system shall be designed to deliver the required rate of outdoor airflow to the breathing zone. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3.1.1. Ventilation rates for occupancies not represented in Table 403.3.1.1 shall be those for a listed occupancy classification that is most similar in terms of occupant density, activities and building construction; or shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges and other designated areas where smoking is permitted, the ventilation rates in Table 403.3.1.1 are based on the absence of smoking in occupiable spaces.

Exception: The occupant load is not required to be determined based on the estimated maximum occupant load rate indicated in Table 403.3.1.1 where approved statistical data document the accuracy of an alternate anticipated occupant density.

4 ~~3.~~ Add and change the following areas in Table 403.3.1.1 of the IMC to read:

OCCUPANCY CLASSIFICATION	Occupant Density #/1000 ft ² ^a	People Outdoor Airflow Rate in Breathing Zone, R _p cfm/person	Area Outdoor Airflow Rate in Breathing Zone, R _a cfm/ft ^{2a}	Exhaust Airflow Rate Cfm/ft ^{2a}
Food and beverage service				
Bars or cocktail lounges designated as an area where smoking is permitted ^b	100	30	--	--
Cafeteria or fast food designated as an area	100	20	--	--

where smoking is permitted ^b				
Dining rooms designated as an area where smoking is permitted ^b	70	20	--	--
Public spaces				
Lounges designated as an area where smoking is permitted ^b	100	30	--	--

§ 4. Change Section 504.8.2 of the IMC to read:

504.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct.

Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

6 5. Change Exception 1 of Section ~~505.1~~ 505.3 of the IMC to read:

~~505.1 Domestic systems. Where domestic range hoods and domestic appliances equipped with downdraft exhaust are provided, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum, or copper. Such ducts shall have smooth inner walls, shall be air tight, shall be equipped with a backdraft damper, and shall be independent of all other exhaust systems.~~

Exceptions:

1. In Group R buildings, where installed in accordance with the manufacturer's installation instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

~~2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:~~

~~2.1. The PVC duct shall be installed under a concrete slab poured on grade.~~

~~2.2. The underfloor trench in which the PVC duct is installed shall be completely backfilled with sand or gravel.~~

~~2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.~~

~~2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.~~

~~2.5. The PVC duct shall be solvent cemented.~~

76. Change Section ~~505.4~~ 505.6 to the IMC to read:

~~505.4~~ 505.6 Other than Group R. In other than Group R occupancies, where electric domestic cooking appliances are utilized for domestic purposes, such appliances shall be provided with domestic range hoods. Hoods and exhaust systems for such electric domestic cooking appliances shall be in accordance with Sections ~~505.4~~ 505.2 and ~~505.2~~ 505.4. In other than Group R occupancies, where fuel-fired domestic cooking appliances are utilized for domestic purposes, a Type I or Type II hood shall be provided as required for the type of appliances and processes in accordance with Section 507.1.

8 7. Change Section 506.5 of the IMC to read:

506.5 Exhaust equipment. Exhaust equipment, including fans and grease reservoirs, shall comply with Sections 506.5.1 through 506.5.6 and shall be of an approved design or shall be listed for the application.

9 8. Add Section ~~506.5.6~~ 506.5.7 to the IMC to read:

~~505.5.6~~ 506.5.7 Pollution control units. The installation of pollution control units shall be in accordance with the manufacturer's installation instructions and all of the following:

1. Pollution control units shall be listed and labeled in accordance with UL 1978.
2. Fans serving pollution control units shall be listed and labeled in accordance with UL 762.
3. Pollution control units shall be mounted and secured in accordance with the manufacturer's installation instructions and the International Building Code.
4. Pollution control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for serving and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. A clearance of not less than 18 inches (457 mm) shall be maintained between the pollution control unit and combustible material.
6. Roof mounted pollution control units shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof.
7. Exhaust outlets for pollution control units shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.
10. Pollution control units shall be provided with a factory installed fire suppression system.
11. Service space shall be provided in accordance with the manufacturer's instructions for the pollution control unit and the requirements of Section 306.

12. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.

13. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.

14. Duct connections to pollution control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the unit inlet and outlet openings.

15. Extra heavy duty appliance exhaust systems shall not be connected to pollution control units except where such units are specifically designed and listed for use with solid fuels.

16. Pollution control units shall be maintained in accordance with the manufacturer's instructions.

9. Change Section 607.5.5 of the IMC to read:

607.5.5 Shaft enclosures. Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with approved fire and smoke dampers installed in accordance with their listing.

Exceptions:

1. Fire and smoke dampers are not required where steel exhaust subducts extend at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside.
2. Fire dampers are not required where penetrations are tested in accordance with ASTM E119 as part of the fire-resistance-rated assembly.
3. Fire and smoke dampers are not required where ducts are used as part of an approved smoke control system in accordance with Section 909 of the International Building Code.
4. Fire and smoke dampers are not required where the penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than two-hour fire-resistance-rated construction.
5. Smoke dampers are not required where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the International Building Code.

10. Add Section 607.6.2.2 to the IMC to read:

607.6.2.2 Equipment shutdown. Where ceiling radiation dampers are listed as static dampers, the HVAC equipment shall be effectively shut down to stop the airflow prior to the damper closing using one of the following methods:

1. A duct detector installed in the return duct.
2. An area smoke detector interlocked with the HVAC equipment.
3. A listed heat sensor installed in the return duct.

E. Add Section 2801.1.4 to the IBC to read:

2801.1.4 Changes to the IFGC. The following changes shall be made to the IFGC:

1. Change Section 301.1 of the IFGC to read:

301.1 Scope. This code shall apply to the installation of fuel gas piping systems, fuel gas utilization equipment, and related accessories as follows:

1. Coverage of piping systems shall extend from the point of delivery to the connections with gas utilization equipment. (See "point of delivery.")

2. Systems with an operating pressure of 125 psig (862 kPa gauge) or less.
Piping systems for gas-air mixtures within the flammable range with an operating pressure of 10 psig (69 kPa gauge) or less.

LP-Gas piping systems with an operating pressure of 20 psig (140 kPa gauge) or less.

3. Piping systems requirements shall include design, materials, components, fabrication, assembly, installation, testing and inspection.

4. Requirements for gas utilization equipment and related accessories shall include installation, combustion and ventilation air and venting.

This code shall not apply to the following:

1. Portable LP-Gas equipment of all types that are not connected to a fixed fuel piping system.
2. Installation of farm equipment such as brooders, dehydrators, dryers, and irrigation equipment.
3. Raw material (feedstock) applications except for piping to special atmosphere generators.
4. Oxygen-fuel gas cutting and welding systems.
5. Industrial gas applications using gases such as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen, and nitrogen.

6. Petroleum refineries, pipeline compressor or pumping stations, loading terminals, compounding plants, refinery tank farms, and natural gas processing plants.
7. Integrated chemical plants or portions of such plants where flammable or combustible liquids or gases are produced by chemical reactions or used in chemical reactions.
8. LP-Gas installations at utility gas plants.
9. Liquefied natural gas (LNG) installations.
10. Fuel gas piping in power and atomic energy plants.
11. Proprietary items of equipment, apparatus, or instruments such as gas generating sets, compressors, and calorimeters.
12. LP-Gas equipment for vaporization, gas mixing, and gas manufacturing.
13. Temporary LP-Gas piping for buildings under construction or renovation that is not to become part of the permanent piping system.
14. Installation of LP-Gas systems for railroad switch heating.
15. Installation of LP-Gas and compressed natural gas (CNG) systems on vehicles.
16. Except as provided in Section 401.1.1, gas piping, meters, gas pressure regulators, and other appurtenances used by the serving gas supplier in the distribution of gas, other than undiluted LP-Gas.
17. Building design and construction, except as specified herein.

2. Change Sections 310.1 and ~~310.1.1~~ 310.2 of the IFGC to read:

310.1 Pipe and tubing. Each above-ground portion of a gas piping system that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. Gas piping shall be considered to be bonded where it is connected to appliances that are connected to the equipment grounding conductor of the circuit supplying that appliance. Corrugated stainless steel tubing (CSST) piping systems listed with an arc resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26 shall comply with this section. Where any CSST segments of a piping system are not listed with an arc resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26, Section ~~310.1.1~~ 310.2 shall apply.

~~310.1.1~~ 310.2 CSST without arc resistant jacket or coating system. CSST gas piping systems and piping systems containing one or more segments of CSST not listed with an arc resistant jacket or coating system in accordance with ANSI LC 1/CSA 6.26 shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection electrode system and shall comply with Sections ~~310.1.1.1~~ 310.2.1 through ~~310.1.1.5~~ 310.2.5.

3. Add Section ~~404.11.3~~ 404.11.6 to the IFGC to read:

~~404.11.3~~ 404.11.6 Coating application. Joints in gas piping systems shall not be coated prior to testing and approval.

4. Change Section 614.8.2 of the IFGC to read:

614.8.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1219 mm) intervals and secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Ducts shall not be joined with screws or similar fasteners that protrude into the inside of the duct.

Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall allow the installation of the duct without deformation.

5. Change the following referenced standard in Chapter 8 of the IFGC:

Standard Reference Number	Title	Referenced in Code Section Number
ANSI LC1/CSA 6.26-14	Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST)	310.1, 310.1.1, 403.5.4

13VAC5-63-320. Chapter 29 Plumbing systems.

A. Change Section 2901.1 of the IBC to read:

2901.1 Scope. The provisions of this chapter and the IPC shall govern the design and installation of all plumbing systems and equipment, except that as provided for in Section 103.5 for functional design, water supply sources and sewage disposal systems are regulated and approved by the Virginia Department of Health and the Virginia Department of Environmental Quality. The approval of pumping and electrical equipment associated with such water supply sources and sewage disposal systems shall, however, be the responsibility of the building official.

Note: See also the Memorandum of Agreement in the "Related Laws Package," which is available from DHCD.

B. Add Section 2901.1.1 to the IBC to read:

2901.1.1 Changes to the IPC. The following changes shall be made to the IPC:

1. Add the following definitions to the IPC to read:

Nonpotable fixtures and outlets. Fixtures and outlets that are not dependent on potable water for the safe operation to perform their intended use. Such fixtures and outlets may include, but are not limited to water closets, urinals, irrigation, mechanical equipment, and hose connections to perform operations, such as vehicle washing and lawn maintenance.

Nonpotable water systems. Water systems for the collection, treatment, storage, distribution, and use or reuse of nonpotable water. Nonpotable systems include reclaimed water, rainwater, and gray water systems.

Stormwater. Precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

2. Change the following definitions in the IPC to read:

~~Gray water. Water discharged from lavatories, bathtubs, showers, clothes washers, and laundry trays.~~

Rainwater. Natural precipitation, including snow melt, from roof surfaces only.

Reclaimed water. Reclaimed water means water resulting from the treatment of domestic, municipal, or industrial wastewater that is suitable for a water reuse that would not otherwise occur. Specifically excluded from this definition is "gray water."

3. Change the exception to Section 301.3 of the IPC to read:

Exception: Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved nonpotable gray water system in accordance with the applicable provisions of Chapter 13.

4. Delete Sections 311 and 311.1 of the IPC.

5. Modify the Group A-5 "Description" category of Table 403.1 of the IPC to read:

Stadiums, amusement parks, pools, bleachers, and grandstands for outdoor sporting events and activities^{f g}

6. Add footnote "f g" to Table 403.1 of the IPC to read:

f g. The occupant load for pools shall be in accordance with the "Skating rinks, swimming pools" category of Table ~~1004.1.2~~ 1004.5 of the IBC.

7. Add Section ~~403.1.3~~ 403.1.4 and Table ~~403.1.3~~ 403.1.4 to the IPC to read:

~~403.1.3~~ 403.1.4 Marina fixtures. Notwithstanding any provision to the contrary, plumbing fixtures shall be provided for marinas in the minimum number shown in Table ~~403.1.3~~ 403.1.4. Fixtures shall be located within 500 feet walking distance from the shore end of any dock they serve. Separate facilities shall be provided for each sex with an equal number of fixtures of each type in each facility, except that separate facilities are not required where the number of slips is less than 25. Urinals may be substituted for up to 50% of water closets.

Table ~~403.1.3~~ <u>403.1.4</u> Minimum Number of Required Plumbing Fixtures for Marinas			
Number of Slips	Plumbing Fixtures		
	Water Closets	Lavatories	Showers
1 - 24	1	1	1
25 - 49	4	4	2
50 - 99	6	4	2
100 - 149	8	6	4

150 - 199	10	8	4
200 - 249	12	10	6
250 or greater	Two additional fixtures of each type for each 100 additional slips.		

8. Change Section 403.3.3 of the IPC to read:

403.3.3 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

Exceptions:

1. The location and maximum distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum travel distance are approved.
2. The location and maximum distances of travel to the required public facilities located on cemetery property are permitted to exceed that required by this section, provided that the location and maximum travel distance are located on the same property and approved.

9. Change Section 405.3.2 of the IPC to read:

405.3.2 Public lavatories. In employee and public toilet rooms, the required lavatory shall be located in the same room as the required water closet.

Exception: In educational use occupancies, the required lavatory shall be permitted to be located adjacent to the room or space containing the water closet provided that not more than one operational door is between the water closet and the lavatory.

10. Add Section 602.2.1 to the IPC to read:

602.2.1 Nonpotable fixtures and outlets. Nonpotable water shall be permitted to serve nonpotable type fixtures and outlets in accordance with Chapter 13.

11. Add Section 603.3 to the IPC to read:

603.3 Tracer wire. Nonmetallic water service piping that connects to public systems shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product, shall be utilized. The wire shall be installed in the same trench as the water service piping and within 12 inches (305 mm) of the pipe and shall be installed to within five feet (1524 mm) of the building wall to the point where the building water service pipe intersects with the public water supply. At a minimum, one end of the wire shall terminate above grade to provide access to the wire in a location that is resistant to physical damage, such as with a meter vault or at the building wall.

12. Change Section ~~608.16.10~~ 608.17.1.2 of the IPC to read:

~~608.16.10~~ 608.17.1.2 Coffee machines and noncarbonated beverage dispensers. The water supply connection to coffee machines and noncarbonated beverage dispensers shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or 1024, or by an air gap.

~~13. Delete Section 701.8 of the IPC.~~

~~14. 13.~~ Add Section 703.7 to the IPC to read:

703.7 Tracer wire. Nonmetallic sanitary sewer piping that discharges to public systems shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product, shall be utilized. The wire shall be installed in the same trench as the sewer within 12 inches (305 mm) of the pipe and shall be installed to within five feet (1524 mm) of the building wall to the point where the building sewer intersects with the public system. At a minimum, one end of the wire shall terminate above grade in an accessible location that is resistant to physical damage, such as with a cleanout or at the building wall.

~~15. 14.~~ Add an exception to Section 1101.2 of the IPC to read:

Exception. Rainwater nonpotable water systems shall be permitted in accordance with Chapter 13.

~~16. 15.~~ Change Section 1106.2 of the IPC to read:

1106.2 Vertical conductors and leaders. Vertical conductors and leaders shall be sized for the maximum projected roof area, in accordance with Table 1106.2(1) and 1106.2(2).

~~17. 16.~~ Delete Table 1106.2 of the IPC and add Tables 1106.2.(1) and 1106.2(2) to the IPC to read:

Table 1106.2(1) Size of Circular Vertical Conductors and Leaders												
Diameter of Leader (inches ^a)	Horizontally Projected Roof Area (square feet)											
	Rainfall rate (inches per hour)											
	1	2	3	4	5	6	7	8	9	10	11	12
2	2,280	1,440	960	720	575	480	410	360	320	290	260	240
3	8,800	4,400	2,930	2,200	1,760	1,470	1,260	1,100	980	880	800	730
4	18,400	9,200	6,130	4,600	3,680	3,070	2,630	2,300	2,045	1,840	1,675	1,530
5	34,600	17,300	11,530	8,650	6,920	5,765	4,945	4,325	3,845	3,460	3,145	2,880
6	54,000	27,000	17,995	13,500	10,800	9,000	7,715	6,750	6,000	5,400	4,910	4,500
8	116,000	58,000	38,660	29,000	23,200	19,315	16,570	14,500	12,890	11,600	10,545	9,600

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m².

a. Sizes indicated are the diameter of circular piping. This table is applicable to piping of other shapes, provided the cross-sectional shape fully enclosed a circle of the diameter indicated in this table. For rectangular leaders, see Table 1106.2(2). Interpolation is permitted for pipe sizes that fall between those listed in this table.

Table 1106.2(2) Size of Rectangular Vertical Conductors and Leaders												
Dimensions of Common Leader Sizes width x length (inches) ^{a,b}	Horizontally Projected Roof Area (square feet)											
	Rainfall rate (inches per hour)											
	1	2	3	4	5	6	7	8	9	10	11	12
1-3/4 x 2-1/2	3,410	1,700	1,130	850	680	560	480	420	370	340	310	280
2 x 3	5,540	2,770	1,840	1,380	1,100	920	790	690	610	550	500	460
2-3/4 x 4-1/4	12,830	6,410	4,270	3,200	2,560	2,130	1,830	1,600	1,420	1,280	1,160	1,060
3 x 4	13,210	6,600	4,400	3,300	2,640	2,200	1,880	1,650	1,460	1,320	1,200	1,100
3-1/2 x 4	15,900	7,950	5,300	3,970	3,180	2,650	2,270	1,980	1,760	1,590	1,440	1,320
3-1/2 x 5	21,310	10,650	7,100	5,320	4,260	3,550	3,040	2,660	2,360	2,130	1,930	1,770
3-3/4 x 4-3/4	21,960	10,980	7,320	5,490	4,390	3,660	3,130	2,740	2,440	2,190	1,990	1,830
3-3/4 x 5-1/4	25,520	12,760	8,500	6,380	5,100	4,250	3,640	3,190	2,830	2,550	2,320	2,120
3-1/2 x 6	27,790	13,890	9,260	6,940	5,550	4,630	3,970	3,470	3,080	2,770	2,520	2,310
4 x 6	32,980	16,490	10,990	8,240	6,590	5,490	4,710	4,120	3,660	3,290	2,990	2,740

5-1/2 x 5-1/2	44,300	22,150	14,760	11,070	8,860	7,380	6,320	5,530	4,920	4,430	4,020	3,690
7-1/2 x 7-1/2	100,500	50,250	33,500	25,120	20,100	16,750	14,350	12,560	11,160	10,050	9,130	8,370

For SI: 1 inch =m, 1 square foot = 0.0929 m².

a. Sizes indicated are nominal width x length of the opening for rectangular piping.

b. For shapes not included in this table, Equation 11-1 shall be used to determine the equivalent circular diameter, De, of rectangular piping for use in interpolation using the data from Table 1106.2(1).

(Equation 11-1)

$De = (\text{width} \times \text{length})^{1/2}$

where:

De = equivalent circular diameter and De, width and length are in inches.

~~48.~~ 17. Change Section 1106.3 and Table 1106.3 of the IPC to read:

1106.3 Building storm drains and sewers. The size of the building storm drain, building storm sewer and their horizontal branches having a slope of one-half unit or less vertical in 12 units horizontal (4-percent slope) shall be based on the maximum projected roof area in accordance with Table 1106.3. The slope of horizontal branches shall be not less than one-eighth unit vertical in 12 units horizontal (1-percent slope) unless otherwise approved.

Table 1106.3 Size of Horizontal Storm Drainage Piping						
Size of Horizontal Piping (inches)	Horizontally Projected Roof Area (square feet)					
	Rainfall rate (inches per hour)					
	1	2	3	4	5	6
1/8 unit vertical in 12 units horizontal (1-percent slope)						
3	3,288	1,644	1,096	822	657	548
4	7,520	3,760	2,506	1,800	1,504	1,253
5	13,360	6,680	4,453	3,340	2,672	2,227
6	21,400	10,700	7,133	5,350	4,280	3,566
8	46,000	23,000	15,330	11,500	9,200	7,600
10	82,800	41,400	27,600	20,700	16,580	13,800
12	133,200	66,600	44,400	33,300	26,650	22,200
15	218,000	109,000	72,800	59,500	47,600	39,650
1/4 unit vertical in 12 units horizontal (2-percent slope)						
3	4,640	2,320	1,546	1,160	928	773
4	10,600	5,300	3,533	2,650	2,120	1,766
5	18,880	9,440	6,293	4,720	3,776	3,146
6	30,200	15,100	10,066	7,550	6,040	5,033
8	65,200	32,600	21,733	16,300	13,040	10,866
10	116,800	58,400	38,950	29,200	23,350	19,450
12	188,000	94,000	62,600	47,000	37,600	31,350
15	336,000	168,000	112,000	84,000	67,250	56,000
1/2/ unit vertical in 12 units horizontal (4-percent slope)						
3	6,576	3,288	2,295	1,644	1,310	1,096
4	15,040	7,520	5,010	3,760	3,010	2,500

5	26,720	13,360	8,900	6,680	5,320	4,450
6	42,800	21,400	13,700	10,700	8,580	7,140
8	92,000	46,000	30,650	23,000	18,400	15,320
10	171,600	85,800	55,200	41,400	33,150	27,600
12	266,400	133,200	88,800	66,600	53,200	44,400
15	476,000	238,000	158,800	119,000	95,300	79,250
For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m ² .						

~~49.~~ 18. Change Section 1106.6 and Table 1106.6 of the IPC to read:

1106.6 Size of roof gutters. The size of semicircular gutters shall be based on the maximum projected roof area in accordance with Table 1106.6.

Table 1106.6 Size of Semicircular Roof Gutters						
Diameter of Gutters (inches)	Horizontally Projected Roof Area (square feet)					
	Rainfall rate (inches per hour)					
	1	2	3	4	5	6
1/16 unit vertical in 12 units horizontal (0.5-percent slope)						
3	680	340	226	170	136	113
4	1,440	720	480	360	288	240
5	2,500	1,250	834	625	500	416
6	3,840	1,920	1,280	960	768	640
7	5,520	2,760	1,840	1,380	1,100	918
8	7,960	3,980	2,655	1,990	1,590	1,325
10	14,400	7,200	4,800	3,600	2,880	2,400
1/8 unit vertical in 12 units horizontal (1-percent slope)						
3	960	480	320	240	192	160
4	2,040	1,020	681	510	408	340
5	3,520	1,760	1,172	880	704	587
6	5,440	2,720	1,815	1,360	1,085	905
7	7,800	3,900	2,600	1,950	1,560	1,300
8	11,200	5,600	3,740	2,800	2,240	1,870
10	20,400	10,200	6,800	5,100	4,080	3,400
1/4 unit vertical in 12 units horizontal (2-percent slope)						
3	1,360	680	454	340	272	226
4	2,880	1,440	960	720	576	480
5	5,000	2,500	1,668	1,250	1,000	834
6	7,680	3,840	2,560	1,920	1,536	1,280

7	11,040	5,520	3,860	2,760	2,205	1,840
8	15,920	7,960	5,310	3,980	3,180	2,655
10	28,800	14,400	9,600	7,200	5,750	4,800
1/2 unit vertical in 12 units horizontal (4-percent slope)						
3	1,920	960	640	480	384	320
4	4,080	2,040	1,360	1,020	816	680
5	7,080	3,540	2,360	1,770	1,415	1,180
6	11,080	5,540	3,695	2,770	2,220	1,850
7	15,600	7,800	5,200	3,900	3,120	2,600
8	22,400	11,200	7,460	5,600	4,480	3,730
10	40,000	20,000	13,330	10,000	8,000	6,660
For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m ² .						

~~20.~~ 19. Change Sections 1301.1 through 1301.12 and add Sections 1301.13 through 1301.18, including subsections, to the IPC to read:

1301.1 Scope. The provisions of Chapter 13 shall govern the materials, design, construction, and installation of nonpotable water systems subject to this code. In addition to the applicable provision of this section, reclaimed water shall comply with the requirements of Section 1304.

1301.1.1 Design of nonpotable water systems. All portions of nonpotable water systems subject to this code shall be constructed using the same standards and requirements for the potable water systems or drainage systems as provided for in this code unless otherwise specified in this chapter.

1301.2 Makeup water. Makeup water shall be provided for all nonpotable water supply systems. The makeup water system shall be designed and installed to provide supply of water in the amounts and at the pressures specified in this code. The makeup water supply shall be potable and be protected against backflow in accordance with the applicable requirements of Section 608.

1301.2.1 Makeup water sources. Potable water shall be provided as makeup water for reclaimed water systems. Nonpotable water shall be permitted to serve as makeup water for gray water and rainwater systems.

1301.2.2 Makeup water supply valve. A full-open valve shall be provided on the makeup water supply line.

1301.2.3 Control valve alarm. Makeup water systems shall be fitted with a warning mechanism that alerts the user to a failure of the inlet control valve to close correctly. The alarm shall activate before the water within the storage tank begins to discharge into the overflow system.

1301.3 Sizing. Nonpotable water distribution systems shall be designed and sized for peak demand in accordance with approved engineering practice methods that comply with the applicable provisions of Chapter 6.

1301.4 Signage required. All nonpotable water outlets, other than water closets and urinals, such as hose connections, open-ended pipes, and faucets shall be identified at the point of

use for each outlet with signage that reads as follows: "Nonpotable water is utilized for (insert application name). Caution: nonpotable water. DO NOT DRINK." The words shall be legibly and indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material or shall be indelibly printed on the fixture. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and in colors in contrast to the background on which they are applied. The pictograph shown in Figure 1301.4 shall appear on the signage required by this section.



1301.5 Potable water supply system connections. Where a potable water supply system is connected to a nonpotable water system, the potable water supply shall be protected against backflow in accordance with the applicable provisions of Section 608.

1301.6 Nonpotable water system connections. Where a nonpotable water system is connected and supplies water to another nonpotable water system, the nonpotable water system that supplies water shall be protected against backflow in accordance with the applicable provisions of Section 608.

1301.7 Approved components and materials. Piping, plumbing components, and materials used in the nonpotable water drainage and distribution systems shall be approved for the intended application and compatible with the water and any disinfection or treatment systems used.

1301.8 Insect and vermin control. Nonpotable water systems shall be protected to prevent the entrance of insects and vermin into storage and piping systems. Screen materials shall be compatible with system material and shall not promote corrosion of system components.

1301.9 Freeze protection. Nonpotable water systems shall be protected from freezing in accordance with the applicable provisions of Chapter 3.

1301.10 Nonpotable water storage tanks. Nonpotable water storage tanks shall be approved for the intended application and comply with Sections 1301.10.1 through 1301.10.12.

1301.10.1 Sizing. The holding capacity of storage tanks shall be sized for the intended use.

1301.10.2 Inlets. Storage tank inlets shall be designed to introduce water into the tank and avoid agitating the contents of the storage tank. The water supply to storage tanks shall be controlled by fill valves or other automatic supply valves designed to stop the flow of incoming water before the tank contents reach the overflow pipes.

1301.10.3 Outlets. Outlets shall be located at least 4 inches (102 mm) above the bottom of the storage tank and shall not skim water from the surface.

1301.10.4 Materials and location. Storage tanks shall be constructed of material compatible with treatment systems used to treat water. Above grade storage vessels shall be constructed using opaque, UV-resistant materials such as tinted plastic, lined metal, concrete, or wood or painted to prevent algae growth. Above grade storage tanks shall be protected from direct sunlight unless their design specifically incorporates the use of the sunlight heat transfer. Wooden storage tanks shall be provided with a flexible liner. Storage tanks and their manholes shall not be located directly under soil or waste piping or sources of contamination.

1301.10.5 Foundation and supports. Storage tanks shall be supported on a firm base capable of withstanding the storage tank's weight when filled to capacity. Storage tanks shall be supported in accordance with the applicable provisions of the IBC.

1301.10.5.1 Ballast. Where the soil can become saturated, an underground storage tank shall be ballasted, or otherwise secured, to prevent the effects of buoyancy. The combined weight of the tank and hold down ballast shall meet or exceed the buoyancy force of the tank. Where the installation requires a foundation, the foundation shall be flat and shall be designed to support the storage tank weight when full, consistent with the bearing capability of adjacent soil.

1301.10.5.2 Structural support. Where installed below grade, storage tank installations shall be designed to withstand earth and surface structural loads without damage.

1301.10.6 Overflow. The storage tank shall be equipped with an overflow pipe having a diameter not less than that shown in Table 606.5.4. The overflow outlet shall discharge at a point not less than 6 inches (152 mm) above the roof or roof drain, floor or floor drain, or over an open water-supplied fixture. The overflow outlet shall terminate through a check valve. Overflow pipes shall not be directed on walkways. The overflow drain shall not be equipped with a shutoff valve. A minimum of one cleanout shall be provided on each overflow pipe in accordance with the applicable provisions of Section 708.

1301.10.7 Access. A minimum of one access opening shall be provided to allow inspection and cleaning of the tank interior. Access openings shall have an approved locking device or other approved method of securing access. Below grade storage tanks, located outside of the building, shall be provided with either a manhole not less than 24 inches (610 mm) square or a manhole with an inside diameter not less than 24 inches (610 mm). The design and installation of access openings shall prohibit surface water from entering the tank. Each manhole cover shall have an approved locking device or other approved method of securing access.

Exception: Storage tanks under 800 gallons (3028 L) in volume installed below grade shall not be required to be equipped with a manhole, but shall have an access opening not less than 8 inches (203 mm) in diameter to allow inspection and cleaning of the tank interior.

1301.10.8 Venting. Storage tanks shall be vented. Vents shall not be connected to sanitary drainage system. Vents shall be at least equal in size to the internal diameter of the drainage inlet pipe or pipes connected to the tank. Where installed at grade, vents shall be protected

from contamination by means of a U-bend installed with the opening directed downward. Vent outlets shall extend a minimum of 12 inches (304.8 mm) above grade, or as necessary to prevent surface water from entering the storage tank. Vent openings shall be protected against the entrance of vermin and insects. Vents serving gray water tanks shall terminate in accordance with the applicable provisions of Sections 903 and 1301.8.

1301.10.9 Drain. Where drains are provided they shall be located at the lowest point of the storage tank. The tank drain pipe shall discharge as required for overflow pipes and shall not be smaller in size than specified in Table 606.5.7. A minimum of one cleanout shall be provided on each drain pipe in accordance with Section 708.

1301.10.10 Labeling and signage. Each nonpotable water storage tank shall be labeled with its rated capacity and the location of the upstream bypass valve. Underground and otherwise concealed storage tanks shall be labeled at all access points. The label shall read: "CAUTION: NONPOTABLE WATER – DO NOT DRINK." Where an opening is provided that could allow the entry of personnel, the opening shall be marked with the words: "DANGER – CONFINED SPACE." Markings shall be indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material mounted on the tank or shall be indelibly printed on the tank. The letters of the words shall be not less than 0.5 inches (12.7 mm) in height and shall be of a color in contrast with the background on which they are applied.

1301.10.11 Storage tank tests. Storage tanks shall be tested in accordance with the following:

1. Storage tanks shall be filled with water to the overflow line prior to and during inspection. All seams and joints shall be left exposed and the tank shall remain watertight without leakage for a period of 24 hours.
2. After 24 hours, supplemental water shall be introduced for a period of 15 minutes to verify proper drainage of the overflow system and verify that there are no leaks.
3. Following a successful test of the overflow, the water level in the tank shall be reduced to a level that is at 2 inches (50.8 mm) below the makeup water offset point. The tank drain shall be observed for proper operation. The makeup water system shall be observed for proper operation, and successful automatic shutoff of the system at the refill threshold shall be verified. Water shall not be drained from the overflow at any time during the refill test.
4. Air tests shall be permitted in lieu of water testing as recommended by the tank manufacturer or the tank standard.

1301.10.12 Structural strength. Storage tanks shall meet the applicable structural strength requirements of the IBC.

1301.11 Trenching requirements for nonpotable water system piping. Underground nonpotable water system piping shall be horizontally separated from the building sewer and potable water piping by 5 feet (1524 mm) of undisturbed or compacted earth. Nonpotable water system piping shall not be located in, under, or above sewage systems cesspools, septic tanks, septic tank drainage fields, or seepage pits. Buried nonpotable

system piping shall comply with the requirements of this code for the piping material installed.

Exceptions:

1. The required separation distance shall not apply where the bottom of the nonpotable water pipe within 5 feet (1524 mm) of the sewer is equal to or greater than 12 inches (305 mm) above the top of the highest point of the sewer and the pipe materials conforms to Table 702.3.
2. The required separation distance shall not apply where the bottom of the potable water service pipe within 5 feet (1524 mm) of the nonpotable water pipe is a minimum of 12 inches (305 mm) above the top of the highest point of the nonpotable water pipe and the pipe materials comply with the requirements of Table 605.4.
3. Nonpotable water pipe is permitted to be located in the same trench with building sewer piping, provided that such sewer piping is constructed of materials that comply with the requirements of Table 702.2.
4. The required separation distance shall not apply where a nonpotable water pipe crosses a sewer pipe, provided that the pipe is sleeved to at least 5 feet (1524 mm) horizontally from the sewer pipe centerline on both sides of such crossing with pipe materials that comply with Table 702.2.
5. The required separation distance shall not apply where a potable water service pipe crosses a nonpotable water pipe provided that the potable water service pipe is sleeved for a distance of at least 5 feet (1524 mm) horizontally from the centerline of the nonpotable pipe on both sides of such crossing with pipe materials that comply with Table 702.2.

1301.12 Outdoor outlet access. Sillcocks, hose bibs, wall hydrants, yard hydrants, and other outdoor outlets that are supplied by nonpotable water shall be located in a locked vault or shall be operable only by means of a removable key.

1301.13 Drainage and vent piping and fittings. Nonpotable drainage and vent pipe and fittings shall comply with the applicable material standards and installation requirements in accordance with provisions of Chapter 7.

1301.13.1. Labeling and marking. Identification of nonpotable drainage and vent piping shall not be required.

1301.14 Pumping and control system. Mechanical equipment, including pumps, valves, and filters, shall be accessible and removable in order to perform repair, maintenance, and cleaning. The minimum flow rate and flow pressure delivered by the pumping system shall be designed for the intended application in accordance with the applicable provisions of Section 604.

1301.15 Water-pressure reducing valve or regulator. Where the water pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the nonpotable water distribution system piping to 80 psi

(552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with the applicable provisions of Section 604.8.

1301.16 Distribution pipe. Distribution piping utilized in nonpotable water stems shall comply with Sections 1301.16.1 through 1301.16.4.

1301.16.1 Materials, joints, and connections. Distribution piping and fittings shall comply with the applicable material standards and installation requirements in accordance with applicable provisions of Chapter 6.

1301.16.2 Design. Distribution piping shall be designed and sized in accordance with the applicable provisions of Chapter 6.

1301.16.3 Labeling and marking. Distribution piping labeling and marking shall comply with Section ~~608.8~~ 608.9.

1301.16.4 Backflow prevention. Backflow preventers shall be installed in accordance with the applicable provisions of Section 608.

1301.17 Tests and inspections. Tests and inspections shall be performed in accordance with Sections 1301.17.1 through 1301.17.5.

1301.17.1 Drainage and vent pipe test. Drain, waste, and vent piping used for gray water and rainwater nonpotable water systems shall be tested in accordance with the applicable provisions of Section 312.

1301.17.2 Storage tank test. Storage tanks shall be tested in accordance with ~~the~~ Section 1301.10.11.

1301.17.3 Water supply system test. Nonpotable distribution piping shall be tested in accordance with Section 312.5.

1301.17.4 Inspection and testing of backflow prevention assemblies. The testing of backflow preventers and backwater valves shall be conducted in accordance with Section 312.10.

1301.17.5 Inspection of vermin and insect protection. Inlets and vent terminations shall be visually inspected to verify that each termination is installed in accordance with Section 1301.10.8.

1301.18 Operation and maintenance manuals. Operations and maintenance materials for nonpotable water systems shall be provided as prescribed by the system component manufacturers and supplied to the owner to be kept in a readily accessible location.

~~24.~~ 20. Change the title of Section 1302 of the IPC to "Gray Water Nonpotable Water Systems."

~~22.~~ 21. Change Sections 1302.1 through 1302.6, including subsections, of the IPC to read as follows ~~and delete Sections 1302.7 through 1302.13:~~

1302.1 Gray water nonpotable water systems. This code is applicable to the plumbing fixtures, piping or piping systems, storage tanks, drains, appurtenances, and appliances that are part of the distribution system for gray water within buildings and to storage tanks and associated piping that are part of the distribution system for gray water outside of buildings. This code does not regulate equipment used for, or the methods of, processing, filtering, or treating gray water, that may be regulated by the Virginia Department of Health or the Virginia Department of Environmental Quality.

1302.1.1 Separate systems. Gray water nonpotable water systems, unless approved otherwise under the permit from the Virginia Department of Health, shall be separate from the potable water system of a building with no cross connections between the two systems except as permitted by the Virginia Department of Health.

1302.2 Water quality. Each application of gray water reuse shall meet the minimum water quality requirements set forth in Sections 1302.2.1 through 1302.2.4 unless otherwise superseded by other state agencies.

1302.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

1302.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

1302.2.3 Filtration. Water collected for reuse shall be filtered as required for the intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

1302.2.4 Filtration required. Gray water utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

1302.3 Storage tanks. Storage tanks utilized in gray water nonpotable water systems shall comply with Section 1301.10.

1302.4 Retention time limits. Untreated gray water shall be retained in storage tanks for a maximum of 24 hours.

1302.5 Tank Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1302.5.1.

Table 1302.5.1 Location of Nonpotable Gray Water Reuse Storage Tanks	
Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5

Table 1302.5.1 Location of Nonpotable Gray Water Reuse Storage Tanks	
Element	Minimum Horizontal Distance from Storage Tank (feet)
Septic tanks	5
Water wells	50
Streams and lakes	50
Water service	5
Public water main	10

1302.6 Valves. Valves shall be supplied on gray water nonpotable water drainage systems in accordance with Sections 1302.6.1 and 1302.6.2.

1302.6.1 Bypass valve. One three-way diverter valve certified to NSF 50 or other approved device shall be installed on collection piping upstream of each storage tank, or drainfield, as applicable, to divert untreated gray water to the sanitary sewer to allow servicing and inspection of the system. Bypass valves shall be installed downstream of fixture traps and vent connections. Bypass valves shall be labeled to indicate the direction of flow, connection, and storage tank or drainfield connection. Bypass valves shall be provided with access for operation and maintenance. Two shutoff valves shall not be installed to serve as a bypass valve.

1302.6.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section 715.

22.Delete Sections 1302.7 through 1302.13 of the IPC.

23. Change the title of Section 1303 of the IPC to "Rainwater Nonpotable Water Systems."

24. Change Sections 1303.1 through 1303.10, including subsections, of the IPC to read as follows and delete Sections 1303.11 through 1303.16:

1303.1 General. The provisions of this section shall govern the design, construction, installation, alteration, and repair of rainwater nonpotable water systems for the collection, storage, treatment, and distribution of rainwater for nonpotable applications.

1303.2 Water quality. Each application of rainwater reuse shall meet the minimum water quality requirements set forth in Sections 1303.2.1 through 1303.2.4 unless otherwise superseded by other state agencies.

1303.2.1 Disinfection. Where the intended use or reuse application for nonpotable water requires disinfection or other treatment or both, it shall be disinfected as needed to ensure that the required water quality is delivered at the point of use or reuse.

1303.2.2 Residual disinfectants. Where chlorine is used for disinfection, the nonpotable water shall contain not more than 4 parts per million (4 mg/L) of free chlorine, combined

chlorine, or total chlorine. Where ozone is used for disinfection, the nonpotable water shall not exceed 0.1 parts per million (by volume) of ozone at the point of use.

1303.2.3 Filtration. Water collected for reuse shall be filtered as required for the Intended end use. Filters shall be accessible for inspection and maintenance. Filters shall utilize a pressure gauge or other approved method to indicate when a filter requires servicing or replacement. Shutoff valves installed immediately upstream and downstream of the filter shall be included to allow for isolation during maintenance.

1303.2.4 Filtration required. Rainwater utilized for water closet and urinal flushing applications shall be filtered by a 100 micron or finer filter.

1303.3 Collection surface. Rainwater shall be collected only from aboveground impervious roofing surfaces constructed from approved materials. Overflow or discharge piping from appliances or equipment, or both, including but not limited to evaporative coolers, water heaters, and solar water heaters shall not discharge onto rainwater collection surfaces.

1303.4 Collection surface diversion. At a minimum, the first 0.04 inches (1.016 mm) of each rain event of 25 gallons (94.6 L) per 1000 square feet (92.9 m²) shall be diverted from the storage tank by automatic means and not require the operation of manually operated valves or devices. Diverted water shall not drain onto other collection surfaces that are discharging to the rainwater system or to the sanitary sewer. Such water shall be diverted from the storage tank and discharged in an approved location.

1303.5 Pre-tank filtration. Downspouts, conductors, and leaders shall be connected to a pre-tank filtration device. The filtration device shall not permit materials larger than 0.015 inches (0.4 mm).

1303.6 Roof gutters and downspouts. Gutters and downspouts shall be constructed of materials that are compatible with the collection surface and the rainwater quality for the desired end use. Joints shall be made watertight.

1303.6.1 Slope. Roof gutters, leaders, and rainwater collection piping shall slope continuously toward collection inlets. Gutters and downspouts shall have a slope of not less than 1 unit in 96 units along their entire length and shall not permit the collection or pooling of water at any point.

Exception: Siphonic roof drainage systems installed in accordance with Chapter 11 shall not be required to have slope.

1303.6.2 Size. Gutters and downspouts shall be installed and sized in accordance with Section 1106.6 and local rainfall rates.

1303.6.3 Cleanouts. Cleanouts or other approved openings shall be provided to permit access to all filters, flushes, pipes, and downspouts.

1303.7 Storage tanks. Storage tanks utilized in rainwater nonpotable water systems shall comply with Section 1301.10.

1303.8 Location. Storage tanks shall be located with a minimum horizontal distance between various elements as indicated in Table 1303.8.1.

Table 1303.8.1 Location of Rainwater Storage Tanks	
Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Sewage systems	5
Septic tanks	5

1303.9 Valves. Valves shall be installed in collection and conveyance drainage piping of rainwater nonpotable water systems in accordance with Sections 1303.9.1 and 1303.9.2.

1303.9.1 Influent diversion. A means shall be provided to divert storage tank influent to allow maintenance and repair of the storage tank system.

1303.9.2 Backwater valve. Backwater valves shall be installed on each overflow and tank drain pipe to prevent unwanted water from draining back into the storage tank. If the overflow and drain piping arrangement is installed to physically not allow water to drain back into the tank, such as in the form of an air gap, backwater valves shall not be required. Backwater valves shall be constructed and installed in accordance with Section 715.

1303.10 Tests and inspections. Tests and inspections shall be performed in accordance with Sections 1303.10.1 through 1303.10.2.

1303.10.1 Roof gutter inspection and test. Roof gutters shall be inspected to verify that the installation and slope is in accordance with Section 1303.6.1. Gutters shall be tested by pouring a minimum of one gallon of water into the end of the gutter opposite the collection point. The gutter being tested shall not leak and shall not retain standing water.

1303.10.2 Collection surface diversion test. A collection surface diversion test shall be performed by introducing water into the gutters or onto the collection surface area. Diversion of the first quantity of water in accordance with the requirements of Section 1303.4 shall be verified.

25. Delete Sections 1303.11 through 1303.16 of the IPC.

26. Change Sections 1304.1 and 1304.2 to the IPC to read as follows ~~and delete Sections 1304.3 and 1304.4:~~

1304.1 General. Reclaimed water, water reclamation systems, reclaimed water distribution systems, and allowable nonpotable reuses of reclaimed water are as defined or specified in and governed by the Virginia Water Reclamation and Reuse Regulation (9VAC25-740). Permits from the Virginia State Water Control Board are required for such systems and reuses. The provisions of Section 1304 shall govern the design, construction, installation, alterations, and repair of plumbing fixtures, piping or piping systems, storage tanks, drains, appurtenances, and appliances that are part of the distribution system for reclaimed water within buildings and to storage tanks for reclaimed water as defined in the Virginia Water Reclamation and Reuse Regulation (9VAC25-740) and associated piping outside of buildings that deliver reclaimed water into buildings. Where conflicts occur between this code and the Virginia Water Reclamation and Reuse Regulation (9VAC25-740), the

provisions of the Virginia Water Reclamation and Reuse Regulation (9VAC25-740) shall apply unless determined otherwise by the Virginia Department of Environmental Quality and DHCD through a memorandum of agreement.

1304.2 Design of reclaimed water systems. The design of reclaimed water systems shall conform to applicable requirements of Section 1301.

Exception: The design of reclaimed water systems shall conform to applicable requirements of the Virginia Water Reclamation and Reuse Regulation (9VAC25-740) for the following:

1. Identification, labeling, and posting of signage for reclaimed water systems in lieu of signage requirements described in Section 1301.4.
2. Sizing of system storage as defined in the Virginia Water Reclamation and Reuse Regulation (9VAC25-740), in addition to storage sizing requirements described in Section 1301.10.1.
3. Signage and labeling for reclaimed water storage in addition to labeling and signage requirements described in Section 1301.10.10.
4. Minimum separation distances and configurations for in-ground reclaimed water distribution piping in lieu of trenching requirements for nonpotable water systems described in Section 1301.11.

27. Delete Sections 1304.3 and 1304.4 of the IPC.

C. Modify the ~~Group A-5~~ following Assembly "Description" category of Table 2902.1 of the IBC to read:

Stadiums, amusement parks, pools, bleachers, and grandstands for outdoor sporting events and activities^{h-g}

D. Add footnote "h g" to Table 2902.1 of the IBC to read:

~~h. g.~~ The occupant load for pools shall be in accordance with the "Skating rinks, swimming pools" category of Table ~~1004.1.2~~ 1004.5.

13VAC5-63-330. Chapter 30 Elevators and conveying systems.

A. Change Section 3002.4 of the IBC to read:

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in buildings four or more stories above, or four or more stories below, grade plane, at least one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than five-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than three inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame on the designated and alternate landing floors required to be established by ASME A17.1.

Exception: Elevators in multistory dwelling units or guest rooms.

B. Change Section 3003.3 of the IBC to read:

3003.3 Fire service elevator keys. All elevators shall be equipped to operate with either a standardized or non-standardized fire service elevator key in accordance with the IFC.

C. Change Section 3005.4 of the IBC to read:

3005.4 Machine and control rooms, control spaces, and machinery spaces. Elevator machine rooms, rooms and spaces housing elevator controllers, and machinery spaces shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. The fire-resistance rating shall not be less than the required rating of the hoistway enclosure. Openings in the fire barriers shall be protected with assemblies having a fire protection rating not less than that required for the hoistway enclosure doors.

Exception: In buildings four stories or less above grade plane when elevator machine rooms, rooms and spaces housing elevator controllers, and machinery spaces do not abut and have no openings to the hoistway enclosure they serve, the elevator machine rooms, rooms and spaces housing elevator controllers, and machinery spaces are not required to be fire-resistance rated.

D. Add Section 3005.7 to the IBC to read:

3005.7 Machine-room-less designs. Where machine-room-less designs are utilized they shall comply with the provisions of ASME A17.1 and incorporate the following:

1. Where the elevator car-top will be used as a work platform, it shall be equipped with permanently installed guards on all open sides. Guards shall be permitted to be of collapsible design, but otherwise must conform to all applicable requirements of this code for guards.
2. Where the equipment manufacturer's procedures for machinery removal and replacement depend on overhead structural support or lifting points, such supports or lifting points shall be permanently installed at the time of initial equipment installation.
3. Where the structure that the elevator will be located in is required to be fully sprinklered by this code, the hoistway that the elevator machine is located in shall be equipped with a fire suppression system as a machine room in accordance with NFPA 13. Smoke detectors for the automatic initiation of Phase I Emergency Recall Operation, and heat detectors or other approved devices that automatically disconnect the main line power supply to the elevators, shall be installed within the hoistway.

E. Delete Section 3006 of the IBC in its entirety.

F. Change Section 3008.1 of the IBC to read:

3008.1 General. Where elevators in buildings greater than 420 feet (128 016 mm) in building height are to be used for occupant self-evacuation during fires, all passenger elevators for general public use shall comply with this section.

13VAC5-63-336. Chapter 31 Special construction.

A. Change the title of IBC Section 3109 to read:

Swimming Pools, Swimming Pool Enclosures, and Aquatic Recreational Facilities.

B. Change Section 3109.1 of the IBC to read as follows, add Section 3109.1.1 to the IBC to read as follows, and delete the remainder of Section 3109 of the IBC:

3109.1 General. Swimming pools, swimming pool enclosures, and aquatic recreational facilities, as that term is defined in the ISPSC, shall comply with applicable provisions of the ISPSC.

3109.1.1 Changes to the ISPSC. The following changes shall be made to the ISPSC:

1. Add Section 410.2 and related subsections to the ISPSC to read:

410.2 Showers. Showers shall be in accordance with Sections 410.2.1 through 410.2.5.

410.2.1 Deck hand shower or shower spray unit. Not less than one and not greater than half of the total number of showers required by Section 410.1 shall be a hand shower or spray shower unit located on the deck of or at the entrance of each pool.

410.2.2 Anti-scald device. Where heated water is provided to the showers, the shower water supply shall be controlled by an anti-scald device.

410.2.3 Water heater and mixing valve. Bather access to water heaters and thermostatically controlled mixing valves for showers shall be prohibited.

410.2.4 Flow rate. Each showerhead shall have a water flow of not less than 2 gallons per minute (7.6 lpm).

410.2.5 Temperature. At each showerhead, the heated shower water temperature shall not exceed 120°F (49°C) and shall not be less than 90°F (32°C).

2. Change the title of Section 609 of the ISPSC to read: Dressing and Sanitary Facilities.

3. Change Section 609.3.1 of the ISPSC to read:

609.3.1 Deck hand shower or shower spray unit. Not less than one and not greater than half of the total number of showers required by Section 609.2 shall be a hand shower or shower spray unit located on the deck of or at the entrance of each pool.

13VAC5-63-350. ~~Chapter 34 Existing structures.~~ (Repealed.)

~~Delete Chapter 34 of the IBC in its entirety.~~

13VAC5-63-360. Chapter 35 Referenced standards.

Change the referenced standards in Chapter 35 of the IBC as follows (standards not shown remain the same):

Standard reference number	Title	Referenced in code section number
ASTM E329-02	Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction	1703.1, 1703.1.3
API 650-09	Welded Steel Tanks for Oil Storage	~~428.2~~ <u>429.2</u>
API 653-09	Tank Inspection, Repair, Alteration and Reconstruction	~~428.4, 428.5~~ <u>429.4, 429.5</u>
~~ASME A18.1-2011~~	~~Safety Standard for Platform Lifts and Stairway Chairlifts~~	~~1109.8~~
NFPA 91-15	Standard for Exhaust Systems for Air Conveying of Vapors, Mists and Particulate Solids	430.3.6
~~ISPS-15~~ <u>ISPS-18</u>	International Swimming Pool and Spa Code	202, 3109.1, 3109.1.1
TFI RMIP-09	Aboveground Storage Tanks Containing Liquid Fertilizer, Recommended Mechanical Integrity Practices	428.2, 428.4, 428.5
UL 2075-13	Standard for Gas and Vapor Detectors and Sensors	915.4, <u>915.5.1</u> , <u>915.5.3</u>

13VAC5-63-370. Appendix F Rodent proofing.

The following provisions of Appendix F of the IBC are part of this code:

F101.2 Foundation wall ventilation openings.

F101.6 Pier and wood construction. (Includes all provisions.)

DOCUMENTS INCORPORATED BY REFERENCE (13VAC5-63)

International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070 (<http://www.iccsafe.org/>):

International Building Code - ~~2015~~ 2018 Edition

International Energy Conservation Code - ~~2015~~ 2018 Edition

International Existing Building Code - ~~2015~~ 2018 Edition

International Fire Code - ~~2015~~ 2018 Edition

International Fuel Gas Code - ~~2015~~ 2018 Edition

International Mechanical Code - ~~2015~~ 2018 Edition

International Property Maintenance Code - ~~2015~~ 2018 Edition

International Plumbing Code - ~~2015~~ 2018 Edition

International Residential Code - ~~2015~~ 2018 Edition

International Swimming Pool and Spa Code - ~~2015~~ 2018 Edition

International Zoning Code - ~~2015~~ 2018 Edition

ICC/ANSI A117.1-09, Accessible and Usable Buildings and Facilities, Approved November 26, 2003

Air Conditioning Contractors of America, 2800 Shirlington Road, Suite 300, Arlington, VA 22206 (<https://www.acca.org/>):

Manual J-11, Residential Load Calculation, Eighth Edition
Manual S-13, Residential Equipment Selection

ACI 318-14, Building Code Requirements for Structural Concrete, American Concrete Institute, 38800 Country Club Drive, Farmington Hills, MI 48331 (<http://www.concrete.org/>)

American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005-4070 (<http://www.api.org/>):

API 650-09, Welded Tanks for Oil Storage, Eleventh Edition, June 2007 (Addendum 1, November 2008, Addendum 2, November 2009, effective May 1, 2010)
API 653-09, Tank Inspection, Repair, Alteration, and Reconstruction

ANSI LC1/CSA 6.26-14, Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST), American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., 1791 Tullie Circle, NE, Atlanta, GA 30329-2305 (<https://www.ashrae.org/>)

ASHRAE 62.1-13, Ventilation for Acceptable Indoor Air Quality

American Society of Testing Materials International, 100 Barr Harbor Drive, P.O. Box C700, West Conshocken, PA 19428-2959 (<http://www.astm.org/>):

ASTM C199-84(2011), Standard Test Method for Pier Test for Refractory Mortar
ASTM C315-07(2011), Standard Specification for Clay Flue Liners and Chimney Pots
ASTM C1261-10, Standard Specification for Firebox Brick for Residential Fireplaces
ASTM D1557-12, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2700 kN-m/m³))
ASTM E84-2013A, Test Methods for Surface Burning Characteristics of Building Materials
ASTM E90-90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
ASTM E108-11, Standard Test Methods for Fire Tests of Roof Coverings
ASTM E119-2012A, Standard Test Methods for Fire Tests of Building Construction and Materials
ASTM E329-02, Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM F2006-10, Standard Safety Specification for Window Fall Prevention Devices for Nonemergency Escape (Egress) and Rescue (Ingress) Windows
ASTM F2090-10, Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms

CAN/CSA-B64.10-01, Manual for the Selection and Installation of Backflow Prevention Devices/Manual for the Maintenance and Field Testing of Backflow Prevention Devices, June

2003, National Standards of Canada, 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W5N6 (<http://www.csa.ca>)

American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990 (<https://www.asme.org/>):

ASME A17.1/CSA B44-13, Safety Code for Elevators and Escalators
ASME A17.3 2008, Safety Standard for Platform Lifts and Stairway Chair Lifts
ASME A18.1 2008, Safety Standard for Platform Lifts and Stairway Chairlifts

American Society of Sanitary Engineering, 901 Canterbury Road, Suite A, Westlake, OH 44145 (<http://www.asse-plumbing.org/>):

ASSE 1010-2004, Performance Requirements for Water Hammer Arrestors
ASSE 1022-03, Performance Requirements for Backflow Preventer for Beverage Dispensing Equipment
ASSE 1024-04, Performance Requirements for Dual Check Valve Type Backflow Preventers (for Residential Supply Service or Individual Outlets)
ASSE 5010-1013-1, Field Test Procedure for a Reduced Pressure Principle Assembly Using a Differential Pressure Gauge, 1991
ASSE 5010-1015-1, Field Test Procedure for a Double Check Valve Assembly Using a Duplex Gauge, 1991
ASSE 5010-1015-2, Field Test Procedure for a Double Check Valve Assembly Using a Differential Pressure Gauge - High- and Low-Pressure Hose Method, 1991
ASSE 5010-1015-3, Field Test Procedure for a Double Check Valve Assembly Using a Differential Pressure Gauge - High Pressure Hose Method, 1991
ASSE 5010-1015-4, Field Test Procedure for a Double Check Valve Assembly Using a Site Tube, 1991
ASSE 5010-1020-1, Field Test Procedures for a Pressure Vacuum Breaker Assembly, 1991
ASSE 5010-1047-1, Field Test Procedure for a Reduced Pressure Detector Assembly Using a Differential Pressure Gauge, 1991
ASSE 5010-1048-1, Field Test Procedure for a Double Check Detector Assembly Using a Duplex Gauge, 1991
ASSE 5010-1048-2, Field Test Procedure for a Double Check Detector Assembly Using a Differential Pressure Gauge - High- and Low-Pressure Hose Method, 1991
ASSE 5010-1048-3, Field Test Procedure for a Double Check Detector Assembly Using a Differential Pressure Gauge - High-Pressure Hose Method, 1991
ASSE 5010-1048-4, Field Test Procedure for a Double Check Detector Assembly Using a Site Tube, 1991

American Society of Civil Engineers/Structural Engineering Institute, 1801 Alexander Bell Drive, Reston, VA 20191-4400 (<http://www.asce.org/sei/>)

ASCE/SEI 7-10, Minimum Design Loads for Buildings and Other Structures
ASCE/SEI 41-13, Seismic Evaluation and Retrofit of Existing Buildings

American Wood Council, 222 Catocin Circle, Suite 201, Leesburg, VA 20175 (<http://www.awc.org/>):

AWC NDS-15, National Design Specification for Wood Construction-with 2005 Supplement

AWC STJR-15, Span Table for Joists and Rafters

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471
(<http://www.nfpa.org/>):

NFPA 13-13, Installation of Sprinkler Systems
NFPA 13R-10 13R-13, Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height
NFPA 25-14, Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems
NFPA 70-14, National Electrical Code
NFPA 72 13, National Fire Alarm Code
NFPA 91-15, Standard for Exhaust Systems for Air Conveying of Vapors, Mists and Particulate Solids
NFPA 99-15, Health Care Facilities Code
NFPA 101-15, Life Safety Code
NFPA 105-13, Standard for the Installation of Smoke Door Assemblies
NFPA 285-12, Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components
NFPA 495-13, Explosive Materials Code
NFPA 701-10, Standard Methods of Fire Tests for Flame-propagation of Textiles and Films
NFPA 720-15, Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment

NSF 50-2009a, Equipment for Swimming Pools, Spas, Hot Tubs and Other Recreational Water Facilities, NSF International, 789 Dixboro Road, P.O. Box 130140, Ann Arbor, MI 48113
(<http://nsf.org>)

TFI RMIP-09, Aboveground Storage Tanks Containing Liquid Fertilizer, Recommended Mechanical Integrity Practices, December 2009, The Fertilizer Institute, 820 First Street, NE, Suite 430, Washington, DC 20002

Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062
(<http://www.ul.com>):

UL 217-06, Single- and Multiple-station Smoke Alarms-with revisions through April 2012
UL 723-2008, Standard for Test of Surface Burning Characteristics of Building Materials-with Revisions through September 2010
UL 762-2010, Outline of Investigation for Power Ventilators for Restaurant Exhaust Appliances
UL 790-04, Standard Test Methods for Fire Tests of Roof Coverings with Revisions through October 2008
UL 1784-01, Air Leakage Tests of Door Assemblies, revised July 2009
UL 1978-2010, Grease Ducts
UL 2034-2008, Standard for Single and Multiple Station Carbon Monoxide Alarms, revised February 2009
UL 2075-2013, Gas and Vapor Detectors and Sensors (Second Edition, March 5, 2013)

[Interim Remediation Guidance for Homes with Corrosion from Problem Drywall, April 2, 2010, Joint Report, Consumer Products Safety Commission and Department of Housing and Urban Development](#)

Part II. Existing Buildings

13VAC5-63-400. Chapter 1 Administration; Section 101 General.

A. Section 101.1 Short title. The Virginia Uniform Statewide Building Code, Part II, Existing Buildings, may be cited as the "Virginia Existing Building Code" or as the "VEBC."

B. Section 101.2 Incorporation by reference. Chapters 2 - 16 of the ~~2015~~2018 International Existing Building Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the VEBC. The term "IEBC" means the ~~2015~~2018 International Existing Building Code, published by the International Code Council, Inc. Any codes and standards referenced in the IEBC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference.

C. Section 101.3 Numbering system. A dual numbering system is used in the VEBC to correlate the numbering system of the Virginia Administrative Code with the numbering system of the IEBC. IEBC numbering system designations are provided in the catchlines of the Virginia Administrative Code sections and cross references between sections or chapters of the VEBC use only the IEBC numbering system designations. The term "chapter" is used in the context of the numbering system of the IEBC and may mean a chapter in the VEBC, a chapter in the IEBC or a chapter in a referenced code or standard, depending on the context of the use of the term. The term "chapter" is not used to designate a chapter of the Virginia Administrative Code, unless clearly indicated.

D. Section 101.4 Arrangement of code provisions. The VEBC is comprised of the combination of (i) the provisions of Chapter 1, Administration, which are established herein, (ii) Chapters 2 - 16 of the IEBC, which are incorporated by reference in Section 101.2, and (iii) the changes to the text of the incorporated chapters of the IEBC that are specifically identified, including any new chapters added. The terminology "changes to the text of the incorporated chapters of the IEBC that are specifically identified, including any new chapters added" shall also be referred to as the "state amendments to the IEBC." Such state amendments to the IEBC are set out using corresponding chapter and section numbers of the IEBC numbering system. In addition, since Chapter 1 of the IEBC is not incorporated as part of the VEBC, any reference to a provision of Chapter 1 of the IEBC in the provisions of Chapters 2 - 16 of the IEBC is generally invalid. However, where the purpose of such a reference would clearly correspond to a provision of Chapter 1 established herein, then the reference may be construed to be a valid reference to such corresponding Chapter 1 provision.

E. Section 101.5 Use of terminology and notes. The provisions of this code shall be used as follows:

1. The term "this code," or "the code," where used in the provisions of Chapter 1, in Chapters 2 - 16 of the IEBC, or in the state amendments to the IEBC, means the VEBC, unless the context clearly indicates otherwise.
2. The term "this code," or "the code," where used in a code or standard referenced in the VEBC, means that code or standard, unless the context clearly indicates otherwise.
3. The term "USBC" where used in this code, means the VCC, unless the context clearly indicates otherwise.
4. The use of notes in Chapter 1 is to provide information only and shall not be construed as changing the meaning of any code provision.
5. Notes in the IEBC, in the codes and standards referenced in the IEBC and in the state amendments to the IEBC, may modify the content of a related provision and shall be considered to be a valid part of the provision, unless the context clearly indicates otherwise.

6. References to International Codes and standards, where used in this code, include state amendments made to those International Codes and standards in the VCC.

Note: See Section 101.2 of the VCC for a list of major codes and standards referenced in the VCC.

F. Section 101.6 Order of precedence. The provisions of this code shall be used as follows:

1. The provisions of Chapter 1 of this code supersede any provisions of Chapters 2 - 16 of the IEBC that address the same subject matter and impose differing requirements.
2. The provisions of Chapter 1 of this code supersede any provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements.
3. The state amendments to the IEBC supersede any provisions of Chapters 2 - 16 of the IEBC that address the same subject matter and impose differing requirements.
4. The state amendments to the IEBC supersede any provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements.
5. The provisions of Chapters 2 - 16 of the IEBC supersede any provisions of the codes and standards referenced in the IEBC that address the same subject matter and impose differing requirements.

G. Section 101.7 Administrative provisions. The provisions of Chapter 1 establish administrative requirements, which include but are not limited to provisions relating to the scope and enforcement of the code. Any provisions of Chapters 2 - 16 of the IEBC or any provisions of the codes and standards referenced in the IEBC that address the same subject matter to a lesser or greater extent are deleted and replaced by the provisions of Chapter 1. Further, any administrative requirements contained in the state amendments to the IEBC shall be given the same precedence as the provisions of Chapter 1. Notwithstanding the above, where administrative requirements of Chapters 2 - 16 of the IEBC or of the codes and standards referenced in the IEBC are specifically identified as valid administrative requirements in Chapter 1 of this code or in the state amendments to the IEBC, then such requirements are not deleted and replaced.

Note: The purpose of this provision is to eliminate overlap, conflicts and duplication by providing a single standard for administrative, procedural and enforcement requirements of this code.

H. Section 101.8 Definitions. The definitions of terms used in this code are contained in Chapter 2 along with specific provisions addressing the use of definitions. Terms may be defined in other chapters or provisions of the code and such definitions are also valid.

13VAC5-63-410. Section 102 Purpose and Scope.

A. Section 102.1 Purpose. In accordance with § 36-99.01 of the Code of Virginia, the General Assembly of Virginia has declared that (i) there is an urgent need to improve the housing conditions of low and moderate income individuals and families, many of whom live in substandard housing, particularly in the older cities of the Commonwealth; (ii) there are large numbers of older residential buildings in the Commonwealth, both occupied and vacant, which are in urgent need of rehabilitation and must be rehabilitated if the state's citizens are to be housed in decent, sound, and sanitary conditions; and (iii) the application of those building code requirements currently in force to housing rehabilitation has sometimes led to the imposition of costly and time-consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

The General Assembly further declares that (i) there is an urgent need to improve the existing condition of many of the Commonwealth's stock of commercial properties, particularly in older cities;

(ii) there are large numbers of older commercial buildings in the Commonwealth, both occupied and vacant, that are in urgent need of rehabilitation and that must be rehabilitated if the citizens of the Commonwealth are to be provided with decent, sound and sanitary work spaces; and (iii) the application of the existing building code to such rehabilitation has sometimes led to the imposition of costly and time-consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

B. Section 102.2 Scope. The provisions of this code shall govern construction and rehabilitation activities in existing buildings and structures.

C. 102.2.1 Change of occupancy to Group I-2 or I-3. A change of occupancy to Group I-2 or I-3 shall comply with the provisions of the VCC. Written application shall be made to the local building department for a new certificate of occupancy, and the new certificate of occupancy shall be obtained prior to the change of occupancy. When impractical to achieve compliance with the VCC for the new occupancy classification, the building official shall consider modifications upon application and as provided for in Section 106.3 of the VCC.

D. 102.2.2 Reconstruction, alteration, or repair in Group R-5 occupancies. Compliance with this section shall be an acceptable alternative to compliance with this code at the discretion of the owner or owner's agent. The VCC may be used for the reconstruction, alteration, or repair of Group R-5 buildings or structures subject to the following criteria:

1. Any reconstruction, alteration or repair shall not adversely affect the performance of the building or structure, or cause the building or structure to become unsafe or lower existing levels of health and safety.
2. Parts of the building or structure not being reconstructed, altered, or repaired shall not be required to comply with the requirements of the VCC applicable to newly constructed buildings or structures.
3. The installation of material or equipment, or both, that is neither required nor prohibited shall only be required to comply with the provisions of the VCC relating to the safe installation of such material or equipment.
4. Material or equipment, or both, may be replaced in the same location with material or equipment of a similar kind of capacity.

Exceptions:

1. This section shall not be construed to permit noncompliance with any applicable flood load or flood-resistant construction requirements of the VCC.
2. Reconstructed decks, balconies, porches, and similar structures located 30 inches (762 mm) or more above grade shall meet the current code provisions for structural loading capacity, connections, and structural attachment. This requirement excludes the configuration and height of handrails and guardrails.
5. In accordance with § 36-99.2 of the Code of Virginia, any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation of replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.

13VAC5-63-420. Section 103 Application of Code.

A. Section 103.1 General. All administrative provisions of the VCC, including requirements for permits, inspections and approvals by the local building department, provisions for appeals from decisions of the local building department and the issuance of modifications, are applicable to the use of this code, except where this code sets out differing requirements. Where there is a conflict between a general requirement and a specific requirement in the IEBC, the specific requirement shall govern.

B. Section 103.1.1 Use of performance code. Compliance with the provisions of a nationally recognized performance code when approved as a modification shall be considered to constitute compliance with this code. All documents submitted as part of such consideration shall be retained in the permanent records of the local building department.

C. Section 103.1.2 Preliminary meeting. When requested by a prospective permit applicant or when determined necessary by the code official, the code official shall meet with the prospective permit applicant prior to the application for a permit to discuss plans for the proposed work or change of occupancy in order to establish the specific applicability of the provisions of this code.

D. Section 103.2 Change of occupancy. Prior to a change of occupancy of the building or structure, the owner or the owner's agent shall make written application to the local building department for a new certificate of occupancy and shall obtain the new certificate of occupancy.

When impractical to achieve compliance with this code for the new occupancy, the building official shall consider modifications upon application and as provided for in Section 106.3 of the VCC.

E. Section 103.3 Retrofit requirements. The local building department shall enforce the provisions of Section 1101 that require certain existing buildings to be retrofitted with fire protection systems and other safety equipment. Retroactive fire protection system requirements contained in the IFC shall not be applicable unless required for compliance with the provisions of Section 1101.

F. Section 103.4 Nonrequired equipment. The following criteria for nonrequired equipment is in accordance with § 36-103 of the Code of Virginia. Building owners may elect to install partial or full fire alarms or other safety equipment that was not required by the edition of the VCC in effect at the time a building was constructed without meeting current requirements of the code, provided the installation does not create a hazardous condition. Permits for installation shall be obtained in accordance with the VCC. In addition, as a requirement of this code, when such nonrequired equipment is to be installed, the building official shall notify the appropriate fire official or fire chief.

G. Section 103.4.1 Reduction in function or discontinuance of nonrequired fire protection systems. When a nonrequired fire protection system is to be reduced in function or discontinued, it shall be done in such a manner so as not to create a false sense of protection. Generally, in such cases, any features visible from interior areas shall be removed, such as sprinkler heads, smoke detectors, or alarm panels or devices, but any wiring or piping hidden within the construction of the building may remain. Approval of the proposed method of reduction or discontinuance shall be obtained from the building official.

H. Section 103.5 Equipment changes. Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted in accordance with Section 113.3.1 of the VCC.

I. Section 103.6 Requirements relating to maintenance. Any requirements of the IEBC requiring the maintenance of existing buildings or structures are invalid.

Note: Requirements for the maintenance of existing buildings and structures and for unsafe conditions are contained in the VMC.

J. Section 103.7 Use of Appendix A. Appendix A of the IEBC provides guidelines for the seismic retrofit of existing buildings. The use of this appendix is not mandatory but shall be permitted to be utilized at the option of an owner, the owner's agent or the RDP involved in a rehabilitation project. However, in no case shall the use of Appendix A be construed to authorize the lowering of existing levels of health or safety in buildings or structures being rehabilitated.

K. Section 103.8 Use of Appendix B. Appendix B of the IEBC provides supplementary accessibility requirements for existing buildings and facilities. All applicable requirements of Appendix B shall be met in buildings and structures being rehabilitated.

L. Section 103.9 Use of Resource A. Resource A of the IEBC provides guidelines for the evaluation of fire resistance ratings of archaic materials and may be used in conjunction with rehabilitation projects.

M. 103.10 Construction documents. Construction documents shall be submitted with the application for a permit. The work proposed to be performed on an existing building or structure shall be classified on the construction documents as repairs, alterations, change of occupancy, addition, historic building, or moved building. All work areas shall be identified on the construction documents. Alterations shall further be identified as Level 1, Level 2, or Level 3.

Exception: Construction documents or classification of the work does not need to be submitted when the building official determines the proposed work does not require such documents, classification, or identification.

13VAC5-63-430. Chapter 2 Definitions.

A. Change Section 201.3 of the IEBC to read:

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the other International Codes, such terms shall have the meanings ascribed to them in those codes, except that terms that are not defined in this code and that are defined in the VCC shall take precedence over other definitions.

B. Change the following definitions in Section 202 of the IEBC to read:

~~Alteration. Any construction or renovation to an existing structure other than a repair or addition.~~

Building. A combination of materials, whether portable or fixed, having a roof to form a structure for the use or occupancy by persons, or property. The word "building" shall be construed as though followed by the words "or part of parts thereof" unless the context clearly requires a different meaning. "Building" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.

For application of this code, each portion of a building that is completely separated from other portions by fire walls complying with Section 706 of the VCC shall be considered as a separate building (see Section 503.1 of the VCC).

Change of occupancy. Either of the following shall be considered a change of occupancy where the current VCC requires a greater degree of accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure:

1. Any change in the occupancy classification of a building or structure.

2. Any change in the purpose of, or a change in the level of activity within, a building or structure.

Note: The use and occupancy classification of a building or structure, shall be determined in accordance with Chapter 3 of the VCC.

Existing building. A building for which a legal certificate of occupancy has been issued under any edition of the USBC or approved by the building official when no legal certificate of occupancy exists, and that has been occupied for its intended use; or, a building built prior to the initial edition of the USBC.

Existing structure. A structure (i) for which a legal building permit has been issued under any edition of the USBC, (ii) which has been previously approved, or (iii) which was built prior to the initial edition of the USBC. For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first flood plain management code, ordinance, or standard.

Substantial improvement. For the purpose of determining compliance with the flood provisions of this code, any improvement, including repair, reconstruction, rehabilitation, alteration, or addition, or other improvement of a building or structure or a portion thereof, the cost of which equals or exceeds 50% of the market value of the building or structure before the improvement or repair is started. If the building or structure has sustained substantial damage, any improvements are considered substantial improvement regardless of the actual improvement performed. The term does not, however, include either:

1. Any project for improvement of a building or structure required to correct existing health, sanitary, or safety code violations identified by the building official and that is the minimum necessary to assure safe living conditions; or
2. Any alteration of a historic structure, provided that the alteration will not preclude the building or structure's continued designation as a historic building or structure.

Work area. That intended room, space, or portion of a building or structure where a wall or walls are added, relocated, or removed. Work area excludes (i) the addition or elimination of any door or window; (ii) the reconfiguration or extension of any system; (iii) the installation of any additional equipment; (iv) the removal of finished flooring or ceiling materials; (v) adjacent rooms or other rooms, spaces, or portions of the building or structure where incidental work entailed by the intended work must be performed; and (vi) portions of the building or structure where work not initially intended is specifically required by this code.

C. Add the following definitions to Section 202 of the IEBC to read:

~~Building. A combination of materials, whether portable or fixed, having a roof to form a structure for the use or occupancy by persons, or property. The word "building" shall be construed as though followed by the words "or part of parts thereof" unless the context clearly requires a different meaning. "Building" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.~~

~~For application of this code, each portion of a building that is completely separated from other portions by fire walls complying with Section 706 of the VCC shall be considered as a separate building (see Section 503.1 of the VCC).~~

~~Existing structure. A structure (i) for which a legal building permit has been issued under any edition~~

~~of the USBC, (ii) which has been previously approved, or (iii) which was built prior to the initial edition of the USBC. For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first flood plain management code, ordinance, or standard.~~

Moved building or structure. An existing building or structure that is moved to a new location.

Structure. An assembly of materials forming a construction for occupancy or use including stadiums, gospel and circus tents, reviewing stands, platforms, stagings, observation towers, radio towers, water tanks, storage tanks (underground and aboveground), trestles, piers, wharves, swimming pools, amusement devices, storage bins, and other structures of this general nature but excluding water wells. The word "structure" shall be construed as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning. "Structure" shall not include roadway tunnels and bridges owned by the Virginia Department of Transportation, which shall be governed by construction and design standards approved by the Virginia Commonwealth Transportation Board.

D. Delete the following definitions from Section 202 of the IEBC:

Approved
Dangerous
Deferred Submittal Facility
Flood hazard area
Registered design professional in responsible charge
Relocatable building
Unsafe

13VAC5-63-431. Chapter 3 General Provisions and Special Detailed Requirements.

A. Change IEBC Section 301 to General.

B. Change Section 301.1 ~~and delete Sections 301.1.1 through 301.1.4.2, including tables, of the IEBC;~~ to read:

301.1 Applicability. The applicable provisions of this chapter shall be used in conjunction with the requirements in this code, and shall apply to all construction and rehabilitation.

C. ~~Add~~ Change Section 301.2 and delete Sections 301.3 through 301.5 of ~~to~~ the IEBC ~~to read:~~

301.2 Occupancy and use. When determining the appropriate application of the referenced sections of this code, the occupancy and use of a building shall be determined in accordance with Chapter 3 of the VCC.

D. Change IEBC Section 302 to Building Materials and Systems.

E. Change Sections 302.1 through 302.3 of the IEBC to read:

302.1 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless the VCC would not permit their use in buildings or structures of similar occupancy, purpose, and location.

302.2 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the VCC would not permit their use in buildings or

structures of similar occupancy, purpose, and location.

302.3 Existing seismic force-resisting systems. Where the existing seismic force-resisting system is a type that can be designated ordinary, values of R , Ω_0 , and C_d for the existing seismic force-resisting system shall be those specified by the VCC for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate, or special system.

F. Delete Sections 302.4 and 302.5 through 302.6 of the IEBC.

G. ~~Add~~ Change Section IEBC Section 303 to Fire escapes.

H. ~~Add~~ Change Sections 303.1 through 303.3.2, including subsections, and add Sections 303.4 through 303.6, ~~including subsections~~, to the IEBC to read:

303.1 Where permitted. Fire escapes shall be permitted only as provided for in Sections 303.1.1 through 303.1.4.

303.1.1 Existing fire escapes. Existing fire escapes shall continue to be accepted as a component in the means of egress in existing buildings only.

303.1.2 New fire escapes. Newly constructed fire escapes for existing buildings shall be permitted only where exterior stairs cannot be utilized due to lot lines limiting stair size or due to the sidewalks, alleys, or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

Exception: Fire escapes that are replaced or repaired shall only be required to comply with Sections 303.3 and 303.4 if feasible, and if not feasible, such that the replaced or repaired fire escape is not less safe than its existing condition.

303.1.3 Limitations. Fire escapes shall comply with this section and shall not constitute more than 50% of the required number of exits nor more than 50% of the required exit capacity.

303.1.4 Fire escapes required. For other than Group I-2, where more than one exit is required, newly constructed fire escapes complying with Section 303.6 shall be accepted as providing one of the required means of egress. Replacement fire escapes or existing fire escapes undergoing repairs shall comply with Sections 303.3 and 303.4 if feasible, and if not feasible, to the greatest extent possible.

303.2 Location. Where located on the front of the building and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).

303.3 Construction. The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other approved noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Types III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

303.4 Dimensions. Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 9 inches (203 mm) below the door.

303.5 Opening protectives. Openings within 10 feet (3048 mm) of newly constructed fire escape

stairways shall be protected by fire assemblies having minimum 3/4-hour-fire- resistance ratings.

Exception: Opening protection shall not be required in buildings equipped throughout with an approved automatic sprinkler system.

303.6 Fire escape access and details. Newly constructed fire escapes shall comply with all of the following requirements:

1. Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.
2. Access to a new fire escape shall be through a door, except that windows shall be permitted to provide access from single dwelling units or sleeping units in Group R-1, R-2 and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications.
 - 2.1 The window shall have a minimum net clear opening of 5.7 square feet (0.53 m²) or 5 square feet (0.46 m²) where located at grade.
 - 2.2 The minimum net clear opening height shall be 24 inches (610 mm) and net clear opening width shall be 20 inches (508 mm).
 - 2.3 The bottom of the clear opening shall not be greater than 44 inches (1118 mm) above the floor.
 - 2.4 The operation of the window shall comply with the operational constraints of the VCC.
3. In all buildings of Group E occupancy, up to and including the 12th grade, buildings of Group I occupancy, rooming houses and child care centers, ladders of any type are prohibited on fire escapes used as a required means of egress.

I. ~~Add IEBC~~ Change Section 304 to Glass replacement and replacement windows.

J. ~~Add Change Sections~~ Section 304.1 and add Sections 304.2 through 304.3, ~~including subsections,~~ to the IEBC to read:

304.1 Conformance. In accordance with § 36-99.2 of the Code of Virginia, any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and installation standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.

304.2 Replacement window opening devices. In Group R-2 or R-3 buildings containing dwelling units, window opening control devices complying with ASTM F 2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. The top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor;
4. The window will permit openings that will allow passage of a 4-inch diameter (102 mm) sphere when the window is in its largest opened position; and

5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1029.2 of the VCC.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F 2090.

304.3 Replacement window emergency escape and rescue openings. Where windows are required to provide emergency escape and rescue openings in Groups R-2 and R-3 occupancies, replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3, and 1030.5 provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement of the window is not part of a change of occupancy.

K. ~~Add IEBC~~ Change Section 305 Seismic force-resisting systems.

L. ~~Add~~ Change Sections 305.1 and 305.2, including subsections, to the IEBC to read:

305.1 General. Where this code requires consideration of the seismic force-resisting system of an existing building subject to repair, alteration, change of occupancy, addition or relocation of existing buildings, the seismic evaluation and design shall be based on Section 305.2 regardless of which compliance method is used.

305.2 Seismic evaluation and design procedures. The seismic evaluation and design shall be based on the procedures specified in the VCC or ASCE 41. The procedures contained in Appendix A of this code shall be permitted to be used as specified in Section 305.2.2.

305.2.1 Compliance with VCC-level seismic forces. Where compliance with the seismic design provisions of the VCC is required, the criteria shall be in accordance with one of the following:

1. 100% of the values in the VCC. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of R , Ω_0 , and C_d used for analysis in accordance with Chapter 16 of the VCC shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.
2. ASCE 41, using a Tier 3 procedure and the two level performance objective in

Table 305.2.1 for the applicable risk category.

Table 305.2.1
Performance Objectives for Use in ASCE 41 for Compliance with VCC-Level Seismic Forces

Risk Category (Based on VCC Table 1604.5)	Structural Performance Level for Use with BSE-1E Earthquake Hazard Level	Structural Performance Level for Use with BSE-2N Earthquake Hazard Level
I	Life Safety (S-3)	Collapse Prevention (S-5)
II	Life Safety (S-3)	Collapse Prevention (S-5)
III	Damage Control (S-2)	Limited Safety (S-4)
IV	Immediate Occupancy (S-1)	Life Safety (S-3)

305.2.2 Compliance with reduced VCC-level seismic forces. Where seismic evaluation and design is permitted to meet reduced VCC seismic force levels, the criteria used shall be in accordance with one of the following:

1. The VCC using 75% of the prescribed forces. Values of R , ρ and C_d used for analysis shall be as specified in Section 305.2.1 of this code.

2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.5 and subject to the limitations of the respective Appendix A chapters shall be deemed to comply with this section.

- 2.1 The seismic evaluation and design of unreinforced masonry bearing wall buildings in Risk Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.

- 2.2 Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Risk Category I or II are permitted to be based on the procedures specified in Chapter A2.

- 2.3 Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in Risk Category I or II are permitted to be based on the procedures specified in Chapter A3.

- 2.4. Seismic evaluation and design of soft, weak, or open-front wall conditions in multiunit residential buildings of wood construction in Risk Category I or II are permitted to be based on the procedures specified in Chapter A4.

- 2.5 Seismic evaluation and design of concrete buildings assigned to Risk Category I, II, or III are permitted to be based on the procedures specified in Chapter A5.

3. ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk

category.

Table 305.2.2
Performance Objectives for Use in ASCE 41 for
Compliance with Reduced VCC-Level Seismic Forces

Risk Category (Based on VCC Table 1604.5)	Structural Performance Level for Use with BSE-1E Earthquake Hazard Level
I	Life Safety (S-3)
II	Life Safety (S-3)
III	Damage Control (S-2 ^a)
IV	Immediate Occupancy (S-1)

a. Tier 1 evaluation at the Damage Control performance level shall use the Tier 1 Life Safety checklists and Tier 1 Quick Check provision midway between those specified for Life Safety and Immediate Occupancy performance.

M. Delete Sections 305.3 through 305.9, including subsections, of the IEBC.

N. Add IEBC Section 306 Group B teaching and research laboratories.

~~N.~~ O. Add Section 306.1, including subsections, to the IEBC to read:

306.1 Change of occupancy in existing Group B teaching and research laboratories. Where the use of new or different hazardous materials or a change in the amount of hazardous materials in existing Group B testing and research laboratories in educational occupancies above the 12th grade would constitute a change of occupancy, this section shall be permitted to be used as an acceptable alternative to compliance with change of occupancy requirements to permit the increased amounts of hazardous materials stipulated without the laboratories being classified as Group H. In addition, as set out in Section 5001.7 of the SFPC, approval under this section is contingent upon operational requirements in the SFPC being complied with and maintained.

306.1.1 Hazardous materials in existing Group B teaching and research laboratories. The percentage of maximum allowable quantities of hazardous materials per control area and the number of control areas permitted at each floor level within an existing building shall be permitted to comply with Table 302.6.1(1) in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC or shall be permitted to comply with Table 302.6.1(2) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

Table 306.1.1(1)

Design and Number of Control Areas in Existing Buildings Equipped throughout with an Automatic Sprinkler System in Accordance with Section 903.3.1.1 of the VCC with Group B Teaching and Research Laboratories in Educational Occupancies above the 12th Grade

Floor Level		Percentage of the Maximum Allowable Quantity per Control Area ^a	Number of Control Areas per Floor	Fire- Resistance Rating for Fire Barriers and Horizontal Assemblies in Hours ^b
Above Grade Plane	Higher than 20	5	1	2
	10-20	10	1	2
	7-9	25	2	2
	4-6	50	2	2
	3	75	2	1
	2	100	3	1
	1	100	4	1
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2) of the VCC, with all increases allowed in the notes to those tables.

b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.

Table 306.1.1(2)

Design and Number of Control Areas in Existing Buildings Not Equipped throughout with an Automatic Sprinkler System in Accordance with Section 903.3.1.1 of the VCC with Group B Teaching and Research Laboratories in Educational Occupancies above the 12th Grade

Floor Level		Percentage of the Maximum Allowable Quantity per Control Area ^a	Number of Control Areas per Floor	Fire- Resistance Rating for Fire Barriers and Horizontal Assemblies in Hours ^b
Above Grade Plane	Higher than 9	5	1	2
	7-9	10	2	2
	4-6	25	2	2
	3	75	2	1
	2	100	3	1
	1	100	4	1
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2) of the VCC, with all increases allowed in the notes to those tables.

b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.

306.1.2 Automatic fire alarm and detection systems. An automatic fire alarm system shall be provided throughout the building in accordance with Section 907 of the VCC. An automatic fire detection system shall be provided in the control area in accordance with Section 907 of the VCC where pyrophics or Class 4 oxidizers are used and the building is not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

306.1.3 System supervision and monitoring. Automatic fire detection systems shall be electronically supervised and monitored by an approved supervising station or, where approved, shall initiate an audible and visual signal at a constantly attended onsite location.

P. Add IEBC Section 307 Reroofing and roof repair.

Q. Add Sections 307.1 through 307.7, including subsections, to the IEBC to read:

307.1 Reroofing. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with this section and the applicable requirements of Chapter 15 of the VCC.

Exceptions:

1. Roof replacement of roof recover of existing low-slope roof coverings shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2% slope) in Section 1507 of the VCC for roofs that provide positive roof drainage.

2. Recovering or replacing an existing roof covering shall not be required to meet the requirement of secondary (emergency overflow) drains or scuppers in Section ~~1503.4~~ 1502 of the VCC for roofs that provide for positive roof drainage. For the purposes of this

exception, existing secondary drainage or scupper systems required in accordance with the VCC shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section ~~1503.4~~ 1502 of the VCC.

307.2 Structural and construction loads. Structural roof components shall be capable of supporting the roof covering system and the material and equipment loads that will be encountered during installation of the system.

Exceptions:

1. Structural elements where the additional dead load from the roofing or equipment does not increase the force in the element by more than 5 percent.

2. Buildings constructed in accordance with the International Residential Code or the conventional light frame construction methods of the International Building Code and where the dead load from the roofing or equipment is not increased by more than 5 percent.

3. Addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing, single layer of roof covering.

307.3 Roof replacement. Roof replacement shall include the removal of all existing layers of roof coverings down to the roof deck.

Exception: Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507 of the VCC.

307.3.1 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 307.4.

3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.

4. Where the new roof covering is installed in accordance with the roof covering manufacturer's approved instructions.

Exceptions: A roof recover shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.

2. Where the existing roof covering is slate, clay, cement, or asbestos-cement tile.

3. Where the existing roof has two or more applications of any type of roof covering.

307.4 Roof recovering. Where the application of a new roof covering over wood shingle or shake roofs creates a combustible concealed space, the entire existing surface shall be covered with gypsum board, mineral fiber, glass fiber or other approved materials securely fastened in place.

307.5 Reinstallation of materials. Existing slate, clay, or cement tile shall be permitted for reinstallation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars, and metal counter-flashings shall not be reinstalled where rusted, damaged, or deteriorated. Aggregate surfacing materials shall not be reinstalled.

307.6 Flashings. Flashings shall be reconstructed in accordance with approved manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.

307.7 Roof repair. Roof repairs shall comply with this section. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the roof repair and shall not be subject to the requirements of other parts of this code.

Exception: Routine maintenance required by this section, ordinary repairs exempt from permit in accordance with Section 108.2 of the VCC, and abatement of wear due to normal service conditions shall not be subject to the requirements for roof repairs in this section.

307.7.1 Building materials and systems. Building materials and systems shall comply with the requirements of Sections 307.7.1.1 and 307.7.1.2.

307.7.1.1 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building official to be unsafe.

307.7.1.2 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

13VAC5-63-432.5. Chapter 4 Accessibility.

A. ~~Change IEBC Section 401 to General.~~

~~B.~~ Change Section 401.1 of the IEBC to read:

401.1 Scope. The applicable provisions of this chapter shall apply to all construction and rehabilitation.

~~C.~~ B. Delete Sections ~~401.1.1~~ 401.2 through 401.3 ~~of the IEBC.~~

~~D.~~ C. Change IEBC Section 402 ~~of to~~ Change of Occupancy.

~~E.~~ D. Change Sections 402.1 ~~through 402.3~~ of the IEBC to read:

402.1 Change of occupancy. Existing buildings or structures that undergo a change of occupancy shall comply with this section.

Exception: Type B dwelling or sleeping units required by Section 1107 of the VCC are not required to be provided in existing buildings and facilities undergoing a change of occupancy in conjunction

with alterations where the work area is 50% or less of the aggregate area of the building.

~~F.~~ E. Add Sections 402.2 and 402.3 to the IEBC to read:

402.2 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, additional accessible features are not required due to the change of occupancy.

402.3 Complete change of occupancy. Where an entire building undergoes a change of occupancy classification, it shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to primary function areas.
3. Signage complying with Section 1111 of the VCC.
4. Accessible parking, where parking is being provided.
5. At least one accessible passenger loading zone, when loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is technically infeasible to comply with the new construction standards for any of these requirements of a change of occupancy, Items 1 through 6 shall conform to the requirements to the maximum extent technically feasible.

Exception: The accessible features listed in Items 1 through 6 are not required for an accessible route to Type B units.

~~G. Delete Sections 402.3.1, 402.4 and 402.5 of the IEBC.~~

~~H.~~ F. Change IEBC Section 403 to Additions.

~~I.~~ G. Change ~~Sections~~ Section 403.1 ~~through 403.3~~ of the IEBC to read:

403.1 Additions. Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements in Section 410.7, as applicable.

H. Add Sections 403.2 through 403.4 to the IEBC to read:

403.2 Accessible dwelling units and sleeping units. Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the VCC for accessible units apply only to the quantity of spaces being added.

403.3 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being added, the requirements of Section 1107 of the VCC for Type A units and Chapter 9 of the VCC for visible alarms apply only to the quantity of the spaces being added.

~~I. Delete Section 403.3.1~~

~~J.~~ Change Section 403.4 of the IEBC to read:

403.4 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3, or R-4 dwelling or sleeping units are being added, the requirements of Section 1107 of the VCC for Type B units and Chapter 9 of the VCC for visible alarms apply only to the quantity of spaces being added.

~~K. Delete Sections 403.4.1 through 403.11, including subsections, of the IEBC.~~

~~L.I. Change IEBC Section 404 to Alterations.~~

~~M.J. Change Sections Section 404.1 through 404.4.15, including subsections, of the IEBC to read:~~

404.1 General. An alteration of an existing facility shall not impose a requirement for greater accessibility than that which would be required for new construction. Alterations shall not reduce or have the effect of reducing accessibility of a facility or portion of a facility.

K. Add Sections 404.2 through 404.4.15 to the IEBC to read:

404.2 Alterations. A facility that is altered shall comply with the applicable provisions in this section and Chapter 11 of the VCC, except as modified by Sections 404.3 and 404.4, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section 404.3.
2. Accessible means of egress required by Chapter 10 of the VCC are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the VCC are not required to be provided in existing buildings and facilities undergoing a change of occupancy in conjunction with alterations where the work area is 50% or less of the aggregate area of the building.

404.3 Alterations affecting an area containing a primary function. Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. The accessible route to the primary function area shall include toilet facilities and drinking fountains that shall also be accessible to and useable by individuals with disabilities, serving the area of primary function.

Exceptions:

1. The costs of providing the accessible route are not required to exceed 20% of the costs of the alterations affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.

4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of a facility.

5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

404.4 Scoping for alterations. The provisions of Sections 404.4.1 through 404.4.14 shall apply to alterations to existing buildings and facilities.

404.4.1 Entrances. Where an alteration includes alterations to an entrance, and the facility has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 404.3. Signs complying with Section 1111 of the VCC shall be provided.

Exception: Where an alteration includes alterations to an entrance, and the facility has an accessible entrance, the altered entrance is not required to be accessible, unless required by Section 410.7. Signs complying with Section 1111 of the VCC shall be provided.

404.4.2 Elevators. Altered elements of existing elevators shall comply with ASME A17.1/CSA B44 and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

404.4.3 Platform lifts. Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

404.4.4 Stairways and escalators. In alterations, change of occupancy or additions where an escalator or stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route shall be provided between the levels served by the escalator or stairways in accordance with Section 1104.4 of the VCC.

404.4.5 Ramps. Where steeper slopes than allowed by Section 1012.2 of the VCC are necessitated by space limitations, the slope of ramps in or providing access to existing facilities shall comply with Table 404.4.5.

Table 404.4.5
Ramps

Slope	Maximum Rise
Steeper than 1:10 but not steeper than 1:8	3 inches
Steeper than 1:12 but not steeper than 1:10	6 inches

For SI: 1 inch = 25.4 mm

404.4.6 Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2, or R-4 dwelling or sleeping units are being altered, the requirements of Section 1107 of the VCC for Accessible units apply only to the quantity of the spaces being altered.

404.4.7 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered, the requirements of Section 1107 of the VCC for Type A units and Chapter 9 of the VCC for visible alarms apply only to the quantity of the spaces being altered.

404.4.8 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3, or R-4 dwelling or sleeping units are being altered and where the work area is greater than 50% of the aggregate area of the building, the requirements of Section 1107 of the VCC for Type B units and Chapter 9 of the VCC for visible alarms apply only to the quantity of the spaces being altered.

Exceptions: Group I-1, I-2, R-2, R-3, and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991, are not required to provide Type B dwelling or sleeping units.

404.4.9 Jury boxes and witness stands. In alterations, accessible wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where ramp or lift access poses a hazard by restricting or projecting into a required means of egress.

404.4.10 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the VCC is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, provide directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

404.4.11 Dressing, fitting and locker rooms. Where it is technically infeasible to provide accessible dressing, fitting or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be provided. Where separate-sex facilities are provided, accessible rooms for each sex shall be provided. Separate sex facilities are not required where only unisex rooms are provided.

404.4.12 Fuel dispensers. Operable parts of replacement fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum, measuring from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

404.4.13 Thresholds. The maximum height of thresholds at doorways shall be 3/4 inch (19.1 mm). Such thresholds shall have beveled edges on each side.

404.4.14 Amusement rides. Where the structural or operational characteristics of an amusement ride are altered to the extent that the amusement ride's performance differs from that specified by the manufacturer or the original design, the amusement ride shall comply with requirements for new construction in Section 1110.4.8 of the VCC.

404.4.15 Dining areas. An accessible route to raised or sunken dining areas or to outdoor seating areas is not required provided that the same services and décor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.

~~N. Delete Sections 404.2.1, 404.2.2, 404.2.3, 404.3.1 and 404.5 of the IEBC.~~

L. Change Section 405 to Historic Buildings.

~~O.M.~~ Change Section 405.1, ~~including subsections,~~ to read:

405.1 General. These provisions shall apply to facilities designated as historic buildings or structures that undergo alterations or a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the facility, the alternative requirements of Sections 405.1.1 through 405.1.4

for that element shall be permitted.

Exception: Type B dwelling or sleeping units required by Section 1107 of the VCC are not required to be provided in historical buildings.

N. Add Sections 405.1.1 through 405.1.4 to the IEBC to read:

405.1.1 Site arrival points. At least one accessible route from a site arrival point to an accessible entrance shall be provided.

405.1.2 Multilevel buildings and facilities. An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

405.1.3 Entrances. At least one main entrance shall be accessible.

Exceptions:

1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or
2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1111 of the VCC shall be provided at the primary entrance and the accessible entrance.

405.1.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one accessible family or assisted-use toilet room complying with Section 1109.2.1 of the VCC shall be provided.

~~P.O.~~ Delete Sections 405.2 through ~~405.5~~ 405.2.5 of the IEBC.

~~Q.P.~~ Delete Sections 406, 407, and 408, ~~409 and 410~~ of the IEBC in their entirety.

13VAC5-63-433. Chapter 5 Repairs.

A. Change Section 501.1 and 501.2 of the IEBC to read:

501.1 Scope. Repairs, including the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements, shall comply with the requirements of this chapter. Repairs to historic buildings need only comply with Chapter 9. Portions of the existing building or structure not being repaired shall not be required to comply with the requirements of this code applicable to newly constructed buildings or structures. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the provisions of Chapter 6, 7 or 8. Routine maintenance required by Section 302, ordinary repairs exempt from permit in accordance with Section 108.2 of the VCC, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

Exception: Repairs complying with the requirements of the building code under which the building or structure or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code, unless the building or structure or the affected portions thereof is undergoing a substantial structural alteration as described in Section 604.7.1. New structural members added as part of the alteration or repairs shall comply with the VCC.

Repairs of existing buildings in flood hazard areas shall comply with Section 503.

501.2 Conformance. The work shall not make the building less conforming than it was before the repair was undertaken. Repairs shall be done in a manner that maintains the following:

1. Level of fire protection that is existing.
2. Level of protection that is existing for the means of egress.
3. Level of accessibility that is existing.

B. Delete Section 501.1.1 of the IEBC.

C. Change Section 502 to Structural.

D. Change Sections 502.1 and 502.2, ~~including subsections~~, of the IEBC to read:

502.1 General. Structural repairs shall be in compliance with this section and Section 501.2. Regardless of the scope of repair, new structural members and connections used for repair or rehabilitation shall comply with the detailing provisions of the VCC for new buildings of similar structure, purpose and location.

502.2 Repairs to damaged buildings. Repairs to damaged buildings shall comply with this section.

502.2.1 Less than substantial structural damage. For damage less than substantial structural damage, repairs shall be allowed that restore the building to its predamage state. New structural members and connection used for this repair shall comply with the detailing provisions of the VCC for new buildings of similar structure, purpose, and location.

502.2.2 Substantial structural damage to vertical elements of the lateral force-resisting system. A building that has sustained substantial structural damage to the vertical elements of its lateral force-resisting system shall be evaluated in accordance with Section 502.2.2.1 and either repaired in accordance with Section 502.2.2 or repaired and rehabilitated in accordance with Section 502.2.2.3, depending on the results of the evaluation.

Exceptions:

1. Buildings assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One-family and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

502.2.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the building official. The evaluation shall establish whether the damaged building if repaired to its predamage state, would comply with the provisions of the VCC for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced VCC-level seismic forces.

Wind loads for this evaluation shall be those prescribed in Section 1609 of the VCC. Earthquake loads for this evaluation, if required, shall be permitted to be 75% of those prescribed in Section 1613 of the VCC. Alternatively, compliance with ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the earthquake evaluation requirement.

502.2.2.2 Extent of repair for compliant buildings. If the evaluation establishes that the building in its predamage condition complies with the provisions of Section 502.2.2.1, then repairs shall be permitted that restore the building to its predamage state.

502.2.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the building in its predamage condition complies with the provisions of Section 502.2.2.1, then the building shall be rehabilitated to comply with the provisions of this section. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the VCC. The earthquake loads for this rehabilitation design shall be those required by the building code in effect at the time of original construction, but not less than the reduced VCC-level seismic forces. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the VCC for new buildings of similar structure, purpose and location. Alternatively, compliance with ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the earthquake rehabilitation requirement.

502.2.3 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained substantial structural damage shall be rehabilitated to comply with the applicable provisions for dead and live loads in the VCC. Snow loads shall be considered if the substantial structural damage was caused by or related to snow load effects. Existing gravity load carrying structural elements shall be permitted to be designed for live loads approved prior to the damage. If the approved live load is less than that required by Section 1607 of the VCC, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Nondamaged gravity load-carrying components that receive dead, live, or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the rehabilitation design, or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the VCC for new buildings of similar structure purpose and location.

502.2.3.1 Lateral force-resisting elements. Regardless of the level of damage to gravity elements of the lateral force-resisting system, if substantial structural damage to gravity load-carrying components was caused primarily by wind or earthquake effects, then the building shall be evaluated in accordance with Section 502.2.2.1 and, if noncompliant, rehabilitated in accordance with Section 502.2.2.3.

Exceptions:

1. Buildings assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One-family and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

E. Delete ~~Section~~ Sections 502.3 through 502.8 of the IEBC.

F. Change Section 503 to Flood Hazard Areas.

G. Change Section 503.1 of the IEBC to read:

503.1 Flood hazard areas. For buildings and structures, in flood hazard areas established in Section 1612.3 of the VCC, or Section R322 of the International Residential Code, as applicable, any repair that constitutes substantial improvement or repair of substantial damage of the existing building or structure shall comply with the flood design requirements for new construction and all aspects of the

existing building or structure shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in flood hazard areas established in Section 1612.3 of the VCC, or Section R322 of the International Residential Code, as applicable, any repairs do not constitute substantial improvement or repair of substantial damage of the existing building or structure are not required to comply with the flood design requirements for new construction.

H. Delete ~~Section~~ Sections 503.2 through 503.16.3 of the IEBC.

I. Change Section 504 to Electrical.

J. Change Section 504.1, including subsections, and add section 504.1.5 of the IEBC to read:

504.1 Material. Existing electrical wiring and equipment undergoing repair shall be allowed to be repaired or replaced with like material.

504.1.1 Receptacles. Replacement of electrical receptacles shall comply with the applicable requirements of Section 406.4(D) of NFPA 70.

504.1.2 Plug fuses. Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over fusing or tampering per applicable requirements of Section 240.51(B) of NFPA 70.

504.1.3 Nongrounding-type receptacles. For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system or to any accessible point on the grounding electrode conductor in accordance with Section 250.130(C) of NFPA 70.

504.1.4 Group I-2 receptacles. Non-"hospital grade" receptacles in patient bed locations of Group I-2 shall be replaced with "hospital grade" receptacles, as required by NFPA 99 and Article 517 of NFPA 70.

504.1.5 Grounding of appliances. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Section 250.140 of NFPA 70.

K. Delete ~~Section~~ Sections 504.2 through 504.5 of the IEBC.

L. Change Section 505 to Mechanical.

M. Change Sections 505.1 and 505.2 of the IEBC to read:

505.1 General. Existing mechanical systems undergoing repair shall not make the building less conforming than it was before the repair was undertaken.

505.2 Mechanical draft systems for manually fired appliances and fireplaces. A mechanical draft system shall be permitted to be used with manually fired appliances and fireplaces where such a system complies with all of the following requirements:

1. The mechanical draft device shall be listed and installed in accordance with the manufacturer's installation instructions.

2. A device shall be installed that produces visible and audible warning upon failure of the mechanical draft device or loss of electrical power at any time that the mechanical draft device is turned on. This device shall be equipped with a battery backup if it receives power from the building wiring.

3. A smoke detector shall be installed in the room with the appliance or fireplace. This device shall be equipped with a battery backup if it receives power from the building wiring.

N. Delete Sections 505.3 and 505.4 of the IEBC.

Q. Change Section 506 to Plumbing.

~~Q.~~P. Change Sections 506.1 and 506.2 of the IEBC to read:

506.1 Materials. Plumbing materials and supplies shall not be used for repairs that are prohibited in the International Plumbing Code.

506.2 Water closet replacement. The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.6 gallons (6 L) per flushing cycle.

Exception: Blowout-design water closets 3.5 gallons (13 L) per flushing cycle.

Q. Delete Sections 506.1.1 and 506.3 through 506.4.4, including subsections, of the IEBC.

~~P.~~R. Delete Section 507 of the IEBC in its entirety.

~~Q.~~ Delete Section 508 of the IEBC in its entirety.

~~R.~~ Delete Section 509 of the IEBC in its entirety.

13VAC5-63-433.3. Chapter 6 Alterations.

A. Change Sections 601.1 through 601.5, ~~including subsections,~~ and 601.2 of the IEBC to read:

601.1 General. Except as provided by Section 905.1 or this chapter, alterations to any building or structure shall comply with the requirements of the VCC for new construction. Alterations shall be such that the existing building or structure is no less conforming to the provisions of the VCC than the existing building or structure was prior to the alteration.

Exceptions:

1. Any stairway replacing an existing stairway shall not be required to comply with the requirements of Section 1011 of the VCC where the existing space and construction does not allow a reduction in pitch or slope.

2. Handrails otherwise required to comply with Section 1011.11 of the VCC shall not be required to comply with the requirements of Section 1014.6 of the VCC regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.

3. Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the VCC.

4. Alterations complying with the requirements of the building code under which the building

or structure or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code, unless the building or structure or the affected portions thereof is undergoing a substantial structural alteration as described in Section 604.7.1. New structural members added as part of the alteration or repairs shall comply with the VCC. Alterations of existing buildings in flood hazard areas shall comply with Section 601.3.

601.2 Levels of alterations. Alterations to any building or structure shall be classified as the following:

B. Delete Section 601.1.1 and add Sections 601.2.1 through 601.5, including subsections, to the IEBC to read:

601.2.1 Level 1. Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. Level 1 alterations shall comply with the applicable provisions Section 602.

601.2.2 Level 2. Level 2 alterations include the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment and shall apply where the work area is less than or equal to 50% of the building area. Level 2 alterations shall comply with the applicable provisions Sections 602 and 603.

601.2.3 Level 3. Level 3 alterations apply where the work area exceeds 50% of the building area. Level 3 alterations shall comply with the applicable provisions of Sections 602, 603 and 604.

601.2.3.1 Special provisions. A building separated horizontally in compliance with VCC Section 510.2 shall be considered as separate and distinct buildings for the purpose of determining building area used for application of Section 601.2.3.

601.3 Flood hazard areas. In flood hazard areas, alterations that constitute substantial improvement shall require that the building comply with Section 1612 of the VCC or Section R322 of the International Residential Code, as applicable.

601.4 Energy conservation. Level 1, 2, and 3 alterations to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the International Energy Conservation Code or International Residential Code. The alterations shall conform to the energy requirements of the International Energy Conservation Code or International Residential Code as they relate to new construction only.

Exception: Except for window and door openings, like materials, assemblies or thicknesses shall be permitted for alterations involving the exterior building thermal envelope, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

601.5 Accessibility. Accessibility shall be provided in accordance with applicable provisions of Section 404.

B-C. Change Section 602 to Level 1 Alterations.

C-D. Change Sections 602.1 through 602.3 and 602.2, including subsections, of the IEBC to read:

602.1 Scope. Level 1 alterations as described in Section 601.2.1 shall comply with the requirements of this section. Level 1 alterations to historic buildings shall comply with this chapter, except as modified in Chapter 9.

602.2 Conformance. Alterations shall be done in a manner that maintains the following:

1. Level of fire protection that is existing.
2. Level of protection that is existing for the means of egress.

E. Add Sections 602.3 through 602.3.5 to the IEBC to read:

602.3 Building elements and materials. Building elements and materials shall comply with the applicable provisions of Sections 302 and 602.3.1 through 602.3.5.

602.3.1 Interior finishes. All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the VCC.

602.3.2 Interior floor finish. New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the VCC.

602.3.3 Interior trim. All newly installed interior trim materials shall comply with Section 806 of the VCC.

602.3.4 Materials and methods. All new work shall comply with the materials and methods requirements in the VCC, International Energy Conservation Code, International Mechanical Code, and International Plumbing Code, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.

602.3.5 International Fuel Gas Code. The following sections of the International Fuel Gas Code shall constitute the fuel gas materials and methods requirements for Level 1 alterations.

1. All of Chapter 3, entitled "General Regulations," except Sections 303.7 and 306.
2. All of Chapter 4, entitled "Gas Piping Installations," except Sections 401.8 and 402.3.2.1. Sections 401.8 and 402.3 shall apply when the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.
3. All of Chapter 5, entitled "Chimneys and Vents."
4. All of Chapter 6, entitled "Specific Appliances."

~~D.F.~~ Change Section 603 to Level 2 Alterations.

E.G. Change Section 603.1 and 603.2, and add Sections ~~603.2~~ 603.3 through 603.10, including subsections, ~~to~~ the IEBC to read:

603.1 Scope. Level 2 alterations as described in Section 601.2.2 shall comply with the requirements of this section.

Exception: Buildings in which the alteration is exclusively the result of compliance with the accessibility requirements of Section 404.3 shall be permitted to comply with Section 602.

603.2 Level 1 alteration compliance. In addition to the requirements of this section, all work shall comply with the applicable requirements of Section 602.

603.3 Compliance. All new construction elements, components, systems, and spaces shall comply with the requirements of the VCC.

Exceptions:

1. Windows may be added without requiring compliance with the light and ventilation requirements of the VCC.
2. Newly installed electrical equipment shall comply with the requirements of Section 603.8.
3. The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 603.6.5.
4. The minimum ceiling height of the newly created habitable and occupiable spaces and corridors shall be 7 feet (2134 mm).

603.4 Building elements and materials. The requirements of Section 603.4 are limited to work areas in which Level 2 alterations are being performed and shall apply beyond the work area where specified.

603.4.1 Vertical openings. Existing vertical openings shall comply with the provisions of Sections 603.4.1.1, 603.4.1.2, and 603.4.1.3.

603.4.1.1 Existing vertical openings. Existing interior vertical openings connecting two or more floors shall be enclosed with approved assemblies having a fire-resistance rating of not less than one hour with approved opening protectives.

Exceptions:

1. Where vertical opening enclosure is not required by the VCC or the International Fire Code.
2. Interior vertical openings other than stairways may be blocked at the floor and ceiling of the work area by installation of not less than 2 inches (51 mm) of solid wood or equivalent construction.
3. The enclosure shall not be required where:
 - 3.1 Connecting the main floor and mezzanines; or
 - 3.2 All of the following conditions are met:
 - 3.2.1 The communicating area has a low hazard occupancy or has a moderate hazard occupancy that is protected throughout by an automatic sprinkler system.
 - 3.2.2 The lowest or next to the lowest level is a street floor.
 - 3.2.3 The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants.
 - 3.2.4 Exit capacity is sufficient to provide egress simultaneously for all occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity.
 - 3.2.5 Each floor level, considered separately, has at least one half of its individual required exit capacity provided by exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another

communicating floor level.

4. In Group A occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories.

5. In Group B occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 603.4.1.1, shall not be required in the following locations:

5.1 Buildings not exceeding 3,000 square feet (279 m²) per floor.

5.2 Buildings protected throughout by an approved automatic fire sprinkler system.

6. In Group E occupancies, the enclosure shall not be required for vertical openings not exceeding three stories when the building is protected throughout by an approved automatic fire sprinkler system.

7. In Group F occupancies, the enclosure shall not be required in the following locations:

7.1 Vertical openings not exceeding three stories.

7.2 Special purpose occupancies where necessary for manufacturing operations and direct access is provided to at least one protected stairway.

7.3 Buildings protected throughout by an approved automatic sprinkler system.

8. In Group H occupancies, the enclosure shall not be required for vertical openings not exceeding three stories where necessary for manufacturing operations and every floor level has direct access to at least two remote enclosed stairways or other approved exits.

9. In Group M occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 603.4.1.1, shall not be required in the following locations:

9.1 Openings connecting only two floor levels.

9.2 Occupancies protected throughout by an approved automatic sprinkler system.

10. In Group R-1 occupancies, the enclosure shall not be required for vertical openings not exceeding three stories in the following locations:

10.1 Buildings protected throughout by an approved automatic sprinkler system.

10.2 Buildings with less than 25 dwelling units or sleeping units where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and where:

10.2.1 Any exit access corridor exceeding 8 feet (2438 mm) in length that serves two means of egress, one of which is an unprotected vertical opening, shall have at least one of the means of egress separated from the vertical opening by a one-hour fire barrier; and

10.2.2 The building is protected throughout by an automatic fire alarm system, installed and supervised in accordance with the VCC.

11. In Group R-2 occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 603.4.1.1, shall not be required in the following locations:

11.1 Vertical openings not exceeding two stories with not more than four dwelling units per floor.

11.2 Buildings protected throughout by an approved automatic sprinkler system.

11.3 Buildings with not more than four dwelling units per floor where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and the building is protected throughout by an automatic fire alarm system complying with Section 603.5.4.

12. One-family and two-family dwellings.

13. Group S occupancies where connecting not more than two floor levels or where connecting not more than three floor levels and the structure is equipped throughout with an approved automatic sprinkler system.

14. Group S occupancies where vertical opening protection is not required for open parking garages and ramps.

603.4.1.2 Supplemental shaft and floor opening enclosure requirements. Where the work area on any floor exceeds 50% of that floor area, the enclosure requirements of Section 603.4.1 shall apply to vertical openings other than stairways throughout the floor.

Exception: Vertical openings located in tenant spaces that are entirely outside the work area.

603.4.1.3 Supplemental stairway enclosure requirements. Where the work area on any floor exceeds 50% of that floor area, stairways that are part of the means of egress serving the work area shall, at a minimum, be enclosed with smoke-tight construction on the highest work area floor and all floors below.

Exception: Where stairway enclosure is not required by the VCC or the International Fire Code.

603.4.2 Smoke compartments. In Group I-2 occupancies where the work area is on a story used for sleeping rooms for more than 30 patients, the story shall be divided into not less than two compartments by smoke barrier walls in accordance with Section 407.5 of the VCC as required for new construction.

603.4.3 Interior finish. The interior finish of walls and ceilings in exits and corridors in any work area shall comply with the requirements of the VCC.

Exception: Existing interior finish materials that do not comply with the interior finish requirements of the VCC shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required rating.

603.4.3.1 Supplemental interior finish requirements. Where the work area on any floor exceeds 50% of the floor area, Section 603.4.3 shall also apply to the interior finish in exits and corridors serving the work area throughout the floor.

Exception: Interior finish within tenant spaces that are entirely outside the work area.

603.4.4 Guards. The requirements of Sections 603.4.4.1 and 603.4.4.2 shall apply in all work areas.

603.4.4.1 Minimum requirement. Every portion of a floor, such as a balcony or a loading dock, that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those in which the existing guards are judged to be in danger of collapsing, shall be provided with guards.

603.4.4.2 Design. Where there are no guards or where existing guards must be replaced, the guards shall be designed and installed in accordance with the VCC.

603.4.5 Fire-resistance ratings. Where approved by the code official, buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the VCC has been added, and the building is now sprinklered throughout, the required fire-resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code.

603.5 Fire protection. The requirements of Section 603.5 shall be limited to work areas in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.

603.5.1 Corridor ratings. Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the VCC. In order to be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the floor and the intermediate landings immediately below.

603.5.2 Automatic sprinkler system. Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 603.5.2.1 through 603.5.2.5. Installation requirements shall be in accordance with the VCC.

603.5.2.1 High-rise buildings. In high-rise buildings, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection in the entire work area where the work area is located on a floor that has a sufficient sprinkler water supply system from an existing standpipe or a sprinkler riser serving that floor.

603.5.2.1.1 Supplemental automatic sprinkler system requirements. Where the work area on any floor exceeds 50% of that floor area, Section 603.5.2.1 shall apply to the entire floor on which the work area is located.

Exception: Occupied tenant spaces that are entirely outside the work area.

603.5.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The work area is required to be provided with automatic sprinkler protection in accordance with the VCC as applicable to new construction; and
2. The work area exceeds 50% of the floor area.

Exception: If the building does not have sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the VCC.

603.5.2.2.1 Mixed uses. In work areas containing mixed uses, one or more of which requires automatic sprinkler protection in accordance with Section 603.5.2.2, such protection shall not be required throughout the work area provided that the uses requiring such protection are separated from those not requiring protection by fire-resistance-rated construction having a minimum two-hour rating for Group H and a minimum one-hour rating for all other occupancy groups.

603.5.2.3 Windowless stories. Work located in a windowless story, as determined in accordance with the VCC, shall be sprinklered where the work area is required to be sprinklered under the provisions of the VCC for newly constructed buildings and the building has a sufficient municipal water supply without installation of a new fire pump.

603.5.2.4 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the VCC, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:

1. The work area is required to be provided with an automatic sprinkler system in accordance with the VCC applicable to new construction; and
2. The building has sufficient municipal water supply for design of an automatic sprinkler system available to the floor without installation of a new fire pump.

603.5.2.5 Supervision. Fire sprinkler systems required by this section shall be supervised by one of the following methods:

1. Approved central station system in accordance with NFPA 72;
2. Approved proprietary system in accordance with NFPA 72;
3. Approved remote station system of the jurisdiction in accordance with NFPA 72; or
4. When approved by the code official, approved local alarm service that will cause the sounding of an alarm in accordance with NFPA 72.

Exception: Supervision is not required for the following:

1. Underground gate valve with roadway boxes.
2. Halogenated extinguishing systems.
3. Carbon dioxide extinguishing systems.
4. Dry-chemical and wet-chemical extinguishing systems.
5. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.

603.5.3 Standpipes. Where the work area includes exits or corridors shared by more than one tenant and is located more than 50 feet (15,240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the VCC.

Exceptions:

1. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448KPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448KPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.

2. The interconnection of multiple standpipe risers shall not be required.

603.5.4 Fire alarm and detection. An approved fire alarm system shall be installed in accordance with Sections 603.5.4.1 through 603.5.4.3. Where automatic sprinkler protection is provided in accordance with Section 603.5.2 and is connected to the building fire alarm system, automatic heat detection shall not be required.

An approved automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Devices, combinations of devices, appliances, and equipment shall be approved. The automatic fire detectors shall be smoke detectors, except that an approved alternative type of detector shall be installed in spaces such as boiler rooms, where products of combustion are present during normal operation in sufficient quantity to actuate a smoke detector.

603.5.4.1 Fire alarm requirements. A fire alarm system shall be installed in accordance with Sections 603.5.4.1.1 through 603.5.4.1.7 and Sections 1103.7 and 1103.8 of the IFC. Existing alarm-notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm-notification appliances within the work area shall be provided and automatically activated.

Exceptions:

1. Occupancies with an existing, previously approved fire alarm system.

2. Where selective notification is permitted, alarm-notification appliances shall be automatically activated in the areas selected.

603.5.4.1.1 Group E. Work areas classified as Group E occupancies.

603.5.4.1.2 Group I-1. Work areas classified as Group I-1 residential care/assisted living facilities.

603.5.4.1.3 Group I-2. Throughout occupancies classified as Group I-2 occupancies.

603.5.4.1.4 Group I-3. Work areas classified as Group I-3 occupancies.

603.5.4.1.5 Group R-1. Occupancies classified as Group R-1 occupancies.

603.5.4.1.6 Group R-2. Work areas classified as Group R-2 apartment buildings.

603.5.4.1.7 Group R-4. Work areas classified as Group R-4 residential care/assisted living facilities.

603.5.4.2 Supplemental fire alarm system requirements. Where the work area on any floor exceeds 50% of that floor area, Section 603.5.4.1 shall apply throughout the floor.

Exception: Alarm initiating and notification appliances shall not be required to be installed in tenant spaces outside of the work area.

603.5.4.3 Smoke alarms. Individual sleeping units and individual dwelling units in any work area in Group R and I-1 occupancies shall be provided with smoke alarms in accordance with the International Fire Code.

Exception: Interconnection of smoke alarms outside of the work area shall not be required.

603.6 Means of egress. The means of egress shall comply with the requirements of Section 603.6.

Exceptions:

1. Where the work area and the means of egress serving it complies with NFPA 101.
2. Means of egress conforming to the requirements of the building code under which the building was constructed shall be considered compliant means of egress.

603.6.1 General. The requirements of this section shall be limited to work areas that include exits or corridors shared by more than one tenant within the work area in which level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.

603.6.2 Number of exits. The number of exits shall be in accordance with Sections 603.6.2.1 through 603.6.2.3.

603.6.2.1 Minimum number. Every story utilized for human occupancy on which there is a work area that includes exits or corridors shared by more than one tenant within the work area shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the VCC. In addition, the exits shall comply with Sections 603.6.2.1.1 and 303.

603.6.2.1.1 Single-exit buildings. Only one exit is required from buildings and spaces of the following occupancies:

1. In Groups A, B, E, F, M, U, and S occupancies, a single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet (22,860 mm).
2. Groups B, F-2, and S-2 occupancies not more than two stories in height that are not greater than 3,500 square feet per floor (326 m²), when the exit access travel distance does not exceed 75 feet (22,860 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be one hour.
3. Open parking structures where vehicles are mechanically parked.
4. In Group R-4 occupancies, the maximum occupant load excluding staff is 16.
5. Groups R-1 and R-2 not more than two stories in height, when there are not more than four dwelling units per floor and the exit access travel distance does not exceed 50 feet (15,240 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be one hour.
6. In multilevel dwelling units in buildings of occupancy Group R-1 or R-2, an exit shall not be required from every level of the dwelling unit provided that one of the following conditions is met:
 - 6.1 The travel distance within the dwelling unit does not exceed 75 feet (22,860 mm); or

6.2 The building is not more than three stories in height and all third floor space is part of one or more dwelling units located in part on the second floor; and no habitable room within any such dwelling unit shall have a travel distance that exceeds 50 feet (15,240 mm) from the outside of the habitable room entrance door to the inside of the entrance door to the dwelling unit.

7. In Groups R-2, H-4, H-5 and I occupancies and in rooming houses and child care centers, a single exit is permitted in a one-story building with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22,860 mm). In dwelling units within Group R-2 buildings, an occupant load of 12 shall be permitted and, in addition, staff of such family day homes shall not be counted for the purposes of establishing occupant loads.

8. In buildings of Group R-2 occupancy that are equipped throughout with an automatic fire sprinkler system, a single exit shall be permitted from a basement or story below grade if every dwelling unit on that floor is equipped with an approved window providing a clear opening of at least 5 square feet (0.47 m^2) in area, a minimum net clear opening of 24 inches (610 mm) in height and 20 inches (508 mm) in width, and a sill height of not more than 44 inches (1118 mm) above the finished floor.

9. In buildings of Group R-2 occupancy of any height with not more than four dwelling units per floor; with a smoke-proof enclosure or outside stairway as an exit; and with such exit located within 20 feet (6096 mm) of travel to the entrance doors to all dwelling units served thereby.

10. In buildings of Group R-3 occupancy equipped throughout with an automatic fire sprinkler system, only one exit shall be required from basements or stories below grade.

603.6.2.2 Mezzanines. Mezzanines in the work area and with an occupant load of more than 50 or in which the common path of egress travel distance to an exit or exit access doorway exceeds 75 feet (22,860 mm) shall have access to at least two independent means of egress.

Exception: Two independent means of egress are not required where the travel distance to an exit does not exceed 100 feet (30,480 mm) and the building is protected throughout with an automatic sprinkler system.

603.6.3 Egress doorways. Egress doorways in any work area shall comply with Sections 603.6.3.1 through 603.6.3.5.

603.6.3.1 Two egress doorways required. Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 603.6.3.1.1 and 603.6.3.1.2.

603.6.3.1.1 Occupant load and travel distance. In any work area, all rooms and spaces having an occupant load greater than 50 or in which the common path of egress travel distance to an exit or exit access doorway exceeds 75 feet (22,860 mm) shall have a minimum of two egress doorways.

Exceptions:

1. Storage rooms having a maximum occupant load of 10.
2. Where the work area is served by a single exit in accordance with Section 603.6.2.1.1.

603.6.3.1.2 Group I-2. In buildings of Group I-2 occupancy, any patient sleeping room or suite of patient rooms greater than 1,000 square feet (93 m²) within the work area shall have a minimum of two egress doorways.

603.6.3.2 Door swing. In the work area and in the egress path from any work area to the exit discharge, all egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel.

603.6.3.2.1 Supplemental requirements for door swing. Where the work area exceeds 50% of the floor area, door swing shall comply with Section 603.6.3.2 throughout the floor.

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

603.6.3.3 Door closing. In any work area, all doors opening onto an exit passageway at grade or an exit stairway shall be self-closing or automatic-closing by listed closing devices.

Exceptions:

1. Where exit enclosure is not required by the VCC.
2. Means of egress within or serving only a tenant space that is entirely outside the work area.

603.6.3.3.1 Supplemental requirements for door closing. Where the work area exceeds 50% of the floor area, doors shall comply with Section 603.6.3.3 throughout the exit stairway from the work area to, and including, the level of exit discharge.

603.6.3.4 Panic hardware. In any work area, and in the egress path from any work area to the exit discharge, in buildings of Group A assembly occupancies with an occupant load greater than 100, all required exit doors equipped with latching devices shall be equipped with approved panic hardware.

603.6.3.4.1 Supplemental requirements for panic hardware. Where the work area exceeds 50% of the floor area, panic hardware shall comply with Section 603.6.3.4 throughout the floor.

Exception: Means of egress within a tenant space that is entirely outside the work area.

603.6.3.5 Emergency power source in Group I-3. Power operated sliding doors or power operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 2702 of the VCC.

Exceptions:

1. Emergency power is not required in facilities with 10 or fewer locks complying with the exception to Section 408.4.1 of the VCC.
2. Emergency power is not required where remote mechanical operating releases are provided.

603.6.4 Openings in corridor walls. Openings in corridor walls in any work area shall comply with Sections 603.6.4.1 through 603.6.4.4.

Exception: Openings in corridors where such corridors are not required to be rated in accordance with the VCC.

603.6.4.1 Corridor doors. Corridor doors in the work area shall not be constructed of hollow core wood and shall not contain louvers. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be at least 1-3/8-inch (35 mm) solid core wood or approved equivalent and shall not have any glass panels, other than approved wired glass or other approved glazing material in metal frames. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be equipped with approved door closers. All replacement doors shall be 1-3/4-inch (44 mm) solid bonded wood core or approved equivalent, unless the existing frame will

accommodate only a 1-3/8-inch (35 mm) door.

Exceptions:

1. Corridor doors within a dwelling unit or sleeping unit.
2. Existing doors meeting the requirements of Guidelines on Fire Ratings of Archaic Materials and Assemblies (VEBC Resource A) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.
3. Existing doors in buildings protected throughout with an approved automatic sprinkler system shall be required only to resist smoke, be reasonably tight fitting, and shall not contain louvers.
4. In group homes with a maximum of 15 occupants and that are protected with an approved automatic detection system, closing devices may be omitted.
5. Door assemblies having a fire protection rating of at least 20 minutes.

603.6.4.2 Transoms. In all buildings of Group I-1, I-2, R-1 and R-2 occupancies, all transoms in corridor walls in work areas shall be either glazed with 1/4-inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire protection rating as required for the door and permanently secured in the closed position or sealed with materials consistent with the corridor construction.

603.6.4.3 Other corridor openings. In any work area, unless otherwise protected or fire-resistant rated in accordance with Section 716 of the VCC, any other sash, grille, or opening in a corridor and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction.

603.6.4.3.1 Supplemental requirements for other corridor opening. Where the work area exceeds 50% of the floor area, Section 603.6.4.3 shall be applicable to all corridor windows, grills, sashes, and other openings on the floor.

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

603.6.4.4 Supplemental requirements for corridor openings. Where the work area on any floor exceeds 50% of the floor area, the requirements of Sections 603.6.4.1 through 603.6.4.3 shall apply throughout the floor.

603.6.5 Dead-end corridors. Dead-end corridors in any work area shall not exceed 35 feet (10 670 mm).

Exceptions:

1. Where dead-end corridors of greater length are permitted by the VCC.
2. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 50 feet (15,240 mm) in buildings equipped throughout with an automatic fire alarm system installed in accordance with the VCC.
3. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 70 feet (21,356 mm) in buildings equipped throughout with an automatic sprinkler system installed in accordance with the VCC.
4. In other than Group A and H occupancies, the maximum length of an existing, newly constructed, or extended dead-end corridor shall not exceed 50 feet (15,240 mm) on floors

equipped with an automatic sprinkler system installed in accordance with the VCC.

603.6.6 Means-of-egress lighting. Means-of-egress lighting shall be in accordance with this section, as applicable.

603.6.6.1 Artificial lighting required. Means of egress in all work areas shall be provided with artificial lighting in accordance with the requirements of the VCC.

603.6.6.2 Supplemental requirements for means-of-egress lighting. Where the work area on any floor exceeds 50% of that floor area, means of egress throughout the floor shall comply with Section 603.6.6.1.

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

603.6.7 Exit signs. Exit signs shall be in accordance with this section, as applicable.

603.6.7.1 Work areas. Means of egress in all work areas shall be provided with exit signs in accordance with the requirements of the VCC.

603.6.7.2 Supplemental requirements for exit signs. Where the work area on any floor exceeds 50% of that floor area, means of egress throughout the floor shall comply with Section 603.6.7.1.

Exception: Means of egress within a tenant space that is entirely outside the work area.

603.6.8 Handrails. The requirements of Sections 603.6.8.1 and 603.6.8.2 shall apply to handrails from the work area floor to, and including, the level of exit discharge.

603.6.8.1 Minimum requirement. Every required exit stairway that is part of the means of egress for any work area and that has three or more risers and is not provided with at least one handrail, or in which the existing handrails are judged to be in danger of collapsing, shall be provided with handrails for the full length of the stairway on at least one side. All exit stairways with a required egress width of more than 66 inches (1676 mm) shall have handrails on both sides.

603.6.8.2 Design. Handrails required in accordance with Section 603.6.8.1 shall be designed and installed in accordance with the provisions of the VCC.

603.6.9 Guards. The requirements of Sections 603.6.9.1 and 603.6.9.2 shall apply to guards from the work area floor to, and including, the level of exit discharge but shall be confined to the egress path of any work area.

603.6.9.1 Minimum requirement. Every open portion of a stairway, landing, or balcony that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those portions in which existing guards are judged to be in danger of collapsing, shall be provided with guards.

603.6.9.2 Design. Guards required in accordance with Section 603.6.9.1 shall be designed and installed in accordance with the VCC.

603.7 Structural. Structural elements and systems within buildings undergoing Level 2 alterations shall comply with Sections 603.7.1 through 603.7.5.

603.7.1 New structural elements. New structural elements in alterations, including connections and anchorage, shall comply with the VCC.

603.7.2 Minimum design loads. The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the

building was constructed.

603.7.3 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an alteration causes an increase in design gravity load of more than 5% shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by the VCC for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the alteration shall be shown to have the capacity to resist the applicable design gravity loads required by the VCC for new structures.

Exception: Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the existing building and its alteration comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.

603.7.3.1 Design live load. Where the alteration does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the alteration. If the approved live load is less than that required by Section 1607 of the VCC, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the alteration does result in increased design live load, the live load required by Section 1607 of the VCC shall be used.

603.7.4 Existing structural elements resisting lateral loads. Except as permitted by Section 603.7.5, where the alteration increases design lateral loads in accordance with Section 1609 or 1613 of the VCC, or where the alteration results in a prohibited structural irregularity as defined in ASCE 7, or where the alteration decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613 of the VCC. For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the requirements of Section 1613 of the VCC.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10% greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with VCC Sections 1609 and 1613. Reduced VCC level seismic forces in accordance with Section 305.2.2 shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.
2. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the VCC or in compliance with the provisions of the IRC.
3. Where such alterations involve only the lowest story of a building and the change of occupancy provisions of Chapter 7 do not apply, only the lateral force-resisting components in and below that story need comply with this section.

603.7.5 Voluntary lateral force-resisting system alterations. Alterations of existing structural elements and additions of new structural elements that are initiated for the purpose of increasing the lateral force-resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces conforming to the VCC, provided that an engineering analysis is submitted to show that:

1. The capacity of existing structural elements required to resist forces is not reduced;
2. The lateral loading to existing structural elements is not increased either beyond its capacity or more than 10%;
3. New structural elements are detailed and connected to the existing structural elements as required by the VCC;
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the VCC; and
5. Voluntary alterations to lateral force-resisting systems conducted in accordance with Appendix A and the referenced standards of this code shall be permitted.

603.7.6 Voluntary seismic improvements. Alterations to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force resisting system of an existing structure or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure and the altered nonstructural elements are no less conforming to the provisions of the VCC with respect to earthquake design than they were prior to the alteration.
2. New structural elements are detailed as required for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required for new construction.
4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

603.8 Electrical. Electrical elements and systems within buildings undergoing Level 2 alterations shall comply with Sections 603.8.1 through 603.8.3.

603.8.1 New installations. All newly installed electrical equipment and wiring relating to work done in any work area shall comply with all applicable requirements of NFPA 70 except as provided for in Section 603.8.3.

603.8.2 Existing installations. Existing wiring in all work areas in Groups A-1, A-2, A-5, H, and I occupancies shall be upgraded to meet the materials and methods requirements of Section 602.3.

603.8.3 Residential occupancies. In Groups R-2, R-3, R-4 and R-5 occupancies and buildings regulated by the International Residential Code, the requirements of Sections 603.8.3.1 through 603.8.3.7 shall be applicable only to work areas located within a dwelling unit.

603.8.3.1 Enclosed areas. All enclosed areas, other than closets, kitchens, basements, garages, hallways, laundry areas, utility areas, storage areas, and bathrooms shall have a minimum of two duplex receptacle outlets or one duplex receptacle outlet and one ceiling or wall-type lighting outlet.

603.8.3.2 Kitchens. Kitchen areas shall have a minimum of two duplex receptacle outlets.

603.8.3.3 Laundry areas. Laundry areas shall have a minimum of one duplex receptacle outlet located near the laundry equipment and installed on an independent circuit.

603.8.3.4 Ground fault circuit interruption. Newly installed receptacle outlets shall be provided with ground fault circuit interruption as required by NFPA 70.

603.8.3.5 Minimum lighting outlets. At least one lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage, and detached garage with electric power, and to illuminate outdoor entrances and exits.

603.8.3.6 Utility rooms and basements. At least one lighting outlet shall be provided in utility rooms and basements where such spaces are used for storage or contain equipment requiring service.

603.8.3.7 Clearance for equipment. Clearance for electrical service equipment shall be provided in accordance with the NFPA 70.

603.9 Mechanical. All work areas intended for occupancy and all spaces converted to habitable or occupiable space in any work area shall be provided with natural or mechanical ventilation in accordance with the International Mechanical Code.

Exception: Existing mechanical ventilation systems shall comply with the requirements of Section 603.9.1.

603.9.1 Altered existing systems. In mechanically ventilated spaces, existing mechanical ventilation systems that are altered, reconfigured, or extended shall provide not less than 5 cubic feet per minute (cfm) (0.0024 m³/s) per person of outdoor air and not less than 15 cfm (0.0071 m³/s) of ventilation air per person; or not less than the amount of ventilation air determined by the Indoor Air Quality Procedure of ASHRAE 62.

603.9.2 Local exhaust. All newly introduced devices, equipment, or operations that produce airborne particulate matter, odors, fumes, vapor, combustion products, gaseous contaminants, pathogenic and allergenic organisms, and microbial contaminants in such quantities as to affect adversely or impair health or cause discomfort to occupants shall be provided with local exhaust.

603.10 Plumbing. Where the occupant load of the story is increased by more than 20%, plumbing fixtures for the story shall be provided in quantities specified in the International Plumbing Code based on the increased occupant load.

~~F-H.~~ Change Section 604 to Level 3 Alterations.

~~G-I.~~ Change Section 604.1 and add Sections 604.2 through 604.7, including subsections, to of the IEBC to read:

604.1 Scope. Level 3 alterations as described in Section 601.2.3 shall comply with the requirements of this section.

Exception: Buildings in which the alteration is exclusively the result of compliance with the accessibility requirements of Section 404.3 shall be permitted to comply with Section 602.

604.2 Level 1 and Level 2 alterations compliance. In addition to the requirements of this section, work shall comply with the applicable requirements of Sections 602 and 603. The requirements of Sections 603.4, 603.5 and 603.6 shall apply within all work areas whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

Exception: Buildings in which the alteration affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 404.3 shall not be required to comply with this section.

J. Add Sections 604.3 through 604.7, including subsections, to the IEBC to read:

604.3 Special use and occupancy. The following special uses and occupancies shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.3.1 and 604.3.2.

604.3.1 High-rise buildings. Any building having occupied floors more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access shall comply with the requirements of Sections 604.3.1.1 and 604.3.1.2.

604.3.1.1 Recirculating air or exhaust systems. When a floor is served by a recirculating air or exhaust system with a capacity greater than 15,000 cubic feet per minute (701 m³/s), that system shall be equipped with approved smoke and heat detection devices installed in accordance with the International Mechanical Code.

604.3.1.2 Elevators. Where there are elevators for public use, at least one elevator serving the work area shall comply with this section. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for firefighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1.

604.3.2 Boiler and furnace equipment rooms. Boiler and furnace equipment rooms adjacent to or within Groups I-1, I-2, I-4, R-1, R-2, and R-4 occupancies shall be enclosed by one- hour-fire-resistance-rated construction.

Exceptions:

1. Steam boiler equipment operating at pressures of 15 pounds per square inch gauge (psig) (103.4 KPa) or less is not required to be enclosed.
2. Hot water boilers operating at pressures of 170 psig (1171 KPa) or less are not required to be enclosed.
3. Furnace and boiler equipment with 400,000 British thermal units (Btu) (4.22 by 10⁸ J) per hour input rating or less is not required to be enclosed.
4. Furnace rooms protected with an automatic sprinkler system are not required to be enclosed.

604.4 Building elements and materials. Building elements and materials shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.4.1 through 604.4.3.

604.4.1 Existing stairways. Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 603.4.1.1, and its exceptions if applicable, from the highest work area floor to, and including, the level of exit discharge and all floors below.

604.4.2 Fire separation in Group R-3. Where the work area is in any attached dwelling unit in Group R-3 or any multiple single-family dwelling (townhouse), walls separating the dwelling units that are not continuous from the foundation to the underside of the roof sheathing shall be constructed to provide a continuous fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. All work shall be performed on the side of the dwelling unit wall that is part of the work area.

Exception: Where alterations or repairs do not result in the removal of wall or ceiling finishes exposing the structure, walls are not required to be continuous through concealed floor spaces.

604.4.3 Interior finish. Interior finish in exits serving the work area shall comply with Section 603.4.3 between the highest floor on which there is a work area to the floor of exit discharge.

604.5 Fire protection. Fire protection shall comply with the requirements of Section 603.5.2 except as specifically required in Sections 604.5.1 and 604.5.2.

604.5.1 Automatic sprinkler systems. An automatic sprinkler system shall be provided in a work area where required by Section 603.5.1.1 through 604.5.1.3 or Section 603.5.2.

604.5.1.1 High-rise buildings. An automatic sprinkler system shall be provided in work areas where the high-rise building has a sufficient municipal water supply for the design and installation of an automatic sprinkler system at the site.

604.5.1.2 Rubbish and linen chutes. Rubbish and linen chutes located in the work area shall be provided with automatic sprinkler system protection or an approved automatic fire extinguishing system where protection of the rubbish and linen chute would be required under the provisions of the VCC for new construction.

604.5.1.3 Upholstered furniture or mattresses. Work areas shall be provided with an automatic sprinkler system in accordance with the VCC where any of the following conditions exist:

1. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2,500 square feet (232 m²).
2. A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 m²).

604.5.2 Fire alarm and detection systems. Fire alarm and detection shall be provided throughout the work area in accordance with Section 907 of the VCC as required for new construction.

604.5.2.1 Manual fire alarm systems. Where required by the VCC, a manual fire alarm system shall be provided throughout the work area. Alarm notification appliances shall be provided on such floors and shall be automatically activated as required by the VCC.

Exceptions:

1. Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the work area.
2. Visual alarm notification appliances are not required, except where an existing alarm system is upgraded or replaced or where a new fire alarm system is installed.

604.5.2.2 Automatic fire detection. Where required by the VCC for new buildings, automatic fire detection systems shall be provided throughout the work area.

604.6 Means of egress. The means of egress shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.6.1 and 604.6.2.

604.6.1 Means-of-egress lighting. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the VCC.

604.6.2 Exit signs. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with exit signs in accordance with the requirements of the VCC.

604.7 Structural. Structural alterations shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.7.1 and 604.7.2.

604.7.1 Substantial structural alteration. Where more than 30% of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural alteration within a five-year period, the evaluation and analysis shall demonstrate that the lateral load-resisting system of the altered building or structure complies with the International Building Code for wind loading and with reduced International Building Code-level seismic force in accordance with Section 305.2.2. The areas to be counted toward the 30% shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.

604.7.2 Limited structural alteration. Where the work does not involve a substantial structural alteration and the building is not assigned to Seismic Design Category F, the existing elements of the lateral load-resisting system shall comply with Section 603.7.4.

~~H-K.~~ Delete Sections 605, 606, 607, and 608 ~~and 609~~ of the IEBC in their entirety.

13VAC5-63-433.5. Chapter 7 Change of Occupancy.

A. Change Sections 701.1 through 701.2 of the IEBC to read:

701.1 Scope. The provisions of this chapter shall apply where a change of occupancy occurs, except as modified by Section 906 for historic buildings. Compliance with the current VCC for the change of occupancy shall only be required as prescribed in this chapter. Compliance shall be only as necessary to meet the specific provisions of the applicable International Codes and is not intended to require the entire building be brought into compliance.

Exception: Compliance with the provisions of Chapter 14 shall be permitted in lieu of complying with this chapter for a change of occupancy.

701.2 Work undertaken in connection with a change of occupancy. Any repairs, alterations, or additions undertaken in connection with a change of occupancy shall conform to the applicable requirements for the work as classified in this code and as modified by this chapter.

B. Delete Section Sections 701.3 and 701.4 of the IEBC.

C. Change Section 702 to Special Use and Occupancy.

D. Change Sections 702.1 and 702.2 of the IEBC to read:

702.1 Compliance with the building code. Where a building undergoes a change of occupancy to one of the special use or occupancy categories described in Chapter 4 of the VCC, the building shall comply with all of the requirements of Chapter 4 of the VCC applicable to the special use or occupancy.

702.2 Incidental uses. Where a portion of a building undergoes a change of occupancy to one of the incidental uses listed in Table 509 of the VCC, the incidental use shall comply with the applicable requirements of Section 509 of the VCC.

E. Delete Sections 702.3 through 702.6, including subsections, of the IEBC.

F. Change Section 703 to Building Elements and Materials.

G. Change Section 703.1 of the IEBC and add Section 703.2, including subsections, to the IEBC to

read:

703.1 Interior finish. In areas of the building undergoing a change of occupancy classification, the interior finish of walls and ceilings shall comply with the requirements of the VCC for the new occupancy classification.

703.2 Enclosure of vertical openings. When a change of occupancy classification is made to a higher hazard category as shown in Table 705.2, protection of existing vertical openings shall be in accordance with Sections 703.2.1 through 703.2.3.

703.2.1 Stairways. Interior stairways shall be protected as required by Section 705.1.

703.2.2 Other vertical openings. Interior vertical openings, other than stairways, within the area of the change of occupancy shall be protected as required by the VCC.

Exceptions:

1. Existing one-hour interior shaft enclosures shall be accepted where a higher rating is required.
2. Vertical openings, other than stairways, in buildings of other than Group I occupancy and connecting less than six stories shall not be required to be enclosed are permitted if the entire building is provided with an approved automatic sprinkler system.

703.2.3 Shaft openings. All openings into existing vertical shaft enclosures shall be protected by fire assemblies having a fire protection rating of not less than one hour and shall be maintained self-closing or shall be automatic-closing by actuation of a smoke detector. All other openings shall be fire protected in an approved manner. Existing fusible link-type automatic door-closing devices shall be permitted in all shafts except stairways if the fusible link rating does not exceed 135°F (57°C).

H. Change Section 704 to Fire Protection.

I. Change Section 704.1 of the IEBC and add Sections 704.2 and 704.3 to the IEBC to read:

704.1 Fire protection systems. Fire protection systems shall be provided in accordance with Sections 704.2 and 704.3.

704.2 Fire sprinkler system. Where a building undergoes a change of occupancy that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Chapter 9 of the VCC, such system shall be provided throughout the area where the change of occupancy occurs.

704.3 Fire alarm and detection system. Where a building undergoes a change of occupancy that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the VCC, such system shall be provided throughout the area where the change of occupancy occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the change of occupancy occurs in accordance with Section 907 of the VCC as required for new construction.

J. Change Section 705 to Means of Egress.

K. Change Sections 705.1 through ~~705.2~~ 705.4, deleting subsections; and ~~add Sections 705.3 and 705.4 to delete Sections 705.5 and 705.6 of the IEBC to read:~~

705.1 General. Means of egress in buildings undergoing a change of occupancy shall comply with

Sections 705.2 through 705.4.

705.2 Means of egress, hazards. Hazard categories in regard to life safety and means of egress shall be in accordance with Table 705.2.

TABLE 705.2
MEANS OF EGRESS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	I-2, I-3, I-4
3	A, E, I-1, M, R-1, R-2, R-4
4	B, F-1, R-3, S-1, R-5
5 (Lowest Hazard)	F-2, S-2, U

705.3 Means of egress for change to higher hazard category. When a change of occupancy classification is made to a higher hazard category (lower number) as shown in Table 705.2, the means of egress serving the area of the change of occupancy shall comply with the requirements of Chapter 10 of the VCC.

Exceptions:

1. Existing interior stairways are permitted to be enclosed in accordance with Section 603.4.1.1 from the highest floor where the change of occupancy classification occurs to, and including, the level of exit discharge and all floors below.
2. An enclosure shall not be required for openings serving only one adjacent floor and that are not connected with corridors or stairways serving other floors.
3. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by one-hour-fire-resistance-rated construction or approved wired glass set in steel frames and all exit corridors are sprinklered. The openings between the corridor and the occupant space shall have at least one sprinkler head above the openings on the tenant side. The sprinkler system shall be permitted to be supplied from the domestic water supply systems, provided the system is of adequate pressure, capacity, and sizing for the combined domestic and sprinkler requirements.
4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms, and other corridor openings are permitted to comply with the requirements in Sections 603.6.4.1, 603.6.4.2, and 603.6.4.3 regardless of work areas.
6. Existing dead-end corridors are permitted to comply with the requirements in Section 603.6.5 regardless of work areas.

7. An existing operable window with clear opening area no less than 4 square feet (0.38 m²) and minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.

8. Regardless of work areas, existing handrails are permitted to comply with the requirements of Section 603.6.8, and existing guards are permitted to comply with the requirements of Section 603.6.10.

9. Fire escapes in compliance with Section 303.

10. Existing stairways are not required to be altered to meet current tread depth and riser height requirements.

705.4 Means of egress for change of occupancy to equal or lower hazard category or without a change in classification. When a change of occupancy classification is made to an equal or lesser hazard category (higher number) as shown in Table 705.2 or a change of occupancy without a change of classification is made, the means of egress shall be deemed acceptable provided the means of egress serving the area of the change of occupancy meets the egress capacity and occupant load based means of egress provisions in Chapter 10 of the VCC for the new occupancy.

L. Change Section 706 to Heights and Areas.

M. Change Sections 706.1 through ~~706.5~~706.3, including subsections, and add Sections 706.4 and 706.5 of to the IEBC to read:

706.1 General. Heights and areas of buildings and structures undergoing a change of occupancy classification shall comply with this Section.

706.2 Heights and areas, hazards. Hazard categories in regard to height and area shall be in accordance with Table 706.2.

TABLE 706.2
HEIGHTS AND AREAS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	A-1, A-2, A-3, A-4, I, R-1, R-2, R-4
3	E, F-1, S-1, M
4 (Lowest Hazard)	B, F-2, S-2, A-5, R-3, R-5, U

706.3 Height and area for change to higher hazard category. When a change of occupancy classification is made to a higher hazard category as shown in Table 706.2, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the VCC for the new occupancy classification.

Exception: For high-rise buildings constructed in compliance with a previously issued permit, the type of construction reduction specified in Section 403.2.1 of the VCC is permitted. This shall include the

reduction for columns. The high-rise building is required to be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

706.3.1 Fire wall alternative. In other than Groups H, F-1 and S-1, fire barriers and horizontal assemblies constructed in accordance with Sections 707 and 711, respectively, of the VCC shall be permitted to be used in lieu of fire walls to subdivide the building into separate buildings for the purpose of complying with the area limitations required for the new occupancy where all of the following conditions are met:

1. The buildings are protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the International Building Code.
2. The maximum allowable area between fire barriers, horizontal assemblies, or any combination thereof shall not exceed the maximum allowable area determined in accordance with Chapter 5 of the VCC without an increase allowed for an automatic sprinkler system in accordance with Section 506 of the VCC.
3. The fire-resistance rating of the fire barriers and horizontal assemblies shall be not less than that specified for fire walls in Table 706.4 of the VCC.

Exception: Where horizontal assemblies are used to limit the maximum allowable area, the required fire-resistance rating of the horizontal assemblies shall be permitted to be reduced by one hour provided the height and number of stories increases allowed for an automatic sprinkler system by Section 504 of the VCC are not used for the buildings.

706.4 Height and area for change to equal or lesser hazard category. When a change of occupancy classification is made to an equal or lesser hazard category as shown in Table 706.2, the height and area of the existing building shall be deemed acceptable.

706.5 Fire barriers. When a change of occupancy classification is made to a higher hazard category as shown in Table 706.2, fire barriers in separated mixed use buildings shall comply with the fire-resistance requirements of the VCC.

Exception: Where the fire barriers are required to have a one-hour-fire-resistance rating, existing wood lath and plaster in good condition or existing 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted.

N. ~~Delete Section 706.6 of the IEBC~~ Change Section 707 to Exterior Wall Fire-Resistance Ratings

O. ~~Change Section 707 to Exterior Wall Fire-Resistance Ratings~~ Change Sections Section 707.1 and add Sections 707.2 through 707.3, deleting subsections, of 707.4 to the IEBC and add Section 707.4 to the IEBC to read:

P. ~~Change Sections 707.1 through 707.3, deleting subsections, of the IEBC and add Section~~

707.1 Exterior wall fire-resistance ratings, hazards. Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table 707.1.

TABLE 707.1
EXPOSURE OF EXTERIOR WALLS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS

1 (Highest Hazard)	H
2	F-1, M, S-1
3	A, B, E, I, R
4 (Lowest Hazard)	F-2, S-2, U

707.2 Exterior wall rating for change of occupancy classification to a higher hazard category. When a change of occupancy classification is made to a higher hazard category as shown in Table 707.1, exterior walls shall have fire resistance and exterior opening protectives as required by the VCC.

Exception: A two-hour-fire-resistance rating shall be allowed where the building does not exceed three stories in height and is classified as one of the following groups: A-2 and A-3 with an occupant load of less than 300, B, F, M, or S.

707.3 Exterior wall rating for change of occupancy classification to an equal or lesser hazard category. When a change of occupancy classification is made to an equal or lesser hazard category as shown in Table 707.1, existing exterior walls, including openings, shall be accepted.

707.4 Opening protectives. Openings in exterior walls shall be protected as required by the VCC. Where openings in the exterior walls are required to be protected because of their distance from the lot line, the sum of the area of such openings shall not exceed 50% of the total area of the wall in each story.

Exceptions:

1. Where the VCC permits openings in excess of 50%.
2. Protected openings shall not be required in buildings of Group R occupancy that do not exceed three stories in height and that are located not less than 3 feet (914 mm) from the lot line.
3. Where exterior opening protectives are required, an automatic sprinkler system throughout may be substituted for opening protection.
4. Exterior opening protectives are not required when the change of occupancy group is to an equal or lower hazard classification in accordance with Table 707.1.

P. Add Section 708 Electrical and Lighting.

Q. Change Add Sections 708 to Electrical and Lighting 708.1 through 708.4 to the IEBC to read:

R. Change Section 708.1 of the IEBC and add Sections 708.2 through 708.4 to the IEBC to read:

708.1 Special occupancies. Where a building undergoes a change of occupancy to one of the following special occupancies as described in NFPA 70, the electrical wiring and equipment of the building that contains the proposed occupancy shall comply with the applicable requirements of NFPA 70:

1. Hazardous locations.
2. Commercial garages, repair, and storage.

3. Aircraft hangars.
4. Gasoline dispensing and service stations.
5. Bulk storage plants.
6. Spray application, dipping, and coating processes.
7. Health care facilities.
8. Places of assembly.
9. Theaters, audience areas of motion picture and television studios, and similar locations.
10. Motion picture and television studios and similar locations.
11. Motion picture projectors.
12. Agricultural buildings.

708.2 Service upgrade. When a new occupancy is required to have a higher electrical load demand per NFPA 70 and the service cannot accommodate the increased demand, the service shall be upgraded to meet the requirements of NFPA 70 for the new occupancy.

708.3 Number of electrical outlets. Where a building undergoes a change of occupancy, the number of electrical outlets shall comply with NFPA 70 for the new occupancy.

708.4 Lighting. Lighting shall comply with the requirements of the VCC for the new occupancy.

~~S.R.~~ Add Section 709 Mechanical and Ventilation

~~T.S.~~ Add Section 709.1 to the IEBC to read:

709.1 Mechanical and ventilation requirements. Where a building undergoes a change of occupancy such that the new occupancy is subject to different kitchen exhaust requirements or to increased ventilation requirements in accordance with the International Mechanical Code, the new occupancy shall comply with the respective International Mechanical Code provisions.

~~U.T.~~ Add Section 710 Plumbing.

~~V. U.~~ Add Sections 710.1 through 710.3 to the IEBC to read:

710.1 Increased demand. Where a building or portion thereof undergoes a change of occupancy, such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the International Plumbing Code, the new occupancy shall comply with the respective International Plumbing Code provisions.

Exception: In other than Group R or I occupancies or child care facilities classified as Group E, where the occupant load is increased by 20% or less in the area where the change of occupancy occurs, additional plumbing fixtures required based on the increased occupant load in quantities specified in the International Plumbing Code are not required.

710.2 Interceptor required. If the new occupancy will produce grease or oil-laden wastes, interceptors

shall be provided as required in the International Plumbing Code.

710.3 Chemical wastes. If the new occupancy will produce chemical wastes, the following shall apply:

1. If the existing piping is not compatible with the chemical waste, the waste shall be neutralized prior to entering the drainage system, or the piping shall be changed to a compatible material.
2. No chemical waste shall discharge to a public sewer system without the approval of the sewage authority.

~~W.V.~~ Add Section 711 Structural.

~~X.W.~~ Add Sections 711.1 through 711.3 to the IEBC to read:

711.1 Gravity loads. Buildings subject to a change of occupancy where such change in the nature of occupancy results in higher uniform or concentrated loads based on Table 1607.1 of the VCC shall comply with the gravity load provisions of the VCC.

Exception: Structural elements whose stress is not increased by more than 5%.

711.2 Snow and wind loads. Buildings and structures subject to a change of occupancy where such change in the nature of occupancy results in higher wind or snow risk categories based on Table 1604.5 of the VCC shall be analyzed and shall comply with the applicable wind or snow load provisions of the VCC.

Exception: Where the new occupancy with a higher risk category is less than or equal to 10% of the total building floor area. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.

711.3 Seismic loads. Existing buildings with a change of occupancy shall comply with the seismic provisions of Sections 711.3.1 and 711.3.2.

711.3.1 Compliance with VCC-level seismic forces. Where a building is subject to a change of occupancy that results in the building being assigned to a higher risk category based on Table 1604.5 of the VCC, the building shall comply with the requirements for VCC-level seismic forces as specified in Section 305.2.1 for the new risk category.

Exceptions:

1. Specific detailing provisions required for a new structure are not required to be met where it can be shown that an equivalent level of performance and seismic safety is obtained for the applicable risk category based on the provision for reduced VCC-level seismic forces as specified in Section 305.2.2.
2. Where the area of the new occupancy with a higher hazard category is less than or equal to 10% of the total building floor area and the new occupancy is not classified as Risk Category IV. For the purposes of this exception, buildings occupied by two or more occupancies not included in the same risk category, shall be subject to the provisions of Section 1604.5.1 of the VCC. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.
3. Unreinforced masonry bearing wall buildings in Risk Category III when assigned to Seismic Design Category A or B shall be allowed to be strengthened to meet the requirements of Appendix Chapter A1 of this code Guidelines for the Seismic Retrofit of Existing Buildings (GSREB).

4. Specific seismic detailing requirements of Section 1613 of the VCC for a new structure shall not be required to be met where the seismic performance is shown to be equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, overstrength, redundancy and ductility of the structure.

5. When a change of occupancy results in a structure being reclassified from Risk Category I or II to Risk Category III and the structure is located where the seismic coefficient, SDS, is less than 0.33, compliance with the seismic requirements of Section 1613 of the VCC is not required.

711.3.2 Access to Risk Category IV. Where a change of occupancy is such that compliance with Section 711.3.1 is required and the building is assigned to Risk Category IV, the operational access to the building shall not be through an adjacent structure, unless that structure conforms to the requirements for Risk Category IV structures. Where operational access is less than 10 feet (3048 mm) from either an interior lot line or from another structure, access protection from potential falling debris shall be provided by the owner of the Risk Category IV structure.

~~Y.X.~~ Add Section 712 Accessibility.

~~Z.Y.~~ Add Section 712.1 to the IEBC to read:

712.1 General. Existing buildings that undergo a change of occupancy classification shall comply with Section 402.

13VAC5-63-434. Chapter 8 Additions.

A. Change Sections 801.1 through 801.3 of the IEBC to read:

801.1 Scope. Additions to any building or structure shall comply with the requirements of the VCC for new construction without requiring the existing building or structure to comply with any requirements of those codes or of these provisions, except as required by this chapter. Where an addition impacts the existing building or structure, that portion shall comply with this code. Where a fire wall that complies with Section 706 of the VCC is provided between the addition and the existing building, the addition shall be considered a separate building.

801.2 Creation or extension of nonconformity. An addition shall not create or extend any nonconformity in the existing building to which the addition is being made with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of mechanical, plumbing, or electrical systems. Alterations to the existing building or structure shall be made so that the existing building or structure, together with the addition, are no less conforming to the provisions of the VCC than the existing building or structure was prior to the addition.

801.3 Other work. Any repair or alteration work within an existing building to which an addition is being made shall comply with the applicable requirements for the work as classified in this code.

B. Change Section 802 to Heights and Areas.

C. Change ~~Section~~ Sections 802.1 through 802.3, deleting subsections, of the IEBC to read:

802.1 Height limitations. No addition shall increase the height of an existing building beyond that permitted under the applicable provisions of Chapter 5 of the VCC for new buildings.

~~D. Add Sections 802.2 and 802.3 to the IEBC to read:~~

802.2 Area limitations. No addition shall increase the area of an existing building beyond that permitted under the applicable provisions of Chapter 5 of the VCC for new buildings unless fire separation as required by the VCC is provided.

Exception: In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the VCC.

802.3 Fire protection systems. Existing fire areas increased by the addition shall comply with Chapter 9 of the VCC.

D. Delete Sections 802.4 through 802.6, including subsections, of the IEBC.

E. Change Section 803 to Structural.

F. Change Sections 803.1 through ~~803.5~~ 803.4, including subsections, and delete Sections ~~803.2.2, 803.2.3, 803.4.1, 803.5.1 and 803.5.2~~ 803.1.1, 803.2.1.1, 803.2.2, 803.2.2.1, 803.2.3, 803.2.4, 803.4.1, 803.4.1.1, 803.4.1.2, 803.4.1.3, 803.4.1.4, 803.4.1.5, 803.4.1.6, 803.4.2 and 803.4.3 of the IEBC.

803.1 Compliance with the VCC. Additions to existing buildings or structures are new construction and shall comply with the VCC.

803.2 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an addition and its related alterations cause an increase in design gravity load of more than 5% shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by the VCC for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased shall be considered an altered element subject to the requirements of Section 603.7.3. Any existing element that will form part of the lateral load path for any part of the addition shall be considered an existing lateral load-carrying structural element subject to the requirements of Section 803.3.

Exception: Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.

803.2.1 Design live load. Where the addition does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the addition. If the approved live load is less than that required by Section 1607 of the VCC, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Where the addition does result in increased design live load, the live load required by Section 1607 of the VCC shall be used.

803.3 Existing structural elements carrying lateral load. Where the addition is structurally independent of the existing structure, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613 of the VCC. For purposes of this section, compliance with ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 305.2.1 for the applicable risk category, shall be deemed to meet the requirements of Section 1613.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is not more than 10% greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations involving VCC-level seismic forces in accordance with Section 305.2.1.

2. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.

803.4 Voluntary addition of structural elements to improve the lateral force-resisting system. Voluntary addition of structural elements to improve the lateral force-resisting system of an existing building shall comply with Section 603.7.5.

G. Add Section 803.5 to the IEBC to read:

803.5 Snow drift loads. Any structural element of an existing building subjected to additional loads from the effects of snow drift as a result of an addition shall comply with the VCC.

Exceptions:

1. Structural elements whose stress is not increased by more than 5%.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes where the existing building and the addition comply with the conventional light-frame construction methods of the VCC or the provisions of the International Residential Code.

~~G. Delete Section 803.6 from the IEBC.~~

H. Change Section 804 to Flood Hazard Areas.

~~I. Change Section 804.1, and delete Sections 804.2, 804.3, and 804.4, including subsections, of the IEBC to read:~~

804.1 Flood hazard areas. Additions and foundations in flood hazard areas shall comply with the following requirements:

1. For horizontal additions that are structurally interconnected to the existing building:
 - 1.1 If the addition and all other proposed work, when combined, constitute substantial improvement, the existing building and the addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.
 - 1.2 If the addition constitutes substantial improvement, the existing building and the addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.
2. For horizontal additions that are not structurally interconnected to the existing building:

2.1 The addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

2.2 If the addition and all other proposed work when combined constitute substantial improvement, the existing building and the addition shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

3. For vertical additions and all other proposed work that when combined constitute substantial improvement, the existing building shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

4. For a raised or extended foundation, if the foundation work and all other proposed work when combined constitute substantial improvement, the existing building shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

5. For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

J. Delete Sections 805, 806, 807, 808, 809, and 810, ~~and 811~~, in their entirety, from the IEBC.

13VAC5-63-434.5. Chapter 9 Historic Buildings.

A. Change Sections 901.1 and 901.2 of the IEBC to read:

901.1 Scope. It is the intent of this chapter to provide means for the preservation of historic buildings. The provisions of this code relating to construction involving historic buildings shall not be mandatory unless such a construction constitutes a life safety hazard. Accessibility shall be provided in accordance with Section 405.

901.2 Report. The code official shall be permitted to require that a historic building undergoing repair, alteration or change of occupancy be investigated and evaluated by an RDP or other qualified person or agency as a condition of determining compliance with this code.

B. Add Section 901.3 to the IEBC to read:

901.3 Special occupancy exceptions. When a building in Group R-3 is also used for Group A, B, or M purposes such as museum tours, exhibits, and other public assembly activities, or for museums less than 3,000 square feet (279 m²), the code official may determine that the occupancy is Group B when life safety conditions can be demonstrated in accordance with Section 901.2. Adequate means of egress in such buildings, which may include a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

C. Change Section 902 to Flood hazard areas.

D. Change Section 902.1 of the IEBC to read:

902.1 Flood hazard areas. In flood hazard areas, if all proposed work, including repairs, work required because of a change of occupancy, and alterations, constitutes substantial improvement, then the existing building shall comply with Section 1612 of the International Building Code or Section R322

of the International Residential Code, as applicable.

Exception: If an historic building will continue to be an historic building after the proposed work is completed, then the proposed work is not considered a substantial improvement.

For the purposes of this exception, an historic building is:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

E. Delete ~~Section~~ Sections 902.1.1, 902.1.2 and 902.2 of the IEBC.

F. Change Section 903 to Repairs.

G. Change Sections 903.1 through 903.3, ~~including deleting~~ subsections, of the IEBC to read:

903.1 General. Repairs to any portion of an historic building or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

903.2 Moved buildings. Foundations of moved historic buildings and structures shall comply with the VCC. Moved historic buildings shall otherwise be considered an historic building for the purposes of this code. Moved historic buildings and structures shall be sited so that exterior wall and opening requirements comply with the VCC or with the compliance alternatives of this code.

903.3 Replacement. Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the VCC.

Exception: Glass block walls, louvered windows, and shutters repaired with like materials.

H. Change Section 904 to Fire Safety.

I. Change Sections 904.1 and 904.2, deleting subsections, of the IEBC to read:

904.1 Scope. Except as provided in Section 901, historic buildings undergoing alterations, changes of occupancy, or that are moved shall comply with this section.

904.2 General. Every historic building that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined in this code shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the code official. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any facility.

J. Add Sections 904.3 through 904.12, including subsections, to the IEBC to read:

904.3 Means of egress. Existing door openings and corridor and stairway widths less than those

specified elsewhere in this code shall be permitted, provided there is sufficient width and height for a person to pass through the opening or traverse the means of egress. The front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.

904.4 Transoms. In fully sprinklered buildings of Group R-1, R-2 or R-3 occupancy, existing transoms in corridors and other fire-resistance-rated walls may be maintained if fixed in the closed position. A sprinkler shall be installed on each side of the transom.

904.5 Interior finishes. The existing finishes of walls and ceilings shall be accepted when it is demonstrated that they are the historic finishes.

904.6 Stairway enclosure. In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire-resistance rating.

904.7 One-hour-fire-resistant assemblies. Where one-hour-fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.

904.8 Glazing in fire-resistance-rated systems. Historic glazing materials are permitted in interior walls required to have a one-hour-fire-resistance rating where the opening is provided with approved smoke seals and the area affected is provided with an automatic sprinkler system.

904.9 Stairway railings. Grand stairways shall be accepted without complying with the handrail and guard requirements. Existing handrails and guards at all stairways shall be permitted to remain, provided they are not structurally dangerous.

904.10 Guards. Guards shall comply with Sections 904.10.1 and 904.10.2.

904.10.1 Height. Existing guards shall comply with the requirements of Section 501.2.

904.10.2 Guard openings. The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a guard may be replaced in a manner that will preserve the historic appearance of the building or structure.

904.11 Exit signs. Where exit sign or egress path marking location would damage the historic character of the building, alternative exit signs are permitted with approval of the code official. Alternative signs shall identify the exits and egress path.

904.12 Automatic fire-extinguishing systems. Every historical building that cannot be made to conform to the construction requirements specified in the VCC for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an approved automatic fire-extinguishing system.

Exception: When the code official approves an alternative life safety system.

K. Change Section 905 to Alterations.

L. Change Section 905.1 to the IEBC to read:

905.1 General. The provisions of Chapter 6, as applicable, shall apply to facilities designated as historic structures that undergo alterations, unless technically infeasible.

M. Delete Sections 905.2 and 905.3 of the IEBC.

N. Change Section 906 to Change of Occupancy.

O. Change Sections 906.1 ~~and 906.2~~ through 906.7 of the IEBC to read:

906.1 General. Historic buildings undergoing a change of occupancy shall comply with the applicable provisions of Chapter 7, except as specifically permitted in this chapter. When Chapter 7 requires compliance with specific requirements of Chapter 6 and when those requirements are subject to the exceptions in Section 903, the same exceptions shall apply to this section.

906.2 Building area. The allowable floor area for historic buildings undergoing a change of occupancy shall be permitted to exceed by 20% the allowable areas specified in Chapter 5 of the VCC.

~~P. Add Sections 906.3 through 906.14 to the IEBC to read:~~

906.3 Location on property. Historic structures undergoing a change of use to a higher hazard category in accordance with Section 707.1 may use alternative methods to comply with the fire-resistance and exterior opening protective requirements. Such alternatives shall comply with Section 901.2.

906.4 Occupancy separation. Required occupancy separations of one hour may be omitted when the building is provided with an approved automatic sprinkler system throughout.

906.5 Roof covering. Regardless of occupancy or use group, Roof covering materials not less than Class C, when tested in accordance with ASTM E 108 or UL 790, shall be permitted where a fire-retardant roof covering is required.

906.6 Means of egress. Existing door openings and corridor and stairway widths less than those that would be acceptable for nonhistoric buildings under these provisions shall be permitted, provided there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load or where other operational controls to limit occupancy are approved by the code official.

906.7 Door swing. Existing front doors need not swing in the direction of exit travel, provided that other approved exits having sufficient capacity to serve the total occupant load are provided.

P. Add Sections 906.8 through 906.14 to the IEBC to read:

906.8 Transoms. In corridor walls required by these provisions to be fire-resistance rated, existing transoms may be maintained if fixed in the closed position and fixed wired glass set in a steel frame or other approved glazing shall be installed on one side of the transom.

Exception: Transoms conforming to Section 904.4 shall be accepted.

906.9 Finishes. Where interior finish materials are required to have a flame spread index of Class C or better, when tested in accordance with ASTM E 84 or UL 723, existing nonconforming materials shall be surfaced with approved fire-retardant paint or finish.

Exception: Existing nonconforming materials need not be surfaced with an approved fire- retardant paint or finish where the building is equipped throughout with an automatic sprinkler system installed in accordance with the VCC and the nonconforming materials can be substantiated as being historic in character.

906.10 One-hour-fire-resistant assemblies. Where one-hour-fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.

906.11 Stairways and guards. Existing stairways shall comply with the requirements of these provisions. The code official shall grant alternatives for stairways and guards if alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. Existing stairways shall comply with Section 904.

Exception: For buildings less than 3,000 square feet (279 m²), existing conditions are permitted to remain at all stairways and guards.

906.12 Exit signs. Where exit signs would damage the historic character of the building or structure, alternative locations shall be permitted. Such signs shall identify the exits and exit paths.

906.13 Exit stair live load. Existing stairways in buildings changed to a Group R-1 or R-2 occupancy shall be permitted where it can be shown that the stairway can support a 75- pounds-per-square-foot (366 kg/m²) live load.

906.14 Natural light. When the natural light requirements of Section 709.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered acceptable.

Q. Change Section 907 to Structural.

R. Change Section 907.1 of the IEBC to read:

907.1 General. Historic buildings shall comply with the applicable structural provisions for the work as classified in Section 103.10.

Exception: The code official shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.

~~S. Delete Sections 907.2 through 907.4, including subsections, of the IEBC.~~

~~T. Delete Section 908 of the IEBC in its entirety.~~

13VAC5-63-435. Chapter 10 Moved Buildings and Structures.

A. Change Section 1001 to General.

B. Change Sections 1001.1 through 1001.3, deleting subsections, of the IEBC to read:

1001.1 Scope. This chapter provides requirements for moved buildings and structures.

1001.2 Conformance. Any repair, alteration, or change of occupancy undertaken within the moved building or structure shall comply with the requirements of this code applicable to the work being performed. Any field fabricated elements shall comply with the requirements of the VCC or the International Residential Code as applicable.

1001.3 Required inspection and repairs. The code official shall be authorized to inspect, or to require approved professionals to inspect at the expense of the owner, the various structural parts of a moved building or structure to verify that structural components and connections have not sustained structural damage. Any repairs required by the code official as a result of such inspection shall be made prior to the final approval.

C. Change Section 1002 to Requirements.

D. Change Sections 1002.1 and 1002.2 and add Section 1002.2.1 to the IEBC to read:

1002.1 Location on the lot. The building or structure shall be located on the lot in accordance with the requirements of the VCC or the International Residential Code as applicable.

1002.2 Foundation. The foundation system of moved buildings and structures shall comply with the VCC or the International Residential Code as applicable.

1002.2.1 Connection to the foundation. The connection of the moved building or structure to the foundation shall comply with the VCC or the International Residential Code as applicable.

E. Add Sections 1002.3 through 1002.6, including subsections, to the IEBC to read:

1002.3 Wind loads. Buildings and structures shall comply with VCC or International Residential Code wind provisions at the new location as applicable.

Exceptions:

1. Detached one-family and two-family dwellings and Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10%.

1002.4 Seismic loads. Buildings and structures shall comply with VCC or International Residential Code seismic provisions at the new location as applicable.

Exceptions:

1. Structures in Seismic Design Categories A and B and detached one-family and two-family dwellings in Seismic Design Categories A, B, and C where the seismic loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10%.

1002.5 Snow loads. Buildings and structures shall comply with VCC or International Residential Code snow loads as applicable where snow loads at the new location are higher than those at the previous location.

Exception: Structural elements whose stress is not increased by more than 5%.

1002.6 Flood hazard areas. If moved into a flood hazard area, buildings and structures shall comply with Section 1612 of the VCC, or Section R322 of the International Residential Code, as applicable.

F. Delete Sections 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, and 1011, ~~and 1012~~ of the IEBC in their entirety.

13VAC5-63-435.5. Chapter 11 Retrofit Requirements.

~~A. Replace Chapter 11 of the IEBC with the following:~~

~~B. Change the title of Chapter 11 of the IEBC to "Retrofit Requirements."~~

~~C. Add IEBC Section 1101 General.~~

~~D. Add Section 1101.1 to the IEBC to read:~~

1101.1 Scope. In accordance with Section ~~103.3~~~~103.7~~ of the VCC and as set out in this code, the following buildings are required to be provided with certain fire protection equipment or systems or other retrofitted components.

~~E. Add Section 1101.2 to the IEBC to read:~~

1101.2 Smoke alarms in colleges and universities. In accordance with § 36-99.3 of the Code of Virginia, college and university buildings containing dormitories for sleeping purposes shall be provided with battery-powered or AC-powered smoke detector devices installed therein in accordance with this code in effect on July 1, 1982. All public and private college and university dormitories shall have installed such alarms regardless of when the building was constructed. The chief administrative office of the college or university shall obtain a certificate of compliance with the provisions of this subsection from the building official of the locality in which the college or university is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services. The provisions of this section shall not apply to any dormitory at a state- supported military college or university that is patrolled 24 hours a day by military guards.

~~F. Add Section 1101.3 to the IEBC to read:~~

1101.3 Smoke alarms in certain juvenile care facilities. In accordance with § 36-99.4 of the Code of Virginia, battery-powered or AC-powered smoke alarms shall be installed in all local and regional detention homes, group homes, and other residential care facilities for children and juveniles that are operated by or under the auspices of the Virginia Department of Juvenile Justice, regardless of when the building was constructed, by July 1, 1986, in accordance with the provisions of this code that were in effect on July 1, 1984. Administrators of such homes and facilities shall be responsible for the installation of the smoke detector devices.

~~G. Add Section 1101.4 to the IEBC to read:~~

1101.4 Smoke alarms for the deaf and hearing-impaired. In accordance with § 36-99.5 of the Code of Virginia, smoke alarms providing an effective intensity of not less than 100 candela to warn a deaf or hearing-impaired individual shall be provided, upon request by the occupant to the landlord or proprietor, to any deaf or hearing-impaired occupant of any of the following occupancies, regardless of when constructed:

1. All dormitory buildings arranged for the shelter and sleeping accommodations of more than 20 individuals;
2. All multiple-family dwellings having more than two dwelling units, including all dormitories and boarding and lodging houses arranged for shelter and sleeping accommodations of more than five individuals; or
3. All buildings arranged for use as one-family or two-family dwelling units.

A tenant shall be responsible for the maintenance and operation of the smoke detector in the tenant's unit.

A hotel or motel shall have available no fewer than one such smoke detector for each 70 units or portion thereof, except that this requirement shall not apply to any hotel or motel with fewer than 35 units. The proprietor of the hotel or motel shall post in a conspicuous place at the registration desk or counter a permanent sign stating the availability of smoke alarms for the hearing impaired. Visual alarms shall be provided for all meeting rooms for which an advance request has been made.

~~H. Add Sections 1101.5, 1101.5.1, and 1101.5.2 to the IEBC to read:~~

1101.5 Assisted living facilities (formerly known as adult care residences or homes for adults). In accordance with § 36-99.5 of the Code of Virginia, ~~Existing~~ existing assisted living facilities licensed by the Virginia Department of Social Services shall comply with sections 1101.5.1 and 1101.5.2.

1101.5.1 Fire protective signaling system and fire detection system. A fire protective signaling system and an automatic fire detection system meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

Exception: Assisted living facilities that are equipped throughout with a fire protective signaling system and an automatic fire detection system.

1101.5.2 Single-station and multiple-station smoke alarms. Battery-powered or AC-powered single-station and multiple-station smoke alarms meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.

Exception: Assisted living facilities that are equipped throughout with single-station and multiple-station smoke alarms.

~~I. Add Section 1101.6 to the IEBC to read:~~

1101.6 Smoke alarms in buildings containing dwelling units. AC-powered smoke alarms with battery backup or an equivalent device shall be required to be installed to replace a defective or inoperative battery-powered smoke detector located in buildings containing one or more dwelling units or rooming houses offering to rent overnight sleeping accommodations when it is determined by the building official that the responsible party of such building or dwelling unit fails to maintain battery-powered smoke alarms in working condition.

~~J. Add Section 1101.7 to the IEBC to read:~~

1101.7 Fire suppression, fire alarm, and fire detection systems in nursing homes and facilities. In accordance with § 36-99.5 of the Code of Virginia, ~~Fire~~ fire suppression systems as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing facilities licensed by the Virginia Department of Health by January 1, 1993, regardless of when such facilities or institutions were constructed. Units consisting of certified long-term care beds located on the ground floor of general hospitals shall be exempt from the requirements of this section.

Fire alarm or fire detector systems, or both, as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing homes and nursing facilities licensed by the Virginia Department of Health by August 1, 1994.

~~K. Add Section 1101.8 to the IEBC to read:~~

1101.8 Fire suppression systems in hospitals. In accordance with § 36-99.1 of the Code of Virginia, ~~Fire~~ fire suppression systems shall be installed in all hospitals licensed by the Virginia Department of Health as required by the edition of this code in effect on October 1, 1995, regardless of when such facilities were constructed.

~~L. Add Section 1101.9 to the IEBC to read:~~

1101.9 Identification of disabled parking spaces by above grade signage. In accordance with § 36-99.11 of the Code of Virginia, ~~All~~ all parking spaces reserved for the use of persons with disabilities

shall be identified by above grade signs, regardless of whether identification of such spaces by above grade signs was required when any particular space was reserved for the use of persons with disabilities. A sign or symbol painted or otherwise displayed on the pavement of a parking space shall not constitute an above grade sign. Any parking space not identified by an above grade sign shall not be a parking space reserved for the disabled within the meaning of this section. All above grade disabled parking space signs shall have the bottom edge of the sign no lower than 4 feet (1219 mm) nor higher than 7 feet (2133 mm) above the parking surface. Such signs shall be designed and constructed in accordance with the provisions of Chapter 11 of this code. All disabled parking signs shall include the following language: "PENALTY, \$100-500 Fine, TOW-AWAY ZONE." Such language may be placed on a separate sign and attached below existing above grade disabled parking signs, provided that the bottom edge of the attached sign is no lower than 4 feet above the parking surface.

~~M. Add Section 1101.10 to the IEBC to read:~~

1101.10 Smoke alarms in hotels and motels. Smoke alarms shall be installed in hotels and motels as required by the edition of VR 394-01-22, USBC, Volume II, in effect on March 1, 1990, by the dates indicated, regardless of when constructed.

~~N. Add Section 1101.11 to the IEBC to read:~~

1101.11 Sprinkler systems in hotels and motels. By September 1, 1997, an automatic sprinkler system shall be installed in hotels and motels as required by the edition of VR 394-01-22, USBC, Volume II, in effect on March 1, 1990, regardless of when constructed.

~~O. Add Section 1101.12 to the IEBC to read:~~

1101.12 Fire suppression systems in dormitories. In accordance with § 36-99.3 of the Code of Virginia. ~~An~~ an automatic fire suppression system shall be provided throughout all buildings having a Group R-2 fire area that are more than 75 feet (22,860 mm) or six stories above the lowest level of exit discharge and are used, in whole or in part, as a dormitory to house students by any public or private institution of higher education, regardless of when such buildings were constructed, in accordance with the edition of this code in effect on August 20, 1997, and the requirements for sprinkler systems under the edition of the NFPA 13 standard referenced by that code. The automatic fire suppression system shall be installed by September 1, 1999. The chief administrative office of the college or university shall obtain a certificate of compliance from the building official of the locality in which the college or university is located or, in the case of state- owned buildings, from the Director of the Virginia Department of General Services.

Exceptions:

1. Buildings equipped with an automatic fire suppression system in accordance with Section 903.3.1.1 of the 1983 or later editions of NFPA 13.
2. Any dormitory at a state-supported military college or university that is patrolled 24 hours a day by military guards.
3. Application of the requirements of this section shall be modified in accordance with the following:
 - 3.1 Building systems, equipment, or components other than the fire suppression system shall not be required to be added or upgraded except as necessary for the installation of the fire suppression system and shall only be required to be added or upgraded where the installation of the fire suppression system creates an unsafe condition.

3.2 Residential sprinklers shall be used in all sleeping rooms. Other sprinklers shall be quick response or residential unless deemed unsuitable for a space. Standard response sprinklers shall be used in elevator hoistways and machine rooms.

3.3 Sprinklers shall not be required in wardrobes in sleeping rooms that are considered part of the building construction or in closets in sleeping rooms when such wardrobes or closets (i) do not exceed 24 square feet (2.23 m²) in area, (ii) have the smallest dimension less than 36 inches (914 mm), and (iii) comply with all of the following:

3.3.1 A single-station smoke detector monitored by the building fire alarm system is installed in the room containing the wardrobe or closet that will activate the general alarm for the building if the single station smoke detector is not cleared within five minutes after activation.

3.3.2 The minimum number of sprinklers required for calculating the hydraulic demand of the system for the room shall be increased by two, and the two additional sprinklers shall be corridor sprinklers where the wardrobe or closet is used to divide the room. Rooms divided by a wardrobe or closet shall be considered one room for the purpose of this requirement.

3.3.3 The ceiling of the wardrobe, closet, or room shall have a fire resistance rating of not less than 1/2 hour.

3.4 Not more than one sprinkler shall be required in bathrooms within sleeping rooms or suites having a floor area between 55 square feet (5.12 m²) and 120 square feet (11.16 m²), provided the sprinkler is located to protect the lavatory area and the plumbing fixtures are of a noncombustible material.

3.5 Existing standpipe residual pressure shall be permitted to be reduced when the standpipe serves as the water supply for the fire suppression system, provided the water supply requirements of NFPA 13-94 are met.

3.6 Limited service controllers shall be permitted for fire pumps when used in accordance with their listing.

3.7 Where a standby power system is required, a source of power in accordance with Section 701-11(d) or 701-11(e) of NFPA 70-96 shall be permitted.

~~P. Add Section 1101.13 to the IEBC to read:~~

1101.13 Fire extinguishers and smoke alarms in SRCFs. SRCFs shall be provided with at least one approved type ABC portable fire extinguisher with a minimum rating of 2A10BC installed in each kitchen. In addition, SRCFs shall provide at least one approved and properly installed battery operated smoke detector outside of each sleeping area in the vicinity of bedrooms and bedroom hallways and on each additional floor.

~~Q. Add Section 1101.14 to the IEBC to read:~~

1101.14 Smoke alarms in adult day care centers. In accordance with § 36-99.5 of the Code of Virginia, ~~Battery powered~~ battery-powered or AC-powered smoke detector devices shall be installed in all adult day care centers licensed by the Virginia Department of Social Services, regardless of when the building was constructed. The location and installation of the smoke alarms shall be determined by the provisions of this code in effect on October 1, 1990. The licensee shall obtain a certificate of compliance from the building official of the locality in which the center is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services.

~~R. Add Section 1101.15 to the IEBC to read:~~

1101.15 Posting of occupant load. Every room or space that is an assembly occupancy, and where the occupant load of that room or space is 50 or more, shall have the occupant load of the room or space as determined by the building official posted in a conspicuous place near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or owner's authorized agent.

~~S. Add Section 1101.16 to the IEBC to read:~~

1101.16 ALFSTs. Existing ALFSTs, regardless of when constructed, shall by October 1, 2011, meet the applicable requirements of API 653 and TFI RMIP for suitability for service and inspections and shall provide a secondary containment system complying with Section ~~426.3~~ 428.3 of the VCC.

~~T. Add Section 1101.17 to the IEBC to read:~~

1101.17 Standards for replacement glass. In accordance with § 36-99.2 of the Code of Virginia, any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and installation standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.

~~U. Delete Sections 1102 through 1106 of the IEBC in their entirety.~~

13VAC5-63-438. Chapter 12 Construction Safeguards.

~~A. Replace Chapter 12 of the IEBC with the following:~~

~~B. Change the title of Chapter 12 of the IEBC to "Construction Safeguards."~~

~~C. Add Section 1201 General.~~

~~D. Add Sections 1201.1 through 1201.4 to the IEBC to read:~~

1201.1 Scope. The provisions of this chapter shall govern safety during construction that is under the jurisdiction of this code and the protection of adjacent public and private properties.

1201.2 Storage and placement. Construction equipment and materials shall be stored and placed so as not to endanger the public, the workers, or adjoining property for the duration of the construction project.

1201.3 Alterations, repairs, and additions. Required exits, existing structural elements, fire protection devices, and sanitary safeguards shall be maintained at all times during alterations, repairs, or additions to any building or structure.

Exceptions:

1. When such required elements or devices are being altered or repaired, adequate substitute provisions shall be made.
2. When the existing building is not occupied.

1201.4 Manner of removal. Waste materials shall be removed in a manner which prevents injury or damage to persons, adjoining properties, and public rights-of-way.

~~E. Add Sections 1201.5 through 1201.7, including subsections, to the IEBC to read:~~

1201.5 Fire safety during construction. Fire safety during construction shall comply with the applicable requirements of the International Building Code and the applicable provisions of Chapter 33 of the International Fire Code.

1201.6 Protection of pedestrians. Pedestrians shall be protected during construction and demolition activities as required by Section 1201.6.1 through 1201.6.7 and Table 1201.6. Signs shall be provided to direct pedestrian traffic.

1201.6.1 Walkways. A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be accessible in accordance with Chapter 11 of the International Building Code and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m²).

1201.6.2 Directional barricades. Pedestrian traffic shall be protected by a directional barricade where the walkway extends into the street. The directional barricade shall be of sufficient size and construction to direct vehicular traffic away from the pedestrian path.

1201.6.3 Construction railings. Construction railings shall be at least 42 inches (1067 mm) in height and shall be sufficient to direct pedestrians around construction areas.

1201.6.4 Barriers. Barriers shall be a minimum of 8 feet (2438 mm) in height and shall be placed on the side of the walkway nearest the construction. Barriers shall extend the entire length of the construction site. Openings in such barriers shall be protected by doors which are normally kept closed.

1201.6.4.1 Barrier design. Barriers shall be designed to resist loads required in Chapter 16 of the International Building Code unless constructed as follows:

1. Barriers shall be provided with 2-inch by 4-inch top and bottom plates.
2. The barrier material shall be a minimum of 3/4-inch (19.1 mm) boards or 1/4-inch (6.4 mm) wood structural use panels.
3. Wood structural use panels shall be bonded with an adhesive identical to that for exterior wood structural use panels.
4. Wood structural use panels 1/4-inch (6.4 mm) or 1/16-inch (1.6 mm) in thickness shall have studs spaced not more than 2 feet (610 mm) on center.
5. Wood structural use panels 3/8-inch (9.5 mm) or 1/2-inch (12.7 mm) in thickness shall have studs spaced not more than 4 feet (1219 mm) on center, provided a 2-inch by 4-inch (51 mm by 102 mm) stiffener is placed horizontally at the mid-height where the stud spacing exceeds 2 feet (610 mm) on center.
6. Wood structural use panels 5/8-inch (15.9 mm) or thicker shall not span over 8 feet (2438 mm).

1201.6.5 Covered walkways. Covered walkways shall have a minimum clear height of 8 feet (2438 mm) as measured from the floor surface to the canopy overhead. Adequate lighting shall be provided

at all times. Covered walkways shall be designed to support all imposed loads. In no case shall the design live load be less than 150 psf (7.2 kN/m²) for the entire structure.

Exception: Roofs and supporting structures of covered walkways for new, light-frame construction not exceeding two stories above grade plane are permitted to be designed for a live load of 75 psf (3.6 kN/m²) or the loads imposed on them, whichever is greater. In lieu of such designs, the roof and supporting structure of a covered walkway are permitted to be constructed as follows:

1. Footings shall be continuous 2-inch by 6-inch members.
2. Posts not less than 4-inches by 6-inches shall be provided on both sides of the roof and spaced not more than 12 feet (3658 mm) on center.
3. Stringers not less than 4-inches by 12-inches shall be placed on edge upon the posts.
4. Joists resting on the stringers shall be at least 2-inches by 8-inches and shall be spaced not more than 2 feet (610 mm) on center.
5. The deck shall be planks at least 2 inches (51 mm) thick or wood structural panels with an exterior exposure durability classification at least 2-3/32-inch (18.3 mm) thick nailed to the joists.
6. Each post shall be knee-braced to joists and stringers by 2-inch by 4-inch minimum members 4 feet (1219 mm) long.
7. A 2-inch by 4-inch minimum curb shall be set on edge along the outside edge of the deck.

1201.6.6 Repair, maintenance and removal. Pedestrian protection required by Section 1201.6 shall be maintained in place and kept in good order for the entire length of time pedestrians may be endangered. The owner or the owner's agent, upon the completion of the construction activity, shall immediately remove walkways, debris, and other obstructions and leave such public property in as good a condition as it was before such work was commenced.

TABLE 1201.6 PROTECTION OF PEDESTRIANS

HEIGHT OF CONSTRUCTION	DISTANCE OF CONSTRUCTION TO LOT LINE	TYPE OF PROTECTION REQUIRED
8 feet or less	Less than 5 feet	Construction railings
	5 feet or more	None
More than 8 feet	Less than 5 feet	Barrier and covered walkway
	5 feet or more, but not more than 1/4 the height of construction	Barrier and covered walkway
	5 feet or more, but between 1/4 and 1/2 the height of construction	Barrier
	5 feet or more, but exceeding 1/2 the height of construction	None

1201.6.7 Adjacent to excavations. Every excavation on a site located 5 feet (1524 mm) or less from the street lot line shall be enclosed with a barrier not less than 6 feet (1829 mm) high. Where located more than 5 feet (1524 mm) from the street lot line, a barrier shall be erected when required by the code official. Barriers shall be of adequate strength to resist wind pressure as specified in Chapter 16 of the International Building Code.

1201.7 Facilities required. Sanitary facilities shall be provided during construction or demolition activities in accordance with the International Plumbing Code.

~~F. Change Section 1202 to Protection of Adjoining Properties.~~

~~G. Change Section 1202.1 to the IEBC to read:~~

1202.1 Protection required. Adjoining public and private property shall be protected from damage during construction and demolition work. Protection must be provided for footings, foundations, party walls, chimneys, skylights, and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities. The person making or causing an excavation to be made shall provide written notice to the owners of adjoining buildings advising them that the excavation is to be made and that the adjoining buildings should be protected. This notification shall be delivered not less than 10 days prior to the scheduled starting date of the excavation.

~~H. Delete Sections 1202.2 through 1202.4 of the IEBC.~~

~~H. Change Section 1203 Temporary Use of Streets, Alleys and Public Property.~~

~~I. Change Sections 1203.1 through 1203.3 to the IEBC to read:~~

1203.1 Storage and handling of materials. The temporary use of streets or public property for the storage or handling of materials or equipment required for construction or demolition and the protection provided to the public shall comply with the provisions of the applicable governing authority and this chapter.

1203.2 Obstructions. Construction materials and equipment shall not be placed or stored so as to obstruct access to fire hydrants, standpipes, fire or police alarm boxes, catch basins, or manholes nor shall such material or equipment be located within 20 feet (6.1 m) of a street intersection or placed so as to obstruct normal observations of traffic signals or to hinder the use of public transit loading platforms.

1203.3 Utility fixtures. Building materials, fences, sheds or any obstruction of any kind shall not be placed to obstruct free approach to any fire hydrant, fire department connection, utility pole, manhole, fire alarm box, or catch basin or to interfere with the passage of water in the gutter. Protection against damage shall be provided to such utility fixtures during the progress of the work, but sight of them shall not be obstructed.

~~J. Delete Sections 1203.4 through 1203.12, including subsections, of the IEBC.~~

~~J. Add Section 1204 Fire Extinguishers.~~

~~K. Change Section 1204.1, deleting subsections, and add Section 1204.2 to the IEBC to read:~~

1204.1 Where required. All structures under construction, alteration, or demolition shall be provided with not less than one approved portable fire extinguisher in accordance with Section 906 of the International Building Code and sized for not less than ordinary hazard as follows:

1. At each stairway on all floor levels where combustible materials have accumulated.
2. In every storage and construction shed.
3. Additional portable fire extinguishers shall be provided where special hazards exist including the storage and use of flammable and combustible liquids.

1204.2 Fire hazards. The provisions of this code and of the International Fire Code shall be strictly observed to safeguard against all fire hazards attendant upon construction operations.

~~L. Change Section 1205 to Means of Egress.~~

~~M. Change Sections 1205.1 and 1205.2 to the IEBC to read:~~

1205.1 Stairways required. Where a building has been constructed to a building height of 50 feet (15,240 mm) or four stories, or where an existing building exceeding 50 feet (15,240 mm) in building height is altered, at least one temporary lighted stairway shall be provided unless one or more of the permanent stairways are erected as the construction progresses.

1205.2 Maintenance of means of egress. Required means of egress shall be maintained at all times during construction, demolition, remodeling or alterations, and additions to any building.

Exception: Approved temporary means of egress systems and facilities.

~~N. Delete Sections 1205.3 through 1205.15 of the IEBC.~~

~~N. Change Section 1206 to Standpipe Systems.~~

~~O. Change Sections 1206.1 through 1206.2 and add Section 1206.3 to the IEBC to read:~~

1206.1 Where required. In buildings required to have standpipes by Section 905.3.1 of the International Building Code, not less than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access. Such standpipe shall be provided with fire department hose connections at accessible locations adjacent to usable stairways. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

1206.2 Buildings being demolished. Where a building or portion of a building is being demolished and a standpipe is existing within such a building, such standpipe shall be maintained in an operable condition to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished.

1206.3 Detailed requirements. Standpipes shall be installed in accordance with the provisions of Chapter 9 of the International Building Code.

Exception: Standpipes shall be either temporary or permanent in nature and with or without a water supply, provided that such standpipes conform to the requirements of Section 905 of the International Building Code as to capacity, outlets and materials.

~~P. Add Section 1207 Automatic Sprinkler System.~~

~~Q. Add Sections 1207.1 and 1207.2 to the IEBC to read:~~

1207.1 Completion before occupancy. In portions of a building where an automatic sprinkler system is required by this code, it shall be unlawful to occupy those portions of the building until the automatic sprinkler system installation has been tested and approved, except as provided in Section 110.3.

1207.2 Operation of valves. Operation of sprinkler control valves shall be permitted only by properly authorized personnel and shall be accompanied by notification of duly designated parties. When the sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work period to ascertain that protection is in service.

~~R. Add Section 1208 Accessibility.~~

~~S. Add Section 1208.1 to the IEBC to read:~~

1208.1 Construction sites. Structures, sites, and equipment directly associated with the actual process of construction, including scaffolding, bridging, material hoists, material storage, or construction trailers are not required to be accessible.

~~T. Add Section 1209 Water Supply for Fire Protection.~~

~~U. Add Section 1209.1 to the IEBC to read:~~

1209.1 When required. An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site.

13VAC5-63-439. Chapter 13 Referenced Standards.

Referenced standards are listed in the following table:

Standard reference number	Title	Referenced in code section number
API 653-09	Tank Inspection, Repair, Alteration and Reconstruction	1101.16
ASCE/SEI ~~7-10~~ <u>7-16</u>	American Society of Civil Engineers Structural Engineering Institute	305.2.1, 603.7.4, 603.7.6
ASCE/SEI ~~41-13~~ <u>41-17</u>	American Society of Civil Engineers Structural Engineering Institute	305.2, 305.2.1, 305.2.2, 502.2.2.1, 502.2.2.3, <u>603.7.4</u> , 803.3
ASHRAE ~~62.1-2013~~ <u>62.1-2016</u>	American Society of Heating, Refrigerating and Air Conditioning Engineers	603.9.1
ASME A17.1/CSA ~~B44-2013~~ <u>B44-2016</u>	American Society of Mechanical Engineers	404.4.2, 604.3.1.2
ASME ~~A17.3-2008~~ <u>A17.3-2015</u>	American Society of Mechanical Engineers	604.3.1.2
ASME ~~A18.1-2008~~ <u>A18.1-2014</u>	American Society of Mechanical Engineers	404.4.3
ASTM ~~E 84-13A~~ <u>E84-2016</u>	ASTM International	906.9
ASTM ~~E 108-11~~ <u>E108-16</u>	ASTM International	906.5
ASTM ~~F 2006-10~~ <u>F2006-17</u>	ASTM International	304.2
ASTM ~~F 2090-10~~ <u>F2090-17</u>	ASTM International	304.2
ICC A117.1-09	Accessible and Usable Buildings and Facilities	404.4.2, 404.4.3, 404.4.10
~~IFC-15~~ <u>IFC-18</u>	International Fire Code	<u>103.3</u> , 603.5.4.1
NFPA 13-13	Standard for the Installation of Sprinkler Systems	1101.12
NFPA ~~13R-13~~ <u>13R-16</u>	Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height	603.5.2.5

NFPA ~~70-14~~ <u>70-17</u>	National Electrical Code	504.1.1, 504.1.2, 504.1.3, 504.1.4, 504.1.5, 603.8.1, 603.8.3.4, 603.8.3.7, 708.1, 708.2, 708.3,
NFPA ~~72-13~~ <u>72-16</u>	National Fire Alarm and Signaling Code	603.5.2.5, 603.5.4
NFPA ~~99-15~~ <u>99-18</u>	Health Care Facilities Code	504.1.4
NFPA ~~101-15~~ <u>101-18</u>	Life Safety Code	603.6
UL 723-08	Standard for Test for Surface Burning Characteristics of Building Materials with Revisions Through September 2010	906.9
UL 790-04	Standard Test Methods for Tests of Roof Coverings with Revisions through October 2008	<u>906.5</u> ~~906.7~~
TFI RMIP-09	Aboveground Storage Tanks Containing Liquid Fertilizer, Recommended Mechanical Integrity Practices	1101.16

13VAC5-63-440. Chapter 14 Compliance Alternative – Change of Occupancy.

~~A. Replace Chapter 14 of the IEBC with the following:~~

~~1. Change Add Section 1401.1 of the IEBC to read:~~ General.

1401.1 Scope. The provisions of this chapter are intended to maintain or increase the current degree of public safety, health, and general welfare in existing buildings or structures, while permitting changes of occupancy without requiring full compliance with Chapter 7, except where compliance with other provisions of this code is specifically required in this chapter.

Exception: The provisions of this chapter shall not apply to buildings with occupancies in Group H or I.

~~2. Change Add Section 1401.1.1 of the IEBC to read:~~

1401.1.1 Complete change of occupancy. Where an entire existing building undergoes a change of occupancy, the applicable provisions of this chapter for the new occupancy shall be used to determine compliance with this code.

Exception: Plumbing, mechanical, and electrical systems in buildings undergoing a change of occupancy shall be subject to any applicable requirements of Chapter 7.

~~3. Change Add Section 1401.1.2 of the IEBC to read:~~

1401.1.2 Partial change of occupancy. Where a portion of the building undergoes a change of occupancy and that portion is separated from the remainder of the building with fire barrier or horizontal assemblies having a fire-resistance rating as required by Table 508.4 of the VCC or Section R317 of the International Residential Code for the separate occupancies, or with approved compliance alternatives, the portion changed shall be made to conform to the provisions of this chapter.

Where a portion of the building undergoes a change of occupancy and that portion is not separated from the remainder of the building with fire barriers or horizontal assemblies having a fire-resistance rating as required by Table 508.4 of the VCC or Section R317 of the International Residential Code for the separate occupancies, or with approved compliance alternatives, the provisions of this chapter which apply to each occupancy shall apply to the entire building. Where there are conflicting provisions, those requirements that are the most restrictive shall apply to the entire building or structure.

~~4. Change Section 1401.2 and delete Sections 1401.2.1 through 1401.2.5 of the IEBC.~~

1401.2 Accessibility requirements. All portions of the buildings proposed for change of occupancy to existing buildings or structures shall conform to the applicable accessibility provisions of Chapter 4.

~~5. Change Section 1401.3 of the IEBC to read:~~

1401.3 Acceptance. For changes of occupancy to existing buildings that are evaluated in accordance with this chapter, compliance with this chapter shall be accepted by the code official.

~~6. Change Section 1401.3.1 and delete Sections 1401.3.2 and 1401.3.3 of the IEBC.~~

1401.3.1 Compliance with flood hazard provisions. In flood hazard areas, buildings or structures that are evaluated in accordance with this chapter shall comply with Section 1612 of the VCC or Section R322 of the International Residential Code, as applicable if the work covered by this chapter constitutes substantial improvement.

~~7. Change Section 1401.4 of the IEBC to read:~~

1401.4 Investigation and evaluation. For proposed work covered by this chapter, the building owner shall cause the existing building to be investigated and evaluated in accordance with the provisions of Sections 1401.4 through 1401.9.

~~8. Change Section 1401.4.1 of the IEBC to read:~~

1401.4.1 Structural analysis. The owner shall have a structural analysis of the existing building made to determine adequacy of structural systems for the proposed alteration, addition, or change of occupancy. The analysis shall demonstrate that the building with the work completed is capable of resisting the loads specified in Chapter 16 of the VCC.

~~9. Change Section 1401.4.2 of the IEBC to read:~~

1401.4.2 Submittal. The results of the investigation and evaluation as required in Section 1401.4 along with proposed compliance alternatives shall be submitted to the code official.

~~10. Change Section 1401.4.3 of the IEBC to read:~~

1401.4.3 Determination of compliance. The code official shall determine whether the existing building

with the proposed change of occupancy complies with the provisions of this section in accordance with the evaluation process in Sections 1401.5 through 1401.9.

~~11. Change Section 1401.5 of the IEBC to read:~~

1401.5 Evaluation. The evaluation shall be comprised of three categories: fire safety, means of egress, and general safety, as defined in Sections 1401.5.1 through 1401.5.3.

~~12. Change Section 1401.5.1 of the IEBC to read:~~

1401.5.1 Fire safety. Included within the fire safety category are the structural fire resistance, automatic fire detection, fire alarm, automatic sprinkler system, and fire suppression system features of the facility.

~~13. Change Section 1401.5.2 of the IEBC to read:~~

1401.5.2 Means of egress. Included within the means of egress category are the configuration, characteristics, and support features for means of egress in the facility.

~~14. Change Section 1401.5.3 of the IEBC to read:~~

1401.5.3 General safety. Included within the general safety category are the fire safety parameters and the means-of-egress parameters.

~~15. Change Section 1401.6 of the IEBC to read:~~

1401.6 Evaluation process. The evaluation process specified in this code shall be followed in its entirety to evaluate existing buildings. Table 1401.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code indicate that compliance with those sections is required in order to gain credit in the evaluation outlined in this code. In applying this section to a building with mixed occupancies, where the separation between the mixed occupancies does not qualify for any category indicated in Section 1401.6.16, the score for each occupancy shall be determined, and the lower score determined for each section of the evaluation process shall apply to the entire building.

Where the separation between the mixed occupancies qualifies for any category indicated in Section 1401.6.16, the score for each occupancy shall apply to each portion, or smoke compartment of the building based on the occupancy of the space.

~~16. Change Section 1401.6.1 of the IEBC to read:~~

1401.6.1 Building height and number of stories. The value for building height and number of stories shall be the lesser value determined by the formula in Section 1401.6.1.1. Section 504 of the International Building Code shall be used to determine the allowable height and number of stories of the building. Subtract the actual building height from the allowable height and divide by 12-1/2 feet (3810 mm). Enter the height value and its sign (positive or negative) in Table 1401.7 under Safety Parameter 1401.6.1, Building Height, for fire safety, means of egress, and general safety. The maximum score for a building shall be 10.

~~17. Change Section 1401.6.2 of the IEBC to read:~~

1401.6.2 Building area. The value for building area shall be determined by the formula in Section 1401.6.2.2. Section 506 of the VCC and the formula in Section 1401.6.2.1 shall be used to determine the allowable area of the building. Subtract the actual building area from the allowable area and divide by 1,200 square feet (112 m²). Enter the area value and its sign (positive or negative) in Table 1401.7

under Safety Parameter 1401.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50% of the fire safety score as listed in Table 1401.8, Mandatory Safety Scores.

~~18. Change Section 1401.6.4 of the IEBC to read:~~

1401.6.4 Tenant and dwelling unit separations. Evaluate the fire-resistance rating of floors and walls separating tenants, including dwelling units, and not evaluated under Sections 1401.6.3 and 1401.6.5.

~~19. Change Section 1401.6.7 of the IEBC to read:~~

1401.6.7 HVAC systems. Evaluate the ability of the HVAC system to resist the movement of smoke and fire beyond the point of origin. Under the categories in Section 1401.6.7.1, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.7, HVAC Systems, for fire safety, means of egress, and general safety.

~~20. Change Section 1401.6.8 of the IEBC to read:~~

1401.6.8 Automatic fire detection. Evaluate the smoke detection capability based on the location and operation of automatic fire detectors in accordance with Section 907 of the VCC and the International Mechanical Code. Under the categories and occupancies in Table 1401.6.8, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.8, Automatic Fire Detection, for fire safety, means of egress, and general safety.

~~21. Change Section 1401.6.8.1 of the IEBC to read:~~

1401.6.8.1 Categories. The categories for automatic fire detection are:

- a. Category a - None.
- b. Category b - Existing smoke detectors in HVAC systems.
- c. Category c - Smoke detectors in HVAC systems. The detectors are installed in accordance with the requirements for new buildings in the International Mechanical Code.
- d. Category d - Smoke detectors throughout all floor areas other than individual sleeping units, tenant spaces, and dwelling units.
- e. Category e - Smoke detectors installed throughout the floor area.
- f. Category f - Smoke detectors in corridors only.

~~22. Change Section 1401.6.14 of the IEBC to read:~~

1401.6.14 Elevator control. Evaluate the passenger elevator equipment and controls that are available to the fire department to reach all occupied floors. Emergency recall and in-car operation of elevators shall be provided in accordance with the building code under which the building or the affected portion thereof was constructed or previously approved. Under the categories and occupancies in Table 1401.5.14, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.5.14, Elevator Control, for fire safety, means of egress and general safety. The values shall be zero for a single-story building.

~~23. Change Section 1401.6.14.1 of the IEBC to read:~~

1401.6.14.1 Categories. The categories for elevator controls are:

- a. Category a - No elevator.
- b. Category b - Any elevator without Phase I emergency recall operation and Phase II emergency in-car operation.
- c. Category c - All elevators with Phase I emergency recall operation and Phase II emergency in-car operation as required by the building code under which the building or the affected portion thereof was constructed or previously approved.
- d. Category d - All meet Category c or Category b where permitted to be without Phase I emergency recall operation and Phase II emergency in-car operation, and there is at least one elevator that complies with new construction requirements serves all occupied floors.

~~24. Change Section 1401.6.16 of the IEBC to read:~~

1401.6.16 Mixed occupancies. Where a building has two or more occupancies that are not in the same occupancy classification, the separation between the mixed occupancies shall be evaluated in accordance with this section. Where there is no separation between the mixed occupancies or the separation between mixed occupancies does not qualify for any of the categories indicated in Section 1401.6.16.1, the building shall be evaluated as indicated in Section 1401.6, and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 1401.6.16, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.16, Mixed Occupancies, for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero.

~~25. Change Section 1401.6.17 of the IEBC to read:~~

1401.6.17 Automatic sprinklers. Evaluate the ability to suppress a fire based on the installation of an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC. "Required sprinklers" shall be based on the requirements of this code. Under the categories and occupancies in Table 1401.6.17, determine the appropriate value and enter that value into Table 1401.7 under Safety Parameter 1401.6.17, Automatic Sprinklers, for fire safety, means of egress divided by two, and general safety. High-rise buildings defined in Chapter 2 of the VCC that undergo a change of occupancy to Group R shall be equipped throughout with an automatic sprinkler system in accordance with Section 403 of the VCC and Chapter 9 of the VCC.

~~26. Change Section 1401.6.20 of the IEBC to read:~~

1401.6.20 Smoke compartmentation. Evaluate the smoke compartments for compliance with Section 407.5 of the VCC. Under the categories and occupancies in Table 1401.6.20, determine the appropriate smoke compartmentation value (SCV) and enter that value into Table 1401.7 under Safety Parameter 1401.6.20, Smoke Compartmentation, for fire safety, means of egress and general safety.

13VAC5-63-441. Chapter 15 Construction Safeguards.

Delete Chapter 15 of the IEBC in its entirety.

13VAC5-63-443. Chapter 16 Referenced Standards.

Delete Chapter 16 of the IEBC in its entirety.

~~13VAC5-63-445. Chapter 17 Retrofit Requirements.~~

~~A. Add IEBC Section 1701-General.~~

~~B. Add Section 1701.1 to the IEBC to read:~~

~~1701.1 Scope. In accordance with Section 103.7 of the VCC and as set out herein, the following buildings are required to be provided with certain fire protection equipment or systems or other retrofitted components:~~

~~C. Add Section 1701.2 to the IEBC to read:~~

~~1701.2 Smoke detectors in colleges and universities. In accordance with § 36-99.3 of the Code of Virginia, college and university buildings containing dormitories for sleeping purposes shall be provided with battery powered or AC powered smoke detector devices installed therein in accordance with this code in effect on July 1, 1982. All public and private college and university dormitories shall have installed such detectors regardless of when the building was constructed. The chief administrative office of the college or university shall obtain a certificate of compliance with the provisions of this subsection from the building official of the locality in which the college or university is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services. The provisions of this section shall not apply to any dormitory at a state-supported military college or university that is patrolled 24 hours a day by military guards.~~

~~D. Add Section 1701.3 to the IEBC to read:~~

~~1701.3 Smoke detectors in certain juvenile care facilities. In accordance with § 36-99.4 of the Code of Virginia, battery powered or AC powered smoke detectors shall be installed in all local and regional detention homes, group homes, and other residential care facilities for children and juveniles that are operated by or under the auspices of the Virginia Department of Juvenile Justice, regardless of when the building was constructed, by July 1, 1986, in accordance with the provisions of this code that were in effect on July 1, 1984.~~

~~Administrators of such homes and facilities shall be responsible for the installation of the smoke detector devices.~~

~~E. Add Section 1701.4 to the IEBC to read:~~

~~1701.4 Smoke detectors for the deaf and hearing impaired. In accordance with § 36-99.5 of the Code of Virginia, smoke detectors providing an effective intensity of not less than 100 candela to warn a deaf or hearing impaired individual shall be provided, upon request by the occupant to the landlord or proprietor, to any deaf or hearing impaired occupant of any of the following occupancies, regardless of when constructed:~~

- ~~1. All dormitory buildings arranged for the shelter and sleeping accommodations of more than 20 individuals;~~
- ~~2. All multiple family dwellings having more than two dwelling units, including all dormitories and boarding and lodging houses arranged for shelter and sleeping accommodations of more than 5 individuals; or~~
- ~~3. All buildings arranged for use as one family or two family dwelling units.~~

~~A tenant shall be responsible for the maintenance and operation of the smoke detector in the tenant's unit.~~

~~A hotel or motel shall have available no fewer than one such smoke detector for each 70 units or~~

~~portion thereof, except that this requirement shall not apply to any hotel or motel with fewer than 35 units. The proprietor of the hotel or motel shall post in a conspicuous place at the registration desk or counter a permanent sign stating the availability of smoke detectors for the hearing impaired. Visual detectors shall be provided for all meeting rooms for which an advance request has been made.~~

~~F. Add Sections 1701.5, 1701.5.1, and 1701.5.2 to the IEBC to read:~~

~~1701.5 Assisted living facilities (formerly known as adult care residences or homes for adults). Existing assisted living facilities licensed by the Virginia Department of Social Services shall comply with this section.~~

~~1701.5.1 Fire protective signaling system and fire detection system. A fire protective signaling system and an automatic fire detection system meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.~~

~~Exception: Assisted living facilities that are equipped throughout with a fire protective signaling system and an automatic fire detection system.~~

~~1701.5.2 Single station and multiple station smoke detectors. Battery or AC powered single station and multiple station smoke detectors meeting the requirements of the USBC, Volume I, 1987 Edition, Third Amendment, shall be installed in assisted living facilities by August 1, 1994.~~

~~Exception: Assisted living facilities that are equipped throughout with single station and multiple station smoke detectors.~~

~~G. Add Section 1701.6 to the IEBC to read:~~

~~1701.6 Smoke detectors in buildings containing dwelling units. AC powered smoke detectors with battery backup or an equivalent device shall be required to be installed to replace a defective or inoperative battery powered smoke detector located in buildings containing one or more dwelling units or rooming houses offering to rent overnight sleeping accommodations when it is determined by the building official that the responsible party of such building or dwelling unit fails to maintain battery powered smoke detectors in working condition.~~

~~H. Add Section 1701.7 to the IEBC to read:~~

~~1701.7 Fire suppression, fire alarm, and fire detection systems in nursing homes and facilities. Fire suppression systems as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing facilities licensed by the Virginia Department of Health by January 1, 1993, regardless of when such facilities or institutions were constructed. Units consisting of certified long-term care beds located on the ground floor of general hospitals shall be exempt from the requirements of this section.~~

~~Fire alarm or fire detector systems, or both, as required by the edition of this code in effect on October 1, 1990, shall be installed in all nursing homes and nursing facilities licensed by the Virginia Department of Health by August 1, 1994.~~

~~I. Add Section 1701.8 to the IEBC to read:~~

~~1701.8 Fire suppression systems in hospitals. Fire suppression systems shall be installed in all hospitals licensed by the Virginia Department of Health as required by the edition of this code in effect on October 1, 1995, regardless of when such facilities were constructed.~~

~~J. Add Section 1701.9 to the IEBC to read:~~

~~1701.9 Identification of disabled parking spaces by above grade signage. All parking spaces reserved for the use of persons with disabilities shall be identified by above grade signs, regardless of whether identification of such spaces by above grade signs was required when any particular space was reserved for the use of persons with disabilities. A sign or symbol painted or otherwise displayed on the pavement of a parking space shall not constitute an above grade sign. Any parking space not identified by an above grade sign shall not be a parking space reserved for the disabled within the meaning of this section. All above grade disabled parking space signs shall have the bottom edge of the sign no lower than 4 feet (1219 mm) nor higher than 7 feet (2133 mm) above the parking surface. Such signs shall be designed and constructed in accordance with the provisions of Chapter 11 of this code. All disabled parking signs shall include the following language: "PENALTY, \$100-500 Fine, TOW-AWAY ZONE." Such language may be placed on a separate sign and attached below existing above grade disabled parking signs, provided that the bottom edge of the attached sign is no lower than 4 feet above the parking surface.~~

~~K. Add Section 1701.10 to the IEBC to read:~~

~~1701.10 Smoke detectors in hotels and motels. Smoke detectors shall be installed in hotels and motels as required by the edition of VR 394-01-22, USBC, Volume II, in effect on March 1, 1990, by the dates indicated, regardless of when constructed.~~

~~L. Add Section 1701.11 to the IEBC to read:~~

~~1701.11 Sprinkler systems in hotels and motels. By September 1, 1997, an automatic sprinkler system shall be installed in hotels and motels as required by the edition of VR 394-01-22, USBC, Volume II, in effect on March 1, 1990, regardless of when constructed.~~

~~M. Add Section 1701.12 to the IEBC to read:~~

~~1701.12 Fire suppression systems in dormitories. An automatic fire suppression system shall be provided throughout all buildings having a Group R-2 fire area that are more than 75 feet (22,860 mm) or 6 stories above the lowest level of exit discharge and are used, in whole or in part, as a dormitory to house students by any public or private institution of higher education, regardless of when such buildings were constructed, in accordance with the edition of this code in effect on August 20, 1997, and the requirements for sprinkler systems under the edition of the NFPA 13 standard referenced by that code. The automatic fire suppression system shall be installed by September 1, 1999. The chief administrative office of the college or university shall obtain a certificate of compliance from the building official of the locality in which the college or university is located or, in the case of state-owned buildings, from the Director of the Virginia Department of General Services.~~

~~Exceptions:~~

- ~~1. Buildings equipped with an automatic fire suppression system in accordance with Section 903.3.1.1 of the 1983 or later editions of NFPA 13.~~
- ~~2. Any dormitory at a state-supported military college or university that is patrolled 24 hours a day by military guards.~~
- ~~3. Application of the requirements of this section shall be modified in accordance with the following:~~
 - ~~3.1 Building systems, equipment, or components other than the fire suppression system shall not be required to be added or upgraded except as necessary for the installation of the fire~~

~~suppression system and shall only be required to be added or upgraded where the installation of the fire suppression system creates an unsafe condition.~~

~~3.2 Residential sprinklers shall be used in all sleeping rooms. Other sprinklers shall be quick response or residential unless deemed unsuitable for a space. Standard response sprinklers shall be used in elevator hoistways and machine rooms.~~

~~3.3 Sprinklers shall not be required in wardrobes in sleeping rooms that are considered part of the building construction or in closets in sleeping rooms when such wardrobes or closets (i) do not exceed 24 square feet (2.23 m²) in area, (ii) have the smallest dimension less than 36 inches (914 mm), and (iii) comply with all of the following:~~

~~3.3.1 A single station smoke detector monitored by the building fire alarm system is installed in the room containing the wardrobe or closet that will activate the general alarm for the building if the single station smoke detector is not cleared within five minutes after activation.~~

~~3.3.2 The minimum number of sprinklers required for calculating the hydraulic demand of the system for the room shall be increased by two and the two additional sprinklers shall be corridor sprinklers where the wardrobe or closet is used to divide the room. Rooms divided by a wardrobe or closet shall be considered one room for the purpose of this requirement.~~

~~3.3.3 The ceiling of the wardrobe, closet, or room shall have a fire resistance rating of not less than 1/2 hour.~~

~~3.4 Not more than one sprinkler shall be required in bathrooms within sleeping rooms or suites having a floor area between 55 square feet (5.12 m²) and 120 square feet (11.16 m²), provided the sprinkler is located to protect the lavatory area and the plumbing fixtures are of a noncombustible material.~~

~~3.5 Existing standpipe residual pressure shall be permitted to be reduced when the standpipe serves as the water supply for the fire suppression system, provided the water supply requirements of NFPA 13-94 are met.~~

~~3.6 Limited service controllers shall be permitted for fire pumps when used in accordance with their listing.~~

~~3.7 Where a standby power system is required, a source of power in accordance with Section 701-11 (d) or 701-11 (e) of NFPA 70-96 shall be permitted.~~

~~N. Add Section 1701.13 to the IEBC to read:~~

~~1701.13 Fire extinguishers and smoke detectors in SRCFs. SRCFs shall be provided with at least one approved type ABC portable fire extinguisher with a minimum rating of 2A10BC installed in each kitchen. In addition, SRCFs shall provide at least one approved and properly installed battery operated smoke detector outside of each sleeping area in the vicinity of bedrooms and bedroom hallways and on each additional floor.~~

~~O. Add Section 1701.14 to the IEBC to read:~~

~~1701.14 Smoke detectors in adult day care centers. Battery powered or AC powered smoke detector devices shall be installed in all adult day care centers licensed by the Virginia Department of Social Services, regardless of when the building was constructed. The location and installation of the smoke detectors shall be determined by the provisions of this code in effect on October 1, 1990. The licensee shall obtain a certificate of compliance from the building official of the locality in which the center is located or, in the case of state owned buildings, from the Director of the Virginia Department of General~~

Services.

P. Add Section 1701.15 to the IEBC to read:

1701.15 Posting of occupant load. Every room or space that is an assembly occupancy, and where the occupant load of that room or space is 50 or more, shall have the occupant load of the room or space as determined by the building official posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or owner's authorized agent.

Q. Add Section 1701.16 to the IEBC to read:

1701.16 ALFSTs. Existing ALFSTs, regardless of when constructed, shall by October 1, 2011, meet the applicable requirements of API 653 and TFI RMIP for suitability for service and inspections and shall provide a secondary containment system complying with Section 425.3 of the VCC.

R. Add Section 1701.17 to the IEBC to read:

1701.17 Standards for replacement glass. In accordance with § 36-99.2 of the Code of Virginia, any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and installation standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.

Part III Maintenance

13VAC5-63-450. Chapter 1 Administration; Section 101 General.

A. Section 101.1 Short title. The Virginia Uniform Statewide Building Code, Part III, Maintenance, may be cited as the "Virginia Maintenance Code," or as the "VMC."

B. Section 101.2 Incorporation by reference. Chapters 2 - 8 of the ~~2015~~ 2018 International Property Maintenance Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the VMC. The term "IPMC" means the ~~2015~~ 2018 International Property Maintenance Code, published by the International Code Council, Inc. Any codes and standards referenced in the IPMC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference.

C. Section 101.3 Numbering system. A dual numbering system is used in the VMC to correlate the numbering system of the Virginia Administrative Code with the numbering system of the IPMC. IPMC numbering system designations are provided in the catchlines of the Virginia Administrative Code sections and cross references between sections or chapters of the Virginia Maintenance Code use only the IPMC numbering system designations. The term "chapter" is used in the context of the numbering system of the IPMC and may mean a chapter in the VMC, a chapter in the IPMC or a chapter in a referenced code or standard, depending on the context of the use of the term. The term "chapter" is not used to designate a chapter of the Virginia Administrative Code, unless clearly indicated.

D. Section 101.4 Arrangement of code provisions. The VMC is comprised of the combination of (i) the provisions of Chapter 1, Administration, which are established herein, (ii) Chapters 2 - 8 of the IPMC, which are incorporated by reference in Section 101.2, and (iii) the changes to the text of the incorporated chapters of the IPMC which are specifically identified. The terminology "changes to the text of the incorporated chapters of the IPMC which are specifically identified" shall also be referred to as the "state amendments to the IPMC." Such state amendments to the IPMC are set out using corresponding chapter and section numbers of the IPMC numbering system.

E. Section 101.5 Use of terminology and notes. The term "this code," or "the code," where used in the provisions of Chapter 1, in Chapters 2 - 8 of the IPMC, or in the state amendments to the IPMC, means the VMC, unless the context clearly indicates otherwise. The term "this code," or "the code," where used in a code or standard referenced in the IPMC, means that code or standard, unless the context clearly indicates otherwise. The term "USBC" where used in this code means the VCC unless the context clearly indicates otherwise. In addition, the use of notes in Chapter 1 is to provide information only and shall not be construed as changing the meaning of any code provision. Notes in the IPMC, in the codes and standards referenced in the IPMC, and in the state amendments to the IPMC, may modify the content of a related provision and shall be considered to be a valid part of the provision, unless the context clearly indicates otherwise.

F. Section 101.6 Order of precedence. The provisions of this code shall be used as follows:

1. The provisions of Chapter 1 of this code supersede any provisions of Chapters 2 - 8 of the IPMC that address the same subject matter and impose differing requirements.
2. The provisions of Chapter 1 of this code supersede any provisions of the codes and standards referenced in the IPMC that address the same subject matter and impose differing requirements.

3. The state amendments to the IPMC supersede any provisions of Chapters 2 - 8 of the IPMC that address the same subject matter and impose differing requirements.

4. The state amendments to the IPMC supersede any provisions of the codes and standards referenced in the IPMC that address the same subject matter and impose differing requirements.

5. The provisions of Chapters 2 - 8 of the IPMC supersede any provisions of the codes and standards referenced in the IPMC that address the same subject matter and impose differing requirements.

G. Section 101.7 Definitions. The definitions of terms used in this code are contained in Chapter 2 along with specific provisions addressing the use of definitions. Terms may be defined in other chapters or provisions of the code and such definitions are also valid.

13VAC5-63-460. Section 102 Purpose and scope.

A. Section 102.1 Purpose. In accordance with § 36-103 of the Code of Virginia, the Virginia Board of Housing and Community Development may adopt and promulgate as part of the Virginia Uniform Statewide Building Code, building regulations that facilitate the maintenance, rehabilitation, development and reuse of existing buildings at the least possible cost to ensure the protection of the public health, safety and welfare. Further, in accordance with § 36-99 of the Code of Virginia, the purpose of this code is to protect the health, safety and welfare of the residents of the Commonwealth of Virginia, provided that buildings and structures should be permitted to be maintained at the least possible cost consistent with recognized standards of health, safety, energy conservation and water conservation, including provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation; and barrier-free provisions for the physically handicapped and aged.

B. Section 102.2 Scope. In accordance with § 36-98 of the Code of Virginia, the VMC shall supersede the building codes and regulations of the counties, municipalities and other political subdivisions and state agencies.

C. Section 102.3 Exemptions. This code shall not regulate those buildings and structures specifically exempt from the VCC, except that existing industrialized buildings and manufactured homes shall not be exempt from this code.

13VAC5-63-470. Section 103 Application of code.

A. Section 103.1 General. This code prescribes regulations for the maintenance of all existing buildings and structures and associated equipment, including regulations for unsafe buildings and structures.

B. Section 103.2 Maintenance requirements. Buildings, structures and systems shall be maintained and kept in good repair in accordance with the requirements of this code and when applicable in accordance with the USBC under which such building or structure was constructed. No provision of this code shall require alterations to be made to an existing building or structure or to equipment unless conditions are present which meet the definition of an unsafe structure or a structure unfit for human occupancy.

C. 103.2.1 Maintenance of nonrequired components and systems. Nonrequired components and systems may be discontinued in use provided that no hazard results from such discontinuance of use.

D. 103.2.2 Maintenance of nonrequired fire protection systems. Nonrequired fire protection systems shall be maintained to function as originally installed. If any such systems are to be reduced in function or discontinued, approval shall be obtained from the building official in accordance with Section ~~103.8.1~~ 103.3.1 of the VCC.

E. 103.2.3 Responsibility. The owner of a structure shall provide and maintain all buildings, structures, systems, facilities and associated equipment in compliance with this code unless it is specifically expressed or implied that it is the responsibility of the tenant or occupant.

F. Section 103.3 Continued approval. Notwithstanding any provision of this code to the contrary, alterations shall not be required to be made to existing buildings or structures which are occupied in accordance with a certificate of occupancy issued under any edition of the USBC.

G. Section 103.4 Rental Inspections. In accordance with § 36-105.1:1 of the Code of Virginia, these provisions are applicable to rental inspection programs. For purposes of this section:

"Dwelling unit" means a building or structure or part thereof that is used for a home or residence by one or more persons who maintain a household.

"Owner" means the person shown on the current real estate assessment books or current real estate assessment records.

"Residential rental dwelling unit" means a dwelling unit that is leased or rented to one or more tenants. However, a dwelling unit occupied in part by the owner thereof shall not be construed to be a residential rental dwelling unit unless a tenant occupies a part of the dwelling unit that has its own cooking and sleeping areas, and a bathroom, unless otherwise provided in the zoning ordinance by the local governing body.

The local governing body may adopt an ordinance to inspect residential rental dwelling units for compliance with this code and to promote safe, decent and sanitary housing for its citizens, in accordance with the following:

1. Except as provided for in subdivision 3 of this subsection, the dwelling units shall be located in a rental inspection district established by the local governing body in accordance with this section; and
2. The rental inspection district is based upon a finding by the local governing body that (i) there is a need to protect the public health, safety and welfare of the occupants of dwelling units inside the designated rental inspection district; (ii) the residential rental dwelling units within the designated rental inspection district are either (a) blighted or in the process of deteriorating or (b) the residential rental dwelling units are in the need of inspection by the building department to prevent deterioration, taking into account the number, age and condition of residential dwelling rental units inside the proposed rental inspection district; and (iii) the inspection of residential rental dwelling units inside the proposed rental inspection district is necessary to maintain safe, decent and sanitary living conditions for tenants and other residents living in the proposed rental inspection district. Nothing in this section shall be construed to authorize one or more locality-wide rental inspection districts and a local governing body shall limit the boundaries of the proposed rental inspection districts to such areas of the locality that meet the criteria set out in this subsection; or
3. An individual residential rental dwelling unit outside of a designated rental inspection district is made subject to the rental inspection ordinance based upon a separate finding for each individual

dwelling unit by the local governing body that (i) there is a need to protect the public health, welfare and safety of the occupants of that individual dwelling unit; (ii) the individual dwelling unit is either (a) blighted or (b) in the process of deteriorating; or (iii) there is evidence of violations of this code that affect the safe, decent and sanitary living conditions for tenants living in such individual dwelling unit.

For purposes of this section, the local governing body may designate a local government agency other than the building department to perform all or part of the duties contained in the enforcement authority granted to the building department by this section.

Before adopting a rental inspection ordinance and establishing a rental inspection district or an amendment to either, the governing body of the locality shall hold a public hearing on the proposed ordinance. Notice of the hearing shall be published once a week for two successive weeks in a newspaper published or having general circulation in the locality.

Upon adoption by the local governing body of a rental inspection ordinance, the building department shall make reasonable efforts to notify owners of residential rental dwelling units in the designated rental inspection district, or their designated managing agents, and to any individual dwelling units subject to the rental inspection ordinance, not located in a rental inspection district, of the adoption of such ordinance, and provide information and an explanation of the rental inspection ordinance and the responsibilities of the owner thereunder.

The rental inspection ordinance may include a provision that requires the owners of dwelling units in a rental inspection district to notify the building department in writing if the dwelling unit of the owner is used for residential rental purposes. The building department may develop a form for such purposes. The rental inspection ordinance shall not include a registration requirement or a fee of any kind associated with the written notification pursuant to this subdivision. A rental inspection ordinance may not require that the written notification from the owner of a dwelling unit subject to a rental inspection ordinance be provided to the building department in less than 60 days after the adoption of a rental inspection ordinance. However, there shall be no penalty for the failure of an owner of a residential rental dwelling unit to comply with the provisions of this subsection, unless and until the building department provides personal or written notice to the property owner, as provided in this section. In any event, the sole penalty for the willful failure of an owner of a dwelling unit who is using the dwelling unit for residential rental purposes to comply with the written notification requirement shall be a civil penalty of up to \$50. For purposes of this subsection, notice sent by regular first-class mail to the last known address of the owner as shown on the current real estate tax assessment books or current real estate tax assessment records shall be deemed compliance with this requirement.

Upon establishment of a rental inspection district in accordance with this section, the building department may, in conjunction with the written notifications as provided for above, proceed to inspect dwelling units in the designated rental inspection district to determine if the dwelling units are being used as a residential rental property and for compliance with the provisions of this code that affect the safe, decent and sanitary living conditions for the tenants of such property.

If a multifamily development has more than 10 dwelling units, in the initial and periodic inspections, the building department shall inspect only a sampling of dwelling units, of not less than two and not more than 10% of the dwelling units, of a multifamily development, that includes all of the multifamily buildings that are part of that multifamily development. In no event, however, shall the building department charge a fee authorized by this section for inspection of more than 10 dwelling units. If the building department determines upon inspection of the sampling of dwelling units that there are violations of this code that affect the safe, decent and sanitary living conditions for the tenants of such

multifamily development, the building department may inspect as many dwelling units as necessary to enforce these provisions, in which case, the fee shall be based upon a charge per dwelling unit inspected, as otherwise provided in the fee schedule established pursuant to this section.

Upon the initial or periodic inspection of a residential rental dwelling unit subject to a rental inspection ordinance, the building department has the authority under these provisions to require the owner of the dwelling unit to submit to such follow-up inspections of the dwelling unit as the building department deems necessary, until such time as the dwelling unit is brought into compliance with the provisions of this code that affect the safe, decent and sanitary living conditions for the tenants.

Except as provided for above, following the initial inspection of a residential rental dwelling unit subject to a rental inspection ordinance, the building department may inspect any residential rental dwelling unit in a rental inspection district, that is not otherwise exempted in accordance with this section, no more than once each calendar year.

Upon the initial or periodic inspection of a residential rental dwelling unit subject to a rental inspection ordinance for compliance with these provisions, provided that there are no violations of this code that affect the safe, decent and sanitary living conditions for the tenants of such residential rental dwelling unit, the building department shall provide, to the owner of such residential rental dwelling unit, an exemption from the rental inspection ordinance for a minimum of four years. Upon the sale of a residential rental dwelling unit, the building department may perform a periodic inspection as provided above, subsequent to such sale. If a residential rental dwelling unit has been issued a certificate of occupancy within the last four years, an exemption shall be granted for a minimum period of four years from the date of the issuance of the certificate of occupancy by the building department. If the residential rental dwelling unit becomes in violation of this code during the exemption period, the building department may revoke the exemption previously granted under this section.

A local governing body may establish a fee schedule for enforcement of these provisions, which includes a per dwelling unit fee for the initial inspections, follow-up inspections and periodic inspections under this section.

The provisions of this section shall not in any way alter the rights and obligations of landlords and tenants pursuant to the applicable provisions of Chapter 13 (§ 55-217 et seq.) or Chapter 13.2 (§ 55-248.2 et seq.) of Title 55 of the Code of Virginia.

The provisions of this section shall not alter the duties or responsibilities of the local building department under § 36-105 of the Code of Virginia to enforce the USBC.

Unless otherwise provided for in § 36-105.1:1 of the Code of Virginia, penalties for violation of this section shall be the same as the penalties provided for violations of other sections of the USBC.

13VAC5-63-480. Section 104 Enforcement, generally.

A. Section 104.1 Scope of enforcement. This section establishes the requirements for enforcement of this code in accordance with subdivision C 1 of § 36-105 of the Code of Virginia. The local governing body may also inspect and enforce the provisions of the USBC for existing buildings and structures, whether occupied or not. Such inspection and enforcement shall be carried out by an agency or department designated by the local governing body.

In accordance with subdivision C 3 of § 36-105 of the Code of Virginia, if the local building department receives a complaint that a violation of this code exists that is an immediate and imminent threat to the

health or safety of the owner, tenant, or occupants of any building or structure, or the owner, occupant, or tenant of any nearby building or structure, and the owner, occupant, or tenant of the building or structure that is the subject of the complaint has refused to allow the code official or his agent to have access to the subject building or structure, the code official or his agent may make an affidavit under oath before a magistrate or a court of competent jurisdiction and request that the magistrate or court grant the code official or his agent an inspection warrant to enable the code official or his agent to enter the subject building or structure for the purpose of determining whether violations of this code exist. After issuing a warrant under this section, the magistrate or judge shall file the affidavit in a manner prescribed by § 19.2-54 of the Code of Virginia. After executing the warrant, the code official or his agents shall return the warrant to the clerk of the circuit court of the city or county wherein the inspection was made. The code official or his agent shall make a reasonable effort to obtain consent from the owner, occupant, or tenant of the subject building or structure prior to seeking the issuance of an inspection warrant under this section.

Note: Generally, official action must be taken by the local government to enforce the VMC. Consultation with the legal counsel of the jurisdiction when initiating or changing such action is advised.

B. Section 104.1.1 Transfer of ownership. In accordance with subdivision C 4 of § 36-105 of the Code of Virginia, if the local building department has initiated an enforcement action against the owner of a building or structure and such owner subsequently transfers the ownership of the building or structure to an entity in which the owner holds an ownership interest greater than 50%, the pending enforcement action shall continue to be enforced against the owner.

C. Section 104.2 Fees. In accordance with subdivision C 7 of § 36-105 of the Code of Virginia, fees may be levied by the local governing body in order to defray the cost of enforcement and appeals. For the purposes of this section, "defray the cost" may include the fair and reasonable costs incurred for such enforcement during normal business hours, but shall not include overtime costs unless conducted outside of the normal working hours established by the locality. A schedule of such costs shall be adopted by the local governing body in a local ordinance. A locality shall not charge overtime rate for inspections conducted during the normal business hours established by the locality. Nothing in this provision shall be construed to prohibit a private entity from conducting such inspections, provided the private entity has been approved to perform such inspections in accordance with the written policy of the code official for the locality.

D. Section 104.3 State buildings. In accordance with § 36-98.1 of the Code of Virginia, this code shall be applicable to state-owned buildings and structures. Acting through the Division of Engineering and Buildings, the Department of General Services shall function as the building official for state-owned buildings.

E. Section 104.3.1 Certification of state enforcement personnel. State enforcement personnel shall comply with the applicable requirements of Sections 104.4.2 and 104.4.3 for certification.

Note: Continuing education and periodic training requirements for DHCD certifications are set out in the VCS.

F. Section 104.4 Local enforcing agency. In jurisdictions enforcing this code, the local governing body shall designate the agency within the local government responsible for such enforcement and appoint a code official. The local governing body may also utilize technical assistants to assist the code official in the enforcement of this code. A permanently appointed code official shall not be removed from office except for cause after having been afforded a full opportunity to be heard on specific and relevant charges by and before the appointing authority. DHCD shall be notified by the appointing

authority within 30 days of the appointment or release of a permanent or acting code official and within 60 days after retaining or terminating a technical assistant.

Note: Code officials and technical assistants are subject to sanctions in accordance with the VCS.

G. Section 104.4.1 Qualifications of code official and technical assistants. The code official shall have at least five years of building experience as a licensed professional engineer or architect, building, fire or trade inspector, contractor, housing inspector or superintendent of building, fire or trade construction or at least five years of building experience after obtaining a degree in architecture or engineering, with at least three years in responsible charge of work. Any combination of education and experience that would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The code official shall have general knowledge of sound engineering practice in respect to the design and construction of structures, the basic principles of fire prevention, the accepted requirements for means of egress and the installation of elevators and other service equipment necessary for the health, safety and general welfare of the occupants and the public. The local governing body may establish additional qualification requirements.

A technical assistant shall have at least three years of experience and general knowledge in at least one of the following areas: building construction, building, fire or housing inspections, plumbing, electrical or mechanical trades, fire protection, elevators or property maintenance work. Any combination of education and experience which would confer equivalent knowledge and ability shall be deemed to satisfy this requirement. The locality may establish additional certification requirements.

H. Section 104.4.2 Certification of code official and technical assistants. An acting or permanent code official shall be certified as a code official in accordance with the VCS within one year after being appointed as acting or permanent code official. A technical assistant shall be certified in the appropriate subject area within 18 months after becoming a technical assistant. When required by a locality to have two or more certifications, a technical assistant shall obtain the additional certifications within three years from the date of such requirement.

Exception: A code official or technical assistant in place prior to April 1, 1995, shall not be required to meet the certification requirements in this section while continuing to serve in the same capacity in the same locality.

I. Section 104.4.3 Noncertified code official. Except for a code official exempt from certification under the exception to Section 104.4.2, any acting or permanent code official who is not certified as a code official in accordance with the VCS shall attend the core module of the Virginia Building Code Academy or an equivalent course in an individual or regional code academy accredited by DHCD within 180 days of appointment. This requirement is in addition to meeting the certification requirement in Section 104.4.2.

Note: Continuing education and periodic training requirements for DHCD certifications are set out in the VCS.

J. Section 104.4.4 Conflict of interest. The standards of conduct for code officials and technical assistants shall be in accordance with the provisions of the State and Local Government Conflict of Interests Act, Chapter 31 (§ 2.2-3100 et seq.) of Title 2.2 of the Code of Virginia.

K. Section 104.4.5 Records. The local enforcing agency shall retain a record of applications received, permits, certificates, notices and orders issued, fees collected and reports of inspections in accordance with The Library of Virginia's General Schedule Number Six.

L. Section 104.5 Powers and duties, generally. The code official shall enforce this code as set out herein and as interpreted by the State Review Board and shall issue all necessary notices or orders to ensure compliance with the code.

M. Section 104.5.1 Delegation of authority. The code official may delegate powers and duties except where such authority is limited by the local government. When such delegations are made, the code official shall be responsible for assuring that they are carried out in accordance with the provisions of this code.

N. Section 104.5.2 Issuance of modifications. Upon written application by an owner or an owner's agent, the code official may approve a modification of any provision of this code provided the spirit and intent of the code are observed and public health, welfare and safety are assured. The decision of the code official concerning a modification shall be made in writing and the application for a modification and the decision of the code official concerning such modification shall be retained in the permanent records of the local enforcing agency.

O. Section 104.5.2.1 Substantiation of modification. The code official may require or may consider a statement from a professional engineer, architect or other person competent in the subject area of the application as to the equivalency of the proposed modification.

P. Section 104.5.3 Inspections. The code official may inspect buildings or structures to determine compliance with this code and shall carry proper credentials when performing such inspections. The code official is authorized to engage such expert opinion as deemed necessary to report upon unusual, detailed, or complex technical issues in accordance with local policies.

Q. Section 104.5.3.1 Observations. When, during an inspection, the code official or authorized representative observes an apparent or actual violation of another law, ordinance, or code not within the official's authority to enforce, such official shall report the findings to the official having jurisdiction in order that such official may institute the necessary measures.

R. Section 104.5.3.2 Approved inspection agencies and individuals. The code official may accept reports of inspections or tests from individuals or inspection agencies approved in accordance with the code official's written policy required by Section 104.5.3.3. The individual or inspection agency shall meet the qualifications and reliability requirements established by the written policy. Reports of inspections by approved individuals or agencies shall be in writing, shall indicate if compliance with the applicable provisions of this code have been met, and shall be certified by the individual inspector or by the responsible officer when the report is from an agency. The code official shall review and approve the report unless there is cause to reject it. Failure to approve a report shall be in writing within five working days of receiving it, stating the reasons for rejection.

S. Section 104.5.3.3 Third-party inspectors. Each code official charged with the enforcement of this code and who accepts third-party reports shall have a written policy establishing the minimum acceptable qualifications for third-party inspectors. The policy shall include the format and time frame required for submission of reports, any prequalification or preapproval requirements before conducting a third-party inspection, and any other requirements and procedures established by the code official.

T. Section 104.5.3.4 Qualifications. In determining third-party qualifications, the code official may consider such items as DHCD inspector certification, other state or national certifications, state professional registrations, related experience, education, and any other factors that would demonstrate competency and reliability to conduct inspections.

U. 104.5.4 Manufactured home park tenant notification. If a notice of violation is issued to a manufactured home park owner for violations of this code that jeopardize the health or safety of tenants of the park, a copy of the notice shall be provided to each affected tenant of the manufactured home park. The terms, "manufactured home park" and "owner," as used in this section, shall be as defined in the Manufactured Home Lot Rental Act (Chapter 13.3 (§ 55-248.41 et seq.) of Title 55 of the Code of Virginia).

13VAC5-63-485. Section 105 Violations.

105.1 Violation a misdemeanor; civil penalty. In accordance with § 36-106 of the Code of Virginia, it shall be unlawful for any owner or any other person, firm or corporation, on or after the effective date of any code provisions, to violate any such provisions. Any locality may adopt an ordinance that establishes a uniform schedule of civil penalties for violations of specified provisions of the code that are not abated or remedied promptly after receipt of a notice of violation from the local enforcement officer.

Note: See the full text of § 36-106 of the Code of Virginia for additional requirements and criteria pertaining to legal action relative to violations of the code.

105.2 Notices, reports and orders. Upon findings by the code official that violations of this code exist, the code official shall issue a correction notice or notice of violation to the owner or the person responsible for the maintenance of the structure. Work done to correct violations of this code subject to the permit, inspection and approval provisions of the VCC shall not be construed as authorization to extend the time limits established for compliance with this code.

105.3 Correction notice. The correction notice shall be a written notice of the defective conditions. The correction notice shall require correction of the violation within a reasonable time unless an emergency condition exists as provided under the unsafe building provisions of Section 106. Upon request, the correction notice shall reference the code section that serves as the basis for the defects and shall state that such defects shall be corrected and reinspected in a reasonable time designated by the code official.

105.4 Notice of violation. If the code official determines there are violations of this code a written notice of violation may be issued to the owner or the person responsible for the maintenance or use of the building or structure in lieu of a correction notice as provided for in Section 105.3. In addition, the code official shall issue a notice of violation for any uncorrected violation remaining from a correction notice established in Section 105.3. The code official shall provide the section numbers to the owner for any code provisions cited in the notice of violation. The notice shall require correction of the violation within a reasonable time. The owner or person to whom the notice of violation has been issued shall be responsible for contacting the code official within the timeframe established for any reinspections to assure the violations have been corrected. The code official will be responsible for making such inspection and verifying the violations have been corrected. In addition, the notice of violation shall indicate the right of appeal by referencing the appeals section of this code.

Exceptions:

1. Notices issued and legal proceedings or emergency actions taken under Section 106 for unsafe structures, unsafe equipment, or structures unfit for human occupancy.
2. Notices issued for failing to maintain buildings and structures as required by Section 103.2, as evidenced by multiple or repeated violations on the same property are not required to include a compliance deadline for correcting defects.

105.5 Coordination of inspections. The code official shall coordinate inspections and administrative orders with any other state or local agencies having related inspection authority and shall coordinate those inspections required by the Virginia Statewide Fire Prevention Code (13VAC5-51) for maintenance of fire protection devices, equipment, and assemblies so that the owners and occupants will not be subjected to numerous inspections or conflicting orders.

Note: The Fire Prevention Code requires the fire official to coordinate such inspections with the code official.

105.6 Further action when violation not corrected. If the responsible party has not complied with the notice of violation, the code official may request the legal counsel of the locality to institute the appropriate legal proceedings to restrain, correct or abate the violation or to require the removal or termination of the use of the building or structure involved. In cases where the locality or legal counsel so authorizes, the code official may issue or obtain a summons or warrant.

105.6.1 Further action for corrected violations: Compliance with a notice of violation notwithstanding, the code official may request legal proceedings be instituted for prosecution when a responsible party is served with three or more separate notices of violation for the same property within any five consecutive years. Legal proceedings shall not be instituted under this section for violation notices issued pursuant to the initial inspection of the property. Legal proceedings for violations that have been abated in residential rental dwelling units within a multifamily apartment development may only be instituted for such violations that affect safe, decent, or sanitary living conditions.

Exception: Legal proceedings shall not be instituted for violations that have been abated on owner-occupied single family dwellings.

105.7 Penalties and abatement. Penalties for violations of this code shall be as set out in § 36-106 of the Code of Virginia. The successful prosecution of a violation of the code shall not preclude the institution of appropriate legal action to require correction or abatement of a violation.

13VAC5-63-490. Section 106 Unsafe structures or structures unfit for human occupancy.

A. Section 106.1 General. This section shall apply to existing structures which are classified as unsafe or unfit for human occupancy. All conditions causing such structures to be classified as unsafe or unfit for human occupancy shall be remedied or as an alternative to correcting such conditions, the structure may be vacated and secured against public entry or razed and removed. Vacant and secured structures shall still be subject to other applicable requirements of this code. Notwithstanding the above, when the code official determines that an unsafe structure or a structure unfit for human occupancy constitutes such a hazard that it should be razed or removed, then the code official shall be permitted to order the demolition of such structures in accordance with applicable requirements of this code.

Note: Structures which become unsafe during construction are regulated under the VCC.

B. Section 106.2 Inspection of unsafe or unfit structures. The code official shall inspect any structure reported or discovered as unsafe or unfit for human habitation and shall prepare a report to be filed in the records of the local enforcing agency and a copy issued to the owner. The report shall include the use of the structure and a description of the nature and extent of any conditions found.

C. Section 106.3 Unsafe conditions not related to maintenance. When the code official finds a condition that constitutes a serious and dangerous hazard to life or health in a structure constructed prior to the initial edition of the USBC and when that condition is of a cause other than improper maintenance or failure to

comply with state or local building codes that were in effect when the structure was constructed, then the code official shall be permitted to order those minimum changes to the design or construction of the structure to remedy the condition.

D. Section 106.3.1 Limitation to requirements for retrofitting. In accordance with Section 103.2, this code does not generally provide for requiring the retrofitting of any structure. However, conditions may exist in structures constructed prior to the initial edition of the USBC because of faulty design or equipment that constitute a danger to life or health or a serious hazard. Any changes to the design or construction required by the code official under this section shall be only to remedy the serious hazard or danger to life or health and such changes shall not be required to fully comply with the requirements of the VCC applicable to newly constructed buildings or structures.

E. Section 106.4 Notice of unsafe structure or structure unfit for human occupancy. When a structure is determined to be unsafe or unfit for human occupancy by the code official, a written notice of unsafe structure or structure unfit for human occupancy shall be issued by personal service to the owner, the owner's agent or the person in control of such structure. The notice shall specify the corrections necessary to comply with this code, or if the structure is required to be demolished, the notice shall specify the time period within which the demolition must occur. Requirements in Section 105.2 for notices of violation are also applicable to notices issued under this section to the extent that any such requirements are not in conflict with the requirements of this section.

Note: Whenever possible, the notice should also be given to any tenants of the affected structure.

F. Section 106.4.1 Vacating unsafe structure. If the code official determines there is actual and immediate danger to the occupants or public, or when life is endangered by the occupancy of an unsafe structure, the code official shall be authorized to order the occupants to immediately vacate the unsafe structure. When an unsafe structure is ordered to be vacated, the code official shall post a notice with the following wording at each entrance: "THIS STRUCTURE IS UNSAFE AND ITS OCCUPANCY (OR USE) IS PROHIBITED BY THE CODE OFFICIAL." After posting, occupancy or use of the unsafe structure shall be prohibited except when authorized to enter to conduct inspections, make required repairs or as necessary to demolish the structure.

G. Section 106.5 Posting of notice. If the notice is unable to be issued by personal service as required by Section 106.4, then the notice shall be sent by registered or certified mail to the last known address of the responsible party and a copy of the notice shall be posted in a conspicuous place on the premises.

H. Section 106.6 Posting of placard. In the case of a structure unfit for human habitation, at the time the notice is issued, a placard with the following wording shall be posted at the entrance to the structure: "THIS STRUCTURE IS UNFIT FOR HABITATION AND ITS USE OR OCCUPANCY HAS BEEN PROHIBITED BY THE CODE OFFICIAL." In the case of an unsafe structure, if the notice is not complied with, a placard with the above wording shall be posted at the entrance to the structure. After a structure is placarded, entering the structure shall be prohibited except as authorized by the code official to make inspections, to perform required repairs or to demolish the structure. In addition, the placard shall not be removed until the structure is determined by the code official to be safe to occupy, nor shall the placard be defaced.

I. Section 106.7 Revocation of certificate of occupancy. If a notice of unsafe structure or structure unfit for human habitation is not complied with within the time period stipulated on the notice, the code official shall be permitted to request the local building department to revoke the certificate of occupancy issued under the VCC.

J. Section 106.8 Vacant and open structures. When an unsafe structure or a structure unfit for human habitation is open for public entry at the time a placard is issued under Section 106.6, the code official shall be permitted to authorize the necessary work to make such structure secure against public entry whether or not legal action to compel compliance has been instituted.

K. Section 106.9 Emergency repairs and demolition. To the extent permitted by the locality, the code official may authorize emergency repairs to unsafe structures or structures unfit for human habitation when it is determined that there is an imminent danger of any portion of the unsafe structure or structure unfit for human habitation collapsing or falling and when life is endangered. Emergency repairs may also be authorized where there is a code violation resulting in the immediate serious and imminent threat to the life and safety of the occupants. The code official shall be permitted to authorize the necessary work to make the structure temporarily safe whether or not legal action to compel compliance has been instituted. In addition, whenever an owner of an unsafe structure or structure unfit for human habitation fails to comply with a notice to demolish issued under Section 106.4 in the time period stipulated, the code official shall be permitted to cause the structure to be demolished. In accordance with §§ 15.2-906 and 15.2-1115 of the Code of Virginia, the legal counsel of the locality may be requested to institute appropriate action against the property owner to recover the costs associated with any such emergency repairs or demolition and every such charge that remains unpaid shall constitute a lien against the property on which the emergency repairs or demolition were made and shall be enforceable in the same manner as provided in Articles 3 (§ 58.1-3940 et seq.) and 4 (§ 58.1-3965 et seq.) of Chapter 39 of Title 58.1 of the Code of Virginia.

Note: Code officials and local governing bodies should be aware that other statutes and court decisions may impact on matters relating to demolition, in particular whether newspaper publication is required if the owner cannot be located and whether the demolition order must be delayed until the owner has been given the opportunity for a hearing. In addition, historic building demolition may be prevented by authority granted to local historic review boards in accordance with § 15.2-2306 of the Code of Virginia unless determined necessary by the code official.

L. Section 106.10 Closing of streets. When necessary for public safety, the code official shall be permitted to order the temporary closing of sidewalks, streets, public ways or premises adjacent to unsafe or unfit structures and prohibit the use of such spaces.

13VAC5-63-500. Section 107 Appeals.

A. Section 107.1 Establishment of appeals board. In accordance with § 36-105 of the Code of Virginia, there shall be established within each local enforcing agency a LBBCA. Whenever a county or a municipality does not have such a LBBCA, the local governing body shall enter into an agreement with the local governing body of another county or municipality or with some other agency, or a state agency approved by DHCD for such appeals resulting therefrom. Fees may be levied by the local governing body in order to defray the cost of such appeals. The LBBCA for hearing appeals under the VCC shall be permitted to serve as the appeals board required by this section. The locality is responsible for maintaining a duly constituted LBBCA prepared to hear appeals within the time limits established in this section. The LBBCA shall meet as necessary to assure a duly constituted board, appoint officers as necessary, and receive such training on the code as may be appropriate or necessary from staff of the locality.

B. Section 107.2 Membership of board. The LBBCA shall consist of at least five members appointed by the locality for a specific term of office established by written policy. Alternate members may be appointed to serve in the absence of any regular members and as such, shall have the full power and authority of the regular members. Regular and alternate members may be reappointed. Written records of current membership, including a record of the current chairman and secretary shall be maintained in the office of

the locality. In order to provide continuity, the terms of the members may be of different length so that less than half will expire in any one-year period.

C. Section 107.3 Officers and qualifications of members. The LBBCA shall annually select one of its regular members to serve as chairman. When the chairman is not present at an appeal hearing, the members present shall select an acting chairman. The locality or the chief executive officer of the locality shall appoint a secretary to the LBBCA to maintain a detailed record of all proceedings. Members of the LBBCA shall be selected by the locality on the basis of their ability to render fair and competent decisions regarding application of the USBC and shall to the extent possible, represent different occupational or professional fields relating to the construction industry. At least one member should be an experienced builder; at least one member should be an RDP, and at least one member should be an experienced property manager. Employees or officials of the locality shall not serve as members of the LBBCA.

D. Section 107.4 Conduct of members. No member shall hear an appeal in which that member has a conflict of interest in accordance with the State and Local Government Conflict of Interests Act (§ 2.2-3100 et seq. of the Code of Virginia). Members shall not discuss the substance of an appeal with any other party or their representatives prior to any hearings.

E. Section 107.5 Right of appeal; filing of appeal application. Any person aggrieved by the local enforcing agency's application of this code or the refusal to grant a modification to the provisions of this code may appeal to the LBBCA. The applicant shall submit a written request for appeal to the LBBCA within 14 calendar days of the receipt of the decision being appealed. The application shall contain the name and address of the owner of the building or structure and, in addition, the name and address of the person appealing, when the applicant is not the owner. A copy of the code official's decision shall be submitted along with the application for appeal and maintained as part of the record. The application shall be marked by the LBBCA to indicate the date received. Failure to submit an application for appeal within the time limit established by this section shall constitute acceptance of a code official's decision.

F. Section 107.6 Meetings and postponements. The LBBCA shall meet within 30 calendar days after the date of receipt of the application for appeal, except that a period of up to 45 calendar days shall be permitted where the LBBCA has regularly scheduled monthly meetings. A longer time period shall be permitted if agreed to by all the parties involved in the appeal. A notice indicating the time and place of the hearing shall be sent to the parties in writing to the addresses listed on the application at least 14 calendar days prior to the date of the hearing, except that a lesser time period shall be permitted if agreed to by all the parties involved in the appeal. When a quorum of the LBBCA is not present at a hearing to hear an appeal, any party involved in the appeal shall have the right to request a postponement of the hearing. The LBBCA shall reschedule the appeal within 30 calendar days of the postponement, except that a longer time period shall be permitted if agreed to by all the parties involved in the appeal.

G. Section 107.7 Hearings and decision. All hearings before the LBBCA shall be open meetings and the appellant, the appellant's representative, the locality's representative and any person whose interests are affected by the code official's decision in question shall be given an opportunity to be heard. The chairman shall have the power and duty to direct the hearing, rule upon the acceptance of evidence and oversee the record of all proceedings. The LBBCA shall have the power to uphold, reverse, or modify the decision of the official by a concurring vote of a majority of those present. Decisions of the LBBCA shall be final if no further appeal is made. The decision of the LBBCA shall be explained in writing, signed by chairman and retained as part of the record of the appeal. Copies of the written decision shall be sent to all parties by certified mail. In addition, the written decision shall contain the following wording:

"Any person who was a party to the appeal may appeal to the State Review Board by submitting an application to such Board within 21 calendar days upon receipt by certified mail of the written decision. Application forms are available from the Office of the State Review Board, 600 East Main Street, Richmond, Virginia 23219, (804) 371-7150."

H. Section 107.8 Appeals to the State Review Board. After final determination by the LBBCA in an appeal, any person who was a party to the appeal may further appeal to the State Review Board. In accordance with § 36-98.2 of the Code of Virginia for state-owned buildings and structures, appeals by an involved state agency from the decision of the code official for state-owned buildings or structures shall be made directly to the State Review Board. The application for appeal shall be made to the State Review Board within 21 calendar days of the receipt of the decision to be appealed. Failure to submit an application within that time limit shall constitute an acceptance of the code official's decision. For appeals from a LBBCA, a copy of the code official's decision and the written decision of the LBBCA shall be submitted with the application for appeal to the State Review Board. Upon request by the Office of the State Review Board, the LBBCA shall submit a copy of all pertinent information from the record of the appeal. In the case of appeals involving state-owned buildings or structures, the involved state agency shall submit a copy of the code official's decision and other relevant information with the application for appeal to the State Review Board. Procedures of the State Review Board are in accordance with Article 2 (§ 36-108 et seq.) of Chapter 6 of Title 36 of the Code of Virginia. Decisions of the State Review Board shall be final if no further appeal is made.

13VAC5-63-510. Chapter 2 Definitions.

A. Change Section 201.3 of the IPMC to read:

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the IBC, IFC, IFGC, IPC, IMC, International Existing Building Code, IRC, International Zoning Code or NFPA 70, such terms shall have the meanings ascribed to them as stated in those codes, except that terms defined in the VCC shall be used for this code and shall take precedence over other definitions.

B. Change Section 201.5 of the IPMC to read:

201.5 Parts. Whenever the words "dwelling unit," "dwelling," "premises," "building," "rooming unit," "housekeeping unit," or "story" are stated in this code, they shall be construed as though they were followed by the words "or part thereof."

C. Add the following definitions to Section 202 of the IPMC to read:

Applicable building code. The local or statewide building code and referenced standards in effect at the time the building or portion thereof was constructed, altered, renovated or underwent a change of occupancy. See Section 103 for the application of the code.

Maintained. To keep unimpaired in an appropriate condition, operation, and continuance as installed in accordance with the applicable building code, or as previously approved, and in accordance with the applicable operational and maintenance provisions of this code.

Structure unfit for human occupancy. An existing structure determined by the code official to be dangerous to the health, safety and welfare of the occupants of the structure or the public because (i) of the degree to which the structure is in disrepair or lacks maintenance, ventilation, illumination, sanitary or heating facilities or other essential equipment, or (ii) the required plumbing and sanitary facilities are inoperable.

Unsafe equipment. Unsafe equipment includes any boiler, heating equipment, elevator, moving stairway, electrical wiring or device, flammable liquid containers or other equipment that is in such disrepair or condition that such equipment is determined by the code official to be dangerous to the health, safety and welfare of the occupants of a structure or the public.

Unsafe structure. An existing structure (i) determined by the code official to be dangerous to the health, safety and welfare of the occupants of the structure or the public, (ii) that contains unsafe equipment, or (iii) that is so damaged, decayed, dilapidated, structurally unsafe or of such faulty construction or unstable foundation that partial or complete collapse is likely. A vacant existing structure unsecured or open shall be deemed to be an unsafe structure.

D. Delete the following definitions from Section 202 of the IPMC:

Condemn
Cost of such demolition of emergency repairs
Equipment support
Inoperable motor vehicle
Labeled
Neglect
Openable area
Pest elimination
Strict liability offense
Ultimate deformation
Workmanlike

13VAC5-63-520. Chapter 3 General requirements.

A. Delete the following sections from Chapter 3 of the IPMC:

1. Section 301.2 Responsibility.
2. Section 302.1 Sanitation.
3. Section 302.4 Weeds.
4. Section 302.6 Exhaust vents.
5. Section 302.8 Motor vehicles.
6. Section 302.9 Defacement of property.
7. Section 303.2 Enclosures.
8. Section 304.1.1 Unsafe conditions.
9. Section 304.18.1 Doors.
10. Section 304.18.2 Windows.
11. Section 304.18.3 Basement hatchways.

12. Section 305.1.1 Unsafe conditions.
13. Section 306 Component serviceability (all provisions).
14. Section 308.2 Disposal of rubbish.
15. Section 308.2.1 Rubbish storage facilities.
16. Section 308.2.2 Refrigerators.
17. Section 308.3 Disposal of garbage.
18. Section 308.3.1 Garbage facilities.
19. Section 308.3.2 Containers.
20. Section 309.2 Owner.
21. Section 309.3 Single occupant.
22. Section 309.4 Multiple occupancy.
23. Section 309.5 Occupant.

B. Change the following sections in Chapter 3 of the IPMC to read:

1. Section 301.1 Scope. The provisions of this chapter shall govern the minimum conditions for the maintenance of structures and equipment and for the maintenance of exterior property to the extent that this code is applicable.
2. Section 301.3 Vacant structures. Vacant structures shall be maintained in a clean, safe, secure, and sanitary condition as provided for in this code.
3. Section 302.2 Grading and drainage. All premises shall be graded and maintained to protect the foundation walls or slab of the structure from the accumulation and drainage of surface or stagnant water in accordance with the applicable building code.
4. Section 302.3 Sidewalks and driveways. All sidewalks, walkways, stairs, driveways, parking spaces, and similar spaces regulated under the VCC shall be kept in a proper state of repair and maintained free from hazardous conditions.
5. Section 302.5 Rodent harborage. All structures and adjacent premises shall be kept free from rodent harborage and infestation where such harborage or infestation adversely affects the structures.
6. Section 303.2 Enclosures. Swimming pool, hot tub, and spa barriers shall be maintained in accordance with the applicable building code or ordinance under which such barriers were constructed.

7. Section 304.1 General. The exterior of a structure shall be maintained in good repair, structurally sound, and sanitary so as not to pose a threat to the health, safety, or welfare.

8. Section 304.3 Premises identification. Address numbers of buildings shall be maintained in accordance with the applicable building code or when required by ordinance.

9. Section 304.7 Roofs and drainage. The roof and flashing shall be sound, tight, and not have defects that admit rain. Roof drainage shall be adequate to prevent dampness or deterioration in the walls or interior portion of the structure. Roof water shall be discharged in a manner to protect the foundation or slab of buildings and structures from the accumulation of roof drainage.

10. Section 304.14 Insect screens. During the period from April 1 to December 1, every door, window, and other outside opening required for ventilation of habitable rooms, food preparation areas, food service areas, or any areas where products to be included or utilized in food for human consumption are processed, manufactured, packaged, or stored shall be supplied with an approved tightly fitting screens of not less than 16 mesh per inch (16 mesh per 25 mm) and every screen door used for insect control shall have a self-closing device in good working condition.

Exception: Screens shall not be required where other approved means, such as mechanical ventilation, air curtains, or insect repellant fans, are used.

11. Section 304.18 Building security. Devices designed to provide security for the occupants and property within, when required by the applicable building code or when provided, shall be maintained unless their removal is approved by the building official under the VCC.

12. Section 304.19 Gates. To the extent required by the applicable building code or to the extent provided when constructed, exterior gates, gate assemblies, operator systems if provided, and hardware shall be maintained in good condition. Latches at all entrances shall tightly secure the gates.

13. Section 305.1 General. The interior of a structure and equipment therein shall be maintained in good repair, structurally sound, and in a sanitary condition.

14. Section 307.1 General. Handrails and guards required or provided when a building was constructed shall be maintained in accordance with the applicable building code.

15. Section 308.1 Accumulation of rubbish or garbage. The interior of every structure shall be free from excessive accumulation of rubbish or garbage.

16. Section 309 Pest Infestation and extermination.

17. Section 309.1 Infestation. This section shall apply to the extent that insect and rodent infestation adversely affects a structure. All structures shall be kept free from insect and rodent infestation. Structures in which insects or rodents are found shall be promptly exterminated by approved processes that will not be injurious to human health. After extermination, proper precautions shall be taken to prevent reinfestation.

C. Add the following sections to Chapter 3 of the IPMC:

1. Section 305.7 Carbon monoxide alarms. Carbon monoxide alarms shall be maintained as approved.

2. Section 310 Lead-based paint.

3. Section 310.1 General. Interior and exterior painted surfaces of dwellings and child care facilities, including fences and outbuildings, that contain lead levels equal to or greater than 1.0 milligram per square centimeter or in excess of 0.50% lead by weight shall be maintained in a condition free from peeling, chipping, and flaking paint or removed or covered in an approved manner. Any surface to be covered shall first be identified by an approved warning as to the lead content of such surface.

4. Section 311 Aboveground liquid fertilizer storage tanks (ALFST).

5. Section 311.1 General. ALFSTs shall be maintained in accordance with the requirements of Section 1101.16 of the VEBC and the requirements of the VCC applicable to such ALFSTs when newly constructed and the requirements of the VEBC when undergoing a change of occupancy to an ALFST and when repaired, altered, or reconstructed, including the requirements for inspections and for a secondary containment system.

13VAC5-63-524. Chapter 4 Light, ventilation, and occupancy limitations.

A. Delete the following sections from Chapter 4 of the IPMC:

1. Section 401.2 Responsibility.
2. Section 401.3 Alternative devices.
3. Section 402.2 Common halls and stairways.
4. Section 402.3 Other spaces.
5. Section 403.2 Bathrooms and toilet rooms.
6. Section 403.5 Clothes dryer exhaust.

B. Change the following sections in Chapter 4 of the IPMC to read:

1. Section 401.1 Scope. The provisions of this chapter shall govern the maintenance of structures for light, ventilation, and space for occupancy.
2. Section 402.1 Natural or artificial light. Every habitable space, hallway, stairway, bathroom, and other spaces shall be maintained to provide natural or artificial light to the extent required or provided in accordance with the applicable building code.
3. Section 403.1 Natural or mechanical ventilation. Every habitable space, hallway, stairway, bathroom, and other spaces shall be maintained to provide natural or mechanical ventilation to the extent required by the applicable building code.
4. Section 403.4 Process ventilation. Local exhaust systems required by the applicable building code or that are provided that exhaust injurious, toxic, irritating, or noxious fumes, gases, dusts,

or mists to the exterior of a building shall be maintained to prevent compromising the required ventilation system.

C. Add the following section to Chapter 4 of the IPMC:

Section 404.05 Limitation of application of section. The provisions of Section 404 that address construction aspects of occupancy limitations shall apply only to the extent that such requirements were part of the applicable building code. Operational requirements such as the use of rooms or minimum areas per occupant are part of this code only to the extent that they do not require alterations to be made to a building.

13VAC5-63-530. Chapter 5 Plumbing facilities and fixture requirements.

A. Change the title of Chapter 5 of the IPMC to "Plumbing Requirements."

B. Delete the following sections from Chapter 5 of the IPMC:

1. Section 501.2 Responsibility.
2. Section 502 Required facilities (all provisions).
3. Section 503 Toilet rooms (all provisions).
4. Section 505.3 Supply.

C. Change the following sections in Chapter 5 of the IPMC to read:

1. Section 501.1 General. The provisions of this chapter shall govern the maintenance of structures for plumbing systems, facilities, and fixtures.
2. Section 504.1 General. Required or provided plumbing systems and facilities shall be maintained in accordance with the applicable building code.
3. Section 504.2 Plumbing fixtures. All plumbing fixtures shall be maintained in a safe, sanitary, and working condition. A kitchen sink shall not be used as a substitute for a required lavatory.
4. Section 504.3 Plumbing system hazards. Where it is found that a plumbing system in a structure constitutes a hazard to the public, the occupants, or the structure, the code official shall require the defects to be corrected to eliminate the hazard.
5. Section 505.1 Supply. Required or provided water supply systems shall be maintained in accordance with the applicable building code. All water supply systems shall be free from obstructions, defects, and leaks.
6. Section 505.2 Protection of water supply systems. Protection of water supply systems shall be provided and maintained in accordance with the applicable building code.
7. Section 505.3 Inspection and testing of backflow prevention systems. Inspection and testing shall comply with Sections 505.3.1 and 505.3.2.

8. Section 505.4 Water heating facilities. Water heating facilities shall be maintained. Combination temperature and pressure-relief valves and relief valve discharge pipes shall be maintained on water heaters.

9. Section 505.5 Nonpotable water reuse systems. Where installed, nonpotable water reuse and rainwater collection and conveyance systems shall be maintained in a safe and sanitary condition. Where such systems are not properly maintained, the systems shall be repaired to provide for safe and sanitary conditions, or the system shall be abandoned in accordance with the following:

1. All system piping connecting to a utility provided or private water system shall be removed or disabled. Proper cross-connection control and backflow prevention measures shall comply with the applicable building code.

2. Where required, the distribution piping system shall be replaced with an approved potable water supply piping system.

3. The storage tank shall be secured from accidental access by sealing or locking tank inlets and access points or filling with sand or equivalent.

~~9.~~ 10. Section 506.1 Drainage and venting. Required or provided sanitary drainage and venting systems shall be maintained in accordance with the applicable building code.

~~10.~~ 11. Section 506.2 Maintenance. Every building drainage and sewer system shall function properly and be kept free from obstructions, leaks, and defects.

~~11.~~ 12. Section 507.1 General. Drainage of roofs and paved areas, yards and courts, and other open areas on the premises shall be discharged in a manner to protect the buildings and structures from the accumulation of overland water runoff.

D. Add the following sections to Chapter 5 of the IPMC:

1. Section 504.1.1 Public and employee facilities. Except for periodic maintenance or cleaning, access and use shall be provided to facilities at all times during occupancy of the premises in accordance with the applicable building code.

2. Section 504.2.1 Fixture clearances. Adequate clearances for usage and cleaning of plumbing fixtures shall be maintained as approved when installed.

3. Section 505.1.1 Tempered water. Tempered water shall be supplied to fixtures and facilities when required by the applicable building code.

4. Section 505.2.1 Attached hoses. Shampoo basin faucets, janitor sink faucets, and other hose bibs or faucets to which hoses are attached and left in place shall be protected by an approved atmospheric-type vacuum breaker or an approved permanently attached hose connection vacuum breaker.

5. Section 505.3.1 Inspections. Inspections shall be made of all backflow assemblies and air gaps to determine whether they are operable.

6. Section 505.3.2 Testing. Reduced pressure principle backflow preventer assemblies, double check-valve assemblies, double-detector check valve assemblies, and pressure vacuum breaker assemblies shall be tested at the time of installation, immediately after repairs or relocation and at least annually. The testing procedure shall be performed in accordance with one of the following standards: ASSE 5010-1013-1, Sections 1 and 2; ASSE 5010-1015-1, Sections 1 and 2; ASSE 5010-1015-2; ASSE 5010-1015-3, Sections 1 and 2; ASSE 5010-1015-4, Sections 1 and 2; ASSE 5010-1020-1, Sections 1 and 2; ASSE 5010-1047-1, Sections 1, 2, 3 and 4; ASSE 5010-1048-1, Sections 1, 2, 3 and 4; ASSE 5010-1048-2; ASSE 5010-1048-3, Sections 1, 2, 3 and 4; ASSE 5010-1048-4, Sections 1, 2, 3 and 4; or CAN/CSA B64.10.

~~7. 505.5 Nonpotable water reuse systems. Where installed, nonpotable water reuse and rainwater collection and conveyance systems shall be maintained in a safe and sanitary condition. Where such systems are not properly maintained, the systems shall be repaired to provide for safe and sanitary conditions, or the system shall be abandoned in accordance with the following:~~

~~1. All system piping connecting to a utility provided or private water system shall be removed or disabled. Proper cross-connection control and backflow prevention measures shall comply with the applicable building code.~~

~~2. Where required, the distribution piping system shall be replaced with an approved potable water supply piping system.~~

~~3. The storage tank shall be secured from accidental access by sealing or locking tank inlets and access points or filling with sand or equivalent.~~

13VAC5-63-540. Chapter 6 Mechanical and electrical requirements.

A. Delete the following sections from Chapter 6 of the IPMC:

1. Section 601.2 Responsibility.
2. Section 603.6 Energy conservation devices.
3. Section 604.2 Service.
4. Section 604.3.2 Abatement of electrical hazards associated with fire exposure.

B. Change the following sections in Chapter 6 of the IPMC to read:

1. Section 601.1 General. The provisions of this chapter shall govern the maintenance of mechanical and electrical facilities and equipment.

2. Section 602 Heating and cooling facilities.

3. 602.1 Facilities required. Heating and cooling facilities shall be maintained and operated in structures as required by this section.

~~3. 4.~~ Section 602.2 Heat supply. Every owner and operator of a Group R-2 apartment building or other residential building who rents, leases, or lets one or more dwelling unit, rooming unit, dormitory, or guestroom on terms, either expressed or implied, to furnish heat to the occupants thereof shall supply heat during the period from October 15 to May 1 to maintain a temperature

of not less than 68°F (20°C) in all habitable rooms, bathrooms, and toilet rooms. The code official may also consider modifications as provided in Section 104.5.2 when requested for unusual circumstances or may issue notice approving building owners to convert shared heating and cooling piping HVAC systems 14 calendar days before or after the established dates when extended periods of unusual temperatures merit modifying these dates.

Exception: When the outdoor temperature is below the winter outdoor design temperature for the locality, maintenance of the minimum room temperature shall not be required provided that the heating system is operating at its full design capacity. The winter outdoor design temperature for the locality shall be as indicated in Appendix D of the IPC.

~~4.~~ 5. Section 602.3 Occupiable work spaces. Indoor occupiable work spaces shall be supplied with heat during the period from October 1 to May 15 to maintain a minimum temperature of 65°F (18°C) during the period the spaces are occupied.

Exceptions:

1. Processing, storage, and operation areas that require cooling or special temperature conditions.
2. Areas in which persons are primarily engaged in vigorous physical activities.

~~5.~~ 6. Section 602.4 Cooling supply. Every owner and operator of a Group R-2 apartment building who rents, leases, or lets one or more dwelling units, rooming units, or guestrooms on terms, either expressed or implied, to furnish cooling to the occupants thereof shall supply cooling during the period from May 15 to October 1 to maintain a temperature of not more than 80°F (27°C) in all habitable rooms. The code official may also consider modifications as provided in Section 104.5.2 when requested for unusual circumstances or may issue notice approving building owners to convert shared heating and cooling piping HVAC systems 14 calendar days before or after the established dates when extended periods of unusual temperatures merit modifying these dates.

Exception: When the outdoor temperature is higher than the summer design temperature for the locality, maintenance of the room temperature shall not be required provided that the cooling system is operating at its full design capacity. The summer outdoor design temperature for the locality shall be as indicated in the IECC.

~~6.~~ 7. Section 603.1 Mechanical equipment and appliances. Required or provided mechanical equipment, appliances, fireplaces, solid fuel-burning appliances, cooking appliances, chimneys, vents, and water heating appliances shall be maintained in compliance with the code under which the appliances, system, or equipment was installed, kept in safe working condition, and capable of performing the intended function.

~~7.~~ 8. Section 603.2 Removal of combustion products. Where required by the code under which installed, fuel-burning equipment and appliances shall be connected to an approved chimney or vent.

~~8.~~ 9. Section 603.5 Combustion air. Where required by the code under which installed, a supply of air for complete combustion of the fuel shall be provided for the fuel-burning equipment.

~~9.~~ 10. Section 604.1 Electrical system. Required or provided electrical systems and facilities shall be maintained in accordance with the applicable building code.

~~10.~~ 11. Section 604.3 Electrical system hazards. Where it is found that the electrical system in a structure constitutes a hazard to the occupants or the structure by reason of deterioration or damage or for similar reasons, the code official shall require the defects to be corrected to eliminate the hazard.

~~11.~~ 12. Section 604.3.1.1 Electrical equipment. Electrical distribution equipment, motor circuits, power equipment, transformers, wire, cable, flexible cords, wiring devices, ground fault circuit interrupters, surge protectors, molded case circuit breakers, low-voltage fuses, luminaires, ballasts, motors, and electronic control, signaling, and communication equipment that have been exposed to water shall be replaced in accordance with the provisions of the VCC.

Exception: The following equipment shall be allowed to be repaired or reused where an inspection report from the equipment manufacturer, an approved representative of the equipment manufacturer, a third party licensed or certified electrician, or an electrical engineer indicates that the exposed equipment has not sustained damage that requires replacement:

1. Enclosed switches, rated 600 volts or less;
2. Busway, rated 600 volts or less;
3. Panelboards, rated 600 volts or less;
4. Switchboards, rated 600 volts or less;
5. Fire pump controllers, rated 600 volts or less;
6. Manual and magnetic motor controllers;
7. Motor control centers;
8. Alternating current high-voltage circuit breakers;
9. Low-voltage power circuit breakers;
10. Protective relays, meters, and current transformers;
11. Low-voltage and medium-voltage switchgear;
12. Liquid-filled transformers;
13. Cast-resin transformers;
14. Wire or cable that is suitable for wet locations and whose ends have not been exposed to water;

15. Wire or cable, not containing fillers, that is suitable for wet locations and whose ends have not been exposed to water;
16. Luminaires that are listed as submersible;
17. Motors; or
18. Electronic control, signaling, and communication equipment.

~~12-~~ 13. 604.3.2.1 Electrical equipment. Electrical switches, receptacles and fixtures, including furnace, water heating, security system and power distribution circuits, that have been exposed to fire shall be replaced in accordance with the provisions of the Virginia Construction Code.

Exception: Electrical switches, receptacles and fixtures that shall be allowed to be repaired or reused where an inspection report from the equipment manufacturer or an approved representative of the equipment manufacturer, a third party licensed or certified electrician, or an electrical engineer indicates that the equipment has not sustained damage that requires replacement.

~~13-~~ 14. Section 605.1 Electrical components. Electrical equipment, wiring, and appliances shall be maintained in accordance with the applicable building code.

~~14-~~ 15.Section 605.2 Power distribution and receptacles. Required or provided power circuits and receptacles shall be maintained in accordance with the applicable building code, and ground fault and arc-fault circuit interrupter protection shall be provided where required by the applicable building code. All receptacle outlets shall have the appropriate faceplate cover for the location when required by the applicable building code.

~~15-~~ 16. Section 605.3 Lighting distribution and luminaires. Required or provided lighting circuits and luminaires shall be maintained in accordance with the applicable building code.

~~16-~~ 17. Section 605.4 Flexible cords. Flexible cords shall not be run through doors, windows, or cabinets or concealed within walls, floors, or ceilings.

~~17-~~ 18. Section 606.1 General. Elevators, dumbwaiters, and escalators shall be maintained in compliance with ASME A17.1. The most current certificate of inspection shall be on display at all times within the elevator or attached to the escalator or dumbwaiter, be available for public inspection in the office of the building operator, or be posted in a publicly conspicuous location approved by the code official. Where not displayed in the elevator or attached on the escalator or dumbwaiter, there shall be a notice of where the certificate of inspection is available for inspection. An annual periodic inspection and test is required of elevators and escalators. A locality shall be permitted to require a six-month periodic inspection and test. All periodic inspections shall be performed in accordance with Section 8.11 of ASME A17.1. The code official may also provide for such inspection by an approved agency or through agreement with other local certified elevator inspectors. An approved agency includes any individual, partnership, or corporation who has met the certification requirements established by the VCS.

C. Add the following sections to Chapter 6 of the IPMC:

1. Section 602.2.1 Prohibited use. In dwelling units subject to Section 602.2, one or more unvented room heaters shall not be used as the sole source of comfort heat in a dwelling unit.
2. Section 607.2 Clothes dryer exhaust duct. Required or provided clothes dryer exhaust systems shall be maintained in accordance with the applicable building code.

13VAC5-63-545. Chapter 7 Fire safety requirements.

A. Delete the following sections from Chapter 7 of the IPMC:

1. Section 701.2 Responsibility.
2. Section ~~704.1.2~~ 704.5 Fire department connection.
3. Section ~~704.2.1~~ 704.6.1 Where required.
4. Section ~~704.2.1.1~~ 704.6.1.1 Group R-1.
5. Section ~~704.2.1.2~~ 704.6.1.2 Groups R-2, R-3, R-4, and I-1.
6. Section ~~704.2.1.3~~ 704.6.1.3 Installation near cooking appliances.
7. Section ~~704.2.1.4~~ 705.6.1.4 Installation near bathrooms.
8. Section ~~704.2.2~~ 704.6.2 Interconnection.
9. Section ~~704.2.3~~ 704.6.3 Power source.
10. Section ~~704.2.4~~ 704.6.4 Smoke detection system.
11. Section 704.7. Single- and multiple-station smoke alarms.

B. Change the following sections in Chapter 7 of the IPMC:

1. Section 701.1 General. The provisions of this chapter shall govern the maintenance of fire safety facilities and equipment.
2. Section 702.2 Aisles. The required width of aisles shall be maintained in accordance with the applicable building code.
3. Section 702.3 Doors. Means of egress doors shall be maintained and, to the extent required by the code in effect at the time of construction, shall be readily openable from the side from which egress is to be made without the need for keys, special knowledge, or effort.
4. Section 702.4 Emergency escape openings. Required emergency escape openings shall be maintained in accordance with the code in effect at the time of construction and to the extent required by the code in effect at the time of construction shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates, or similar devices are permitted to be placed over emergency escape and rescue openings provided the minimum net clear opening size complies with the code that was in effect at the time of construction and such devices

shall be releasable or removable from the inside without the use of a key, tool, or force greater than that which is required for normal operation of the escape and rescue opening.

5. Section 704.1 General. Systems, devices, and equipment to detect a fire, actuate an alarm, or suppress or control a fire or any combination thereof shall be maintained in an operable condition at all times.

6. ~~Section 704.1.1 Automatic sprinkler systems. Inspection, testing, and maintenance of automatic sprinkler systems shall be in accordance with NFPA 25 for the purpose of operation and maintenance.~~ Maintenance and alterations. Fire protection systems shall be maintained in accordance with the original installation standards for that system. Alterations and repairs to fire protection systems shall be done in accordance with the applicable building code and the applicable standards.

7. Section 704.1.2 Required fire protection systems. Fire protection systems shall be repaired, operated, tested and maintained in accordance with this code. A fire protection system for which a design option, exception or reduction to the provisions of this code or the applicable building code has been granted shall be considered to be a required system.

8. Section 704.1.3 Fire protection systems. Fire protection systems shall be maintained in accordance with the Statewide Fire Prevention Code.

9. Section 704.3.1 Preplanned impairment programs. Preplanned impairments shall be authorized by the impairment coordinator. Before authorization is given, a designated individual shall be responsible for verifying that all of the following procedures have been implemented:

1. The extent and expected duration of the impairment have been determined.
2. The areas or buildings involved have been inspected and the increased risks determined.
3. Recommendations have been submitted to management or the building owner or manager.
4. The fire department has been notified.
5. The insurance carrier, the alarm company, the building owner or manager and other authorities having jurisdiction have been notified.
6. The supervisors in the areas to be affected have been notified.
7. A tag impairment system has been implemented.
8. Necessary tools and materials have been assembled on the impairment site.

10. Section 704.4 Removal of or tampering with equipment. It shall be unlawful for any person to remove, tamper with, or otherwise disturb any fire hydrant, fire detection and alarm system, fire suppression system, or other fire appliance required by this code or the applicable building code except for the purpose of extinguishing fire, for training purposes, for recharging or making necessary repairs, or where approved by the fire code official.

11. Section 704.4.2 Removal of existing occupant-use hose lines. The fire code official is authorized to permit the removal of existing occupant-use hose lines where all of the following conditions exist:

1. Installation is not required by this code or the applicable building code.
2. The hose line would not be utilized by trained personnel or the fire department.
3. The remaining outlets are compatible with local fire department fittings.

7. 12. Section ~~704.2~~ 704.6 Single-station and multiple-station smoke alarms. Required or provided single-station and multiple-station smoke alarms shall be maintained in accordance with the applicable building code.

Chapter 8 Referenced standards.

Change the referenced standards in Chapter 8 of the IPMC as follows (standards not shown remain the same):

Standard reference number	Title	Referenced in code section number
ASSE 5010-1013-1	Field Test Procedure for a Reduced Pressure Principle Assembly Using a Differential Pressure Gauge, 1991 Field	505.3.2
ASSE 5010-1015-1	Test Procedure for a Double Check Valve Assembly Using a Duplex Gauge, 1991	505.3.2
ASSE 5010-1015-2	Field Test Procedure for a Double Check Valve Assembly Using a Differential Pressure Gauge - High- and Low-Pressure Hose Method, 1991	505.3.2
ASSE 5010-1015-3	Field Test Procedure for a Double Check Valve Assembly Using a Differential Pressure Gauge - High Pressure Hose Method, 1991	505.3.2
ASSE 5010-1015-4	Field Test Procedure for a Double Check Valve Assembly Using a Site Tube, 1991	505.3.2
ASSE 5010-1020-1	Field Test Procedures for a Pressure Vacuum Breaker Assembly, 1991	505.3.2
ASSE 5010-1047-1	Field Test Procedure for a Reduced Pressure Detector Assembly Using a Differential Pressure Gauge, 1991	505.3.2
ASSE 5010-1048-1	Field Test Procedure for a Double Check Detector Assembly Using a Duplex Gauge, 1991	505.3.2
ASSE 5010-1048-2	Field Test Procedure for a Double Check Detector Assembly Using a Differential Pressure Gauge - High- and Low-Pressure Hose Method, 1991	505.3.2
ASSE 5010-1048-3	Field Test Procedure for a Double Check Detector Assembly Using a Differential Pressure Gauge - High-Pressure Hose Method, 1991	505.3.2
ASSE 5010-1048-4	Field Test Procedure for a Double Check Detector Assembly Using a Site Tube, 1991	505.3.2
CAN/CSA-B64.10-01	Manual for the Selection and Installation of Backflow Prevention Devices/Manual for the Maintenance and Field Testing of Backflow Prevention Devices	505.3.2

A103.2-18

VCC: 103.2

Proponents: Kenney Payne, AIA Virginia (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

103.2 When applicable to new construction. *Construction* for which a permit application is submitted to the *local building department* on or after the effective date of the ~~2015-2018~~ edition of the code shall comply with the provisions of this code, except for permit applications submitted during a 1-year period beginning on the effective date of the ~~2015-2018~~ edition of the code. The applicant for a permit during such 1-year period shall be permitted to choose whether to comply with the provisions of this code or the provisions of the edition of the code in effect immediately prior to the ~~2015-2018~~ edition. This provision shall also apply to subsequent amendments to this code based on the effective date of such amendments. In addition, when a permit has been properly issued under a previous edition of this code, this code shall not require changes to the approved *construction* documents, design or *construction* of such a *building* or *structure*, provided the permit has not been suspended or revoked.

Reason Statement: Some people have been confused as to whether Section 103.2 applies to EXISTING construction or only NEW construction. By deleting the word 'new' it should eliminate the confusion - thus applying to all construction. As an option, "new" could remain in the VCC and duplicate the same language in the VEBC, but change "new" to "existing." However, duplication should not be necessary because of VEBC 103.1.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A103.2-18

This proposal doesn't have any public comments.

Proposal # 16

A103.2-18

A105.2.1-18

VCC: 105.2.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Construction Code

105.2.1 Qualifications of technical assistants. A *technical assistant* shall have at least 3 years of experience and general knowledge in at least one of the following areas: *building construction*; *building construction* conceptual and administrative processes; *building*, fire or housing inspections; plumbing, electrical or mechanical trades; or fire protection, elevator or property maintenance work. Any combination of education and experience that would confer equivalent knowledge and ability, including high school technical training programs or college engineering, architecture or construction degree programs, shall be deemed to satisfy this requirement. The *locality* may establish additional qualification requirements.

Reason Statement: The ability to attract new technical assistance from the construction industry is becoming harder. We now have the High School Technical Training program in Virginia as well as numerous engineering, construction technology and architectural programs that are producing people with the core knowledge and skills necessary to begin a career in code enforcement. This proposal makes it clear that such education is equivalent to the 3 years of construction experience.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This proposal is not related to construction cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This is not related to resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

A106.3.1-18

VCC: 106.3.1, 112.2

Proponents: DHCD Staff

2015 Virginia Construction Code

106.3.1 Substantiation of modification. *The building official may require or may consider a statement from an RDP or other person competent in the subject area of the application as to the equivalency of the proposed modification. In addition, the building official may require the application to include construction documents sealed by an RDP. RDP. The building official may also consider nationally recognized guidelines in deciding whether to approve a modification.*

112.2 Alternative methods or materials. *In accordance with Section 36-99 of the Code of Virginia, where practical, the provisions of this code are stated in terms of required level of performance so as to facilitate the prompt acceptance of new building materials and methods. When generally recognized standards of performance are not available, this section and other applicable requirements of this code provide for acceptance of materials and methods whose performance is substantially equal in safety to those specified on the basis of reliable test and evaluation data presented by the proponent. In addition, as a requirement of this code, the building official shall require that sufficient technical data be submitted to substantiate the proposed use of any material, equipment, device, assembly or method of construction-. The building official may consider nationally recognized guidelines in making a determination.*

Reason Statement: *This proposal would allow the use of nationally recognized guidelines under the modification or alternative methods and materials Sections of Chapter 1. Guidelines such as CC G5-2019 "Guideline for the Safe Use of ISO Intermodal Shipping Containers Repurposed as Buildings and Building Components", could be useful tools in substantiating a modification an alternative method or material where the code is silent.*

Cost Impact Statement: *The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction*

Resiliency Impact Statement: *This proposal will increase Resiliency
This proposal is intended to support the use of published guidelines, from nationally recognized sources, such as CC G5-2019 "Guideline for the Safe Use of ISO Intermodal Shipping Containers Repurposed as Buildings and Building Components" published by ICC, as supporting documentation for a code modification. The published container guideline provide valuable information that a building official can utilize to approve the use of shipping containers as building materials. Allowing the use of shipping containers will provide an additional option for affordable resilient housing.*

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: *Consensus Approval*

Workgroup 1 - Proposed Reason: *Richard Grace had issue with the term guidelines, but did not oppose.*

Board Decision

Board Decision: *None*

Board Reason: *N/A*

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for A106.3.1-18

This proposal doesn't have any public comments.

Proposal # 232

A106.3.1-18

A108.4--18

VCC: 108.4

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

2015 Virginia Construction Code

108.4 Prerequisites to obtaining permit. In accordance with Section 54.1-1111 of the Code of Virginia, any person applying to the building department for the construction, removal or improvement of any structure shall furnish prior to the issuance of the permit either (i) satisfactory proof to the building official that he is duly licensed or certified under the terms of Chapter 11 (Section 54.1-1000 et seq.) of Title 54.1 of the Code of Virginia to carry out or superintend the same; or (ii) file a written statement, supported by an affidavit, that he is not subject to licensure or certification as a contractor or subcontractor pursuant to Chapter 11 (Section 54.1-1000 et seq.) of Title 54.1 of the Code of Virginia. The applicant shall also furnish satisfactory proof that the taxes or license fees required by any county, city, or town have been paid so as to be qualified to bid upon or contract for the work for which the permit has been applied.

Reason Statement: To match the current law.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
None

Resiliency Impact Statement:
None

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: The changes are necessary to correlate with the law that came out of the General Assembly. The law eliminated the requirements for an affidavit.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A108.4--18

This proposal doesn't have any public comments.

Proposal # 51

A108.4--18

A110.5-18

VCC: 110.5

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Construction Code

~~110.5 Signature on and posting~~ Posting of permits; limitation of approval.

~~The signature of the building official or authorized representative shall be on or affixed to every permit.~~ A copy of the permit shall be posted on the *construction* site for public inspection until the work is completed. Such posting shall include the street or lot number, if one has been assigned, to be readable from a public way. In addition, each *building* or *structure* to which a street number has been assigned shall, upon completion, have the number displayed so as to be readable from the public way.

A permit shall be considered authority to proceed with *construction* in accordance with this code, the approved *construction* documents, the permit application and any approved amendments or modifications. The permit shall not be construed to otherwise authorize the omission or amendment of any provision of this code.

Reason Statement: Very few building officials still physically sign a permit. Most jurisdictions print out permits from computer systems and fulfill the signature requirement with a computer affixed electronic copy of the signature. All this requirement does is add one more thing that needs to be configured into the computer system. The signature provides no value.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This will have no impact on cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This has nothing to do with resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: VBCOA Suppots

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A110.5-18

This proposal doesn't have any public comments.

Proposal # 202

A110.5-18

A110.8--18

VCC: 110.8

Proponents: Richard Witt, chesterfield County (wittr@chesterfield.gov)

2015 Virginia Construction Code

110.8 Revocation of a permit. The building official may revoke a permit or approval issued under this code in the case of any false statement, misrepresentation of fact, abandonment of work, failure to complete *construction* as required by Section 110.7, non-compliance with provisions of this code and pertinent laws and ordinances, or incorrect information supplied by the applicant in the application or *construction* documents on which the permit or approval was based.

Reason Statement: This change clarifies that an issued permit can be revoked should it have been issued in non-compliance with pertinent laws and ordinances

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This change does not impact cost

Resiliency Impact Statement:
no impact

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Reason: This change clarifies that an issued permit can be revoked should it have been issued in noncompliance with pertinent laws and ordinances.

Comments:

Mr. Witt provided an overview of proposal.

Mr. Witt stated that this will provide clarification that the building official has the right to revoke the permit.

Mr. Gordon suggested using the word applicable instead of pertinent because pertinent is broader and more subjective.

Mr. Witt stated that he used the word pertinent because it is already used throughout the codes but he will talk it over with Mr. Pharr.

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A110.8--18

This proposal doesn't have any public comments.

Proposal # 2

A110.8--18

A113.7(2)-18

VCC: 113.7

Proponents: Michael Redifer (redifermd@nnva.gov)

2015 Virginia Construction Code

113.7 Approved inspection agencies. The building official may accept reports of inspections and tests from individuals or inspection agencies approved in accordance with the building official's written policy required by Section 113.7.1. The individual or inspection agency shall meet the qualifications and reliability requirements established by the written policy. Under circumstances where the building official is unable to make the inspection or test required by Section 113.3 or 113.4 within 2 working days of a request or an agreed upon date or if authorized for other circumstances in the building official's written policy, the building official shall accept reports for review. The building official shall approve the report from such approved individuals or agencies unless there is cause to reject it. Failure to approve a report shall be in writing within 2 working days of receiving it stating the reason for the rejection. Reports of inspections conducted by approved third-party inspectors or agencies shall be in writing, shall indicate if compliance with the applicable provisions of the USBC have been met and shall be certified by the individual inspector or by the responsible officer when the report is from an agency. Reports of inspections conducted for the purpose of verifying compliance with the requirements of the USBC for elevators, escalators and related conveyances shall include the name and certification number of the elevator mechanic performing the tests witnessed by the third-party inspector or agency.

Exception: The licensed mechanical contractor installing the mechanical system shall be permitted to perform duct tests required by Section R403.3.3 of the IECC or Section N1103.3.3 of the IRC. The contractor shall have been trained on the equipment used to perform the test.

Note: Photographs, videotapes or other sources of pertinent data or information may be considered as constituting such reports and tests.

Reason Statement: In support of uniformity for the most widely-used form of third party inspection. Elevator inspections are somewhat unique in that they involve the witnessing of tests which may only be performed by mechanics holding a valid DPOR certification. This option is intended to expand and further clarify the original 113.7 proposal for inclusion of the elevator mechanic required certification for operation and testing.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This proposal would only provide for the documentation of what is currently required.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: VBCOA Supports

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for A113.7(2)-18

This proposal doesn't have any public comments.

Proposal # 228

A113.7(2)-18

A113.8-18

VCC: 113.8, 116.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Construction Code

113.8 Final inspection. Upon completion of ~~a building or structure~~ and before the issuance of a certificate of occupancy ~~construction~~ for which a permit was issued, a final inspection shall be conducted to ensure that any defective work has been corrected and that all work complies with the USBC and has been approved, including any work associated with modifications under Section 106.3. The building official shall be permitted to require the electrical service to a *building or structure* to be energized prior to conducting the final inspection. ~~The approval~~ Approval of a final inspection shall be permitted to serve as the new certificate of occupancy required by Section 116.1 in the case of additions or alterations to existing buildings or structures that already have a certificate of occupancy. the final inspection indicates that all work associated with the permit complies with this code and the permit is complete. Prior to occupancy or change of occupancy of a *building or structure*, a certificate of occupancy shall be issued in accordance with Section 116.

116.1 General; when to be issued. ~~A certificate~~ Prior to occupancy or change of occupancy indicating completion of the work for which a permit was issued shall be obtained prior to the occupancy of any building or structure, except as provided for in this section generally and as specifically provided for in Section 113.8 for additions or alterations. The certificate shall be issued after completion. a certificate of occupancy shall be obtained in accordance with this Section. The building official shall issue the certificate of occupancy within 5 working days after approval of the final inspection and when the *building or structure* is in or portion thereof is determined to be in compliance with this code and any pertinent laws or ordinances, or when otherwise entitled.

The building official shall, however, issue a certificate of occupancy within 5 working days after being requested to do so, provided the ~~building or structure~~ meets all of the requirements for a certificate. **Exception:**
Exceptions:

1. A certificate of occupancy is not required for an accessory *structure* as defined in the IRC.

2. A new certificate of occupancy is not required for additions to existing group R-5 buildings that already have a certificate of occupancy.

Reason Statement: 113.8- Current code requires a final inspection at completion of a building, not permitted work. Though the definition of building includes "parts thereof," the final inspection should be a requirement of completion of the work for which the permit was issued. Alterations to buildings do not necessitate a new CO or a final inspection to count as a CO. The final inspection should simply document the permitted work is code compliant and complete. Occupancy should drive a CO, which this change accomplishes by referencing to the CO section prior to occupancy or after a change of occupancy. Additionally if a new CO is needed, the final inspection ticket should not serve that purpose. Per Section 116 specific information must be printed on the CO and that information should be updated.

116.1- A certificate of occupancy should not be issued for completion of work; that is the purpose of the final inspection. The certificate of occupancy should be issued for "occupancy" or change of "occupancy." This code change corrects that current glitch with Section 116. Additionally, Section 116.1 does not require approval of the final inspection only completion. A failed inspection is a complete inspection, so this proposal corrects that as well and states that the final inspection must be approved as a condition of CO issuance. Current section 113.8 allows a final inspection ticket to count as the CO for a 100,000 s.f. addition to a school. Additions should require issuance of a new CO. The exceptions to issuance of a CO are retained for single family dwelling accessory structures and additions. There is no need for 5 days to issue a CO.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

This change is administrative and does not affect construction cost.

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Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This is not related to resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Andrew Miliken supports, but offered an amendment deleting "after" a change of occupancy in 116.1. David Beahm doesn't agree with taking 5 days out.
Revised to reflect Approved as amended.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A113.8-18

This proposal doesn't have any public comments.

Proposal # 120

A113.8-18

A115.2(3)-18

VCC: 115.2, 115.3

Proponents: Michael Redifer (redifermd@nnva.gov)

2015 Virginia Construction Code

115.2 Notice of violation. The building official shall issue a written notice of violation to ~~the responsible party if the permit holder if~~ any violations of this code or any directives or orders of the building official have not been corrected or ~~complied~~ complied with within a reasonable time. The building official may also issue a notice of violation to other persons found to be responsible in addition to the permit holder. If the violations, directives or orders involve work without a permit, the notice of violation shall be issued to the responsible party. The notice shall reference the code section or sections upon which the notice is based and direct the correction of the violation or the compliance with such directive or order and specify a reasonable time period within which the corrections or compliance must occur. The notice shall be issued by either delivering a copy to the responsible party by copy by mail to the last known address of the permit holder or responsible party, delivering the notice in person or by, by leaving it in the possession of any person in charge of the premises, or by posting the notice in a conspicuous place if the person in charge of the premises cannot be found. The notice of violation shall indicate the right of appeal by referencing the appeals section. When the owner of the building or structure, or the permit holder for the construction in question, or the tenants of such building or structure, are not the responsible party the party to whom the notice of violation is issued, then a copy of the notice shall also be delivered to such owner, permit holder or tenants.

Note: A notice of unsafe building or structure for structures that become unsafe during the construction process are issued in accordance with Section 118.

115.3 Further action when violation not corrected. ~~If the responsible party has not complied with the~~ Upon failure to comply with the notice of violation, the building official may initiate legal proceedings by requesting the legal counsel of the locality to institute the appropriate legal proceedings to restrain, correct or abate the violation or to require the removal or termination of the use of the building or structure involved. In cases where the locality so authorizes, the building official may issue or obtain a summons or warrant. Compliance with a notice of violation notwithstanding, the building official may request legal proceedings be instituted for prosecution when a person, firm or corporation is served with three or more notices of violation within one calendar year for failure to obtain a required construction permit prior to commencement of work subject to this code.

Note: See Section 19.2-8 of the Code of Virginia concerning the statute of limitations for building code prosecutions.

Reason Statement: This proposal contains modifications to one previously submitted. The modification attempts to address concerns expressed with regard to limiting the responsibility to the permit holder when in fact there may be others who share responsibility for the cited violation(s).

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
Permit fees are not determined by the role of the applicant.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
Nothing contained in this proposal impacts resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for A115.2(3)-18

This proposal doesn't have any public comments.

Proposal # 245

A115.2(3)-18

A116.4--18

VCC: 116.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

~~116.4 Issuance of certificate for pre-USBC buildings or structures. When no certificate exists.~~ When ~~a building or structure~~ was constructed prior to being subject to the initial edition of the USBC and the ~~local building department~~ does not have a certificate of occupancy for the ~~a building or structure~~, the owner or owner's agent may submit a written request for a certificate to be created. The building official, after receipt of the request, shall issue a certificate provided a determination is made that there are no current violations of the VMC or the Virginia Statewide Fire Prevention Code (13VAC5-51) and the occupancy classification of the ~~building or structure~~ has not changed. Such buildings and ~~structures~~ shall not be prevented from continued use. **Exception:**

When

~~no certificate exists, but~~

the ~~local building department~~ has records indicating that a certificate did exist,

~~then the~~

~~but does not have a copy of the certificate itself, then the~~ building official may either verify in writing that a certificate did exist or issue a certificate based upon the records.

Reason Statement: There are many buildings and structures out there today that were **post**-USBC that do not have certificates. Why limit 116.4 to **pre**-USBC buildings? As proposed, this provision would still apply to pre-USBC, but would also capture those post-USBC buildings that do not have COs, or had them but they cannot be found. With the heading and new language, the exception would not longer be an exception.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Mr. Clements stated that VBCOA supports the proposal and added that there was a change to the State Fire Prevention Code in 2015, where if an owner does not have a CO they can request from the building official and it is not limited to pre- USBC. This change would make it more consistent with the current State Fire Prevention Code.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A116.4--18

This proposal doesn't have any public comments.

Proposal # 57

A116.4--18

A119.6-18

VCC: 119.6

Proponents: David Beahm (dbeahm@warrencountyva.net); VBCOA Admin Committee

2015 Virginia Construction Code

119.6 Meetings and postponements. The *LBBCA* shall meet within 30 calendar days after the date of receipt of the application for appeal, except that a period of up to 45 calendar days shall be permitted where the *LBBCA* has regularly scheduled monthly meetings. A longer time period shall be permitted if agreed to by all the parties involved in the appeal. ~~A notice~~ Notice indicating the time and place of the hearing shall be sent to the parties in writing to the addresses listed on the application application if requested, or by electronic means at least 14 calendar days prior to the date of the hearing ~~, except that unless~~ a lesser time period shall be permitted if is agreed to by all the parties involved in the appeal. When a quorum of the *LBBCA* is not present at a hearing to hear an appeal, any party involved in the appeal shall have the right to request a postponement of the hearing. The *LBBCA* shall reschedule the appeal within 30 calendar days of the postponement, except that a longer time period shall be permitted if agreed to by all the parties involved in the appeal.

Reason Statement: In today's world the use of formal written communication through the postal service to the residence (address) is slow, unverifiable and unreliable at times. The use of electronic communication has taken place of this older method for almost all forms of notices. This change does not remove the option of using the postal service, but provides another means to notify the parties.

Cost Impact Statement: The code change proposal will decrease the cost of construction
The code change proposal will decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: VBCOA supports. Concerns were raised and language was suggested.
CA at 8/21 meeting

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A119.6-18

This proposal doesn't have any public comments.

Proposal # 195

A119.6-18

B202(1)-18

VCC: [BS]

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

[BS] WALL~~(for Chapter 21)~~: A vertical element with a horizontal length-to-thickness ratio greater than three, used to enclose space.

Reason Statement: We revised the definition of “work area” to basically involve “walls” because “wall” was/is a defined term. However, for 2015, ICC added “(for Chapter 21)” in the definition header (it did not exist prior to 2015). The concern is that some might say that particular definition is for Chapter 21 only and does NOT apply to the VEBC. Thus, they might say system’s furniture is a “wall” even though they do not “enclose space.” If the proposed language was deleted and we went back to the definition as it was for many years prior, it can still serve its purpose regarding Chapter 21, while also serving its intended purpose for the VEBC’s definition for “work area.”

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B202(1)-18

This proposal doesn't have any public comments.

Proposal # 26

B202(1)-18

B408.2.1-18

VCC: 408.2.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

408.2.1 Short-term holding areas. Short-term holding areas shall be permitted to comply with Section ~~429~~ 431.

Reason Statement: This section was renumbered from 429 in the 2015 VCC to 431 in the 2018 VCC Base Document. This proposal fixes the reference in 408.2.1.

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B408.2.1-18

This proposal doesn't have any public comments.

Proposal # 163

B408.2.1-18

B428-18

IBC®: [F], SECTION 430, [F] 430.1, [F] 430.2, [F] 430.3, [F] TABLE 430.3, [F] 430.3.1, [F] 430.3.2, [F] 428.3.3, [F] 430.3.4, [F] 430.3.5, [F] 430.3.6, [F] 430.3.7, [F] 430.3.8, [F] 430.3.9, [F] 430.4, 430.5 (New), TABLE 430.5(1) (New), 430.5(2) (New), 430.5.1 (New), 430.5.2 (New), 430.5.3 (New), 430.5.4 (New), 430.5.5 (New); VCC: [F] 414.2; VEBC: SECTION 306, 306.1, 306.1.1, TABLE 306.1.1(1), TABLE 306.1.1(2), 306.1.2, 306.1.3, 306.1.4 (New)

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

2018 International Building Code

[F] HIGHER EDUCATION LABORATORY. Laboratories in Group B occupancies used for educational purposes above the 12th grade. Storage, use and handling of chemicals in such laboratories shall be limited to purposes related to testing, analysis, teaching, research or developmental activities on a nonproduction basis.

SECTION 428 430 HIGHER EDUCATION LABORATORIES

[F] 428-1 430.1 Scope. *Higher education laboratories* complying with the requirements of ~~Sections 428.1 through 428.4~~ Section 430.3 or 430.4 shall be permitted to exceed the maximum allowable quantities of hazardous materials ~~in control areas~~ set forth in Tables 307.1(1) and 307.1(2) without requiring classification as a Group H occupancy. Except as specified in Section ~~428.430~~, such laboratories shall comply with all applicable provisions of this code and the International Fire Code .

[F] 428-2 430.2 Application. The provisions of Section ~~428.430~~ 430.3 shall be applied as exceptions or additions to applicable requirements of this code. Unless specifically modified by Section ~~428.430~~, the storage, use and handling of hazardous materials shall comply with all other provisions in Chapters 38 and 50 through 67 of the International Fire Code and this code for quantities not exceeding the maximum allowable quantity.

[F] 428-3 430.3 Laboratory suite construction. Where laboratory suites are provided, they shall be constructed in accordance with this section and Chapter 38 of the International Fire Code. The number of laboratory suites and percentage of maximum allowable quantities of hazardous materials in laboratory suites shall be in accordance with Table ~~428-3.430.3~~.

[F] TABLE ~~428.3~~ 430.3
DESIGN AND NUMBER OF LABORATORY SUITES PER FLOOR

FLOOR LEVEL		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER LAB SUITE ^a	NUMBER OF LAB SUITES PER FLOOR	FIRE-RESISTANCE RATING FOR FIRE BARRIERS SEPARATION IN HOURS ^b
Above Grade Plane	21+	Not allowed	Not Permitted	Not Permitted
		<u>5</u>	<u>1</u>	<u>2^c</u>
	16-20	25	1	2 ^c
	11-15	50	1	2 ^c
	7-10	50	2	2 ^c
	4-6	75	4	1
	3	100	~~4~~ <u>6</u>	1
	1-2	100	~~6~~ <u>8</u>	1
Below Grade Plane	1	75	4	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentages shall be of the maximum allowable

~~quantity per control area~~

quantity shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the footnotes to those tables.

b.

~~Fire barriers shall~~

Shall include walls, floors

~~and ceilings necessary~~

ceilings, and construction supporting the floor of the laboratory suite necessary necessary to provide separation from other portions of the building. Fire barriers shall be constructed in accordance with Section 707 and horizontal assemblies constructed in accordance with Section 711.

c.

Vertical fire barriers separating laboratory suites from other spaces on the same floor shall be permitted to be 1-hour fire-resistance rated.

[F] ~~428.3.1~~ 430.3.1 Separation from other nonlaboratory areas. Laboratory suites shall be separated from other portions of the building in accordance with the most restrictive of the following:

1. Fire barriers and horizontal assemblies as required in Table

~~428.3-~~

430.3. Fire barriers shall be constructed in accordance with Section 707 and horizontal assemblies constructed in accordance with Section 711.

Exception: Where an individual laboratory suite occupies more than one story, the fire-resistance rating of intermediate floors contained within the laboratory suite shall comply with the requirements of this code.

Separations
as required
by Section
508.

2.

[F] ~~428.3.2 430.3.2 Separation from other laboratory suites.~~ Laboratory suites shall be separated from other laboratory suites in accordance with Table ~~428.3. 430.3.~~

Delete without substitution:

~~[F] 428.3.3 Floor assembly fire resistance.~~

~~The floor assembly supporting laboratory suites and the construction supporting the floor of laboratory suites shall have a fire-resistance rating of not less than 2 hours.~~

~~Exception:~~ ~~The floor assembly of the laboratory suites and the construction supporting the floor of the laboratory suites are allowed to be 1-hour fire-resistance rated in buildings of Types IIA, IIIA and VA construction, provided that the building is three or fewer stories.~~

[F] ~~428.3.4 430.3.4 Maximum number.~~ The maximum number of laboratory suites shall be in accordance with Table ~~428.3. 430.3.~~ Where a building contains both laboratory suites and control areas, the total number of laboratory suites and control areas within a building shall not exceed the maximum number of laboratory suites in accordance with Table ~~428.3. 430.3.~~

[F] ~~428.3.5 430.3.5 Means of egress.~~ Means of egress shall be in accordance with Chapter 10.

[F] ~~428.3.6 430.3.6 Standby or emergency power.~~ Standby or emergency power shall be provided in accordance with Section 414.5.2 where laboratory suites are located above the sixth story above grade plane or located in a story below grade plane.

[F] ~~428.3.7 430.3.7 Ventilation.~~ Ventilation shall be in accordance with Chapter 7 of NFPA 45, and the International Mechanical Code, with the Virginia Mechanical Code. The design and installation of ducts from chemical fume hoods shall be in accordance with NFPA 91.

[F] ~~428.3.8 430.3.8 Liquid-tight floor.~~ Portions of laboratory suites where hazardous materials are present shall be provided with a liquid-tight floor.

[F] ~~428.3.9 430.3.9 Automatic fire-extinguishing systems.~~ Buildings containing laboratory suites shall be equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.

[F] ~~428.4 430.4 Percentage of maximum allowable quantity in each laboratory suite.~~ The percentage of maximum allowable quantities of hazardous materials in each laboratory suite shall be in accordance with Table ~~428.3. 430.3.~~

Add new text as follows:

430.5 Higher education laboratories utilizing control areas.

Higher education laboratories utilizing control areas are permitted to increase amounts of hazardous materials stipulated in Section 414.2 without the laboratories being classified as Group H. The percentage of maximum allowable quantities of hazardous materials per control area and the number of control areas permitted at each floor level within a building shall be permitted to comply with Table 430.5(1) in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or shall be permitted to comply with Table 430.5(2) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

TABLE 430.5(1)
DESIGN AND NUMBER OF HIGHER EDUCATION LABORATORIES UTILIZING CONTROL AREAS IN BUILDINGS EQUIPPED
THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM

FLOOR LEVEL		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA ^a	NUMBER OF CONTROL AREAS PER FLOOR	FIRE-RESISTANCE RATING FOR SEPARATION IN HOURS ^b
Above Grade Plane	Higher than 9	5	1	2
	7-9	10	2	2
	4-6	25	2	2
	3	75	3	1
	1-2	100	4	1
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not allowed	Not allowed	Not allowed

- a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the notes to those tables.
- b. Shall include walls, floors, ceilings, and the construction supporting the control areas, as necessary to provide separation from other portions of the building.

430.5(2)**DESIGN AND NUMBER OF HIGHER EDUCATION LABORATORIES UTILIZING CONTROL AREAS IN BUILDINGS NOT EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM**

FLOOR LEVEL		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA ^a	NUMBER OF CONTROL AREAS PER FLOOR	FIRE-RESISTANCE RATING FOR SEPARATION IN HOURS ^b
Above Grade Plane	Higher than 9	5	1	2
	7-9	10	2	2
	4-6	25	2	2
	3	75	3	1
	1-2	100	4	1
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not allowed	Not allowed

- _ a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the notes to those tables.
- b. Shall include walls, floors, ceilings, and the construction supporting the floor of the control areas, as necessary to provide separation from other portions of the building.

430.5.1 Separation requirements.

Control areas shall be separated from each other and from other non-control areas by fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

430.5.2 Standby or emergency power.

Standby or emergency power shall be provided in accordance with Section 414.5.2 where control areas are located above the sixth floor level above grade plane or located in a floor level below grade plane.

430.5.3 Restricted materials in storage and use.

The storage and use of the following hazardous materials prohibited by Table 307.1(1) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, shall be allowed within a control area at 25 percent of Table 307.1(1) limits for a building equipped throughout with an automatic sprinkler system:

- _ 1. Pyrophorics.
- _ 2. Class 4 oxidizers.

No additional quantity increases shall be allowed. All such materials shall be stored and used in accordance with the applicable sections of Chapter 50 of the SFPC.

430.5.4 Automatic fire alarm and detection system.

The building shall be equipped throughout with an automatic fire alarm system in accordance with Section 907.2, and control areas where hazardous materials are used or stored shall be equipped throughout with an automatic fire detection system in accordance with Section 907.2.

430.5.5 Ventilation.

Ventilation shall be in accordance with the Virginia Mechanical code.

2015 Virginia Construction Code

[F] **414.2 Control areas.** *Control areas* shall comply with Sections 414.2.1 through 414.2.5 and the International Fire Code .

Exception: ~~Higher education teaching and research laboratories shall be permitted to comply with Section 430.~~

2015 Virginia Existing Building Code

:

SECTION 306 ~~GROUP B TEACHING AND RESEARCH HIGHER EDUCATION LABORATORIES~~

306.1 Change of occupancy in existing ~~Group B teaching and research higher education laboratories~~. Where the use of new or different hazardous materials or a change in the amount of hazardous materials in existing ~~Group B testing and research laboratories in educational occupancies above the 12th grade higher education laboratories~~ would constitute a *change of occupancy*, this section shall be permitted to be used as an acceptable alternative to compliance with *change of occupancy* requirements to permit the increased amounts of hazardous materials stipulated without the laboratories being classified as Group H. In addition, ~~as set out in Section 5001.7 of the SFPC, approval under this section is contingent upon operational requirements in the SFPC being complied with and maintained.~~
such laboratories shall comply with the applicable operational and maintenance requirements in Chapter 38 of the SFPC.

306.1.1 Hazardous materials in existing ~~Group B teaching and research higher education laboratories~~. The percentage of maximum allowable quantities of hazardous materials per control area and the number of control areas permitted at each floor level within an *existing building* shall be permitted to comply with Table 302.6.1(1) in *buildings* equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC or shall be permitted to comply with Table 302.6.1(2) in *buildings* not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

TABLE 306.1.1(1)
DESIGN AND NUMBER OF HIGHER EDUCATION LABORATORIES UTILIZING CONTROL AREAS IN EXISTING BUILDINGS EQUIPPED
THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM
IN ACCORDANCE WITH SECTION 903.3.1.1 OF THE VCC WITH GROUP B TEACHING AND RESEARCH LABORATORIES IN
EDUCATIONAL OCCUPANCIES ABOVE THE 12th GRADE

FLOOR LEVEL		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA ^a	NUMBER OF CONTROL AREAS PER FLOOR	FIRE-RESISTANCE RATING FOR FIRE BARRIERS AND HORIZONTAL ASSEMBLIES <u>SEPARATION</u> IN HOURS ^b
Above Grade Plane	Higher than 20	5	1	2
	10-20	10	1	2
		25	2	2
	7-9	50	2	2
	4-6	75	3	1
	3	100	4	1
	1-2			
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2) of the VCC, with all increases allowed in the notes to those tables.

b.

~~Separation shall include fire barriers and horizontal assemblies~~

~~Shall include walls, floors, ceilings, and the construction supporting the control areas, as necessary to provide separation from other portions of the *building*.~~

TABLE 306.1.1(2)
DESIGN AND NUMBER OF HIGHER EDUCATION LABORATORIES UTILIZING CONTROL AREAS IN EXISTING BUILDINGS NOT
EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM
IN ACCORDANCE WITH SECTION 903.3.1.1 OF THE VCC WITH GROUP B TEACHING AND RESEARCH LABORATORIES IN
EDUCATIONAL OCCUPANCIES ABOVE THE 12th GRADE

FLOOR LEVEL		PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA ^a	NUMBER OF CONTROL AREAS PER FLOOR	FIRE-RESISTANCE RATING FOR FIRE BARRIERS AND HORIZONTAL ASSEMBLIES SEPARATION IN HOURS ^b
Above Grade Plane	Higher than 9	5	1	2
	7-9	10	2	2
	4-6	25	2	2
	3	75	2	1
	2	100	3	1
	1	100	4	1
Below Grade Plane	1	75	3	1
	2	50	2	1
	Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentage shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2) of the VCC, with all increases allowed in the notes to those tables.

b.

~~Separation shall include fire barriers and horizontal assemblies~~

Shall include walls, floors, ceilings, and the construction supporting the control areas, as necessary to provide separation from other portions of the building.

306.1.2 Automatic fire alarm and detection systems. ~~An automatic~~ A fire alarm system shall be provided throughout the *building* in accordance with Section 907 of the VCC. An automatic fire detection system shall be provided in the control area in accordance with Section 907 of the VCC ~~where pyrophorics or Class 4 oxidizers are used and the~~ where the building is not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the VCC.

306.1.3 System supervision and monitoring. Automatic fire alarm and detection systems shall be electronically supervised and monitored by an approved supervising station or, where approved, shall initiate an audible and visual signal at a constantly attended onsite location.

Add new text as follows:

306.1.4 Restricted materials in storage and use.

Where approved by the building official, the storage and use of the following hazardous materials prohibited by VCC Table 307.1(1) in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, shall be allowed within a control area at 25% of Table 307.1(1) limits for a building equipped throughout with an automatic sprinkler system:

1. Pyrophorics.

2. Class 4 oxidizers.

No additional quantity increases shall be allowed. All such materials shall be stored and used in accordance with Section 3805.2.1 and 3805.2.2 of the SFPC.

Reason Statement: Regarding IBC edits: Rather than begin with the 2015 Virginia amendment and edit it to include relevant 2018 IBC provisions, this proposal starts with the 2018 IBC version and adds the relevant Virginia amendments. Deletions to the IBC and VCC floor

construction and exceptions were done to avoid conflicting with the referenced tables.

Regarding 2015 VCC, 414.2, Exception: Just a correlation - deleted so we can just go with the 2018 IBC exception/language.

Regarding 2015 VEBC edits: Correlation with 2018 edits and language.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Cost Impact Statement:

Will not increase or decrease cost of construction.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B428-18

Public Comment by Kenney Payne

Aug 19, 2019 15:08 UTC

Attached are the revised proposed changes regarding higher ed labs.

Attachments:

<https://va.cdpassess.com/proposal/106/discuss/37/file/download/99/Proposed%202018%20Virginia%20Existing%20Building%20Higher%20Education%20Laboratories.docx>,

<https://va.cdpassess.com/proposal/106/discuss/37/file/download/98/Proposed%202018%20Virginia%20Construction%20Code%20IBC%20Based-.docx>

Public Comment by Kenney Payne

Aug 19, 2019 15:10 UTC

Above proposals were vetted by Zack (VT), Bob (UVA), and Andrew (fire services).

Proposal # 106

B428-18

B703.3--18

VCC: 703.3

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

703.3 Methods for determining fire resistance. The application of any of the methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E119 or UL 263. The required *fire resistance* of a *building* element, component or assembly shall be permitted to be established by any of the following methods or procedures:

1. Fire-resistance designs documented in approved sources.
2. Prescriptive designs of fire-resistance-rated *building* elements, components or assemblies as prescribed in Section 721.
3. Calculations in accordance with Section 722.
4. Engineering analysis based on a comparison of *building* element, component or assemblies designs having *fire-resistance ratings* as determined by the test procedures set forth in ASTM E119 or UL 263.
5. Alternative protection methods as allowed by Section ~~404.4~~ 112.2.
6. Fire-resistance designs certified by an approved agency.

Reason Statement: Existing reference was to Chapter 1 of the *IBC*. Since Virginia deleted Chapter 1 of the *IBC*, the section number should be updated to the equivalent reference in Chapter 1 of the *VCC*.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Mr. Payne provided an overview of proposal.

Ms. Boykins pointed out that there is no definition for the word “approved” in the code book.

Mr. Brown agreed that it’s not there and that it had been inadvertently deleted in the last code cycle but will be added back in the 2018 USBC base document.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B703.3--18

This proposal doesn't have any public comments.

Proposal # 18

B703.3--18

B905.3.1-18

VCC: 905.3.1

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

2015 Virginia Construction Code

905.3.1 Height. Class III standpipe systems shall be installed throughout buildings where four or more stories are above or below grade plane, the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.

Exceptions:

1. Class I standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Class I manual wet standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1 or Section 903.3.2 and where the highest floor is located not more than 150 feet (45 720 mm) above the lowest level of fire department vehicle access.
3. Class I manual standpipes are allowed in open parking garages where the highest floor is located not more than 150 feet (45 720 mm) above the lowest level of fire department vehicle access.
4. Class I manual dry standpipes are allowed in open parking garages that are subject to freezing temperatures, provided that the hose connections are located as required for Class II standpipes in accordance with Section 905.5.
5. Class I standpipes are allowed in basements equipped throughout with an automatic sprinkler system.
6. In determining the lowest level of fire department vehicle access, it shall not be required to consider either of the following:
 - 6.1. Recessed loading docks for four vehicles or less.
 - 6.2. Conditions where topography makes access from the fire department vehicle to the *building* impractical or impossible.

Reason Statement: This proposal incorporates the current language from the 2018 International Building Code to clarify that any buildings with four or more stories above or below grade plane require a standpipe system. All other exceptions remain unchanged from the current Virginia amendment. This clarification provides consistency for first responders as well as the construction industry to know when buildings are expected to be equipped with a standpipe system. Currently, some three-story buildings may be required to be equipped with a standpipe base on tall ceiling heights or grade but other four-story buildings with lower ceiling heights may not be required to provide this critical resource for firefighting operations. It is well documented and understood that deploying interior hose lines up numerous stories is strenuous, challenging and consumes valuable staffing and time resources for fire fighting operations in multi-story buildings. This code change provides consistency with the 2018 model codes and simplifies the requirements and expectations for all stakeholders.

Cost Impact Statement: The code change proposal will increase the cost of construction. Since this proposal simply incorporates a requirement from the 2018 IBC model code, there would not be any cost increase as compared to other jurisdictions also adopting the 2018 edition of the model code. However, assuming a standard lower than that of the 2018 IBC model code, according to the Home Innovation Research Labs Report on 2018 Code Changes for Multi-family Dwellings dated April 2018, the cost impact of this code change was estimated to be approximately \$14,935 per building. <https://www.homeinnovation.com/~media/Files/Reports/2018-ICC-Code-Changes-for-MF-Buildings-April-2018.pdf>

Resiliency Impact Statement: This proposal will increase Resiliency

This proposal will ensure that all new structures that are four or more stories above or below grade are equipped to provide critical fire protection infrastructure for interior fire and rescue operations in multi-story buildings.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B905.3.1-18

This proposal doesn't have any public comments.

Proposal # 112

B905.3.1-18

B907.5.2.3-18

VCC: [F] 907.5.2.3

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

[F] 907.5.2.3 Visible alarms. Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.3.

Exceptions:

- ~~1. Visible alarm notification appliances are not required in alterations, except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.~~
- ~~2~~ 1. Visible alarm notification appliances shall not be required in *exits* as defined in Chapter 2.
- ~~3~~ 2. Visible alarm notification appliances shall not be required in elevator cars.
- ~~4~~ 3. Visual alarm notification appliances are not required in critical care areas of Group I-2 Condition 2 occupancies that are in compliance with Section 907.2.6, Exception 2.

Reason Statement: Existing building requirements belong in the VEBC, not the VCC. Also, alterations come in three flavors (Level 1, 2, and 3) and such alarms would not necessarily be required in a Level 1 alteration. If left in the VCC, it could produce a potential conflict with the requirements of the VEBC - which are supposed to govern all construction in existing buildings (per VCC 103.1.1). Alarms in alterations are addressed in VEBC 603.5.4.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
Will not increase or decrease cost of construction.

Resiliency Impact Statement:
Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover

- ☐ Disapproved
- ☐ None

Public Comments for B907.5.2.3-18

This proposal doesn't have any public comments.

Proposal # 28

B907.5.2.3-18

B912.2.2-18

VCC: [F]

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

[F] 912.2.2 Existing buildings. ~~On existing buildings, wherever the fire department connection is not visible to approaching fire apparatus, the fire department connection shall be indicated by an approved sign mounted on the street front or on the side of the building. Such sign shall have the letters "FDC" not less than 6 inches (152 mm) high and words in letters not less than 2 inches (51 mm) high or an arrow to indicate the location. Such signs shall be subject to the approval of the fire code official.~~

Reason Statement: The provision is in SFPC Section 912.2.2, where it belongs. It does not belong in the "new" construction code since it deals with "existing" buildings.

Cost Impact Statement: The code change proposal will decrease the cost of construction
Will not increase or decrease cost of construction.

Resiliency Impact Statement:
Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B912.2.2-18

This proposal doesn't have any public comments.

Proposal # 29

B912.2.2-18

B1010.1.10-18

IBC®: 1010.1.10

Proponents: Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

2018 International Building Code

1010.1.10 Panic and fire exit hardware. Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than *panic hardware* or *fire exit hardware*.

Exceptions:

1. A main exit of a Group A occupancy shall be permitted to have locking devices in accordance with Section 1010.1.9.4, Item 2.
2. Doors provided with *panic hardware* or *fire exit hardware* and serving a Group A or E occupancy shall be permitted to be electrically locked in accordance with Section ~~1010.1.9.9~~ or 1010.1.9.10.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide, and that contain overcurrent devices, switching devices or control devices with exit or *exit access* doors, shall be equipped with *panic hardware* or *fire exit hardware*. The doors shall swing in the direction of egress travel.

Reason Statement: Section 1010.1.9.9 of the code recognizes that motion sensors are not reliable when it comes to life-safety since a wall mounted push-button release is required adjacent to the door for use when the motion detector fails to release the door. This is not functionally equivalent to the reliability of listed panic hardware and should not be allowed as a substitute. Also, there is a potential for the voltage to drop in the circuit and cause the motion detector to fail to release the door while keeping the door locked since there was not a total loss of power, which would necessitate the use of the wall-mounted release button and not providing equivalency to the function of panic hardware. It is also not clear how the motion sensor would perform if smoke is present in the room. Smoke could interfere with the proper timely release of the door lock.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This change maintains the current language of the 2015 code, so it neither increases nor decreases cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency. This change proposal is unrelated to resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B1010.1.10-18

This proposal doesn't have any public comments.

Proposal # 4

B1010.1.10-18

B1011.5.2--18

VCC: 1011.5.2

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

1011.5.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the *nosings* of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the *stair*.

Exceptions:

1. *Spiral stairways* in accordance with Section 1011.10.
2. *Stairways* connecting stepped *aisles* to cross *aisles* or concourses shall be permitted to use the riser/tread dimension in Section 1029.13.2.
3. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual *dwelling units* in Group R-2 occupancies; the maximum riser height shall be 8.25 inches (210 mm); the minimum tread depth shall be 9 inches (229 mm); the minimum *winder* tread depth at the walk line shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
4. ~~See Section 403.1 of the International Existing Building Code for the replacement of existing stairways.~~
5. ~~4.~~ In Group I-3 facilities, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m²) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

Reason Statement: The VEBC governs all construction in an existing building, and the "charging paragraph" is for NEW stairways - not "replacement" stairways which are addressed in the VEBC. So, the exception is not relevant in the NEW construction code and thus is being proposed to be deleted w/o substitution.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Mr. Clements pointed out that section 4 should be deleted all together because that exception will not be reached.

Consensus for Approval with Amendments

Amendments:

- Delete #4 all together and #5 becomes #4.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B1011.5.2--18

This proposal doesn't have any public comments.

Proposal # 30

B1011.5.2--18

B1026.2-18

VCC: 1026.2

Proponents: Jane Kim (jane.kim2@fairfaxcounty.gov)

2015 Virginia Construction Code

Revise as follows:

1026.2 Separation. The separation between buildings or refuge areas connected by a *horizontal exit* shall be provided by a fire wall complying with Section 706; or by a *fire barrier* complying with Section 707 or a *horizontal assembly* complying with Section 711, or both. The minimum *fire-resistance rating* of the separation shall be 2 hours. Opening protectives in *horizontal exits* shall also comply with Section 716. Duct and air transfer openings in a *fire wall* or *fire barrier* that serves as a *horizontal exit* shall also comply with Section 717. The *horizontal exit* separation shall extend vertically through all levels of the *building* unless floor assemblies have a *fire-resistance rating* of not less than 2 hours ~~with no unprotected openings~~ openings. Opening in horizontal assemblies on the story served by horizontal exit shall be protected in accordance with Section 712.1.1, 712.1.3, 712.1.13 and 1019.3.4.

Exception: A *fire-resistance rating* is not required at *horizontal exits* between a *building* area and an above-grade *pedestrian walkway* constructed in accordance with Section 3104, provided that the distance between connected buildings is more than 20 feet (6096 mm).

Horizontal exits constructed as *fire barriers* shall be continuous from *exterior wall* to *exterior wall* so as to divide completely the floor served by the *horizontal exit*.

Reason Statement: The change will clarify and ensure protection is provided for increased number of occupants in refuge compartment at each story served by horizontal exit. Current text of Section 1026.2 is unclear in addressing unprotected floor opening or unclosed exit access stairways and ramps communicating not more than two stories as permitted in Section 712.1.9 item 1 and 1019.3 item 1. Unprotected opening will not contain fire or smoke within the horizontal exit compartment where fire originated from and will reduce the protection of the occupants taking refuge in the protected compartment. Proposed change will ensure safety of occupants taking refuge in protected compartment as intended.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. The code change proposal will not increase or decrease the cost of construction. Proposed change is to clarify code section that is already required. Therefore the cost of construction will not increase or decrease.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency. This proposal will increase resiliency, decrease resiliency, or will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: AS MODIFIED: Mr. Miliken believes there are unintended consequences with this proposal. Kenney brought up some grammatical issues. Use horizontal assemblies language.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B1026.2-18

This proposal doesn't have any public comments.

Proposal # 209

B1026.2-18

B1030.4--18

VCC: 1030.4; VEBC: 304.3.1 (New)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

1030.4 Operational constraints. *Emergency escape and rescue openings* shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over *emergency escape and rescue openings* provided the minimum net clear opening size complies with Section 1030.2 and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the *emergency escape and rescue opening*. ~~Where such bars, grilles, grates or similar devices are installed in existing buildings, smoke alarms shall be installed in accordance with Section 907.2.11 regardless of the valuation of the alteration.~~

2015 Virginia Existing Building Code

Add new text as follows:

304.3.1 Operational constraints.

Where bars, grilles, grates or similar devices are installed over emergency escape and rescue openings as permitted by Section 1030.4 of the VCC, smoke alarms shall also be provided in accordance with Section 907.2.11 of the VCC.

Reason Statement: Existing building requirements belong in the VEBC, not the VCC (per VCC 103.1.1). VEBC 304.3 provides requirements for EERO. While the entire IBC Section 1030.4 was included in the 2018 IEBC (Section 505.4), only the last portion of this provision is required for existing buildings - since any "new" elements must already comply with the VCC/IBC. We need to know how to treat existing and/or replacement EERO windows and what we would need to do if we add anything (e.g., bars, grates, etc.) over them.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code provision is just moving from the VCC to the VEBC.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B1030.4--18

This proposal doesn't have any public comments.

Proposal # 31

B1030.4--18

B1103.2.8-18

VCC: 1103.2.8

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

1103.2.8 Raised and lowered areas in places of religious worship. ~~religious worship.~~ Raised or lowered areas, or portions of areas, in places of religious worship are not required to be accessible or to be served by an accessible route provided such areas are used exclusively primarily for the performance of religious ceremonies and are located within an accessible story or mezzanine.

Reason Statement: This proposal is a "blend" of the 2018 IBC and 2015 VCC text. IBC has "or portions or areas" and "primarily" - both seem to be reasonable since there may be only a "portion" of a raised or lowered area that must be addressed. The term "exclusively" is overly broad since such spaces may be used for other purposes.

Is a wedding a *religious* ceremony? Wedding *photos*? A funeral? Is a funeral a "ceremony?" A bar mitzvah *party*? Other occasional "events" where that part of the church may be used? Oftentimes, a church is a place to go for emergencies (floods, high winds, or alien invasions (just seeing if you actually read these)).

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B1103.2.8-18

This proposal doesn't have any public comments.

Proposal # 166

B1103.2.8-18

B3002.4-18

VCC: 3002.4, 3005.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in buildings four or more stories above, or four or more stories below, grade plane, at least one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame ~~on the designated and alternate landing floors required to be established by ASME A17.1.~~

Exception: Elevators in multistory dwelling units or guest rooms.

3005.4 Machine and control rooms, control spaces, and machinery spaces. Elevator machine rooms, rooms and spaces housing elevator controllers, and machinery spaces outside of but attached to a hoistway that have openings into the hoistway shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. The fire-resistance rating shall not be less than the required rating of the hoistway enclosure. Openings in the fire barriers shall be protected with assemblies having a fire protection rating not less than that required for the hoistway enclosure doors.

~~Exception:~~Exceptions:

1. Where elevator machine rooms, rooms and spaces housing elevator controllers, and machinery spaces do not abut and do not have openings to the hoistway enclosure they serve, the fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour fire-resistance rating.
2. In buildings four stories or less above grade

~~plane when~~

plane where elevator machine rooms, rooms and spaces housing elevator controllers, and machinery spaces do not abut and have no openings to the hoistway enclosure they serve, the elevator machine rooms, rooms and spaces housing elevator controllers, and machinery spaces are not required to be fire-resistance rated.

Reason Statement: This proposal tries to get the VCC closer to the IBC in language.

3002.4: Why not require the symbol on all floors?

3005.4: Why not allow Virginia to utilize another exception that is offered at the national level?

Cost Impact Statement:

Having to provide additional symbol stickers will increase the cost of construction by anywhere from \$2 to \$10 - whatever the cost of a sticker is multiplied by the number of "additional" door frames. Stickers were already required on most door frames.

However, if one can utilize the added exception, then ultimately, this proposal would DECREASE the cost of construction since lower-rated materials/assemblies almost always cost less than higher-rated materials/assemblies.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B3002.4-18

This proposal doesn't have any public comments.

Proposal # 169

B3002.4-18

B3007.6-18

VCC: 3007.6

Proponents: Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

2015 Virginia Construction Code

3007.6 Fire service access elevator lobby. The fire service access elevator shall open into a fire service access elevator lobby in accordance with Sections 3007.6.1 through 3007.6.5. Egress is permitted through the elevator lobby in accordance with Item 1 of Section 1016.2.

Exception: Where a fire service access elevator has two entrances onto a floor, the second entrance shall be permitted to open into an elevator lobby in accordance with IBC Section 3006.3.

Reason Statement: Section 3006.3 is deleted in the Virginia Construction Code. If the exception is to be available for use, it needs to reference a section that actually exists - the same section in the IBC.

Cost Impact Statement:

This proposal will not increase or decrease cost of construction. This is a clarification to correct a reference to a section that was deleted in the Virginia Construction Code.

Resiliency Impact Statement:

This proposal will not increase or decrease resiliency. It is a clarification to correct a reference to a deleted section in the Virginia Construction Code.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Approved, staff to check for consistent language.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B3007.6-18

This proposal doesn't have any public comments.

Proposal # 179

B3007.6-18

B3113-18

IBC®: SECTION, 3113.1, 3113.1.1, 3113.2, 3113.3, 3113.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2018 International Building Code

Delete without substitution:

SECTION 3113 RELOCATABLE BUILDINGS

3113.1 General.

The provisions of this section shall apply to relocatable buildings. Relocatable buildings manufactured after the effective date of this code shall comply with the applicable provisions of this code.

Exception: This section shall not apply to manufactured housing used as dwellings.

3113.1.1 Compliance.

A newly constructed relocatable building shall comply with the requirements of this code for new construction. An existing relocatable building that is undergoing alteration, addition, change of occupancy or relocation shall comply with Chapter 14 of the International Existing Building Code.

3113.2 Supplemental information.

Supplemental information specific to a relocatable building shall be submitted to the authority having jurisdiction. It shall, as a minimum, include the following in addition to the information required by Section 105:

1. Manufacturer's name and address.
2. Date of manufacture.
3. Serial number of module.
4. Manufacturer's design drawings.
5. Type of construction in accordance with Section 602.
Design loads including: roof live load, roof snow load, floor live load, wind load and seismic site class, use group
6. and design category.
7. Additional building planning and structural design data.
8. Site built structure or appurtenance attached to the relocatable building.

3113.3 Manufacturer's data plate.

Each relocatable module shall have a data plate that is permanently attached on or adjacent to the electrical panel, and shall include the following information:

1. Occupancy group.
2. Manufacturer's name and address.
3. Date of manufacture.
4. Serial number of module.
5. Design roof live load, design floor live load, snow load, wind and seismic design.
6. Approved quality assurance agency or approved inspection agency.
7. Codes and standards of construction.
8. Envelope thermal resistance values.

- 9. ~~Electrical service size.~~
- 10. ~~Fuel burning equipment and size.~~
- 11. ~~Special limitations if any.~~

~~3113.4 Inspection agencies.~~ The building official is authorized to accept reports of inspections conducted by *approved* inspection agencies during off-site construction of the relocatable building, and to satisfy the applicable requirements of Sections 110.3 through 110.3.11.1.

Reason Statement: Virginia addresses "relocatable" buildings in the manufactured housing standards and regulations; thus, they should not be included in the "building" code. "Moved" buildings are addressed in the VEBC.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
Will not increase or decrease cost of construction.

Resiliency Impact Statement:
Will not increase or decrease resiliency,

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B3113-18

This proposal doesn't have any public comments.

Proposal # 52

B3113-18

B3302.1-18

VCC: 3302.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

Delete without substitution:

~~3302.1 Alterations, repairs and additions.~~

~~Required exits, existing structural elements, fire protection devices and sanitary safeguards shall be maintained at all times during alterations, repairs or additions to any building or structure.~~

Exceptions:

- ~~1. Where such required elements or devices are being altered or repaired, adequate substitute provisions shall be made.~~
- ~~2. Maintenance of such elements and devices is not required when the existing building is not occupied.~~

Reason Statement: Existing building requirements belong in the VEBC, not the VCC (per VCC 103.1.1). VEBC 1201.3 has the exact same language; so, to avoid duplication in TWO codes, this provision is being proposed to be deleted in its entirety without substitution.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
Provision already exists in VEBC 1201.3.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Consensus for Approval with Amendments
Amendment:

- Delete section 3302.1 entirely without substitution.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B3302.1-18

This proposal doesn't have any public comments.

Proposal # 33

B3302.1-18

B3310.1-18

VCC: 3310.1, [F] 3310.2

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Construction Code

3310.1 Stairways required. Where a *building* has been constructed to a *building height* of 50 feet (15 240 mm) or four stories, ~~or where an existing building exceeding 50 feet (15 240 mm) in building height is altered,~~ no fewer than one temporary lighted *stairway* shall be provided unless one or more of the permanent stairways are erected as the *construction* progresses.

[F] 3310.2 Maintenance of means of egress. Required *means of egress* shall be maintained at all times during ~~construction, demolition, remodeling or alterations and additions to any building.~~

Exception: Existing means of egress need not be maintained where ~~approved temporary means of egress systems and facilities are provided.~~

Reason Statement: The deleted provisions are already covered in VEBC 1205.1 and 1205.2 and the VCC does not govern existing buildings per VCC 103.1.1.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction Provision is already covered in the VEBC.

Resiliency Impact Statement:
Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B3310.1-18

This proposal doesn't have any public comments.

Proposal # 35

B3310.1-18

RE401.2-18

VECC: R401.2; VRC: N1101.13 (R401.2)

Proponents: Energy Subworkgroup (dhcdenergy@gmail.com); Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

2015 Virginia Energy Conservation Code

R401.2 Compliance. Projects shall comply with all provisions of Chapter 4 labeled "Mandatory" and one of the following:

1. Sections R401 through R404.
2. Section R405.
3. Section R406.
4. The most recent version of REScheck, keyed to the ~~2015 IECC~~, 2018 IECC.

~~**Note:** See REScheck compliance guidance issued by DHCD, available at the Department's website.~~

-

2015 Virginia Residential Code

:

N1101.13 (R401.2) Compliance. Projects shall comply with all provisions of Chapter 11 labeled "Mandatory" and one of the following:

1. Sections N1101.14 through N1104.
2. Section N1105.
3. Section N1106.
4. The most recent version of REScheck, keyed to the ~~2015 IECC~~, 2018 IECC.

~~**Note:** See REScheck compliance guidance issued by DHCD, available at the Department's website.~~

-

Reason Statement: This proposal does two things: First, it updates the reference to U.S. DOE's REScheck from the 2015 IECC to the 2018 IECC, consistent with the intent to base the Uniform Code on the 2018 IECC; Second, it eliminates a modification to the Uniform Code's REScheck compliance option that will be unnecessary if Virginia adopts the 2018 IECC with no weakening amendments. When Virginia adopted the 2012 and 2015 editions of the IECC, several weakening amendments were incorporated which caused conflicts between the code and the U.S. Department of Energy's free compliance software, REScheck. This software was developed to provide homebuilders with a very easy means of using the IECC's trade-off capabilities, while still maintaining the overall efficiency of the code. It is specifically called out as a compliance option in many states.

In the previous two update cycles, the Department of Housing and Community Development created a workaround that would still allow builders to use this software, but this workaround is not a perfect long-term solution. If Virginia adopts the provisions of the 2018 IECC with no weakening amendments (as we have proposed in other proposals), Virginia builders would be able to use the 2018 version of REScheck, which is already available, without any complicated workarounds. This would facilitate both compliance and enforcement, and the energy savings from an unamended 2018 IECC would save homeowners a substantial amount of money.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

This proposal, by itself, will neither increase nor decrease the cost of construction. However, it will facilitate the use of efficiency trade-offs without requiring additional calculations on the part of the builder, making it easier for the builder to

select the most cost-effective design solutions without weakening the overall efficiency of the building. It will also provide value for both builders and code officials by saving them significant time by using REScheck, a simple and free tool from the U.S. DOE, without any complicated workarounds.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will not directly impact the resiliency of buildings.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Proponent and HBAV to work to see if there is a consensus path.
CA at 8/21 meeting

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RE401.2-18

Public Comment by Richard Grace

May 29, 2019 15:28 UTC

Please verify, the document referenced in this change that will be deleted if this moves forward is this one?

<https://www.dhcd.virginia.gov/sites/default/files/Docx/technical-memos-bulletins/2016-feb-residential-energy-alternative-compliance-letter.pdf>

Thanks !

Richard

Proposal # 14

RE401.2-18

RE401.3-18

VECC: R401.3; VRC: N1101.14 (R401.3)

Proponents: Energy Subworkgroup; Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

2015 Virginia Energy Conservation Code

R401.3 Certificate (Mandatory). ~~(Section deleted.)~~

A permanent certificate shall be completed by the builder or other *approved* party and posted on a wall in the space where the furnace is located, a utility room or an *approved* location inside the *building*. Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. Where approved, certificates for multifamily dwelling units shall be permitted to be located offsite at an identified location. The certificate shall indicate the predominant *R* -values of insulation installed in or on ceilings, roofs, walls, foundation components such as slabs, *basement walls*, *crawl space walls* and floors and ducts outside *conditioned spaces*; *U*-factors of fenestration and the *solar heat gain coefficient* (SHGC) of fenestration, and the results from any required duct system and *building envelope* air leakage testing performed on the *building*. Where there is more than one value for each component, the certificate shall indicate the value covering the largest area. The certificate shall indicate the types and efficiencies of heating, cooling and service water heating equipment. Where a gas-fired unvented room heater, electric furnace or baseboard electric heater is installed in the residence, the certificate shall indicate "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be indicated for gas-fired unvented room heaters, electric furnaces and electric baseboard heaters.

2015 Virginia Residential Code

:

N1101.14 (R401.3) Certificate (Mandatory). ~~(Section deleted.)~~

A permanent certificate shall be completed by the builder or other *approved* party and posted on a wall in the space where the furnace is located, a utility room or an *approved* location inside the *building*. Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. The certificate shall indicate the predominant *R* -values of insulation installed in or on ceilings, roofs, walls, foundation components such as slabs, *basement walls*, *crawl space walls* and floors and ducts outside *conditioned spaces*; *U*-factors of fenestration and the *solar heat gain coefficient* (SHGC) of fenestration, and the results from any required duct system and *building envelope* air leakage testing performed on the *building*. Where there is more than one value for each component, the certificate shall indicate the value covering the largest area. The certificate shall indicate the types and efficiencies of heating, cooling and service water heating equipment. Where a gas-fired unvented room heater, electric furnace or baseboard electric heater is installed in the residence, the certificate shall indicate "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be indicated for gas-fired unvented room heaters, electric furnaces and electric baseboard heaters.

Reason Statement: The purpose of this proposal is to restore the IECC's requirement that a certificate listing key building efficiency information be posted in a permanent location. This requirement has been in the IECC for several editions, and it provides useful information to current and future owners of residential buildings. The information included in the certificate is readily available at construction, and can be recorded on a certificate for no additional cost. In fact, compliance programs such as U.S. DOE's REScheck can automatically generate a certificate with much of this information already recorded. However, this type of information would be difficult or impossible to re-create several years into the building's useful life.

The information on the permanent certificate will help building owners more accurately size replacement heating and cooling equipment, make informed decisions about future efficiency upgrades, and will provide information for appraisers, energy raters, and other professionals who need to know the basic energy efficiency characteristics of the home. Present and future Virginia homeowners deserve to know basic efficiency information about their homes, which are often the single largest investment a family will make.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

The information required to be included in the permanent certificate will be readily available at construction and can often be taken directly from compliance software such as REScheck. This same information could be difficult to obtain several years down the road, and recording it at construction will save future homeowners time and money.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will have no direct impact on resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RE401.3-18

Public Comment by Richard Grace

May 29, 2019 15:41 UTC

This section has been a Virginia amendment (deletion) in the 2009 and 2012 codes. The language was untouched in the 2006 code. Since historical VA changes are not readily available for review online, I would request the proposed change to the 2006 IECC be provided for review. Virginia has kept this out of their regulations for two cycles, and it will be prudent to know why.

Thanks !

Richard

Public Comment by Richard Grace

May 29, 2019 15:47 UTC

Oh, I should mention, this was a VA change to the 2015 code as well. Three cycles, Virginia amended this section to delete.

Proposal # 107

RE401.3-18

RE402.4.1.2-18

VECC: R402.4.1.2, R402.4.1.2.1, R402.4.1.2.2, R402.4.1.3; VRC: N1102.4.1.2 (R402.4.1.2), N1102.4.1.2.1 (R402.4.1.2.1), N1102.4.1.2.2 (R402.4.1.2.2), N1102.4.1.3 (R402.4.1.3)

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

2015 Virginia Energy Conservation Code

R402.4.1.2 Air sealing. Testing.

Building envelope air tightness shall be demonstrated to comply with either Section R402.4.1.2.1 or R402.4.1.2.2. The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding five air changes per hour in Climate Zone 4. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be conducted by a Virginia licensed general contractor, a Virginia licensed HVAC contractor, a Virginia licensed Home inspector, a Virginia registered design professional, a certified BPI Envelope Professional, a certified HERS rater, or a certified Duct and Envelope Tightness rater. The party conducting the test shall have been trained on the equipment used to perform the test. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

NOTE: Should additional sealing be required as a result of the test, consideration may be given to the issuance of a temporary certificate of occupancy in accordance with section 116.1.1.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.

R402.4.1.2.1 Testing option.

The building or dwelling unit shall be tested for air leakage. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During testing:

Exterior windows and doors and fireplace and stove doors shall be closed, but not sealed beyond the intended

1. weatherstripping or other infiltration control measures;

Dampers, including exhaust, intake, makeup air, backdraft, and flue dampers, shall be closed, but not sealed

2. beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open;
4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;
5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and

6. ~~Supply and return registers, if installed at the time of the test, shall be fully open.~~

~~R402.4.1.2.2 Visual inspection option.~~

~~Building envelope tightness shall be considered acceptable when the items listed in Table R402.4.1.1, applicable to the method of construction, are field verified. Where required by the building official, an approved party, independent from the installer, shall inspect the air barrier. When this option is chosen, the dwelling unit shall be ventilated by mechanical means in accordance with Section 403 of the IMC.~~

~~R402.4.1.3 Leakage rate (Prescriptive).~~

~~The building or dwelling unit shall have an air leakage rate not exceeding 5 changes per hour as verified in accordance with Section R402.4.1.2.~~

2015 Virginia Residential Code

:

~~N1102.4.1.2 (R402.4.1.2) Air sealing. Testing.~~

~~Building envelope air tightness shall be demonstrated to comply with either Section N1102.4.1.2.1 or N1102.4.1.2.2. The *building* or dwelling unit shall be tested and verified as having an air leakage rate not exceeding five air changes per hour in *Climate Zone 4*. Testing shall be conducted in accordance with RESNET/ICC 380, ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be conducted by a Virginia licensed general contractor, a Virginia licensed HVAC contractor, a Virginia licensed Home inspector, a Virginia registered design professional, a certified BPI Envelope Professional, a certified HERS rater, or a certified Duct and Envelope Tightness rater. The party conducting the test shall have been trained on the equipment used to perform the test. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.~~

~~NOTE: Should additional sealing be required as a result of the test, consideration may be given to the issuance of a temporary certificate of occupancy in accordance with section 116.1.1.~~

~~During testing:~~

- ~~1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.~~
- ~~2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.~~
- ~~3. Interior doors, if installed at the time of the test, shall be open.~~
- ~~4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.~~
- ~~5. Heating and cooling systems, if installed at the time of the test, shall be turned off.~~
- ~~6. Supply and return registers, if installed at the time of the test, shall be fully open.~~

~~N1102.4.1.2.1 (R402.4.1.2.1) Testing option.~~

~~The building or dwelling unit shall be tested for air leakage. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pa). Where required by the building official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the building official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.~~

~~During testing:~~

4.

~~Exterior windows and doors and fireplace and stove doors shall be closed, but not sealed beyond the intended weatherstripping or other infiltration control measures;~~

~~Dampers, including exhaust, intake, makeup air, backdraft, and flue dampers, shall be closed, but not sealed~~

~~2. beyond intended infiltration control measures;~~

~~3. Interior doors, if installed at the time of the test, shall be open;~~

~~4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;~~

~~5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and~~

~~6. Supply and return registers, if installed at the time of the test, shall be fully open.~~

~~N1102.4.1.2.2 (R402.4.1.2.2) Visual inspection option.~~

~~Building envelope tightness shall be considered acceptable when the items listed in Table N1102.4.1.1, applicable to the method of~~

~~construction~~

~~, are field verified. Where required by the building official, an approved party, independent from the installer, shall inspect the air barrier. When this option is chosen, whole house mechanical ventilation shall be provided in accordance with Section M1507.3.~~

~~N1102.4.1.3 (R402.4.1.3) Leakage rate (Prescriptive).~~

~~The building or dwelling unit shall have an air leakage rate less than 5 changes per hour as verified in accordance with Section N1102.4.1.2.~~

Reason Statement: The purpose of this proposal is to restore the 2018 IECC requirement that all new homes be tested for air leakage with an air leakage rate no higher than 3 ACH50. This will also eliminate Virginia's "visual inspection" option, which is not a reliable or safe means of testing the air leakage or air quality of a building.

The IECC has required each new home to be objectively tested for air leakage since the 2012 edition. A strong majority of states now require all new homes to be tested to a low level of air leakage, providing both long-term energy savings and an important safety disclosure for homeowners, for a relatively low cost. The benefits of blower door testing are significant:

- Increased energy savings, by keeping the conditioned air inside the thermal envelope.
- Improved comfort, by reducing drafts
- Improved air quality, by keeping dust, car exhaust, insects, and other pollutants out of the home.

Without an objective test for air leakage, the efficiency of the home could vary substantially, even given similar thermal envelope component specifications. A visual inspection – even by an experienced, careful building code official – simply cannot substitute for an actual test. For example, a recent DOE Residential Field Study in Kentucky (a state that still allows visual inspections instead of blower door testing) found tested air leakage rates as low as .51 ACH50 and as high as 20.0 ACH50. A home with a 0.51 ACH50 leakage rate needs mechanical ventilation to maintain adequate fresh air for occupants, and a home with 20.0 ACH50 leakage rate needs to be substantially tightened to avoid wasting energy and to maintain comfort – but without a test, a homeowner would not know why the home is not performing as expected.

A tighter thermal envelope provides better comfort for homeowners and helps ensure better heating and cooling system operation. It saves energy by eliminating unnecessary leakage of conditioned air through the thermal envelope. And when combined with adequate mechanical ventilation, it helps protect occupant health and safety by controlling the quality of the air entering the home. Testing air leakage in every home is common-sense consumer protection that will provide energy conservation benefits over the lifetime of the home.

Cost Impact Statement: The code change proposal will increase the cost of construction

This proposal will result in a one-time charge for a blower door test during construction. However, the benefits of a tightly sealed home will far outweigh the cost of a blower door test. Because of the ubiquity of home energy ratings for Energy Star, federal tax credits, green building programs, and similar programs, blower door tests are widely available across the

Commonwealth. And because Virginia already requires duct testing in every new home, the cost of a combined test (blower door/duct blaster) will be low. And for the many new homes in Virginia that are already being tested, this proposal will not increase the cost of construction at all.

It is important to note that although construction costs and first-year affordability are an important part of the cost/benefit picture, they do not capture the full range of homeowner benefits of a reasonably efficient home. Beyond the monthly costs of heating and cooling homes, high energy bills can have dramatic effects on quality of life.

- The U.S. Energy Information Administration recently reported that nearly one in three households struggle to pay energy bills or to maintain adequate temperatures in their homes every year. Worse, one in five households reported reducing or foregoing basic necessities like food or medicine to pay energy bills. See U.S. Energy Information Administration, *Residential Energy Consumption Survey (RECS)*, at <https://www.eia.gov/consumption/residential/reports/2015>.

- More efficient buildings provide a range of additional health, safety, and welfare benefits, including better indoor environmental quality and increased occupant comfort. See U.S. Environmental Protection Agency, *Improving Indoor Air Quality*, at http://www.imt.org/uploads/resources/files/IMT_UNC_HomeEEMortgageRisksfinal.pdf), and Efficient Windows Collaborative, at <http://www.efficientwindows.org/comfort.php>.

- More efficient buildings are also associated with lower foreclosure rates. See UNC Center for Community Capital and Institute for Market Transformation, *Home Energy Efficiency and Mortgage Risks* (March 2013), available at http://www.imt.org/uploads/resources/files/IMT_UNC_HomeEEMortgageRisksfinal.pdf.

Testing homes for air leakage is a one-time investment in the performance and safety of a home over the likely 70-100 year useful lifetime of that home. It is well worth the small incremental cost increase.

Resiliency Impact Statement: This proposal will increase Resiliency

This proposal will increase the resiliency of homes. A properly sealed home will help maintain better indoor air quality and improve the long-term durability of the home. It will also reduce the volatility of indoor temperature swings and maintain more livable conditions during power outages due to natural emergencies. These improvements fall squarely within the Governor's directive to the Department of Housing and Community Development to identify "resilience-specific improvements to the Uniform Statewide Building Code (USBC) for inclusion in the 2018 code update," in Executive Order 24 from November 2018.

It is also critically important that the homebuilder and homeowner understand the actual air leakage rate of the home so that ventilation strategies can be employed in a manner that will maintain occupant health. Relying on a "visual inspection" instead of objective testing is not a safe, long-term strategy for making homes resilient and healthy for occupants.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Proponent and HBAV to work to see if there is a consensus path. Opposition by S. Pharr 8/21. Table until afternoon.

All parties agreed to move forward as consensus.

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason: Opposition by S. Pharr 8/21. Table until afternoon. All parties agreed to move forward as consensus.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RE402.4.1.2-18

Public Comment by Richard Grace

May 29, 2019 16:10 UTC

I thought I was starting discussions, but it looks now that I was making Public Comments. Forgive my ignorance. Please see my PC, and lets discuss.

Public Comment by Richard Grace

May 29, 2019 16:02 UTC

Another Virginia change from the past two cycles looking to be overturned. Need to have a reason statement from this proponent that will rebut Virginia's reason for not accepting this in the last two cycles.

Thanks !

Richard

Proposal # 101

RE402.4.1.2-18

RE403.3.5-18

IECC®: R403.3.5; IRC®: N1103.3.5

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2018 International Energy Conservation Code

Delete without substitution:

~~**R403.3.5 Building cavities (Mandatory).**~~

~~*Building framing cavities shall not be used as ducts or plenums.*~~

2018 International Residential Code

Delete without substitution:

~~**N1103.3.5 (R403.3.5) Building cavities (Mandatory).**~~

~~*Building framing cavities shall not be used as ducts or plenums.*~~

Reason Statement:

This is a code correlation issue. The problem is that IRC N1103.3.5 (IECC R303.3.5) prohibits all framing cavities from being used as air ducts or plenums in residential construction, but five chapters later in M1601.1.1 #7 the IRC permits cavities to be used as air plenums under five conditions. This is a direct conflict within the IRC. IECC C403.11.2 states that ductwork shall be constructed and erected in accordance with the IMC. So there is no conflict in commercial as the IMC has the same language as the IRC, permitting the use of framing cavities as air ducts or plenums per the same five conditions. So, three out of four code sections permit limited use of framing cavities as air plenums and one does not. This code change proposal eliminates the one out of four that is inconsistent so we can be consistent in Virginia.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This is a code correlation issue.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This is a code correlation issue.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason: CA 8/21 meeting.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RE403.3.5-18

This proposal doesn't have any public comments.

Proposal # 170

RE403.3.5-18

E402.4-18

VECC: TABLE C402.4

Proponents: Energy Subworkgroup; Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

2015 Virginia Energy Conservation Code

TABLE C402.4
BUILDING ENVELOPE REQUIREMENTS: FENESTRATION

Portions of table not shown remain unchanged.

CLIMATE ZONE	1	2	3	4 (EXCEPT MARINE)	5 (MARINE 4)	6	7	8
Vertical fenestration								
U-factor								
Fixed fenestration	0.50	0.50	0.46	0.38	0.38	0.36	0.29	0.29
Operable fenestration	0.65	0.65	0.60	0.45	0.45	0.43	0.37	0.37
Entrance doors	1.10	0.83	0.77	0.77	0.77	0.77	0.77	0.77
SHGC								
SHGC	0.25	0.25	0.25	0.40 0.36	0.40	0.40	0.45	0.45
Skylights								
U-factor	0.75	0.65	0.55	0.50	0.50	0.50	0.50	0.50
SHGC	0.35	0.35	0.35	0.40	0.40	0.40	NR	NR

NR = No requirement

Reason Statement: This proposal improves the efficiency of commercial buildings by implementing a moderate improvement in fenestration SHGC that was adopted into the 2018 IECC and ASHRAE Standard 90.1-2016. Low SHGC fenestration is important for all buildings, but is particularly important for commercial buildings, which tend to have higher internal loads and higher cooling needs during the peak daylight hours. Windows that meet or exceed this requirement are widely available from a range of manufacturers, with little to no cost difference from the current requirement. This improvement was extensively analyzed by ASHRAE and found to be cost-effective across a range of commercial building types. This moderate change to fenestration SHGC will improve occupant comfort and reduce energy use in Virginia's commercial buildings.

Cost Impact Statement: The code change proposal will increase the cost of construction. This proposal will increase the cost of construction in some cases. However, this improvement was extensively analyzed by ASHRAE, which considered the incremental costs of 305 different fenestration assemblies, including 42 double and triple glazing combinations. The ASHRAE analysis showed cost-effectiveness, and the improvement is included in both ASHRAE Standard 90.1-2016 and the 2018 IECC. As noted above, low-SHGC fenestration will keep occupants more comfortable, reduce equipment sizes in buildings, and help reduce electric peak demand. Given the little to no cost increase of this improvement and the wide range of benefits, we believe it is a reasonable investment for commercial building owners.

Resiliency Impact Statement: This proposal will increase Resiliency. This proposal will make buildings more resilient. Low-SHGC windows maintain better occupant comfort by reducing the volatility of indoor temperature swings. Moreover, these windows will help maintain more livable conditions during power outages due to natural emergencies. These improvements fall squarely within the Governor's directive to the Department of Housing and Community Development to identify "resilience-specific improvements to the Uniform Statewide Building Code (USBC) for inclusion in the 2018 code update," in Executive Order 24 from November 2018.

At the macro level, buildings currently account for over 40% of the nation's energy use and over 70% of the nation's electricity use. A significant portion of that electricity comes from burning fossil fuels, which is one of the causes of climate change. Improvements in efficiency – particularly peak electric demand reductions – will help curb Virginia's need to build and site peak generation (which tends to be both more expensive and more carbon-intensive). Low-SHGC fenestration is designed to reduce cooling demand during the hottest hours and months of the year, providing these additional benefits to building owners and all Virginia's citizens. It is well within Virginia's interests in improving resiliency to a changing climate to reduce energy demand wherever possible.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for E402.4-18

This proposal doesn't have any public comments.

Proposal # 13

E402.4-18

E403.2.8-18

VECC: C403.2.8, TABLE C403.2.8

Proponents: Richard Grace, VPMIA/VBCOA (richard.grace@fairfaxcounty.gov); Energy Subworkgroup

2015 Virginia Energy Conservation Code

Delete without substitution:

~~C403.2.8 Kitchen exhaust systems.~~

~~Replacement air introduced directly into the exhaust hood cavity shall not be greater than 10 percent of the hood exhaust airflow rate. Conditioned supply air delivered to any space shall not exceed the greater of the following:~~

- ~~1.The ventilation rate required to meet the space heating or cooling load.~~
- ~~2.The hood exhaust flow minus the available transfer air from adjacent space where available transfer air is considered that portion of outdoor ventilation air not required to satisfy other exhaust needs, such as restrooms, and not required to maintain pressurization of adjacent spaces.~~

~~Where total kitchen hood exhaust airflow rate is greater than 5,000 cfm (2360 L/s), each hood shall be a factory-built commercial exhaust hood listed by a nationally recognized testing laboratory in compliance with UL 710. Each hood shall have a maximum exhaust rate as specified in Table C403.2.8 and shall comply with one of the following:~~

- ~~1.Not less than 50 percent of all replacement air shall be transfer air that would otherwise be exhausted.~~
- ~~2.Demand ventilation systems on not less than 75 percent of the exhaust air that are capable of not less than a 50-percent reduction in exhaust and replacement air system airflow rates, including controls necessary to modulate airflow in response to appliance operation and to maintain full capture and containment of smoke, effluent and combustion products during cooking and idle.~~
- ~~3.Listed energy recovery devices with a sensible heat recovery effectiveness of not less than 40 percent on not less than 50 percent of the total exhaust airflow.~~

~~Where a single hood, or hood section, is installed over appliances with different duty ratings, the maximum allowable flow rate for the hood or hood section shall be based on the requirements for the highest appliance duty rating under the hood or hood section.~~

Exception: ~~Where not less than 75 percent of all the replacement air is transfer air that would otherwise be exhausted.~~

TABLE C403.2.8
MAXIMUM NET EXHAUST FLOW RATE, CFM PER LINEAR FOOT OF HOOD LENGTH

TYPE OF HOOD	LIGHT-DUTY EQUIPMENT	MEDIUM-DUTY EQUIPMENT	HEAVY-DUTY EQUIPMENT	EXTRA-HEAVY-DUTY EQUIPMENT
Wall-mounted canopy	140	210	280	385
Single island	280	350	420	490
Double island (per side)	175	210	280	385
Eyebrow	175	175	NA	NA
Backshelf/Pass-over	210	210	280	NA

For SI: 1 cfm = 0.4719 L/s; 1 foot = 305 mm.

NA = Not Allowed.

Reason Statement: Clarity note first - delete entire section and Table without substitution (cdpV A editor didn't appear to delete Table contents)

This code section conflicts with the minimum life safety requirements outlined in the International Mechanical Code. The minimum exhaust flow rates provided in the IMC are there to capture and contain airborne grease particles produced by cooking operations from specific cooking appliances. These rates, along with many other significant changes associated with hood design and performance, were incorporated into the IMC (starting with the 2003 IMC) and were the result of extensive testing by a specialized group of experts, many committee members of ASHRAE 154. This IECC section and Table provides for maximum exhaust flow rates. These rates are much less than those prescribed by the IMC for non-factory-built hoods. Factory-built hoods are required to be tested to UL 710. In many cases, the IECC maximum rates are less than those prescribed by UL 710 as well.

Looking back on the code change proposal that ultimately placed this section and table into the IECC (CE220-13, included as an attachment with this proposal), the actual intent of the proposal was not to contradict airflow properties prescribed by the IMC or UL 710, but to eliminate the use of short-cycle hoods and to force designers to take more advantage of an HVAC system for use as makeup air for a hood instead of supplying a dedicated makeup air unit. Unfortunately, this was not the right path to accomplish these goals.

When the committee disapproved this change, they indicated that "the proposal needs better coordination with the International Mechanical Code. Instead of doing this, the public comment that Steve submitted provided less coordination. Another problem with this proposal was that Steve was attempting to align this requirement up with the language contained in ASHRAE 90.1-10 without bringing forth all other pertinent information contained in 90.1. This includes specific definitions contained within 90.1 applicable to this topic, not found or addressed in either IECC or IMC. Also, 90.1 does not dictate that only 710 hoods be installed where the exhaust flow rates exceed 5,000 cfm. That was Steve's unusual response to the committee's disapproval, as the IMC ('needs better coordination') does not provide for this requirement either. Other issues that didn't get carried over accurately from 90.1 include (1) 90.1 section 6.5.7.1.3 references ASHRAE 154 *Ventilation for Commercial Cooking Operations*, the proposal does not; (2) the exception in this proposal is in a different location in 90.1, changing the meaning of the exception entirely.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
It is possible that this will decrease resiliency, however it will most certainly increase life safety.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for E403.2.8-18

This proposal doesn't have any public comments.

Proposal # 175

E403.2.8-18

TP-LC-1 Standard Update-18

IRC®: ANSI Chapter 44; IFGC®: ANSI Chapter 08

Proponents: Jonathan Sargeant (jonathan.sargeant@omegaflex.com)

2018 International Residential Code

ANSI

American National Standards
Institute
25 West 43rd Street, 4th Floor
New York NY 10036

LC1/CSA ~~6.2613~~ 6.2618: Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST)

2018 International Fuel Gas Code

:

ANSI

American National Standards
Institute
25 West 43rd Street
New York NY 10036

LC 1/CSA ~~6.26—2013 6.26—2018~~: Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST)

Reason Statement: To update the product standard for CSST to make it consistent with the installation requirements of the 2018 IRC and IFGC.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This is a standard update only. It will have no impact on the cost of construction.

Resiliency Impact Statement:
This is a standard update only and has no impact on resiliency.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP-LC-1 Standard Update-18

This proposal doesn't have any public comments.

Proposal # 44

TP-LC-1 Standard Update-18

TP202-Service Sink Definition-18

VPC: SECTION 202, (New)

Proponents: Lee Craft, VPMIA (lee.craft@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

SECTION 202 GENERAL DEFINITIONS

Add new text as follows:

Service Sink. A general purpose sink exclusively intended to be used for facilitating the cleaning of a building or tenant space.

Reason Statement: The only specific physical characteristic currently defining a service sink is that it shall have a minimum 1-1/2 inch trap per VPC Table 709.1. This requirement is the same as a kitchen sink and sink on VPC Table 709.1. As a result the code does not appear to prohibit the use of a kitchen sink which may be mounted on millwork and located in a break room or lunch room to be designated as the minimum fixture service sink. To alleviate the possibility of sinks which may be used for dishwashing, food preparation or handwashing from being appropriated for building cleaning and associated caustic products, the definition indicates the service sink as a specific fixture "exclusively" intended for building cleaning.

Cost Impact Statement:

The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason: CAAS MODIFIED (strike the word "utility") 8/21 WG meeting.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover

- ☐ Disapproved
- ☐ None

Public Comments for TP202-Service Sink Definition-18

This proposal doesn't have any public comments.

Proposal # 134

TP202-Service Sink Definition-18

TP410.4-18

VPC: 410.4

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Revise as follows:

410.4 Substitution. Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other occupancies where more than two drinking fountains are required, *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking ~~fountains~~ fountains, not withstanding the provisions of Section 410.5.

Reason Statement: This section is often times misinterpreted. It is believed where calculations indicate that two drinking fountains are required, half of that can be substituted with water dispensers. This is not so. The intent of Section 410 is to provide a drinking fountain specifically for people who use a wheel chair and another one specifically for standing persons. Neither of these can be substituted. Even where calculations conclude that only one drinking fountain is required, two must be provided per 410-3, and cannot be substituted. The additional language in this proposal is an attempt to clear this misunderstanding up.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason: CA as modified.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover

- ☐ Disapproved
- ☐ None

Public Comments for TP410.4-18

Public Comment by Lee Craft

Jun 6, 2019 15:54 UTC

The proposed wording to be added "notwithstanding the requirements of Section 410.3" uses "notwithstanding" . The definition of "notwithstanding" appears to imply "in spite of" or "without regard to" .

(online reference)

<https://weagree.com/weblog/notwithstanding-is-a-tricky-one/>

Perhaps "subject to the requirements of Section 410.3" works better?

Proposal # 126

TP410.4-18

TP423.1-18

VPC: 423.1

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Revise as follows:

423.1 Water connections. Baptisteries, ornamental and lily pools, aquariums, ornamental fountain basins, swimming pools, footbaths and pedicure baths, and similar constructions, where provided with water supplies, shall be protected against backflow in accordance with Section 608.

Reason Statement: Pedicure baths and footbaths have become increasingly more popular. The code has not yet recognized the danger to the water supply these units pose. This change will address that by requiring backflow prevention for these unit. This change does not specify the specific type of backflow device, it simply requires that one be provided per Section 608.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP423.1-18

This proposal doesn't have any public comments.

Proposal # 127

TP423.1-18

TP605.2.1-18

VPC: 605.2.1; VRC: P2906.2.1

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Revise as follows:

605.2.1 Lead content of drinking water pipe and fittings. Pipe, pipe fittings, joints, valves, faucets and fixture fittings utilized to supply water for drinking or cooking purposes shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent or less. _

2015 Virginia Residential Code

Revise as follows:

P2906.2.1 Lead content of drinking water pipe and fittings. Pipe, pipe fittings, joints, valves, faucets and fixture fittings utilized to supply water for drinking or cooking purposes shall comply with NSF 372 and shall have a weighted average lead content of 0.25 percent lead or less. _

Reason Statement: This language is not necessary in the code and not verifiable from an enforcement stance. This language is contained in the NSF 372 Standard and verified during the testing process to meet the standard.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP605.2.1-18

This proposal doesn't have any public comments.

Proposal # 124

TP605.2.1-18

TP705.11.2-18

VPC: 705.11.2; VRC: P3003.9.2

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Revise as follows:

705.11.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F656 shall be applied. Solvent cement not purple in color and conforming to ASTM D2564, CSA B137.3, CSA B181.2 or CSA B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D2855. Solvent-cement joints shall be permitted above or below ground.

Exception: ~~A primer is not required where both of the following conditions apply:~~

- ~~1. The solvent cement used is third-party certified as conforming to ASTM D2564.~~

~~The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in nonpressure~~

- ~~2. applications in sizes up to and including 4 inches (102 mm) in diameter.~~

2015 Virginia Residential Code

Revise as follows:

P3003.9.2 Solvent cementing. Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F656 shall be applied. Solvent cement not purple in color and conforming to ASTM D2564, CSA B137.3 or CSA B181.2 shall be applied to all joint surfaces. The joint shall be made while the cement is wet, and shall be in accordance with ASTM D2855. Solvent-cement joints shall be installed above or below ground.

Exception: ~~A primer shall not be required where all of the following conditions apply:~~

- ~~1. The solvent cement used is third-party certified as conforming to ASTM D2564.~~

~~The solvent cement is used only for joining PVC drain, waste and vent pipe and fittings in nonpressure~~

- ~~2. applications in sizes up to and including 4 inches (102 mm) in diameter~~

Reason Statement: The addition of this exception into the code has caused a direct conflict between what the code allows and what many pipe manufacturer's require. We currently have two sections in the Virginia Plumbing Code to address conflicts, 112.3.1 and 301.7 (the Virginia Residential Code has only one, 112.3.1). Both of these sections require that the most restrictive provision apply. In the case of primer use on PVC pipe and fittings, the most restrictive is the use of primer on the joints. I have been unable to locate a piping manufacturer's *installation instructions* that does not require the use of primer on a PVC joint.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP705.11.2-18

This proposal doesn't have any public comments.

Proposal # 109

TP705.11.2-18

TP717-18

VPC: **SECTION 717** (New), **717.1** (New), **717.2** (New), **717.3** (New), **717.3.1** (New), **717.4** (New), **717.5** (New), **717.6** (New), **717.7** (New), **717.7.1** (New), **717.8** (New), **717.9** (New), **717.10** (New), ASTM Chapter 15 (New)

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Add new text as follows:

SECTION 717 **RELINING BUILDING SEWERS AND BUILDING DRAINS**

717.1 General.

This section shall govern the relining of existing *building sewers and building drainage piping*.

717.2 Applicability.

The relining of existing *building sewer* and *building drainage piping* shall be limited to gravity drainage piping, 4 inches (102 mm) in diameter and larger. The relined piping shall be of the same nominal size as the existing piping.

717.3 Pre-installation requirements.

Prior to commencement of the relining installation, the existing piping sections to be relined shall be descaled and cleaned. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.

-

717.3.1 Pre-installation recorded video camera survey.

The video survey shall include verification of the project address location. The video shall include notations of the cleanout and fitting locations, and the approximate depth of the existing piping. The video shall also include notations of the length of piping at intervals no greater than 25 feet.

717.4 Permitting.

Prior to permit issuance, the code official shall review and evaluate the pre-installation recorded video camera survey to determine if the piping system is capable to be relined in accordance with the proposed lining system manufacturer's installation requirements and applicable referenced standards.

717.5 Prohibited applications.

Where review of the pre-installation recorded video camera survey reveals that piping systems are not installed correctly or defects exist, relining shall not be permitted. The defective portions of piping shall be exposed and repaired with pipe and fittings in accordance with this code. Defects shall include, but are not limited to, backgrade or insufficient slope, complete pipe wall deterioration or complete separations such as from tree root invasion or improper support.

717.6 Relining materials.

The relining materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. Fold-and-form pipe reline materials shall be manufactured in compliance with ASTM F1504 or ASTM F1871.

-

717.7 Installation.

The installation of relining materials shall be performed in accordance with the manufacturer's installation instructions, applicable referenced standards and this code.

-

717.7.1 Material data report.

The installer shall record the data as required by the relining material manufacture and applicable standards. The recorded data shall include but is not limited to the location of the project, relining material type, amount of product installed and

conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

717.8 Post-installation recorded video camera survey.

The completed relined piping system shall be inspected internally by a recorded video camera survey after the system has been flushed and flow tested with water. The video survey shall be submitted to the the *code official* prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that no defects exist. Any defects identified shall be repaired and replaced in accordance with this code.

717.9 Certification.

A certification shall be provided in writing to the code official, from the permit holder, that the relining materials have been installed in accordance with the manufacturer's installation instructions, the applicable standards and this code.

717.10 Approval.

Upon verification of compliance with the requirements of Sections 717.1 through 717.9, the code official shall approve the installation.

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken PA 19428-
2959

: F1871-2011: Standard Specification for Folded/Formed Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken PA 19428-
2959

: F1504-2014: Standard Specification for Folded Poly (Vinyl Chloride) (PVC) for Existing Sewer and Conduit Rehabilitation

Reason Statement: To date there has been limited to no code reference for all the technologies currently available to the reline piping systems. Many localities across the state, and country, are accepting it as an alternate material and method with no code guidance. This proposal is not an endorsement of any particular method or process. It does not promote or require relining. It simply provides installation and acceptance criteria when the application is encountered. This language will provide consistent application for all materials and technologies for the industry, including the code official and installers alike. Pipe relining technology has been successfully used for many years. It began with larger utility piping systems and has progressed into smaller piping systems that are privately owned and fall within the purview of the plumbing code. The process reduces the impact of open trench excavation's and thereby reduces repair cost according to industry data.

Cost Impact Statement: The code change proposal will decrease the cost of construction
Reducing open trench excavation, assisting with preservation of the natural environment and limiting destruction of private property will reduce the cost of plumbing repairs.

Resiliency Impact Statement: This proposal will increase Resiliency
Reducing open trench excavation, assisting with preservation of the natural environment and limiting destruction of private property will help increase resiliency.

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP717-18

This proposal doesn't have any public comments.

Proposal # 122

TP717-18

TP1101.7-18

VPC: 1101.7

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Revise as follows:

1101.7 Roof design. Roofs shall be designed for the maximum possible depth of water that will pond thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements. In determining the maximum possible depth of water, all primary roof drainage means shall be assumed to be blocked.

~~The maximum possible depth of water on the roof shall include the height of the water required above the inlet of the secondary roof drainage means to achieve the required flow rate of the secondary drainage means to accommodate the design rainfall rate as required by Section 1106.~~

Reason Statement: The 2015 IPC introduced a different methodology for sizing conductors, leaders and storm drains using the flow rate through the roof drain. When Virginia adopted the 2015 IPC, we kept the methodology contained in the 2012 IPC. There were a couple of items that didn't get addressed in that Virginia amendment, this is one. The section refers to the published roof drain flow rate for sizing the storm drainage system. This is not applicable to the Virginia amended methodology for sizing these systems.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP1101.7-18

This proposal doesn't have any public comments.

Proposal # 130

TP1101.7-18

TP1105.2-18

VPC: 1105.2

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Delete without substitution:

~~1105.2 Roof drain flow rate.~~

~~The published roof drain flow rate, based on the head of water above the roof drain, shall be used to size the storm drainage system in accordance with Section 1106. The flow rate used for sizing the storm drainage piping shall be based on the maximum anticipated ponding at the roof drain.~~

Reason Statement: The 2015 IPC introduced a different methodology for sizing conductors, leaders and storm drains using the flow rate through the roof drain. When Virginia adopted the 2015 IPC, we kept the methodology contained in the 2012 IPC. There were a couple of items that didn't get addressed in that Virginia amendment, this is one. The section refers to the published roof drain flow rate for sizing the storm drainage system. This is not applicable to the Virginia amended methodology for sizing these systems.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
None

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP1105.2-18

This proposal doesn't have any public comments.

Proposal # 128

TP1105.2-18

TP1110-18

VPC: 1110 (New), 1110.1 (New)

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Add new text as follows:

1110 VALUES FOR CONTINUOUS FLOW

1110.1 Equivalent roof area.

Where there is a continuous or semicontinuous discharge into the building *storm drain* or building *storm sewer*, such as from a pump, ejector, air conditioning plant or similar device, each gallon per minute (L/m) of such discharge shall be computed as being equivalent to 96 square feet (9 m²) of roof area, based on a rainfall rate of 1 inch (25.4 mm) per hour.

Reason Statement: The 2015 IPC introduced a different methodology for sizing conductors, leaders and storm drains using the flow rate through the roof drain. When Virginia adopted the 2015 IPC, we kept the methodology contained in the 2012 IPC. There were a couple of items that didn't get addressed in that Virginia amendment, this is one. This section was removed as part of the "package" to introduce the 2015 IPC methodology for sizing storm drainage systems. The Virginia amended methodology still requires the use of this section.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP1110-18

This proposal doesn't have any public comments.

Proposal # 129

TP1110-18

TP1303.1-18

VPC: 1303.1, CSA Chapter 15 (New); VRC: P2912.1, CSA Chapter 44 (New)

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

Revise as follows:

1303.1 General. The provisions of this section shall govern the design, construction, installation, alteration, and repair of *rainwater nonpotable water systems* for the collection, storage, treatment, and distribution of *rainwater* for nonpotable applications. The provisions of CSA B805/ICC 805 shall be permitted as an alternative to the provisions contained in this section for the design, construction, installation, alteration, and repair of *rainwater nonpotable water systems* for the collection, storage, treatment, and distribution of *rainwater* for nonpotable applications. Roof runoff or stormwater runoff collection surfaces shall be limited to Roofing Materials, Public Pedestrian Accessible Roofs and Subsurface Collection identified in CSA B805/ICC 805 Table 7.1. Stormwater runoff shall not be collected from any other surfaces.

Add new text as follows:

CSA

CSA Group
8501 East Pleasant Valley
Cleveland OH 44131-5516

: **CSA B805-18/ICC 805-2018: Rainwater Harvesting Systems**

2015 Virginia Residential Code

Revise as follows:

P2912.1 General. The provisions of this section shall govern the design, construction, installation, alteration, and repair of *rainwater nonpotable water systems* for the collection, storage, treatment, and distribution of *rainwater* for nonpotable applications. The provisions of CSA B805/ICC 805 shall be permitted as an alternative to the provisions contained in this section for the design, construction, installation, alteration, and repair of *rainwater nonpotable water systems* for the collection, storage, treatment, and distribution of *rainwater* for nonpotable applications. Roof runoff or stormwater runoff collection surfaces shall be limited to Roofing Materials, Public Pedestrian Accessible Roofs and Subsurface Collection identified in CSA B805/ICC 805 Table 7.1. Stormwater runoff shall not be collected from any other surfaces.

Add new text as follows:

CSA

CSA Group
8501 East Pleasant Valley Road
Cleveland OH 44131-5516

: **CSA B805-18/ICC 805-2018: Rainwater Harvesting Systems**

Reason Statement: This proposal adds the CSA B805/ICC 805 Standard as an alternate compliance path for rainwater to be used in nonpotable applications. This language was approved on the national level to be incorporated into the 2021 International Plumbing Code and International Residential Code. The standard contains provisions for nonpotable applications as well as for potable applications, however the provisions for potable applications are not being proposed in this technical amendment, nor were they approved on the national level. The Standard provides a far more comprehensive prescriptive and/or performance document as an alternate compliance path to nonpotable applications which includes the ability to collect rainwater from areas other than aboveground impervious roofing surfaces, identification of end uses based on tier levels and a water quality guidance requirement measured and documented through a required water safety plan.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

This is an alternative method, not a mandatory method. The cost of construction will only increase if the option to install a rainwater harvesting system is chosen.

Resiliency Impact Statement: This proposal will increase Resiliency

Planning, design, and management of rainwater harvesting and water storage, as well as considering the full range of water storage options would enable better opportunities for enhancing resilience against climate change.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP1303.1-18

This proposal doesn't have any public comments.

Proposal # 121

TP1303.1-18

TM505.6-18

VMC: 505.6

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

2015 Virginia Mechanical Code

~~505.4~~ **505.6 Other than Group R.** In other than Group R occupancies, where electric domestic cooking appliances are utilized for domestic purposes, ~~such appliances shall be provided with domestic range hoods.~~ domestic range hoods shall be permitted for such appliances. Hoods and exhaust systems for such electric domestic cooking appliances shall be in accordance with Sections ~~505.4~~ 505.2 and ~~505.2~~ 505.4. In other than Group R occupancies, where fuel-fired domestic cooking appliances are utilized for domestic purposes, a Type I or Type II hood shall be provided as required for the type of appliances and processes in accordance with Section 507.1.

Reason Statement: This proposal changes an absolute to an option. As currently written, a *domestic* hood SHALL be provided - no option. What if an owner wanted to provide a Type I or II hood? This proposal uses "shall be permitted" thus allowing the owner to decide whether they want to provide a domestic hood or a Type I or II hood. The section references were also revised to reflect the appropriate 2018 IMC sections.

Cost Impact Statement:

Will not increase or decrease cost of construction. Since the proposal does not *require* a Type I or II hood, the owner could still use a domestic hood, thus there would be no increase in cost.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TM505.6-18

This proposal doesn't have any public comments.

Proposal # 168

TM505.6-18

TM506.5.6-18

VMC: 506.5.6, 15 UL, UL Chapter 15 (New)

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Mechanical Code

Revise as follows:

506.5.6 Pollution control units. The installation of *pollution control units* shall be in accordance with ~~the manufacturer's installation instructions and~~ all of the following:

1. *Pollution control units* shall be listed and labeled in accordance with UL ~~4978- 8782~~.
2. Fans serving *pollution control units* shall be listed and labeled in accordance with UL 762.
3. ~~Pollution~~ Bracing and supports for *pollution control units* shall be mounted and secured in accordance with the manufacturer's installation instructions and the of noncombustible material securely attached to the structure and designed to carry gravity and seismic loads within the stress limitations of the International Building Code .
4. *Pollution control units* located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a *pollution control unit*, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for serving and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. ~~A clearance of not less than 18 inches (457 mm)~~ Clearances shall be maintained between the *pollution control unit* and combustible ~~material~~. material in accordance with the listing.
6. Roof-mounted *pollution control units* shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof.
7. Exhaust outlets for *pollution control units* shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a *pollution control unit*. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.
9. *Pollution control units* shall be provided with a factory-installed fire suppression system.
10. Service space shall be provided in accordance with the manufacturer's instructions for the *pollution control unit* and the requirements of Section 306.
11. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.
12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.
13. Duct connections to *pollution control units* shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the unit inlet and outlet openings.
14. Extra-heavy-duty appliance exhaust systems shall not be connected to *pollution control units* except where such units are specifically designed and listed for use with solid fuels.
15. *Pollution control units* shall be maintained in accordance with the manufacturer's instructions.

Revise as follows:

8782-17: Outline of Investigation for Pollution Control Units for Commercial Cooking

Reason Statement: The biggest change here is the addition of UL 8782-17. UL 1978 does not contain all the requirements necessary for listing PCUs. UL 8782 contains both construction and performance requirements to address various issues not covered by UL 1978. The other proposed changes, more than anything else, are clarifiers.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TM506.5.6-18

This proposal doesn't have any public comments.

Proposal # 132

TM506.5.6-18

TM510.7.1.1-18

VMC: 510.7.1.1

Proponents: Richard Grace, VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

2015 Virginia Mechanical Code

510.7.1.1 Shaft penetrations. Hazardous exhaust ducts that penetrate fire-resistance-rated shafts shall comply with Section ~~714.3.1 or 714.3.1.2~~ 713.11 of the International Building Code.

Reason Statement: I do not think the intent of this section was to provide a through penetration firestop system as an equivalent method of protection to a fire damper. The intent was to address hazardous duct protections into rated shafts. IBC 713.10 says that such penetrations comply with Section 717. Section 717.1.2 sends you to Section 714.2 through 714.3.3 (that portion I am deleting from this section - 714.3.1 or 714.3.1.2) for ducts penetrating fire rated assemblies not required to have dampers. Hazardous ducts ARE required to have dampers when penetrating fire rated assemblies, but are not permitted to have them, so we have to provide equivalent protection. 714.3.1 or 714.3.1.2 is not the answer. We have gone through this exercise with clothes dryer exhaust ducts (another duct not permitted to have fire dampers, but requires one when penetrating fire rated assemblies). We end up in Section 713.11 for equivalent protection, not in a through penetration firestop section.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
Hard to say if something is just wrong, does a change to the right thing actually increase the cost of construction?

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 4 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TM510.7.1.1-18

This proposal doesn't have any public comments.

Proposal # 268

TM510.7.1.1-18

RB311.3.2-18

VRC: R311.3.1, R311.3.2

Proponents: Andrew Clark (aclark@hbav.com)

2015 Virginia Residential Code

R311.3.1 Floor elevations at the required egress doors. Landings or finished floors at the required egress door shall be not more than 1¹/₂ inches (38 mm) lower than the top of the threshold.

Exception: The landing or floor on the exterior side shall not be more than 8¹/₄ inches (210 mm) below the top of the threshold provided the door does not swing over the landing or floor.

Where exterior landings or floors serving the required egress door are not at grade, they shall be provided with access to grade by means of a ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

R311.3.2 Floor elevations for other exterior doors. Doors other than the required egress door shall be provided with landings or floors not more than ~~7³/₄ inches~~ 8 1/4 inches (196 mm) below the top of the threshold.

Exception: A top landing is not required where a stairway of not more than two risers is located on the exterior side of the door, provided that the door does not swing over the stairway.

Reason Statement: The exception of VRC R311.3.1 states that the landing or floor on the exterior side shall not be more than 8 ¼ inches below the top of the threshold provided the door does not swing over the landing or floor. The 8 ¼ inches was a state amendment to the IRC (IRC is at 7 ¾ inches). However, it appears that the same amendment was inadvertently not made to VRC 311.3.2 (floor elevations at other exterior doors) which states that “doors other than the required egress door shall be provided with landings or floors not more than 7 ¾ inches below the top of the threshold”. This proposal aligns the language of VRC R311.3.2 with VRC 311.3.1

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
No impact on cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
No impact on resiliency

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for RB311.3.2-18

This proposal doesn't have any public comments.

Proposal # 256

RB311.3.2-18

RB332-18

VRC: R332 (New)

Proponents: Residential Use Subworkgroup

2015 Virginia Residential Code

Add new text as follows:

R332 TINY HOUSES

R332 General.

Appendix Q may be used as an alternative to the requirements of this code where a dwelling is 400 square feet (37 m²) or less in floor area.

Reason Statement: This proposal introduces a new section that would allow the use of Appendix Q, which contains provisions specific to tiny homes. The appendix gives special considerations to elements such as ceiling heights, stairways, landings, handrails, guards, etc.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RB332-18

This proposal doesn't have any public comments.

Proposal # 207

RB332-18

BAQ104.1.2-18

IRC®: AQ104.1.2, AQ104.1.3, AQ104.2, AQ104.2.1, AQ104.2.1.2, AQ104.2.1.4 (New), AQ104.2.1.5, AQ104.2.1.6, AQ104.2.1.7 , 1 (New), AQ104.2.5, Figure AQ104.1.3 (New), AQ104.2.2.1

Proponents: Residential Use Subworkgroup

2018 International Residential Code

AQ104.1.2 Minimum horizontal dimensions. Lofts shall be not less than 5 feet (1524 mm) in any horizontal dimension.

AQ104.1.3 Height effect on loft area. Portions of a loft with a sloped ceiling measuring less than 3 feet (914 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required area for the loft.

Exception: Under gable roofs with a minimum slope of 6 units vertical in 12 units horizontal (50-percent slope), portions of a loft with a sloped ceiling measuring less than 16 inches (406 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required area for the loft. See Figure AQ104.1.3.

AQ104.2 Loft access. access and egress. The access to and primary egress from lofts shall be of any type described in Sections AQ104.2.1 through AQ104.2.4. The loft access and egress element along its required minimum width, shall meet the loft where its ceiling height is not less than 3 feet (914 mm).

AQ104.2.1 Stairways. Stairways accessing lofts shall comply with this code or with Sections AQ104.2.1.1 through AQ104.2.1.5. AQ104.2.1.7.

AQ104.2.1.2 Headroom. The headroom ~~in stairways above stairways~~ accessing a loft shall be not less than 6 feet 2 inches (1880 mm), as measured vertically, from a sloped line connecting the tread, landing, or landing platform nosings in the middle of their center of their width, and vertically from the landing platform along the center of its width.

Add new text as follows:

AQ104.2.1.4 Landings.

Intermediate landings and landings at the bottom of stairways shall comply with Section R311.7.6, except that the depth in direction of travel shall be not less than 24 inches (610 mm).

AQ104.2.1.4 AQ104.2.1.5 Landing platforms. The top tread and riser of stairways accessing lofts shall be constructed as a landing platform where the loft ceiling height is less than 6 feet 2 inches (1880 mm) where the stairway meets the loft. The landing platform shall be ~~18 inches to 22 inches (457 to 559 mm) in depth measured from~~ not less than 20 inches (508 mm) in width and in depth measured horizontally from and perpendicular to the nosing of the landing platform to the edge of the loft, and 16 to 18 inches (406 to 457 mm) in height measured from the landing platform to the loft floor platform. The landing platform riser height to the loft floor shall be not less than 16 inches (406 mm) and not greater than 18 inches (457 mm).

AQ104.2.1.5 AQ104.2.1.6 Handrails. Handrails shall comply with Section R311.7.8.

AQ104.2.1.6 AQ104.2.1.7 Stairway guards. Guards at open sides of stairways, landings, and landing platforms shall comply with Section R312.1.

Add new text as follows:

1

New Code Section

AQ104.2.5 Loft Guards. Loft guards shall be located along the open side of lofts. Loft guards shall be not less than 36 inches (914 mm) in height or one-half of the clear height to the ceiling, whichever is ~~less.~~ less. Loft guards shall comply with Section R312.1.3 and Table R301.5 for their components.

Add new text as follows:

Figure AQ104.1.3 Loft Ceiling Height

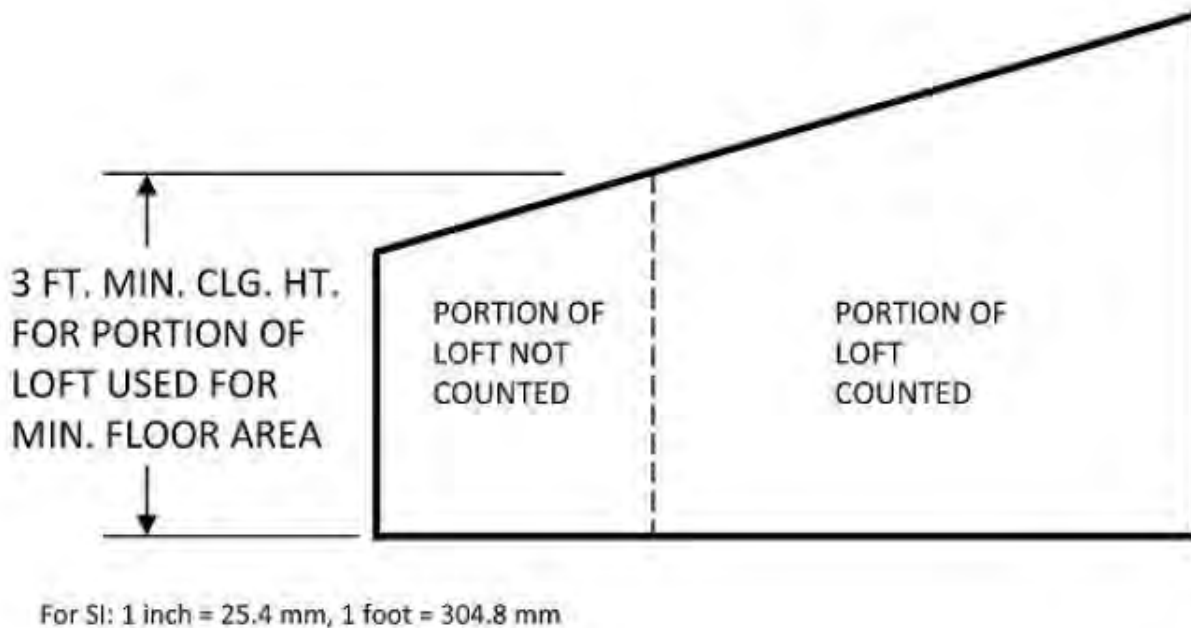


**Figure AQ104.1.3
Loft Ceiling Height**

AQ104.2.2.1 Size and capacity. Ladders accessing lofts shall have a rung width of not less than 12 inches (305 mm), and 10-inch (254 mm) to 14-inch (356 mm) spacing between rungs. Ladders shall be capable of supporting a ~~200-pound (75 kg)~~ 300-pound (136 kg) load on any rung. Rung spacing shall be uniform within $\frac{3}{8}$ inch (9.5 mm).

Reason Statement: (Copied from proposal #218, this version is virtually the same, but with legislative formatting)
This proposal improves Appendix Q by 1) modifying the language in some sections to provide clarity, 2) adding Figure AQ104.1.3 from the Commentary to illustrate the meaning of "height effect, and 3) making other changes to the following sections:

AQ104.2: The added sentence requires the ceiling height of the loft to be a minimum of 3 feet where access and egress element meets the loft. This was previously unaddressed.

AQ104.2.1.2: The change at the end clarifies that the required ceiling height above a landing platform is measured from the landing platform itself, as opposed to a sloping line connecting the landing platform nosing and the loft nosing. This is because a person goes from a standing to a kneeling position when entering a loft from a landing platform.

AQ104.2.1.4: A new section on intermediate and bottom landings for stairways sets their minimum dimensions, which was previously unaddressed. The 24" dimension in the direction of travel is greater than that required for a landing platform (20") because the nature of their use differs. A person goes from standing to kneeling at a landing platform to a loft (or vice versa), whereas a short, standing stride may be needed at an intermediate or bottom landing. The 24" dimension provides for that.

AQ104.2.5: The added sentence refers to related sections in the IRC to clarify that loft guard components must comply with those sections.

AQ104.2.2.1: The proposed 300 pond ladder capacity coordinates with IMC Section 306.5. According to the Centers for Disease Control, the average

American male over 30 years of age is 180 pounds. The margin of safety at 200 pounds capacity is inadequate to protect the public.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for BAQ104.1.2-18

This proposal doesn't have any public comments.

Proposal # 224

BAQ104.1.2-18

RB401.3-18

VRC: R401.3

Proponents: Andrew Clark (aclark@hbav.com)

2015 Virginia Residential Code

R401.3 Drainage. Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard to the dwelling unit. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches (152 mm) within the first 10 feet (3048 mm).

Exception: Where lot lines, walls, slopes or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of ~~2 percent~~ 1 percent away from the building.

Reason Statement: The current code requires a minimum of 6" of fall within the first 10' and goes on to allow an exception for impervious surfaces such as driveways, walkways and patios to be at a minimum 2% slope. A 2% slope on a 12' patio means the outer edge of the patio is 3" lower than at the foundation giving an appearance of being too steep especially when there is a patio table with an umbrella. This intent of this code is to convey the water away from the foundation however because the surface is impervious the water will quickly run off and not penetrate to cause an issue with the foundation. Many localities have 1% minimum slope requirements in their grading ordinances for yards and swales. If 1% is sufficient for dirt and grass it should certainly be sufficient for impervious surfaces where the runoff has minimal obstruction.

This code is also in somewhat of a conflict with section R311.3 where the code states "The slope at exterior landings shall not exceed 1/4 vertical unit in 12 units horizontal (2 percent). In the example where a patio or a driveway is used as the required floor for an exterior door section R311.3 states the slope SHALL NOT EXCEED 2% and on the other hand section R401.3 states the slope must be a MINIMUM of 2%. It is nearly impossible to have the impervious surface which is typically concrete installed with such an exact tolerance. This code change would allow for a little more tolerance to meet both code sections in this situation while still maintaining the intent of section 401.3 of getting the water away from the foundation.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This code change would allow for a little more tolerance to meet both code sections in this situation while still maintaining the intent of section 401.3 of getting the water away from the foundation.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency. Allows for flexibility to meet requirements of both code sections while still moving water away from foundation. No quantifiable impact on resiliency.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for RB401.3-18

This proposal doesn't have any public comments.

Proposal # 255

RB401.3-18

RB403.1.6--18

IRC®: R403.1.6

Proponents: Larry Brock, Chesterfield County (brockl@chesterfield.gov)

2018 International Residential Code

R403.1.6 Foundation anchorage. Wood sill plates and wood walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this section.

Cold-formed steel framing shall be anchored directly to the foundation or fastened to wood sill plates in accordance with Section R505.3.1 or R603.3.1, as applicable. Wood sill plates supporting cold-formed steel framing shall be anchored to the foundation in accordance with this section.

~~Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of braced wall panels at building interiors on monolithic slabs and all wood sill plates shall be foundation plates or sills shall be bolted or anchored to the foundation with minimum not less than 1/2-inch-diameter (12.7 mm) anchor bolts spaced not greater than 6 feet (1829 mm) on center or approved anchors or anchor straps spaced as required steel bolts or approved anchors spaced to provide equivalent anchorage to 1/2-inch-diameter (12.7 mm) anchor as the steel bolts. Bolts shall extend be embedded not less than 7 inches (178 mm) into concrete or grouted cells of concrete masonry units. The bolts shall be located in the middle third of the width of the plate. A nut and washer shall be tightened on each anchor bolt. There Bolts shall be spaced not more than 6 feet (1829 mm) on center and there shall be not fewer less than two bolts or anchor straps per plate section piece with one bolt or anchor strap located not more than 12 inches (305 mm) or less than seven bolt diameters from 4 inches (102 mm) from each end of the plate section. Interior each piece. A properly sized nut and washer shall be tightened on each bolt to the plate. Interior bearing wall sole plates on monolithic slab foundation that are not part of a braced wall panel shall be positively anchored with approved fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R317 and R318.~~

Exceptions:

1. Walls 24 inches (610 mm) total length or shorter connecting offset braced wall panels shall be anchored to the foundation with not fewer than one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).
2. Connection of walls 12 inches (305 mm) total length or shorter connecting offset *braced wall panels* to the foundation without anchor bolts shall be permitted. The wall shall be attached to adjacent braced wall panels at corners as shown in Item 9 of Table R602.3(1).

Reason Statement: The IRC language did not require steel bolts, nor did it require embedment into concrete or masonry. This change uses the language out of IBC section 2308.3.1, which addresses requiring steel bolts to be embedded not just extended into concrete or masonry. This change makes the IRC section consistent with the IBC section addressing sill plate anchorage.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This clarifies the intent of the code and is not intended to impose requirements that are not already implied in the code.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency. This clarifies the intent of the code and is not intended to impose requirements that are not already implied in the code.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RB403.1.6--18

This proposal doesn't have any public comments.

Proposal # 69

RB403.1.6--18

RB-408-18

IRC®: SECTION R408, R408.1, R408.2, R408.3

Proponents: Ronald Clements Jr, VBCOA (clementsro@chesterfield.gov)

2018 International Residential Code

SECTION R408 UNDER-FLOOR SPACE

R408.1 Ventilation. Moisture Control ~~The under-floor space between the bottom of the floor joists and the earth under any building (except space occupied by *abasement*) shall have ventilation openings through foundation walls or exterior walls. The minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m²) for each 150 square feet (14 m²) of under-floor space area, unless the ground surface is covered by a Class 1 vapor retarder material. Where a Class 1 vapor retarder material is used, the minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m²) for each 1,500 square feet (140 m²) of under-floor space area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of the building, comply with Section R408.2 or Section R408.3.~~

R408.2 Openings for under-floor ventilation. Ventilation openings through foundation or exterior walls surrounding the under-floor space shall be provided in accordance with this section. The minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m²) for each 150 square feet (14 m²) of under-floor area. One ventilation opening shall be within 3 feet (915 mm) of each external corner of the building under-floor space. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed ¹/₄ inch (6.4 mm), and operational louvers are permitted:

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grill or grating.
4. Extruded load-bearing brick vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension being ¹/₈ inch (3.2 mm) thick.

Exception

Exceptions:

1. The total area of ventilation openings shall be permitted to be reduced to ¹/_{1,500} of the under-floor area where the ground surface is covered with an *approved* Class I vapor retarder material ~~and the required openings are placed to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.~~
2. Where the ground surface is covered with an approved class 1 vapor retarder material, ventilation openings are not required to be within 3 feet (915 mm) of each external corner of the under-floor space provided the openings are placed to provide cross ventilation of the space.

R408.3 Unvented crawl space. ~~Ventilation openings in~~ For unvented under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where the following items are shall be provided:

1. Exposed earth ~~is shall be~~ covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall or insulation.
2. One of the following ~~is shall be~~ provided for the under-floor space:
 - 2.1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m²) of *crawl space* floor area, including an air pathway to the common area (such as

a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.11 of this code.

- 2.2. *Conditioned air* supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m²) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1102.2.11 of this code.
- 2.3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.
- 2.4. Dehumidification sized to provide 70 pints (33 liters) of moisture removal per day for every 1,000 square feet (93 m²) of *crawl space* floor area.

Reason Statement: Section R408 was the subject of numerous code changes which resulted in R408.1 and R408.2 being essentially the same code section. R408.1 provides for the 1/1500 vent area provision in the body of the code section and R408.2 provides it in an exception. R408.2 provides for the screening of the openings and R408.1 does not. The provisions in the two sections should be combined into one section. This change accomplishes that and better formats the section for the two methods of treating under-floor spaces: vented and ventless. The code change also addresses some confusion with regards to placement of the vents. R408.1 states to place the vents 3 feet from building corners. The exception to R408.2 allows the vents to be placed to provide cross ventilation, not 3 feet from each corner, when the vapor retarder is used, which was the intent per code change G107.99. The Virginia Technical Review Board issued code Interpretation No. 1/2003 (First Issued: 11/18/05) which is as follows:

QUESTION: Does Exception No. 2 (to IRC Section R408.2) provide an exception to the general requirement that one ventilation opening shall be within three feet of each corner? ANSWER: Yes, provided the openings are placed so as to provide cross-ventilation.

When vents are required 3 feet from each corner the current text states corner of the building. The provision for vent placement has been corrected to require the vents 3 feet from the exterior corners of the under-floor space because the current text is confusing to apply when the entire footprint of the dwelling is not on a crawls space.

This code change was submitted to the ICC for the 2021 code as code change RB176-19, which was approved as submitted by the ICC Code Action Committee at the 2019 ICC Committee Action Hearing on May 2, 2019.

Cost Impact Statement: The code change proposal will decrease the cost of construction

This code change is not changing the intent, it is a clarification. It will decrease the cost of construction in cases where the current code provision is being applied incorrectly due to the confusing language.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency

This code change clarifies current intent and therefore has no impact on resiliency.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RB-408-18

This proposal doesn't have any public comments.

Proposal # 136

RB-408-18

RTP3011-18

VRC: **SECTION P3011** (New), **P3011.1** (New), **P3011.2** (New), **P3011.3** (New), **P3011.3.1** (New), **P3011.4** (New), **P3011.5** (New), **P3011.6** (New), **P3011.7** (New), **P3011.7.1** (New), **P3011.8** (New), **P3011.9** (New), **P3011.10** (New), 44 ASTM, ASTM Chapter 44 (New)

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Residential Code

Add new text as follows:

SECTION P3011 **RELINING BUILDING SEWERS AND BUILDING DRAINS**

P3011.1 General.

This section shall govern the relining of existing building sewers and building drainage piping.

P3011.2 Applicability.

The relining of existing building sewer and building drainage piping shall be limited to gravity drainage piping, 4 inches (102 mm) in diameter and larger. The relined piping shall be of the same nominal size as the existing piping.

P3011.3 Pre-installation requirements.

Prior to commencement of the relining installation, the existing piping sections to be relined shall be descaled and cleaned. After the cleaning process has occurred and water has been flushed through the system, the piping shall be inspected internally by a recorded video camera survey.

P3011.3.1 Pre-installation recorded video camera survey.

The video survey shall include verification of the project address location. The video shall include notations of the cleanout and fitting locations, and the approximate depth of the existing piping. The video shall also include notations of the length of piping at intervals no greater than 25 feet.

P3011.4 Permitting.

Prior to permit issuance, the code official shall review and evaluate the pre-installation recorded video camera survey to determine if the piping system is capable to be relined in accordance with the proposed lining system manufacturer's installation requirements and applicable referenced standards.

P3011.5 Prohibited applications.

Where review of the pre-installation recorded video camera survey reveals that piping systems are not installed correctly or defects exist, relining shall not be permitted. The defective portions of piping shall be exposed and repaired with pipe and fittings in accordance with this code. Defects shall include, but are not limited to, backgrade or insufficient slope, complete pipe wall deterioration or complete separations such as from tree root invasion or improper support.

P3011.6 Relining materials.

The relining materials shall be manufactured in compliance with applicable standards and certified as required in Section 303. Fold-and-form pipe reline materials shall be manufactured in compliance with ASTM F1504 or ASTM F1871.

P3011.7 Installation.

The installation of relining materials shall be performed in accordance with the manufacturer's installation instructions, applicable referenced standards and this code.

P3011.7.1 Material data report.

The installer shall record the data as required by the relining material manufacture and applicable standards. The recorded data shall include but is not limited to the location of the project, relining material type, amount of product installed and conditions of the installation. A copy of the data report shall be provided to the code official prior to final approval.

P3011.8 Post-installation recorded video camera survey.

The completed relined piping system shall be inspected internally by a recorded video camera survey after the system has been flushed and flow tested with water. The video survey shall be submitted to the the *code official* prior to finalization of the permit. The video survey shall be reviewed and evaluated to provide verification that no defects exist. Any defects identified shall be repaired and replaced in accordance with this code.

P3011.9 Certification.

A certification shall be provided in writing to the code official, from the permit holder, that the relining materials have been installed in accordance with the manufacturer's installation instructions, the applicable standards and this code.

P3011.10 Approval.

Upon verification of compliance with the requirements of Sections 717.1 through 717.9, the code official shall approve the installation.

ASTM

Revise as follows:

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken PA 19428

ASTM International
100 Barr Harbor Drive
West Conshohocken PA 19428

: F1871 2011: Standard Specification for Folded/Formatted Poly (Vinyl Chloride) Pipe Type A for Existing Sewer and Conduit Rehabilitation

Add new text as follows:

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken PA 19428

: F1504-2014: Standard Specification for Folded Poly (Vinyl Chloride) (PVC) for Existing Sewer and Conduit Rehabilitation

Reason Statement: To date there has been limited to no code reference for all the technologies currently available to the reline piping systems. Many localities across the state, and country, are accepting it as an alternate material and method with no code guidance. This proposal is not an endorsement of any particular method or process. It does not promote or require relining. It simply provides installation and acceptance criteria when the application is encountered. This language will provide consistent application for all materials and technologies for the industry, including the code official and installers alike. Pipe relining technology has been successfully used for many years. It began with larger utility piping systems and has progressed into smaller piping systems that are privately owned and fall within the purview of the plumbing code. The process reduces the impact of open trench excavation's and thereby reduces repair cost according to industry data.

Cost Impact Statement: The code change proposal will decrease the cost of construction
Reducing open trench excavation, assisting with preservation of the natural environment and limiting destruction of private property will reduce the cost of plumbing repairs.

Resiliency Impact Statement: This proposal will increase Resiliency
Reducing open trench excavation, assisting with preservation of the natural environment and limiting destruction of private property will help increase resiliency.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 3 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RTP3011-18

This proposal doesn't have any public comments.

Proposal # 123

RTP3011-18

EB103.5--18

VEBC: 103.5

Proponents: Ronald Clements Jr, Chesterfield County (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

~~**103.5 Equipment changes.** Upon the replacement or new installation of any fuel-burning appliances or equipment in existing buildings, an inspection or inspections shall be conducted in accordance with Section 113.3.1 of the VCC.~~

Reason Statement: VEBC section 103.5 is not necessary and misleading. VEBC 103.5 as written applies to all occupancy classifications but the section referenced, VCC 113.3.1, is only applicable to group R-5. All inspection requirements of the VCC, including VCC 113.3.1 as applicable to group R-5, are applicable to VEBC enforcement per VEBC 103.1 (first sentence); therefore, VEBC 103.5 is not necessary.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This code change does not impact cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
No impact on resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB103.5--18

This proposal doesn't have any public comments.

Proposal # 65

EB103.5--18

EB103.10--18

VEBC: 103.10

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

103.10 Construction documents. Construction documents shall be submitted with the application for a permit. The work proposed to be performed on an *existing building* or *structure*, shall be classified on the construction documents as repairs, *alterations*, *change of occupancy*, addition, *historic building*, and/or moved *building*. All *work areas* shall be identified on the construction documents. *Alterations* shall further be ~~identified~~classified as Level 1, Level 2, and/or Level 3.

Exception: Construction documents or classification of the work does not need to be submitted when the building official determines the proposed work does not require such documents, classification or identification.

Reason Statement: Per the first sentence of this section, the work is to be *classified*, not *identified*. Since 'alterations' is considered 'work' the alterations should also be *classified*. Just trying to be consistent with the terms within this section and exception.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB103.10--18

This proposal doesn't have any public comments.

Proposal # 17

EB103.10--18

EB103.10 (Option B)-18

VEBC: 103.10, , 402.1, 404.2, 404.4.8, CHAPTER 6, SECTION 601, 601.1, 601.2, 601.2.1, 601.2.2, 601.2.3, 601.2.3.1, SECTION 603, 603.1, 603.2, 603.3, 603.4, 603.4.1, 603.4.1.1, 603.4.1.2, 603.4.1.3, 603.4.2, 603.4.3, 603.4.3.1, 603.4.4, 603.4.4.1, 603.4.4.2, 603.5, 603.5.1, 603.5.2, 603.5.2.1, 603.5.2.1.1, 603.5.2.2, 603.5.2.2.1, 603.5.2.3, 603.5.2.4, 603.5.2.5, 603.5.3, 603.5.4, 603.5.4.1, 603.5.4.1.1, 603.5.4.1.2, 603.5.4.1.3, 603.5.4.1.4, 603.5.4.1.5, 603.5.4.1.6, 603.5.4.1.7, 603.5.4.2, 603.5.4.3, 603.6, 603.6.1, 603.6.2, 603.6.2.1, 603.6.2.1.1, 603.6.2.2, 603.6.3, 603.6.3.1, 603.6.3.1.1, 603.6.3.1.2, 603.6.3.2, 603.6.3.2.1, 603.6.3.3, 603.6.3.3.1, 603.6.3.4, 603.6.3.4.1, 603.6.3.5, 603.6.4, 603.6.4.1, 603.6.4.2, 603.6.4.3, 603.6.4.3.1, 603.6.4.4, 603.6.5, 603.6.6, 603.6.6.1, 603.6.6.2, 603.6.7, 603.6.7.1, 603.6.7.2, 603.6.8, 603.6.8.1, 603.6.8.2, 603.6.9, 603.6.9.1, 603.6.9.2, 603.8, 603.8.1, 603.8.2, 603.8.3, 603.8.3.1, 603.8.3.2, 603.8.3.3, 603.8.3.4, 603.8.3.5, 603.8.3.6, 603.8.3.7, 603.9.1, SECTION 604, 604.1, 604.2, 604.3, 604.3.1, 604.3.1.1, 604.3.1.2, 604.3.2, 604.4, 604.4.1, 604.4.2, 604.4.3, 604.5, 604.5.1, 604.5.1.1, 604.5.1.2, 604.5.1.3, 604.5.2, 604.5.2.1, 604.5.2.2, 604.6, 604.6.1, 604.6.2, 604.7, 604.7.1, 604.7.2, 705.3, 705.3.1 (New), 705.3.2 (New), 705.3.3 (New), 705.3.4 (New), 705.3.5 (New), 705.3.6 (New), 705.3.7 (New)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

103.10 Construction documents. Construction documents shall be submitted with the application for a permit. The work proposed to be performed on an *existing building or structure*, shall be classified on the construction documents as repairs, alterations, change of occupancy, addition, historic building, and/or moved building. ~~All work areas shall be identified on the construction documents.~~ Alterations shall further be identified as Level 1, ~~Level 2,~~ and/or Level 3. 2.

Exception: Construction documents or classification of the work does not need to be submitted when the building official determines the proposed work does not require such documents, classification or identification.

Delete without substitution:

~~**WORK AREA.** That intended room, space, or portion of a *building or structure* where a wall or walls are added, relocated, or removed. *Work area* excludes (i) the addition or elimination of any door or window; (ii) the reconfiguration or extension of any system; (iii) the installation of any additional equipment; (iv) the removal of finished flooring or ceiling materials; (v) adjacent rooms or other rooms, spaces, or portions of the *building or structure* where incidental work entailed by the intended work must be performed; and (vi) portions of the *building or structure* where work not initially intended is specifically required by this code.~~

402.1 Change of occupancy. Existing buildings or structures that undergo a *change of occupancy* shall comply with this section.

Exception: Type B dwelling or sleeping units required by Section 1107 of the VCC are not required to be provided in existing buildings and facilities undergoing a *change of occupancy* in conjunction with Level 2 alterations where the ~~work area~~ intended portion of a building or structure involving walls that are added, relocated, or removed, is 50 percent or less of the aggregate area of the building. the building area.

404.2 Alterations. A facility that is altered shall comply with the applicable provisions in this section and Chapter 11 of the VCC, except as modified by Sections 404.3 and 404.4, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section 404.3.
2. Accessible means of egress required by Chapter 10 of the VCC are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.

4. ~~Type B dwelling or sleeping units required by Section 1107 of the VCC are not required to be provided in existing buildings and facilities undergoing a change of occupancy in conjunction with alterations where the work area is 50 percent or less of the aggregate area of the building.~~

404.4.8 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered ~~and where the work area is greater than 50 percent of the aggregate area of the building~~, the requirements of Section 1107 of the VCC for Type B units and Chapter 9 of the VCC for visible alarms apply only to the quantity of the spaces being altered.

Exception: Group I-1, I-2, R-2, R-3 and R-4 dwelling or sleeping units where the first certificate of occupancy was issued before March 15, 1991 are not required to provide Type B dwelling or sleeping units.

CHAPTER 6 ALTERATIONS

SECTION 601 GENERAL

601.1 General. ~~Except as provided by Section 905.4 modified in Chapter 9 or this chapter, alterations to any building or structure shall comply with the requirements of the VCC for new construction. Alterations shall be such that the existing building or structure is no less conforming to the provisions of the VCC than the existing building or structure was prior to the alteration. . Portions of the building or structure not being altered shall not be required to comply with the requirements of the VCC.~~

Exceptions:

1. Any stairway replacing an existing stairway shall not be required to comply with the requirements of Section 1011 of the VCC where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the VCC shall not be required to comply with the requirements of Section 1014.6 of the VCC regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.
3. Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the VCC.
4. Alterations complying with the requirements of the building code under which the building or structure or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code, unless the building or structure or the affected portions thereof is undergoing a substantial structural alteration as described in Section 604.7.1. New structural members added as part of the alteration or repairs shall comply with the VCC. Alterations of existing buildings in flood hazard areas shall comply with of Section 601.3.

601.2 Levels of alterations. Alterations to any building or structure shall be classified as the following:

601.2.1 Level 1. Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. Level 1 alterations shall comply with the applicable provisions of Section 602.

601.2.2 Level 2. Level 2 alterations shall comply with the applicable provisions of Sections 602 and 603, and shall include the following:

1. The addition or elimination of any door or ~~window, the window.~~

2. The addition or elimination of any wall, floor, or ceiling assembly.

~~3. The reconfiguration or extension of any system, or the installation of any additional equipment; and shall apply where the work area is less than or equal to 50 percent of the building area. Level 2 alterations shall comply with the applicable provisions of Sections 602 and 603. system.~~

~~4. The installation of any addition equipment.~~

Delete without substitution:

~~601.2.3 Level 3.~~

~~Level 3 alterations apply where the work area exceeds 50 percent of the building area. Level 3 alterations shall comply with the applicable provisions of Sections 602, 603 and 604.~~

~~601.2.3.1 Special provisions.~~

~~A building separated horizontally in compliance with VCC Section 510.2 shall be considered as separate and distinct buildings for the purpose of determining building area used for the application of Section 601.2.3.~~

SECTION 603 LEVEL 2 ALTERATIONS

603.1 Scope. Level 2 alterations as described in Section 601.2.2 shall comply with the requirements of this section.

Exception: Buildings in which the alteration is exclusively the result of compliance with the accessibility requirements of Section 404.3 shall be permitted to comply with Section 602.

603.2 Level 1 alteration compliance. In addition to the requirements of this section, all ~~work~~ alterations shall comply with the applicable requirements of Section 602.

603.3 Compliance. All new construction elements, components, systems, and spaces shall comply with the requirements of the VCC.

-

Exceptions:

•

~~3.~~

~~The length of dead-end corridors in newly constructed spaces shall only be required to comply with the provisions of Section 603.6.5.~~

1. Windows may be added without requiring compliance with the light and ventilation requirements of the VCC.

2.

~~Newly installed electrical equipment shall comply with the requirements of Section 603.8.~~

Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the VCC. In order to be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the floor and the intermediate landings immediately below.

3.

In other than Groups A and H occupancies, the maximum length of a newly constructed

or extended
dead-end
corridor shall
not exceed
50 feet (15
240 mm) on
floors
equipped
with an
automatic
sprinkler
system
installed in
accordance
with the
VCC.

4.

The
minimum
ceiling height
of the newly
created
habitable
and
occupiable
spaces and
corridors
shall be 7
feet (2134
mm).

5. Where provided in below-grade transportation stations, new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

Delete without substitution:

~~603.4 Building elements and materials.~~

~~The requirements of Section 603.4 are limited to work areas in which Level 2 alterations are being performed and shall apply beyond the work area where specified.~~

~~603.4.1 Vertical openings.~~

~~Existing vertical openings shall comply with the provisions of Sections 603.4.1.1, 603.4.1.2 and 603.4.1.3.~~

~~603.4.1.1 Existing vertical openings.~~

~~Existing interior vertical openings connecting two or more floors shall be enclosed with approved assemblies having a fire resistance rating of not less than 1 hour with approved opening protectives.~~

Exceptions:

~~1. Where vertical opening enclosure is not required by the VCC or the International Fire Code (IFC).~~

~~2. Interior vertical openings other than stairways may be blocked at the floor and ceiling of the work area by installation of not less than 2 inches (51 mm) of solid wood or equivalent construction.~~

~~3. The enclosure shall not be required where:~~

~~3.1. Connecting the main floor and mezzanines; or~~

~~3.2. All of the following conditions are met:~~

- ~~3.2.1. The communicating area has a low hazard occupancy or has a moderate hazard occupancy that is protected throughout by an automatic sprinkler system.~~
- ~~3.2.2. The lowest or next to the lowest level is a street floor.~~
- ~~3.2.3. The entire area is open and unobstructed in a manner such that it may be assumed that a fire in any part of the interconnected spaces will be readily obvious to all of the occupants.~~
- ~~3.2.4. Exit capacity is sufficient to provide egress simultaneously for all occupants of all levels by considering all areas to be a single floor area for the determination of required exit capacity.~~
- ~~3.2.5. Each floor level, considered separately, has at least one half of its individual required exit capacity provided by an exit or exits leading directly out of that level without having to traverse another communicating floor level or be exposed to the smoke or fire spreading from another communicating floor level.~~
- ~~4. In Group A occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories.~~
- ~~5. In Group B occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 603.4.1.1, shall not be required in the following locations:~~
- ~~5.1. Buildings not exceeding 3,000 square feet (279 m²) per floor.~~
- ~~5.2. Buildings protected throughout by an approved automatic fire sprinkler system.~~
- ~~6. In Group E occupancies, the enclosure shall not be required for vertical openings not exceeding three stories when the building is protected throughout by an approved automatic fire sprinkler system.~~
- ~~7. In Group F occupancies, the enclosure shall not be required in the following locations:~~
- ~~7.1. Vertical openings not exceeding three stories.~~
- ~~7.2. Special purpose occupancies where necessary for manufacturing operations and direct access is provided to at least one protected stairway.~~
- ~~7.3. Buildings protected throughout by an approved automatic sprinkler system.~~
- ~~8. In Group H occupancies, the enclosure shall not be required for vertical openings not exceeding three stories where necessary for manufacturing operations and every floor level has direct access to at least two remote enclosed stairways or other approved exits.~~
- ~~9. In Group M occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 603.4.1.1, shall not be required in the following locations:~~
- ~~9.1. Openings connecting only two floor levels.~~
- ~~9.2. Occupancies protected throughout by an approved automatic sprinkler system.~~
- ~~10. In Group R-1 occupancies, the enclosure shall not be required for vertical openings not exceeding three stories in the following locations:~~
- ~~10.1. Buildings protected throughout by an approved automatic sprinkler system.~~
- ~~10.2. Buildings with less than 25 dwelling units or sleeping units where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and where:~~
- ~~10.2.1. Any exit access corridor exceeding 8 feet (2438 mm) in length that serves two means of egress, one of which is an unprotected vertical opening, shall have at least one of the means of egress separated from the vertical opening by a 1-hour fire barrier; and~~
- ~~10.2.2. The building is protected throughout by an automatic fire alarm system, installed and supervised in accordance with the VCC.~~
- ~~11. In Group R-2 occupancies, a minimum 30-minute enclosure shall be provided to protect all vertical openings not exceeding three stories. This enclosure, or the enclosure specified in Section 603.4.1.1, shall not be required in the following locations:~~
- ~~11.1. Vertical openings not exceeding two stories with not more than four dwelling units per floor.~~
- ~~11.2. Buildings protected throughout by an approved automatic sprinkler system.~~

~~11.3. Buildings with not more than four dwelling units per floor where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and the building is protected throughout by an automatic fire alarm system complying with Section 603.5.4.~~

~~12. One- and two-family dwellings.~~

~~13. Group S occupancies where connecting not more than two floor levels or where connecting not more than three floor levels and the structure is equipped throughout with an approved automatic sprinkler system.~~

~~14. Group S occupancies where vertical opening protection is not required for open parking garages and ramps.~~

~~603.4.1.2 Supplemental shaft and floor opening enclosure requirements.~~

~~Where the work area on any floor exceeds 50 percent of that floor area, the enclosure requirements of Section 603.4.1 shall apply to vertical openings other than stairways throughout the floor.~~

~~**Exception:** Vertical openings located in tenant spaces that are entirely outside the work area.~~

~~603.4.1.3 Supplemental stairway enclosure requirements.~~

~~Where the work area on any floor exceeds 50 percent of that floor area, stairways that are part of the means of egress serving the work area shall, at a minimum, be enclosed with smoke-tight construction on the highest work area floor and all floors below.~~

~~**Exception:** Where stairway enclosure is not required by the VCC or the International Fire Code.~~

~~603.4.2 Smoke compartments.~~

~~In Group I-2 occupancies where the work area is on a story used for sleeping rooms for more than 30 patients, the story shall be divided into not less than two compartments by smoke barrier walls in accordance with Section 407.5 of the VCC as required for new construction.~~

~~603.4.3 Interior finish.~~

~~The interior finish of walls and ceilings in exits and corridors in any work area shall comply with the requirements of the VCC.~~

~~**Exception:** Existing interior finish materials that do not comply with the interior finish requirements of the VCC shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required rating.~~

~~603.4.3.1 Supplemental interior finish requirements.~~

~~Where the work area on any floor exceeds 50 percent of the floor area, Section 603.4.3 shall also apply to the interior finish in exits and corridors serving the work area throughout the floor.~~

~~**Exception:** Interior finish within tenant spaces that are entirely outside the work area.~~

~~603.4.4 Guards.~~

~~The requirements of Sections 603.4.4.1 and 603.4.4.2 shall apply in all work areas.~~

~~603.4.4.1 Minimum requirement.~~

~~Every portion of a floor, such as a balcony or a loading dock, that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those in which the existing guards are judged to be in danger of collapsing, shall be provided with guards.~~

~~603.4.4.2 Design.~~

~~Where there are no guards or where existing guards must be replaced, the guards shall be designed and installed in accordance with the VCC.~~

~~603.4.5 603.4 Fire-resistance ratings.~~ ~~Where approved by the code official, buildings~~Buildings ~~where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the VCC has been added, and the building~~

is now sprinklered throughout, the required fire-resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code.

Delete without substitution:

~~603.5 Fire protection.~~

~~The requirements of Section 603.5 shall be limited to work areas in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.~~

~~603.5.1 Corridor ratings.~~

~~Where an approved automatic sprinkler system is installed throughout the story, the required fire-resistance rating for any corridor located on the story shall be permitted to be reduced in accordance with the VCC. In order to be considered for a corridor rating reduction, such system shall provide coverage for the stairway landings serving the floor and the intermediate landings immediately below.~~

~~603.5.2 Automatic sprinkler system.~~

~~Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 603.5.2.1 through 603.5.2.5. Installation requirements shall be in accordance with the VCC.~~

~~603.5.2.1 High-rise buildings.~~

~~In high-rise buildings, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection in the entire work area where the work area is located on a floor that has a sufficient sprinkler water supply system from an existing standpipe or a sprinkler riser serving that floor.~~

~~603.5.2.1.1 Supplemental automatic sprinkler system requirements.~~

~~Where the work area on any floor exceeds 50 percent of that floor area, Section 603.5.2.1 shall apply to the entire floor on which the work area is located.~~

Exception: Occupied tenant spaces that are entirely outside the work area.

~~603.5.2.2 Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2.~~

~~In buildings with occupancies in Groups A, B, E, F-1, H, I, M, R-1, R-2, R-4, S-1 and S-2, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:~~

- ~~1. The work area is required to be provided with automatic sprinkler protection in accordance with the VCC as applicable to new construction; and~~
- ~~2. The work area exceeds 50 percent of the floor area.~~

Exception: ~~If the building does not have sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump, work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the VCC.~~

~~603.5.2.2.1 Mixed uses.~~

~~In work areas containing mixed uses, one or more of which requires automatic sprinkler protection in accordance with Section 603.5.2.2, such protection shall not be required throughout the work area provided that the uses requiring such protection are separated from those not requiring protection by fire-resistance-rated construction having a minimum 2-hour rating for Group H and a minimum 1-hour rating for all other occupancy groups.~~

~~603.5.2.3 Windowless stories.~~

~~Work located in a windowless story, as determined in accordance with the VCC, shall be sprinklered where the work area is required to be sprinklered under the provisions of the VCC for newly constructed buildings and the building has a sufficient municipal water supply without installation of a new fire pump.~~

603.5.2.4 Other required automatic sprinkler systems.

~~In buildings and areas listed in Table 903.2.11.6 of the VCC, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions:~~

- ~~1.The work area is required to be provided with an automatic sprinkler system in accordance with the VCC applicable to new construction; and~~
- ~~2.The building has sufficient municipal water supply for design of an automatic sprinkler system available to the floor without installation of a new fire pump.~~

603.5.2.5 Supervision.

~~Fire sprinkler systems required by this section shall be supervised by one of the following methods:~~

- ~~1.Approved central station system in accordance with NFPA 72;~~
- ~~2.Approved proprietary system in accordance with NFPA 72;~~
- ~~3.Approved remote station system of the jurisdiction in accordance with NFPA 72; or~~
- ~~4.When approved by the code official, approved local alarm service that will cause the sounding of an alarm in accordance with NFPA 72.~~

Exception: ~~Supervision is not required for the following:~~

- ~~1.Underground gate valve with roadway boxes.~~
- ~~2.Halogenated extinguishing systems.~~
- ~~3.Carbon dioxide extinguishing systems.~~
- ~~4.Dry and wet chemical extinguishing systems.~~
- ~~5.Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.~~

603.5.3 Standpipes.

~~Where the work area includes exits or corridors shared by more than one tenant and is located more than 50 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the VCC.~~

Exceptions:

- ~~1.No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448 KPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448 KPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.~~
- ~~2.The interconnection of multiple standpipe risers shall not be required.~~

603.5.4 Fire alarm and detection.

~~An approved fire alarm system shall be installed in accordance with Sections 603.5.4.1 through 603.5.4.3. Where automatic sprinkler protection is provided in accordance with Section 603.5.2 and is connected to the building fire alarm system, automatic heat detection shall not be required.~~

~~An approved automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Devices, combinations of devices, appliances, and equipment shall be approved. The automatic fire detectors shall be smoke detectors, except that an approved alternative type of detector shall be installed in spaces such as boiler rooms, where products of combustion are present during normal operation in sufficient quantity to actuate a smoke detector.~~

~~603.5.4.1 Fire alarm requirements.~~

~~A fire alarm system shall be installed in accordance with Sections 603.5.4.1.1 through 603.5.4.1.7 and Sections 1103.7 and 1103.8 of the IFC. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances within the work area shall be provided and automatically activated.~~

~~Exceptions:~~

- ~~1. Occupancies with an existing, previously approved fire alarm system.~~
- ~~2. Where selective notification is permitted, alarm notification appliances shall be automatically activated in the areas selected.~~

~~603.5.4.1.1 Group E.~~

~~Work areas classified as Group E occupancies.~~

~~603.5.4.1.2 Group I-1.~~

~~Work areas classified as Group I-1 residential care/assisted living facilities.~~

~~603.5.4.1.3 Group I-2.~~

~~Throughout occupancies classified as Group I-2 occupancies.~~

~~603.5.4.1.4 Group I-3.~~

~~Work areas classified as Group I-3 occupancies.~~

~~603.5.4.1.5 Group R-1.~~

~~Occupancies classified as Group R-1 occupancies.~~

~~603.5.4.1.6 Group R-2.~~

~~Work areas classified as Group R-2 apartment buildings.~~

~~603.5.4.1.7 Group R-4.~~

~~Work areas classified as Group R-4 residential care/assisted living facilities.~~

~~603.5.4.2 Supplemental fire alarm system requirements.~~

~~Where the work area on any floor exceeds 50 percent of that floor area, Section 603.5.4.1 shall apply throughout the floor.~~

~~Exception:~~ ~~Alarm initiating and notification appliances shall not be required to be installed in tenant spaces outside of the work area.~~

~~603.5.4.3 Smoke alarms.~~

~~Individual sleeping units and individual dwelling units in any work area in Group R and I-1 occupancies shall be provided with smoke alarms in accordance with the International Fire Code.~~

~~Exception:~~ ~~Interconnection of smoke alarms outside of the work area shall not be required.~~

~~603.6 Means of egress.~~

~~The means of egress shall comply with the requirements of Section 603.6.~~

~~Exceptions:~~

- ~~1. Where the work area and the means of egress serving it complies with NFPA 101.~~
- ~~2. Means of egress conforming to the requirements of the building code under which the building was constructed shall be considered compliant means of egress.~~

~~603.6.1 General.~~

~~The requirements of this section shall be limited to work areas that include exits or corridors shared by more than one tenant within the work area in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.~~

603.6.2 Number of exits.

~~The number of exits shall be in accordance with Sections 603.6.2.1 through 603.6.2.3.~~

603.6.2.1 Minimum number.

~~Every story utilized for human occupancy on which there is a work area that includes exits or corridors shared by more than one tenant within the work area shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the VGC. In addition, the exits shall comply with Sections 603.6.2.1.1 and 303.~~

603.6.2.1.1 Single-exit buildings.

~~Only one exit is required from buildings and spaces of the following occupancies:~~

- ~~1. In Groups A, B, E, F, M, U and S occupancies, a single exit is permitted in the story at the level of exit discharge when the occupant load of the story does not exceed 50 and the exit access travel distance does not exceed 75 feet (22 860 mm).~~
- ~~2. Groups B, F-2, and S-2 occupancies not more than two stories in height that are not greater than 3,500 square feet per floor (326 m²), when the exit access travel distance does not exceed 75 feet (22 860 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.~~
- ~~3. Open parking structures where vehicles are mechanically parked.~~
- ~~4. In Group R-4 occupancies, the maximum occupant load excluding staff is 16.~~
- ~~5. Groups R-1 and R-2 not more than two stories in height, when there are not more than four dwelling units per floor and the exit access travel distance does not exceed 50 feet (15 240 mm). The minimum fire-resistance rating of the exit enclosure and of the opening protection shall be 1 hour.~~
- ~~6. In multilevel dwelling units in buildings of occupancy Group R-1 or R-2, an exit shall not be required from every level of the dwelling unit provided that one of the following conditions is met:~~
 - ~~6.1. The travel distance within the dwelling unit does not exceed 75 feet (22 860 mm); or~~
 - ~~6.2. The building is not more than three stories in height and all third floor space is part of one or more dwelling units located in part on the second floor; and no habitable room within any such dwelling unit shall have a travel distance that exceeds 50 feet (15 240 mm) from the outside of the habitable room entrance door to the inside of the entrance door to the dwelling unit.~~
- ~~7. In Groups R-2, H-4, H-5 and I occupancies and in rooming houses and child-care centers, a single exit is permitted in a one-story building with a maximum occupant load of 10 and the exit access travel distance does not exceed 75 feet (22 860 mm). In dwelling units within Group R-2 buildings, an occupant load of 12 shall be permitted to be substituted for the occupant load established above and, in addition, staff of such family day homes shall not be counted for the purposes of establishing occupant loads.~~
- ~~8. In buildings of Group R-2 occupancy that are equipped throughout with an automatic fire sprinkler system, a single exit shall be permitted from a basement or story below grade if every dwelling unit on that floor is equipped with an approved window providing a clear opening of at least 5 square feet (0.47 m²) in area, a minimum net clear opening of 24 inches (610 mm) in height and 20 inches (508 mm) in width, and a sill height of not more than 44 inches (1118 mm) above the finished floor.~~
- ~~9. In buildings of Group R-2 occupancy of any height with not more than four dwelling units per floor; with a smoke-proof enclosure or outside stairway as an exit; and with such exit located within 20 feet (6096 mm) of travel to the entrance doors to all dwelling units served thereby.~~
- ~~10. In buildings of Group R-3 occupancy equipped throughout with an automatic fire sprinkler system, only one exit shall be required from basements or stories below grade.~~

603.6.2.2 Mezzanines.

~~Mezzanines in the work area and with an occupant load of more than 50 or in which the common path of egress travel distance to an exit or exit access doorway exceeds 75 feet (22 860 mm) shall have access to at least two independent means of egress.~~

~~**Exception:** Two independent means of egress are not required where the travel distance to an exit does not exceed 100 feet (30 480 mm) and the building is protected throughout with an automatic sprinkler system.~~

603.6.3 Egress doorways.

~~Egress doorways in any work area shall comply with Sections 603.6.3.1 through 603.6.3.5.~~

603.6.3.1 Two egress doorways required.

~~Work areas shall be provided with two egress doorways in accordance with the requirements of Sections 603.6.3.1.1 and 603.6.3.1.2.~~

603.6.3.1.1 Occupant load and travel distance.

~~In any work area, all rooms and spaces having an occupant load greater than 50 or in which the common path of egress travel distance to an exit or exit access doorway exceeds 75 feet (22 860 mm) shall have a minimum of two egress doorways.~~

Exceptions:

- ~~1.Storage rooms having a maximum occupant load of 10.~~
- ~~2.Where the work area is served by a single exit in accordance with Section 603.6.2.1.1.~~

603.6.3.1.2 Group I-2.

~~In buildings of Group I-2 occupancy, any patient sleeping room or suite of patient rooms greater than 1,000 square feet (93 m²) within the work area shall have a minimum of two egress doorways.~~

603.6.3.2 Door swing.

~~In the work area and in the egress path from any work area to the exit discharge, all egress doors serving an occupant load greater than 50 shall swing in the direction of exit travel.~~

603.6.3.2.1 Supplemental requirements for door swing.

~~Where the work area exceeds 50 percent of the floor area, door swing shall comply with Section 603.6.3.2 throughout the floor.~~

~~**Exception:** Means of egress within or serving only a tenant space that is entirely outside the work area.~~

603.6.3.3 Door closing.

~~In any work area, all doors opening onto an exit passageway at grade or an exit stairway shall be self-closing or automatic-closing by listed closing devices.~~

Exceptions:

- ~~1.Where exit enclosure is not required by the VCC.~~
- ~~2.Means of egress within or serving only a tenant space that is entirely outside the work area.~~

603.6.3.3.1 Supplemental requirements for door closing.

~~Where the work area exceeds 50 percent of the floor area, doors shall comply with Section 603.6.3.3 throughout the exit stairway from the work area to, and including, the level of exit discharge.~~

603.6.3.4 Panic hardware.

~~In any work area, and in the egress path from any work area to the exit discharge, in buildings of Group A assembly occupancies with an occupant load greater than 100, all required exit doors equipped with latching devices shall be equipped with approved panic hardware.~~

603.6.3.4.1 Supplemental requirements for panic hardware.

~~Where the work area exceeds 50 percent of the floor area, panic hardware shall comply with Section 603.6.3.4 throughout the floor.~~

Exception: Means of egress within a tenant space that is entirely outside the work area.

603.6.3.5 Emergency power source in Group I-3.

~~Power-operated sliding doors or power-operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 2702 of the VCC.~~

Exceptions:

- ~~1. Emergency power is not required in facilities with 10 or fewer locks complying with the exception to Section 408.4.1 of the VCC.~~
- ~~2. Emergency power is not required where remote mechanical operating releases are provided.~~

603.6.4 Openings in corridor walls.

~~Openings in corridor walls in any work area shall comply with Sections 603.6.4.1 through 603.6.4.4.~~

Exception: Openings in corridors where such corridors are not required to be rated in accordance with the VCC.

603.6.4.1 Corridor doors.

~~Corridor doors in the work area shall not be constructed of hollow core wood and shall not contain louvers. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be at least 1³/₈-inch (35 mm) solid core wood or approved equivalent and shall not have any glass panels, other than approved wired glass or other approved glazing material in metal frames. All dwelling unit or sleeping unit corridor doors in work areas in buildings of Groups R-1, R-2, and I-1 shall be equipped with approved door closers. All replacement doors shall be 1³/₄-inch (44 mm) solid bonded wood core or approved equivalent, unless the existing frame will accommodate only a 1³/₈-inch (35 mm) door.~~

Exceptions:

- ~~1. Corridor doors within a dwelling unit or sleeping unit.~~
- ~~2. Existing doors meeting the requirements of "Guidelines on Fire Ratings of Archaic Materials and Assemblies" (VEBC Resource A) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.~~
- ~~3. Existing doors in buildings protected throughout with an approved automatic sprinkler system shall be required only to resist smoke, be reasonably tight fitting, and shall not contain louvers.~~
- ~~4. In group homes with a maximum of 15 occupants and that are protected with an approved automatic detection system, closing devices may be omitted.~~
- ~~5. Door assemblies having a fire protection rating of at least 20 minutes.~~

603.6.4.2 Transoms.

~~In all buildings of Groups I-1, I-2, R-1 and R-2 occupancies, all transoms in corridor walls in work areas shall be either glazed with 1/4-inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire protection rating as required for the door and permanently secured in the closed position or sealed with materials consistent with the corridor construction.~~

603.6.4.3 Other corridor openings.

~~In any work area, unless otherwise protected or fire-resistant rated in accordance with Section 716 of the VCC, any other sash, grille, or opening in a corridor and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction.~~

603.6.4.3.1 Supplemental requirements for other corridor opening.

~~Where the work area exceeds 50 percent of the floor area, Section 603.6.4.3 shall be applicable to all corridor windows, grills, sashes, and other openings on the floor.~~

Exception: Means of egress within or serving only a tenant space that is entirely outside the work area.

~~603.6.4.4 Supplemental requirements for corridor openings.~~

~~Where the work area on any floor exceeds 50 percent of the floor area, the requirements of Sections 603.6.4.1 through 603.6.4.3 shall apply throughout the floor.~~

~~603.6.5 Dead-end corridors.~~

~~Dead-end corridors in any work area shall not exceed 35 feet (10 670 mm).~~

~~Exceptions:~~

- ~~1. Where dead-end corridors of greater length are permitted by the VCC.~~
- ~~2. In other than Groups A and H occupancies, the maximum length of an existing dead-end corridor shall be 50 feet (15 240 mm) in buildings equipped throughout with an automatic fire alarm system installed in accordance with the VCC.~~
- ~~3. In other than Groups A and H occupancies, the maximum length of an existing dead-end corridor shall be 70 feet (21 356 mm) in buildings equipped throughout with an automatic sprinkler system installed in accordance with the VCC.~~
- ~~4. In other than Groups A and H occupancies, the maximum length of an existing, newly constructed, or extended dead-end corridor shall not exceed 50 feet (15 240 mm) on floors equipped with an automatic sprinkler system installed in accordance with the VCC.~~

~~603.6.6 Means of egress lighting.~~

~~Means of egress lighting shall be in accordance with this section, as applicable.~~

~~603.6.6.1 Artificial lighting required.~~

~~Means of egress in all work areas shall be provided with artificial lighting in accordance with the requirements of the VCC.~~

~~603.6.6.2 Supplemental requirements for means of egress lighting.~~

~~Where the work area on any floor exceeds 50 percent of that floor area, means of egress throughout the floor shall comply with Section 603.6.6.1.~~

~~Exception:~~ ~~Means of egress within or serving only a tenant space that is entirely outside the work area.~~

~~603.6.7 Exit signs.~~

~~Exit signs shall be in accordance with this section, as applicable.~~

~~603.6.7.1 Work areas.~~

~~Means of egress in all work areas shall be provided with exit signs in accordance with the requirements of the VCC.~~

~~603.6.7.2 Supplemental requirements for exit signs.~~

~~Where the work area on any floor exceeds 50 percent of that floor area, means of egress throughout the floor shall comply with Section 603.6.7.1.~~

~~Exception:~~ ~~Means of egress within a tenant space that is entirely outside the work area.~~

~~603.6.8 Handrails.~~

~~The requirements of Sections 603.6.8.1 and 603.6.8.2 shall apply to handrails from the work area floor to, and including, the level of exit discharge.~~

~~603.6.8.1 Minimum requirement.~~

~~Every required exit stairway that is part of the means of egress for any work area and that has three or more risers and is not provided with at least one handrail, or in which the existing handrails are judged to be in danger of collapsing, shall be provided with handrails for the full length of the stairway on at least one side. All exit stairways with a required egress width of more than 66 inches (1676 mm) shall have handrails on both sides.~~

~~603.6.8.2 Design.~~

~~Handrails required in accordance with Section 603.6.8.1 shall be designed and installed in accordance with the provisions of the VCC.~~

603.6.9 Guards.

~~The requirements of Sections 603.6.9.1 and 603.6.9.2 shall apply to guards from the work area floor to, and including, the level of exit discharge but shall be confined to the egress path of any work area.~~

603.6.9.1 Minimum requirement.

~~Every open portion of a stairway, landing, or balcony that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those portions in which existing guards are judged to be in danger of collapsing, shall be provided with guards.~~

603.6.9.2 Design.

~~Guards required in accordance with Section 603.6.9.1 shall be designed and installed in accordance with the VGC.~~

603.8 Electrical.

~~Electrical elements and systems within buildings undergoing Level 2 alterations shall comply with Sections 603.8.1 through 603.8.3.~~

603.8.1 New installations.

~~All newly installed electrical equipment and wiring relating to work done in any work area shall comply with all applicable requirements of NFPA 70 except as provided for in Section 603.8.3.~~

603.8.2 Existing installations.

~~Existing wiring in all work areas in Groups A-1, A-2, A-5, H and I occupancies shall be upgraded to meet the materials and methods requirements of Section 602.3.~~

603.8.3 Residential occupancies.

~~In Groups R-2, R-3, R-4 and R-5 occupancies and buildings regulated by the International Residential Code, the requirements of Sections 603.8.3.1 through 603.8.3.7 shall be applicable only to work areas located within a dwelling unit.~~

603.8.3.1 Enclosed areas.

~~All enclosed areas, other than closets, kitchens, basements, garages, hallways, laundry areas, utility areas, storage areas and bathrooms shall have a minimum of two duplex receptacle outlets or one duplex receptacle outlet and one ceiling or wall type lighting outlet.~~

603.8.3.2 Kitchens.

~~Kitchen areas shall have a minimum of two duplex receptacle outlets.~~

603.8.3.3 Laundry areas.

~~Laundry areas shall have a minimum of one duplex receptacle outlet located near the laundry equipment and installed on an independent circuit.~~

603.8.3.4 Ground fault circuit interruption.

~~Newly installed receptacle outlets shall be provided with ground fault circuit interruption as required by NFPA 70.~~

603.8.3.5 Minimum lighting outlets.

~~At least one lighting outlet shall be provided in every bathroom, hallway, stairway, attached garage, and detached garage with electric power, and to illuminate outdoor entrances and exits.~~

603.8.3.6 Utility rooms and basements.

~~At least one lighting outlet shall be provided in utility rooms and basements where such spaces are used for storage or contain equipment requiring service.~~

603.8.3.7 Clearance for equipment.

~~Clearance for electrical service equipment shall be provided in accordance with NFPA 70.~~

603.9 603.5 Mechanical.

~~All work areas intended for occupancy and all spaces converted to habitable or occupiable space in any work area shall be provided with natural or mechanical ventilation in accordance with the International Mechanical Code.~~

Exception: Existing mechanical ventilation systems shall comply with the requirements of Section 603.9.1.

~~**603.9.1 Altered existing systems.**~~ In mechanically ventilated spaces, existing mechanical ventilation systems that are altered, reconfigured, or extended shall provide not less than 5 cubic feet per minute (cfm) (0.0024 m³/s) per person of outdoor air and not less than 15 cfm (0.0071 m³/s) of ventilation air per person; or not less than the amount of ventilation air determined by the Indoor Air Quality Procedure of ASHRAE 62.

~~**603.9.2 603.5.1 Local exhaust.**~~ All newly introduced devices, equipment, or operations that produce airborne particulate matter, odors, fumes, vapor, combustion products, gaseous contaminants, pathogenic and allergenic organisms, and microbial contaminants in such quantities as to affect adversely or impair health or cause discomfort to occupants shall be provided with local exhaust.

~~**603.10 603.6 Plumbing.**~~ Where the occupant load of the story is increased by more than 20 percent, plumbing fixtures for the story shall be provided in quantities specified in the International Plumbing Code based on the increased occupant load.

Delete without substitution:

SECTION 604

LEVEL 3 ALTERATIONS

604.1 Scope.

~~Level 3 alterations as described in Section 601.2.3 shall comply with the requirements of this section.~~

~~**Exception:** Buildings in which the alteration is exclusively the result of compliance with the accessibility requirements of Section 404.3 shall be permitted to comply with Section 602.~~

604.2 Level 1 and Level 2 alterations compliance.

~~In addition to the requirements of this section, work shall comply with the applicable requirements of Sections 602 and 603. The requirements of Sections 603.4, 603.5 and 603.6 shall apply within all work areas whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.~~

~~**Exception:** Buildings in which the alteration affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 404.3 shall not be required to comply with this section.~~

604.3 Special use and occupancy.

~~The following special uses and occupancies shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.3.1 and 604.3.2.~~

604.3.1 High-rise buildings.

~~Any building having occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall comply with the requirements of Sections 604.3.1.1 and 604.3.1.2.~~

604.3.1.1 Recirculating air or exhaust systems.

~~When a floor is served by a recirculating air or exhaust system with a capacity greater than 15,000 cubic feet per minute (701 m³/s), that system shall be equipped with approved smoke and heat detection devices installed in accordance with the International Mechanical Code.~~

604.3.1.2 Elevators.

~~Where there is an elevator or elevators for public use, at least one elevator serving the work area shall comply with this section. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for fire fighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1.~~

604.3.2 Boiler and furnace equipment rooms.

~~Boiler and furnace equipment rooms adjacent to or within Groups I-1, I-2, I-4, R-1, R-2 and R-4 occupancies shall be enclosed by 1-hour fire-resistance-rated construction.~~

Exceptions:

- ~~1. Steam boiler equipment operating at pressures of 15 pounds per square inch gauge (psig) (103.4 KPa) or less is not required to be enclosed.~~
- ~~2. Hot water boilers operating at pressures of 170 psig (1171 KPa) or less are not required to be enclosed.~~
- ~~3. Furnace and boiler equipment with 400,000 British thermal units (Btu) (4.22 × 10⁸ J) per hour input rating or less is not required to be enclosed.~~
- ~~4. Furnace rooms protected with an automatic sprinkler system are not required to be enclosed.~~

604.4 Building elements and materials.

~~Building elements and materials shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.4.1 through 604.4.3.~~

604.4.1 Existing stairways.

~~Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 603.4.1.1, and its exceptions if applicable, from the highest work area floor to, and including, the level of exit discharge and all floors below.~~

604.4.2 Fire separation in Group R-3.

~~Where the work area is in any attached dwelling unit in Group R-3 or any multiple single-family dwelling (townhouse), walls separating the dwelling units that are not continuous from the foundation to the underside of the roof sheathing shall be constructed to provide a continuous fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. All work shall be performed on the side of the dwelling unit wall that is part of the work area.~~

Exception: ~~Where alterations or repairs do not result in the removal of wall or ceiling finishes exposing the structure, walls are not required to be continuous through concealed floor spaces.~~

604.4.3 Interior finish.

~~Interior finish in exits serving the work area shall comply with Section 603.4.3 between the highest floor on which there is a work area to the floor of exit discharge.~~

604.5 Fire protection.

~~Fire protection shall comply with the requirements of Section 603.5.2 except as specifically required in Sections 604.5.1 and 604.5.2.~~

604.5.1 Automatic sprinkler systems.

~~An automatic sprinkler system shall be provided in a work area where required by Section 603.5.2 or this section.~~

604.5.1.1 High-rise buildings.

~~An automatic sprinkler system shall be provided in work areas where the high-rise building has a sufficient municipal water supply for the design and installation of an automatic sprinkler system at the site.~~

604.5.1.2 Rubbish and linen chutes.

~~Rubbish and linen chutes located in the work area shall be provided with automatic sprinkler system protection or an approved automatic fire extinguishing system where protection of the rubbish and linen chute would be required under the provisions of the VCC for new construction.~~

604.5.1.3 Upholstered furniture or mattresses.

~~Work areas shall be provided with an automatic sprinkler system in accordance with the VCC where any of the following conditions exist:~~

- ~~1. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2,500 square feet~~

(232 m²).

~~2. A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 m²).~~

~~604.5.2 Fire alarm and detection systems.~~

~~Fire alarm and detection shall be provided throughout the work area in accordance with Section 907 of the VCC as required for new construction.~~

~~604.5.2.1 Manual fire alarm systems.~~

~~Where required by the VCC, a manual fire alarm system shall be provided throughout the work area. Alarm notification appliances shall be provided on such floors and shall be automatically activated as required by the VCC.~~

~~Exceptions:~~

- ~~1. Alarm initiating and notification appliances shall not be required to be installed in tenant spaces outside of the work area.~~
- ~~2. Visual alarm notification appliances are not required, except where an existing alarm system is upgraded or replaced or where a new fire alarm system is installed.~~

~~604.5.2.2 Automatic fire detection.~~

~~Where required by the VCC for new buildings, automatic fire detection systems shall be provided throughout the work area.~~

~~604.6 Means of egress.~~

~~The means of egress shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.6.1 and 604.6.2.~~

~~604.6.1 Means of egress lighting.~~

~~Means of egress from the highest work area floor to the floor of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the VCC.~~

~~604.6.2 Exit signs.~~

~~Means of egress from the highest work area floor to the floor of exit discharge shall be provided with exit signs in accordance with the requirements of the VCC.~~

~~604.7 Structural.~~

~~Structural alterations shall comply with the requirements of Section 603.6 except as specifically required in Sections 604.7.1 and 604.7.2.~~

~~604.7.1 Substantial structural alteration.~~

~~Where more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural alteration within a 5-year period, the evaluation and analysis shall demonstrate that the lateral load-resisting system of the altered building or structure complies with the International Building Code for wind loading and with reduced International Building Code level seismic forces in accordance with Section 305.2.2. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.~~

~~604.7.2 Limited structural alteration.~~

~~Where the work does not involve a substantial structural alteration and the building is not assigned to Seismic Design Category F, the existing elements of the lateral load-resisting system shall comply with Section 603.7.4.~~

705.3 Means of egress for change to higher hazard category. When a change of occupancy classification is made to a higher hazard category (lower number) as shown in Table 705.2, the means of egress serving the area of the change of occupancy shall comply with the requirements of Chapter 10 of the VCC. VCC, except as modified in Sections 705.3.1 through 705.3.7.

Exceptions:

- ~~1. Existing interior stairways are permitted to be enclosed in accordance with Section 603.4.1.1 from the highest floor where the change of occupancy classification occurs to, and including, the level of exit discharge and all floors below.~~
- ~~2. An enclosure shall not be required for openings serving only one adjacent floor and that are not connected with corridors or stairways serving other floors.~~
- ~~3. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by 1-hour fire-resistance-rated construction or approved wired glass set in steel frames and all exit corridors are sprinklered. The openings between the corridor and the occupant space shall have at least one sprinkler head above the openings on the tenant side. The sprinkler system shall be permitted to be supplied from the domestic water supply systems, provided the system is of adequate pressure, capacity, and sizing for the combined domestic and sprinkler requirements.~~
- ~~4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or $\frac{1}{2}$ -inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.~~
- ~~5. Existing corridor doorways, transoms and other corridor openings are permitted to comply with the requirements in Sections 603.6.4.1, 603.6.4.2 and 603.6.4.3 regardless of work areas.~~
- ~~6. Existing dead-end corridors are permitted to comply with the requirements in Section 603.6.5 regardless of work areas.~~
- ~~7. An existing operable window with clear opening area no less than 4 square feet (0.38 m²) and minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.~~
- ~~8. Regardless of work areas, existing handrails are permitted to comply with the requirements of Section 603.6.8 and existing guards are permitted to comply with the requirements of Section 603.6.10.~~
- ~~9. Fire escapes in compliance with Section 303.~~
- ~~10. Existing stairways are not required to be altered to meet current tread depth and riser height requirements.~~

Revise as follows:

705.3.1 Corridor fire-resistance ratings. The following exceptions apply to the fire-resistance rated corridor provisions in the VCC:

-

1. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard are equivalent to a 1-hour fire-resistance rating. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.

2. Dwelling unit or sleeping unit corridor doors and transom openings are permitted to comply with any of the following:

2.1 Be at least 13/8-inch (35 mm) solid core wood or approved equivalent and shall not have any glass panels, other than approved wired glass or other approved glazing material in metal frames and equipped with approved door closers.

2.2 Meet the requirements of "Guidelines on Fire Ratings of Archaic Materials and Assemblies" (VEBC Resource A) for a rating of 15 minutes or more shall be accepted as meeting the provisions of this requirement.

2.3 In buildings protected throughout with an approved automatic sprinkler system, resist smoke, be reasonably tight fitting, and shall not contain louvers.

2.4 In group homes with a maximum of 15 occupants and that are protected with an approved automatic smoke detection system, closing devices may be omitted.

2.5 Transoms in corridor walls shall be either glazed with $\frac{1}{4}$ -inch (6.4 mm) wired glass set in metal frames or other glazing assemblies having a fire protection rating as required for the door and permanently secured in the closed position or sealed with materials consistent with the corridor construction.

3. Openings in a corridor and any window in a corridor not opening to the outside air shall be sealed with materials consistent with the corridor construction.

705.3.2 Dead-end corridors. Dead-end corridors shall not exceed 35 feet (10 670 mm).

Exceptions :

1. Where dead-end corridors of greater length are permitted by the VCC.

2. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 50 feet (15 240 mm) in buildings equipped throughout with an automatic fire alarm system installed in accordance with the VCC.

3. In other than Group A and H occupancies, the maximum length of an existing dead-end corridor shall be 70 feet (21 356 mm) in buildings equipped throughout with an automatic sprinkler system installed in accordance with the VCC.

4. In other than Group A and H occupancies, the maximum length of an existing, newly constructed, or extended dead-end corridor shall not exceed 50 feet (15 240 mm) on floors equipped with an automatic sprinkler system installed in accordance with the VCC.

705.3.3 Emergency Escape and Rescue Openings. An existing operable window with clear opening area no less than 4 square feet (0.38 m²) and minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.

705.3.4 Fire escapes. Fire escapes in compliance with Section 303.

705.3.5 Interior stairway fire-resistance ratings. Existing interior stairways connecting two or more floors shall be enclosed with approved assemblies having a fire-resistance rating of not less than 1 hour with approved opening protectives from the highest floor where the change of occupancy classification occurs to, and including, the level of exit discharge and all floor below.

Exceptions:

1. Where interior stairway enclosure is not required by the VCC.

2. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by one-hour-fire-resistance-rated construction or approved wired glass set in steel frames and all exit corridors are sprinklered. The openings between the corridor and the occupant space shall have at least one sprinkler head above the openings on the tenant side. The sprinkler system shall be permitted to be supplied from the domestic water supply systems, provided the system is of adequate pressure, capacity, and sizing for the combined domestic and sprinkler requirements.

3. In Group A occupancies, a minimum 30-minute enclosure shall be permitted to protect all interior stairways not exceeding three stories.

4. In Group B occupancies, a minimum 30-minute enclosure shall be permitted to protect all interior stairways not exceeding three stories. This enclosure shall not be required in the following locations:

4.1 Buildings not exceeding 3,000 square feet (279 m²) per floor.

4.2 Buildings protected throughout by an approved automatic fire sprinkler system.

5. In Group E occupancies, the enclosure shall not be required for interior stairways not exceeding three stories when the building is protected throughout by an approved automatic fire sprinkler system.

6. In Group F occupancies, the enclosure shall not be required in the following locations:

6.1 Interior stairways not exceeding three stories.

6.2 Special purpose occupancies where necessary for manufacturing operations and direct access is provided to at least one protected stairway.

6.3 Buildings protected throughout by an approved automatic sprinkler system.

7. In Group H occupancies, the enclosure shall not be required for interior stairways not exceeding three stories where necessary for manufacturing operations and every floor level has direct access to at least two remote enclosed stairways or other approved exits.

8. In Group M occupancies, a minimum 30-minute enclosure shall be permitted to protect all interior stairways not exceeding three stories. This enclosure shall not be required in the following locations:

8.1 Stairways connecting only two floor levels.

8.2 Occupancies protected throughout by an approved automatic sprinkler system.

9. In Group R-1 occupancies, the enclosure shall not be required for interior stairways not exceeding three stories in the following locations:

9.1 Buildings protected throughout by an approved automatic sprinkler system.

9.2 Buildings with less than 25 dwelling units or sleeping units where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and where:

9.2.1 Any exit access corridor exceeding 8 feet (2438 mm) in length that serves two means of egress, one of which is an unprotected vertical opening, shall have at least one of the means of egress separated from the vertical opening by a 1-hour fire barrier; and

9.2.2 The building is protected throughout by an automatic fire alarm system, installed and supervised in accordance with the VCC.

10. In Group R-2 occupancies, a minimum 30-minute enclosure shall be permitted to protect interior stairways not exceeding three stories. This enclosure shall not be required in the following locations:

10.1 Interior stairways not exceeding two stories with not more than four dwelling units per floor.

10.2 Buildings protected throughout by an approved automatic sprinkler system.

10.3 Buildings with not more than four dwelling units per floor where every sleeping room above the second floor is provided with direct access to a fire escape or other approved second exit by means of an approved exterior door or window having a sill height of not greater than 44 inches (1118 mm) and the building is protected throughout by an automatic fire alarm system complying with the VCC.

11. Stairway enclosure is not required in one- and two-family dwellings.

12. Group S occupancies where connecting not more than two floor levels or where connecting not more than three floor levels and the structure is equipped throughout with an approved automatic sprinkler system.

13. Group S occupancies where stairway protection is not required for open parking garages and ramps.

705.3.6 Stairway geometry. Existing stairways are not required to be altered to meet tread depth and riser height requirements of the VCC.

705.3.7 Stairway handrails. Existing stairways are required to have a VCC compliant handrail on one side up to a required egress width of 66 inches (1676 mm) and both sides both sides when the required egress width exceeds 66 inches (1676 mm).

Reason Statement: Flash back to 2009 - the 2009 VCC 103.5, Item 2 said, "Parts of the building or structure not being reconstructed, altered or repaired shall not be required to comply with the requirements of this code applicable to newly constructed buildings or structures."

That all changed when Virginia went to the 2012 Virginia Rehabilitation Code and 2015 Virginia Existing Building Code - which requires work to be done OUTSIDE of those areas where work is intended through "supplemental requirements" (where the work area exceeds 50% of the floor area) and Level 3 alterations (when the work area exceeds 50% of the building area) - **that might otherwise be considered RETROFIT requirements.**

We believe this is not what the General Assembly intended when they basically developed language to "incentivize, don't penalize" as the purpose of the existing building code, as captured in 2015 VEBC:

- **102.1 Purpose.** In accordance with § 36-99.01 of the Code of Virginia, the General Assembly of Virginia has declared that (i) there is an urgent need to improve the housing conditions of low and moderate income individuals and families, many of whom live in substandard housing, particularly in the older cities of the Commonwealth; (ii) there are large numbers of older residential buildings in the Commonwealth, both occupied and vacant, which are in urgent need of rehabilitation and must be rehabilitated if the state's citizens are to be housed in decent, sound, and sanitary conditions; and (iii) the application of those building code requirements currently in force to housing rehabilitation has sometimes led to the imposition of costly and time-consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

The General Assembly further declares that (i) there is an urgent need to improve the existing condition of many of the Commonwealth's stock of commercial properties, particularly in older cities; (ii) there are large numbers of older commercial buildings in the Commonwealth, both occupied and vacant, that are in urgent need of rehabilitation and that must be rehabilitated if the citizens of the Commonwealth are to be provided with decent, sound and sanitary work spaces; and (iii) the application of the existing building code to such rehabilitation has sometimes led to the imposition of costly and time consuming requirements that result in a significant reduction in the amount of rehabilitation activity taking place.

Therefore, this proposal deletes the "low-hanging" fruit (supplemental requirements and Level 3 alterations) to get closer to "The Virginia Way" - (same as a separate proposal - OPTION A), but also deletes those requirements that require additional work OUTSIDE of the intended scope of work. For example, the concept of "work area" itself oftentimes requires existing elements to be upgraded that were not intended to be reconstructed, altered or repaired and thus, should not be required to be touched - according to The Virginia Way.

IMPORTANT: This proposal deals mostly with alterations only (Chapter 6) and does NOT automatically affect a change of occupancy (Chapter 7), except where Chapter 7 referenced what would now be deleted alteration provisions. Also, per 603.3, ALL NEW WORK must still comply with the VCC.

103.10: Since work areas is being deleted this needed to be modified.

WORK AREA: Due to the proposed deletions within this proposal, the term/concept "work area" is no longer needed.

402.1 / 404.4.8: Since work area was deleted, we needed to add language that would maintain the same scope of requirements.

404.2, Exception: This was duplicated text that is already covered under 402.1, Exception and can be deleted here.

601.1: This is similar language that was in the 2009 VCC and is the foundation of "The Virginia Way."

601.2.2: Since work area was deleted, we needed to add language that would maintain the same scope of requirements (#2) and the entire section was reformatted to a bullet list. It got to be too many commas or semi-colons and was confusing.

601.2.3 et. al.: Level 3 alterations are essentially RETROFIT requirements and thus are proposed to be deleted.

603.3: The new exceptions came from the deleted exceptions from the other Chapter 6 provisions and #5 came from 2018 IBC. The deleted exceptions were no longer needed because the referenced section(s) were deleted as part of this proposal.

603.4: All of these requirements (vertical openings - 603.4.1, smoke compartments - 603.4.2, interior finishes - 603.4.3, and guards - 603.4.4) are essentially RETROFIT requirements - where compliance was required only because it was within a work area - not because you were touching them.

603.5: These are essentially RETROFIT requirements - requiring sprinkler systems and/or fire detection systems simply because you were doing some alterations. Remember, we are NOT talking about changes of occupancy, which is governed by Chapter 7.

603.6: The combination of the two exceptions and the statute of limitations per VCC 115.3 makes this entire section essentially obsolete, so it is proposed to be deleted in its entirety. It also contained essentially RETROFIT requirements because it imposed requirements on elements/components simply because they were within a work area, but may not be touched.

603.8: These are essentially RETROFIT requirements, are already covered by 603.3 (all new work must comply with the VCC), or reference you to the IRC for requirements.

603.9: This was consolidated and cleaned up.

Section 604: Level 3 alterations are essentially RETROFIT requirements and thus are proposed to be deleted in its entirety.

705.3: Because the exceptions refer to sections in Chapter 6 that are proposed to be deleted, they needed to be added back here. Also, to avoid having a long and indented list of exceptions, new sections 705.3.1 through 705.3.7 were created to relocate the applicable exceptions from Chapter 6 to here.

Cost Impact Statement:

This proposal **DECREASES** the cost of construction by eliminating the RETROFIT requirements of supplemental requirements, Level 2 alterations, Level 3 alterations, and work areas. You only update/upgrade those portions of the building that you alter or have a change in its occupancy - which is consistent with "The Virginia Way."

Resiliency Impact Statement:

Some may suggest this proposal will decrease resiliency because less of the existing building will be updated/upgraded; however, it could also be argued that if that "other" work was required, the applicant might just walk away from the project and not do ANY new work - or greatly reduce the amount of the intended work to avoid the increased requirements

anyway. So, in that respect, one might argue that this proposal incentivizes the rehabilitation of the building and therefore, increases the resiliency to the extent it would not otherwise have been done.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Preferred over option A.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB103.10 (Option B)-18

This proposal doesn't have any public comments.

Proposal # 223

EB103.10 (Option B)-18

EB302.1-18

VEBC: 302.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

Delete without substitution:

~~302.1 Existing materials.~~

~~Materials already in use in a *building* in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless the VCC would not permit their use in *buildings* or *structures* of similar occupancy, purpose and location.~~

Reason Statement: Section 302.1 is an IEBC retrofit requirement not related to any construction and should be deleted.

Cost Impact Statement: The code change proposal will decrease the cost of construction
This code change will remove a requirement that could be used to require extensive retrofit of existing buildings.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This code change is not related to resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB302.1-18

This proposal doesn't have any public comments.

Proposal # 138

EB302.1-18

EB303-18

VEBC: SECTION 303, 303.1, 303.1.1, 303.1.2, 303.1.3, 303.1.4, 303.2, 303.3, 303.4, 303.5, 303.6

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

SECTION 303 FIRE ESCAPES

303.1 Where permitted. Fire escapes shall ~~be permitted only as provided for in Sections 303.1.1 through 303.1.4.~~ comply with this section and shall not constitute more than 50 percent of the required number of exits nor more than 50 percent of the required exit capacity.

303.1.1 Existing fire escapes. Existing fire escapes shall continue to be accepted as a component in the means of egress ~~in existing buildings only.~~

303.1.2 New fire escapes. ~~For other than Group I-2,~~ Newly constructed fire escapes ~~for existing buildings shall~~ shall be permitted only where exterior stairs cannot be utilized due to lot lines limiting stair size or due to the sidewalks, alleys or roads at grade level. ~~New~~

Exception: Replacement fire escapes
shall not incorporate ladders or access by windows.

Exception: ~~Fire escapes that are replaced or repaired shall only be required to~~ or existing fire escapes undergoing repairs shall comply with Sections 303.3 and 303.4 if feasible, and if not feasible, ~~such that the replaced or repaired fire escape is not less safe than its existing condition.~~ to the greatest extent possible.

Delete without substitution:

303.1.3 Limitations.

~~Fire escapes shall comply with this section and shall not constitute more than 50 percent of the required number of exits nor more than 50 percent of the required exit capacity.~~

303.1.4 Fire escapes required.

~~For other than Group I-2, where more than one exit is required, newly constructed fire escapes complying with Section 303.6 shall be accepted as providing one of the required means of egress. Replacement fire escapes or existing fire escapes undergoing repairs shall comply with Sections 303.3 and 303.4 if feasible, and if not feasible, to the greatest extent possible.~~

303.2 Location. Where located on the front of the *building* and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).

303.3 Construction. The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other approved noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on *buildings* of Type V construction. Walkways and railings located over or supported by combustible roofs in *buildings* of Type III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

303.4 Dimensions. Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 9 inches (203 mm) below the door.

303.5 Opening protectives. Openings within 10 feet (3048 mm) of newly constructed fire escape stairways shall be protected by fire assemblies having minimum ³/₄-hour fire-resistance ratings.

Exception: Opening protection shall not be required in *buildings* equipped throughout with an approved automatic sprinkler system.

303.6 Fire escape access and details. Newly constructed fire escapes shall comply with all of the following requirements:

1. Occupants shall have unobstructed access to the fire escape without having to pass through a room subject to locking.
2. Access to a new fire escape shall be through a door, except that windows shall be permitted to provide access from single dwelling units or sleeping units in Group R-1, R-2 and I-1 occupancies or to provide access from spaces having a maximum occupant load of 10 in other occupancy classifications.
 - 2.1. The window shall have a minimum net clear opening of 5.7 square feet (0.53 m²) or 5 square feet (0.46 m²) where located at grade.
 - 2.2. The minimum net clear opening height shall be 24 inches (610 mm) and net clear opening width shall be 20 inches (508 mm).
 - 2.3. The bottom of the clear opening shall not be greater than 44 inches (1118 mm) above the floor.
 - 2.4. The operation of the window shall comply with the operational constraints of the VCC.
3. In all *buildings* of Group E occupancy, up to and including the 12th grade, *buildings* of Group I occupancy, rooming houses and childcare centers, ladders of any type are prohibited on fire escapes used as a required means of egress.

Reason Statement: Section 303 is a combination of the 2012 fire escape provisions in prescriptive method section 405 and work area method 805.3.1.2.1. Combining the two methods created a conflict between 2015 sections 303.1.2 and 303.6. 303.1.2 prohibits use of window access and ladders and 303.6 allows their use in limited occupancies. The VBCOA VEBC committee decided to go with the work area method so the last sentence of 303.1.2 is proposed for deletion and 303.6 was retained. In addition the provisions of section 303.1.3 and 303.1.4 are proposed to be incorporated into sections 303.1 and 303.1.2 eliminating the need for the two separate sections. Lastly the phrase "for existing buildings" is proposed for deletion as it is redundant since the scope of the VEBC is existing buildings.

Cost Impact Statement: The code change proposal will decrease the cost of construction
This code change will permit some limited use of window access and ladders, which may reduce construction cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
Fire escapes do not impact resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition. VBCOA existing building code committee supports.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB303-18

This proposal doesn't have any public comments.

Proposal # 145

EB303-18

EB304.1-18

VEBC: 304.1, 1101.17, 102.2.2

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

304.1 Conformance. Replacement glass. In accordance with 36-99.2 of the Code of Virginia, ~~any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and installation standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.~~ shall comply with Chapter 24 of the VCC.

Delete without substitution:

~~1101.17 Standards for replacement glass.~~

~~In accordance with 36-99.2 of the Code of Virginia, any replacement glass installed in buildings constructed prior to the first edition of the USBC shall meet the quality and installation standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations.~~

102.2.2 Reconstruction, alteration or repair in Group R-5 occupancies. Compliance with this section shall be an acceptable alternative to compliance with this code at the discretion of the owner or owner's agent. The VCC may be used for the reconstruction, *alteration* or repair of Group R-5 *buildings* or *structures* subject to the following criteria:

1. Any reconstruction, *alteration* or repair shall not adversely affect the performance of the *building* or *structure*, or cause the *building* or *structure* to become unsafe or lower existing levels of health and safety.
2. Parts of the *building* or *structure* not being reconstructed, altered or repaired shall not be required to comply with the requirements of the VCC applicable to newly constructed *buildings* or *structures*.
3. The installation of material or equipment, or both, that is neither required nor prohibited shall only be required to comply with the provisions of the VCC relating to the safe installation of such material or equipment.
4. Material or equipment, or both, may be replaced in the same location with material or equipment of a similar kind or capacity.

Exceptions:

1. This section shall not be construed to permit noncompliance with any applicable flood load or flood-resistant construction requirements of the VCC.
2. Reconstructed decks, balconies, porches and similar *structures* located 30 inches (762 mm) or more above grade shall meet the current code provisions for structural loading capacity, connections and structural attachment. This requirement excludes the configuration and height of handrails and guardrails.

5. In accordance with

Section

36-99.2 of the Code of Virginia,

~~any replacement glass installed in buildings constructed prior to the~~

~~first edition of the USBC shall meet the quality and standards for glass installed in new buildings as are in effect at the time of installation. In addition, as a requirement of this code, the installation or replacement of glass in buildings constructed under any edition of the USBC shall be as required for new installations. installation or replacement of glass shall comply with Section R308 or chapter 24 of the VCC.~~

Reason Statement: The provision of 304 (and 102.2.2 #5) is overly wordy. The provision provides the same requirement written two different ways depending on if the building is pre or post USBC. There is no need for the distinction since the requirement is the same. All replacement glass must meet current VCC material requirements regardless of when the building was constructed. A specific reference back to VCC Chapter 24 Glass and Glazing (or R308 for VRC dwellings) was added to clarify this is a material and quality requirement.

The provision for replacement glass was in the retrofit chapter in the 2012 edition. A code change was submitted to move the provision to chapter 3 since the provision is not retrofit, that is the provision is not a requirement when no related construction is proposed. The requirement only applies when glass is being installed or replaced. The provision was copied into chapter 3 but it still remains in the retrofit chapter. The second part of the code change deletes it from the retrofit chapter as was intended in the 2015 cycle.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This is an editorial change.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This is an editorial change.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition. VBCOA existing building code committee supports. AM to use consistent reference language to I-codes.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB304.1-18

This proposal doesn't have any public comments.

Proposal # 146

EB304.1-18

EB304.3(1)-18

VEBC: 304.3

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

304.3 Replacement window emergency escape and rescue openings. Where windows are required to provide emergency escape and rescue openings in Group R-2 and R-3 occupancies, replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and 1030.5 of the VCC provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement of the window is not part of a *change of occupancy*.

Reason Statement: If there is no reference to another code, said reference(s) are to the code in which the language is written. Therefore, it would mean those sections are referencing the VEBC. If so, those VEBC sections have nothing to do with said windows, because the sections are actually in the VCC. So, this references the proper code which is the VCC.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB304.3(1)-18

This proposal doesn't have any public comments.

Proposal # 22

EB304.3(1)-18

EB304.3(2)-18

VEBC: 304.3

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

304.3 Replacement window emergency escape and rescue openings. Where windows are required by the VCC or VRC to provide emergency escape and rescue openings in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the VRC, replacement windows shall be exempt from the requirements of Sections 1030.2, 1030.3 and ~~4030.5~~ 1030.4 of the VCC or Sections R310.2.1, R310.2.2 and R310.2.3 of the VRC, provided the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. The replacement of the window is not part of a *change of occupancy*.

Reason Statement: Since the VEBC itself does not "require" EEROs, references to the VCC and VRC (Virginia Residential Code) are necessary. Also, since the VEBC is an option for R-5 occupancies, such references to the VRC should be included. Those references came from the 2018 IEBC.

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB304.3(2)-18

This proposal doesn't have any public comments.

Proposal # 142

EB304.3(2)-18

EB305.1--18

VEBC: 305.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

305.1 General. Where this code requires consideration of the seismic force-resisting system of an *existing building* subject to repair, *alteration*, *change of occupancy*, addition or ~~relocation~~ moving of existing buildings, the seismic evaluation and design shall be based on Section 305.2 ~~regardless of which compliance method is used~~.

Reason Statement: Virginia uses the term "moved" buildings in lieu of "relocated" buildings, which are governed by the Industrialized Building Code. Also, since we deleted the compliance methods in the 2015 VEBC the last portion of the last sentence should have been deleted also.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Consensus for Approval with Amendment
Amendment:

· Strike the word "the" before added word moving (under 305.1)

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB305.1--18

This proposal doesn't have any public comments.

Proposal # 21

EB305.1--18

EB307.3.1-18

VEBC: 307.3.1 (New), 307.3.2, 307.7.1.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

Add new text as follows:

307.3.1 Roof Recover limitation

-

A roof recover shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

307.3.1 307.3.2 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the *building's* structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of exiting roof coverings.
2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 307.4.
3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.
4. Where the new roof covering is installed in accordance with the roof covering manufacturer's approved instructions.

Exception:~~A roof recover shall not be permitted where any of the following conditions occur:~~

- ~~Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof~~
- ~~1. or roof covering is not adequate as a base for additional roofing.~~
- ~~2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.~~
- ~~3. Where the existing roof has two or more applications of any type of roof covering.~~

-

Delete without substitution:

~~307.7.1.4 Existing materials.~~

~~Materials already in use in a *building* in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building official to be unsafe.~~

Reason Statement: Exceptions should allow something the code section does not permit. The exception to 307.3.1 is essentially an exception to an exception. The reformatting of the exception into section 307.3.1 does not change the requirement it just formats it properly.

Section 307.7.1.1 is not needed. Approved materials already in the building that are not proposed for repair or alteration are by default not required to be retrofitted.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This is editorial.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This is editorial.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB307.3.1-18

This proposal doesn't have any public comments.

Proposal # 147

EB307.3.1-18

EB402.1-18

VEBC: 402.1, 404.2

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

402.1 Change of occupancy. *Existing buildings or structures* that undergo a *change of occupancy* shall comply with this section.

Exception: Type B dwelling or sleeping units required by Section 1107 of the VCC are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of ~~the aggregate area of the building.~~ the building area.

404.2 Alterations. A facility that is altered shall comply with the applicable provisions in this section and Chapter 11 of the VCC, except as modified by Sections 404.3 and 404.4, unless technically infeasible. Where compliance with this section is technically infeasible, the *alteration* shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an accessible route, unless required by Section 404.3.
2. Accessible means of egress required by Chapter 10 of the VCC are not required to be provided in existing facilities.
3. The *alteration* to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the VCC are not required to be provided in *existing buildings* and facilities undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of ~~the aggregate area of the building.~~ building area.

Reason Statement: This should have been revised for the 2015 VEBC when at the national level, they changed from "aggregate area of the building" to "building area" when describing the levels of alterations. The revised text is consistent with that used in VEBC 601.2.2 and 601.2.3. Interestingly, the 2018 IEBC exceptions still use the "old" text.

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB402.1-18

This proposal doesn't have any public comments.

Proposal # 143

EB402.1-18

EB403.1-18

VEBC: 403.1, 404.4.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

403.1 Additions. Accessibility provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements in Section ~~410.7~~ 404.3, as applicable.

404.4.1 Entrances. Where an *alteration* includes *alterations* to an entrance, and the facility has an accessible entrance on an accessible route, the altered entrance is not required to be accessible unless required by Section 404.3. Signs complying with Section 1111 of the VCC shall be provided.

Exception: Where an *alteration* includes *alterations* to an entrance, and the facility has an accessible entrance, the altered entrance is not required to be accessible, unless required by Section ~~410.7~~ 404.3. Signs complying with Section 1111 of the VCC shall be provided.

Reason Statement: Section 410.7 was the 2012 edition number. The correct number is now 404.3.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This is editorial.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This is editorial.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Staff editorial fix.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB403.1-18

This proposal doesn't have any public comments.

Proposal # 149

EB403.1-18

EB404.4.4-18

VEBC: 404.4.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

404.4.4 Stairways and escalators. ~~In alterations, change of occupancy or additions where~~ Where an escalator or stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route shall be provided between the levels served by the escalator or stairways in accordance with Section 1104.4 of the VCC.

Reason Statement: This is in the "Alterations" section, so references to change of occupancy and additions do not belong. Also, if an elevator or escalator is "added" to an addition, it would need to comply with the VCC anyway. If added as part of a change of occupancy, it is still the "alteration" itself (i.e., adding of walls, cabs, etc.) that would trigger the accessibility requirement, not the actual change of occupancy.

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition. VBCOA existing building code committee supports.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB404.4.4-18

This proposal doesn't have any public comments.

Proposal # 144

EB404.4.4-18

EB404.4.10-18

VEBC: 404.4.10, 405.1.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

404.4.10 Toilet and bathing rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible single-user or family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the VCC is permitted. The single-user or family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, provide directional signs indicating the location of the nearest single-user or family or assisted-use toilet room or bathing room. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

405.1.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one accessible single-user or family or assisted-use toilet or bathing room complying with Section 1109.2.1 of the VCC shall be provided.

Reason Statement: Both the 2018 IBC (Section 2902.1.2) and 2018 IPC (Section 403.1.2) added the new term "single-user toilet facility and bathing room fixtures." This change maintains consistency between code books (VEBC and VCC). The intent of this proposal is to clarify the code and coordinate with the terminology in the IPC. Historically, this requirement originally said 'unisex' toilet rooms were permitted but was revised many cycles ago to use the term 'family or assisted use' for consistency. The IPC now requires all single-occupant toilet rooms to be gender neutral. It is arguable if a family or assisted use toilet room is for a single user or not. Family or assisted use toilet rooms can include a urinal and a toilet, or both adult and child fixtures. Most of the time, an accessible family or assisted use and an accessible single user toilet rooms are technically exactly the same. The current language has caused questions about if this option in the code is only allowed where family assisted use toilet rooms are required in the IBC (Groups A and M), and/or allowed to meet the fixture counts.

The IPC has also been revised to allow both single-user and family or assisted toilet rooms to count towards the required fixture count. For historic buildings, the same issue exists. In addition, while the title included 'bathing rooms' the text did not.

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition. VBCOA existing building code committee supports.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB404.4.10-18

This proposal doesn't have any public comments.

Proposal # 150

EB404.4.10-18

EB501.1(1)-18

VEBC: 501.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

501.1 Scope. Repairs, including the patching or restoration or replacement of damaged materials, elements, equipment or fixtures ~~for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements~~, shall comply with the requirements of this chapter. Repairs to historic *buildings* need only comply with Chapter 9. Portions of the *existing building* or *structure* not being repaired shall not be required to comply with the requirements of this code applicable to newly constructed *buildings* or *structures*. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the provisions of Chapter 6, ~~7 or 8~~. Routine maintenance required by Section 302, ordinary repairs exempt from permit in accordance with Section 108.2 of the VCC, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

Exception: Repairs complying with the requirements of the building code under which the *building* or *structure* or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code, unless the *building* or *structure* or the affected portions thereof is undergoing a substantial structural *alteration* as described in Section 604.7.1. New structural members added as part of the *alteration* or repairs shall comply with the VCC. Repairs of *existing buildings* in flood hazard areas shall comply with Section 503.

Reason Statement: Scope: The language in the first sentence reflected the 2012 definition of "repair." When the definition of "repair" changed in 2015, this language should have been deleted. Chapters 7 (change of occupancy) and 8 (addition) have no bearing on repairs and should have only referenced Chapter 6 (alterations) which would have been consistent with the old 2012 VRC language that referenced just alterations - and not a change of occupancy or addition. **Exception:** This chapter deals with "repairs" not "alterations;" so the alteration language is being proposed to be deleted. The deleted language remains for alterations under VEBC 601.1, Exception 4.

Cost Impact Statement: The code change proposal will decrease the cost of construction

By allowing repairs to be made in accordance with the laws that existed at the time of construction in lieu of having to meet the current code (except for structural repairs), this most likely would result in reduced costs.

Resiliency Impact Statement:

Will increase resiliency, by allowing the repairs of existing facilities without the potential of having to forego the repairs or demolishing the building.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: As amended. No opposition. Only main body, don't include exception. Ron Clements has a proposal to delete EB501.1(2), if approved.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB501.1(1)-18

This proposal doesn't have any public comments.

Proposal # 24

EB501.1(1)-18

EB501.1(2)-18

VEBC: 501.1, 502.1, 502.2, 502.3, 502.3.1, 502.3.2, 502.3.3, 502.4, 502.4.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

501.1 Scope. Repairs, including the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements, shall comply with the requirements of this chapter. Repairs to historic *buildings* need only comply with Chapter 9. Portions of the *existing building* or *structure* not being repaired shall not be required to comply with the requirements of this code applicable to newly constructed *buildings* or *structures*. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the provisions of Chapter 6, 7 or 8. Routine maintenance required by Section 302, ordinary repairs exempt from permit in accordance with Section 108.2 of the VCC, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

~~**Exception:** Repairs complying with the requirements of the building code under which the building or structure or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code, unless the building or structure or the affected portions thereof is undergoing a substantial structural alteration as described in Section 604.7.1. New structural members added as part of the alteration or repairs shall comply with the VCC. Repairs of existing buildings in flood hazard areas shall comply with Section 503.~~

502.1 General. Structural repairs shall be in compliance with this section and Section 501.2. Regardless of the scope of repair, new structural members and connections used for repair or rehabilitation shall comply with the detailing provisions of the VCC for new *buildings* of similar *structure*, purpose and location.

Delete without substitution:

~~**502.2 Repairs to damaged buildings.**~~

~~Repairs to damaged *buildings* shall comply with this section.~~

~~**502.2.1 502.2 Less than substantial structural damage.** For damage less than substantial structural damage, repairs shall be allowed that restore the *building* to its predamage state. New structural members and connection used for this repair shall comply with the detailing provisions of the VCC for new *buildings* of similar *structure*, purpose and location. state.~~

~~**502.2.2 502.3 Substantial structural damage to vertical elements of the lateral force-resisting system.** A *building* that has sustained substantial structural damage to the vertical elements of its lateral force-resisting system shall be evaluated in accordance with Section 502.2.2.4 502.3.1, and either repaired in accordance with Section 502.2.2. 502.3.2, or repaired and rehabilitated in accordance with Section 502.2.2.3 502.3.3, depending on the results of the evaluation.~~

Exceptions:

1. *Buildings* assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

~~**502.2.2.4 502.3.1 Evaluation.** The *building* shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the building official. The evaluation shall establish whether the damaged *building*, if repaired~~

to its predamage state, would comply with the provisions of the VCC for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced VCC-level seismic forces.

Wind loads for this evaluation shall be those prescribed in Section 1609 of the VCC. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613 of the VCC. Alternatively, compliance with ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the earthquake evaluation requirement.

~~502.2.2.2~~ 502.3.2 Extent of repair for compliant buildings. If the evaluation establishes that the *building* in its predamage condition complies with the provisions of Section ~~502.2.2.4~~ 502.3.1, then repairs shall be permitted that restore the *building* to its predamage state.

~~502.2.2.3~~ 502.3.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the *building* in its predamage condition complies with the provisions of Section ~~502.2.2.4~~ 502.3.1, then the *building* shall be rehabilitated to comply with the provisions of this section. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the VCC. The earthquake loads for this rehabilitation design shall be those required by the building code in effect at the time of original construction, but not less than the reduced VCC-level seismic forces. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the VCC for new *buildings* of similar *structure*, purpose and location. Alternatively, compliance with ASCE 41, using the performance objective in Table 305.2.2 for the applicable risk category, shall be deemed to meet the earthquake rehabilitation requirement.

~~502.2.3~~ 502.4 Substantial structural damage to gravity loadcarrying components. Gravity load-carrying components that have sustained substantial structural damage shall be rehabilitated to comply with the applicable provisions for dead and live loads in the VCC. Snow loads shall be considered if the substantial structural damage was caused by or related to snow load effects. Existing gravity load carrying structural elements shall be permitted to be designed for live loads approved prior to the damage. If the approved live load is less than that required by Section 1607 of the VCC, the area designed for the nonconforming live load shall be posted with placards of approved design indicating the approved live load. Nondamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the rehabilitation design, or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of the VCC for new *buildings* of similar *structure* purpose and location.

~~502.2.3.4~~ 502.4.1 Lateral force-resisting elements. Regardless of the level of damage to gravity elements of the lateral force-resisting system, if substantial structural damage to gravity load-carrying components was caused primarily by wind or earthquake effects, then the *building* shall be evaluated in accordance with Section ~~502.2.2.4~~ 502.3.1 and, if noncompliant, rehabilitated in accordance with Section ~~502.2.2.3~~ 502.3.3.

Exceptions:

1. *Buildings* assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

Reason Statement: The exception to 501.1 allowing use of the code under which the building was constructed was copied from the same exception for alterations. After further review it has been determined that the exception is not needed for repair because the base requirement for repair allows for use of like materials. Section 302.2 allows use of like materials for repairs and there is no general requirement for repairs to comply with current code. Section 501.2 goes further and states performance requirements for repair work. The structural provisions are addressed in section 502.

The last sentence of 502.2 is proposed for deletion because it is a copy of what is already provided in the general provision of 502.1.

The remainder of the changes are to renumber the section to reduce the section numbers by a decimal place.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This is editorial.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This is editorial.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB501.1(2)-18

This proposal doesn't have any public comments.

Proposal # 154

EB501.1(2)-18

EB601.1(1)-18

VEBC: 601.1, 602.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

601.1 General. Except as provided by ~~Section 905.4 modified in Chapter 9~~ or this chapter, *alterations* to any *building* or *structure* shall comply with the requirements of the VCC for new construction. *Alterations* shall be such that the *existing building* or *structure* is no less conforming to the provisions of the VCC than the *existing building* or *structure* was prior to the *alteration*.

Exceptions:

1. Any stairway replacing an existing stairway shall not be required to comply with the requirements of Section 1011 of the VCC where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the VCC shall not be required to comply with the requirements of Section 1014.6 of the VCC regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.
3. Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the VCC.
4. *Alterations* complying with the requirements of the building code under which the *building* or *structure* or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code, unless the *building* or *structure* or the affected portions thereof is undergoing a substantial structural *alteration* as described in Section 604.7.1. New structural members added as part of the ~~*alteration*~~ *repairs* shall comply with the VCC. *Alterations of existing buildings* in flood hazard areas shall comply with of Section 601.3.

602.1 Scope. Level 1 *alterations* as described in Section 601.2.1 shall comply with the requirements of this section. ~~Level 4 *alterations* to historic *buildings* shall comply with this chapter, except as modified in Chapter 9.~~

Reason Statement: Under **General:** The proposed language mimics the same language that was used in the 2012 VRC and should have been used for the 2015 VEBC as well. Also, *all* of Chapter 9 (historic buildings) applies, not just one section in Chapter 9. Under **Exception 4:** Chapter 6 and the exception deals with alterations - not repairs. VEBC Section 501.1, Exception already deals with repairs. Thus, "repairs" should be deleted here. Under **602.1:** The proposed revision to 601.1 above would already address alterations to historic buildings, thus making the need to repeat that information unnecessary under 602.1.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB601.1(1)-18

This proposal doesn't have any public comments.

Proposal # 25

EB601.1(1)-18

EB601.1(2)-18

VEBC: 601.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

601.1 General. Except as provided by Section 905.1 or this chapter, *alterations* to any *building* or *structure* shall comply with the requirements of the VCC for new construction. *Alterations* shall be such that the *existing building* or *structure* is no less conforming to the provisions of the VCC than the *existing building* or *structure* was prior to the *alteration*.

Exceptions:

1. Any stairway replacing an existing stairway shall not be required to comply with the requirements of Section 1011 of the VCC where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the VCC shall not be required to comply with the requirements of Section 1014.6 of the VCC regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.
3. Where the current level of safety or sanitation is proposed to be reduced, the portion altered shall conform to the requirements of the VCC.
4. *Alterations* complying with the requirements of the building code under which the *building* or *structure* or the affected portions thereof was built, or as previously approved by the building official, shall be considered in compliance with the provisions of this code, ~~unless the building or structure or the affected portions thereof is undergoing a substantial structural alteration as described in Section 604.7.1. New structural~~ *New structural* members added as part of the *alteration* or repairs shall comply with the VCC. *Alterations* of *existing buildings* in flood hazard areas shall comply with of Section 601.3.

Reason Statement: The text proposed for deletion can be interpreted to prohibit use of the exception based on substantial structural alteration. This is not needed as the last sentence of the exception still requires new structural elements to meet the current VCC.

Cost Impact Statement: The code change proposal will decrease the cost of construction. Depending on interpretation, this proposal could reduce construction cost if the exception was not permitted for structural reasons.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB601.1(2)-18

This proposal doesn't have any public comments.

Proposal # 155

EB601.1(2)-18

EB601.1(3)-18

VEBC: 602.3, 602.3.1, 602.3.2, 602.3.3, 603.7

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

602.3 Building elements and materials. *Building* elements and materials shall comply with the applicable provisions of Sections 302 and 602.3.1 through ~~602.3.5~~ 602.3.3.

602.3.1 Interior ~~finishes~~, finishes and trim. All newly installed interior finish and trim materials, and wall, floor and ceiling finishes shall comply with Chapter 8 of the VCC.

~~602.3.2 Interior floor finish.~~

~~New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the VCC.~~

~~602.3.3 Interior trim.~~ All newly installed interior trim materials shall comply with ~~Section 806 of the VCC.~~

~~602.3.4~~ 602.3.2 Materials and methods. All new ~~work~~ building elements and materials shall comply with the materials and methods requirements in the VCC, International Energy Conservation Code, International Mechanical Code, and International Plumbing Code, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the *building*.

~~602.3.5~~ 602.3.3 International Fuel Gas Code. The following sections of the International Fuel Gas Code shall constitute the fuel gas materials and methods requirements for Level 1 *alterations*.

1. All of Chapter 3, entitled "General Regulations," except Sections 303.7 and 306.
2. All of Chapter 4, entitled "Gas Piping Installations," except Sections 401.8 and 402.3.2.1. Sections 401.8 and 402.3 shall apply when the work being performed increases the load on the system such that the existing pipe does not meet the size required by code. Existing systems that are modified shall not require resizing as long as the load on the system is not increased and the system length is not increased even if the altered system does not meet code minimums.
3. All of Chapter 5, entitled "Chimneys and Vents."
4. All of Chapter 6, entitled "Specific Appliances."

603.7 Structural. Structural elements and systems within *buildings* undergoing Level 2 *alterations* shall comply with Sections 603.7.1 through ~~603.7.5~~ 603.7.6.

Reason Statement:

Hopefully cleans up and/or improves the following sections, without technical changes.

602.3: With the deleted sections, the section number needed to be renumbered.

602.3.1: Consolidated interior finishes and trim into one section.

602.3.2: Utilizes the same terms that are used for all of Section 602.3 since the "work" might involve things other than "building elements and materials" and the "materials and methods" apply only to the elements and materials and not necessarily to the "work" which encompasses everything.

602.3.3: With the deleted sections, this needed to be renumbered.

603.7: Corrected a wrong reference.

Cost Impact Statement:

Will not increase or decrease cost of construction. No technical changes.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB601.1(3)-18

This proposal doesn't have any public comments.

Proposal # 54

EB601.1(3)-18

EB601.2.1-18

VEBC: 601.2.1, 601.2.2

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Existing Building Code

601.2.1 Level 1. Level 1 *alterations* include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same ~~purpose. Level purpose;~~ or the removal without replacement of materials, elements, equipment or fixtures. Level 1 *alterations* shall comply with the applicable provisions of Section 602.

601.2.2 Level 2. Level 2 *alterations* include the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment, materials, elements, or fixtures; and shall apply where the *work area* is less than or equal to 50 percent of the *building area*. Level 2 *alterations* shall comply with the applicable provisions of Sections 602 and 603.

Reason Statement: The levels of alteration do not address removal of elements without replacement or installation of new elements other than equipment. Removal of materials, elements or fixtures has been added to level 1 and installation of new materials, elements or fixtures has been added to level 2.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This change corrects a hole in the code. The proposal reflects the way it is being taught in the DHCD course; therefore, it should not be a change in code application.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency. This change corrects a hole in the code. The proposal reflects the way it is being taught in the DHCD course; therefore, it should not be a change in code application.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition. VBCOA existing building code committee supports.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB601.2.1-18

This proposal doesn't have any public comments.

Proposal # 156

EB601.2.1-18

EB603.4.3-18

VEBC: 906.9

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

906.9 Finishes. ~~Interior finishes and trim.~~ Where interior finish and trim materials are required to have a flame spread index of Class C or better, ~~when tested in accordance with ASTM E84 or UL 723, comply with Table 803.13 of the VCC,~~ existing nonconforming materials shall be permitted to be surfaced with an approved fire-retardant ~~paint or finish.~~ coating to achieve the required fire rating.

Exception: Existing nonconforming materials need not be surfaced with an approved fire-retardant ~~paint or finish coating~~ where the *building* is equipped throughout with an automatic sprinkler system installed in accordance with the VCC and the nonconforming materials can be substantiated as being historic in character.

Reason Statement: This proposal is similar to EB112-19 submitted at ICC for the 2021 IEBC. It has not been approved; however, it seems like good code change worth considering for the 2018 VEBC now.

Rather than have a vague reference to "interior finish requirements" why not provide clarity by referencing the actual "Table" in the VCC that addresses the "requirements?"

EB112-19 reason statement below (VEBC 906.9):

This code proposal makes two changes:

1. Neither the IBC nor the IFC allow all interior finish materials to be tested to ASTM E84 or UL 723. In fact, although all materials are allowed to be classified by NFPA 286 (a room corner test), some materials are not allowed to be classified by using ASTM E84 or UL 723. Any material that meets the requirements of the IBC code (or IFC code) based on testing to NFPA 286 is considered to comply with a Class A, Class B or Class C requirement, in accordance with ASTM E84 or UL 723. The requirements are contained in Section 803.1 of the IBC (with 803.1.1 dealing with NFPA 286, 803.1.2 dealing with ASTM E84 or UL 723 and 803.1.3 dealing with materials with special requirements). Therefore it is possible that interior finish materials have been shown to meet NFPA 286 requirements and they are (in accordance with the IBC) acceptable as materials with a "Class C or better" in accordance with ASTM E84 or UL 723 and don't need retesting (or may not even be allowed by the IBC to be tested to ASTM E84 or UL 723). The use of a reference exclusively to a Class C, without a reference to the IBC or IFC, prevents the use of materials tested to (or needing testing to) NFPA 286.

2. The typical nomenclature used in the IBC and IFC is fire-retardant coating (not "paint or finish").

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No objection.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB603.4.3-18

This proposal doesn't have any public comments.

Proposal # 158

EB603.4.3-18

EB603.4.5--18

VEBC: 603.4.5

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

603.4.5 Fire-resistance ratings. ~~Where approved by the code official, buildings~~ Buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the VCC has been added, and the *building* is now sprinklered throughout, the required fire-resistance ratings of *building* elements and materials shall be permitted to meet the requirements of the current building code.

Reason Statement: When we purged provisions that read "where approved by the _____ official" from the 2012 VRC to create the 2015 VEBC, we missed this one. In Virginia, because of our "Uniform Statewide" building code, everyone is allowed to utilize all exceptions and exemptions unless specifically granted such authority to the LAHJ by Chapter 1 of the VCC/VEBC or by state amendment.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
Administrative and editorial change.

Resiliency Impact Statement:
Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB603.4.5--18

This proposal doesn't have any public comments.

Proposal # 36

EB603.4.5--18

EB802.2-18

VEBC: 802.2

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

802.2 Area limitations. No addition shall increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the VCC for new *buildings* unless fire separation as required by the VCC is provided.

~~Exception:~~**Exceptions:** The following shall be permitted beyond that permitted by the VCC.

1. In-filling of floor openings

~~and nonoccupiable appendages~~
such as elevator and exit stairway

~~shafts shall be permitted beyond that permitted by the VCC.~~
shafts.

2.

The addition
of
nonoccupiable
spaces such
as elevators,
stairs, and
vestibules.

Reason Statement: A quick read of the existing language could be interpreted a couple of ways: (1) Only infilling or existing openings are allowed (such as for stairways and elevator shafts); or (2) You can infill such shafts and add a stairway, elevator, or any other nonoccupiable "appendage" to the existing building without contributing to the allowable SF per the VCC.

The latter interpretation appears to be supported by the existing term "appendages" (meaning "a thing that is added or attached to something larger") and the ICC Commentary when it says, "*Additionally, areas of the building not normally occupied, such as exit stairs and elevator shafts, would not need to be counted into the building area. The logic being that those spaces do not contribute to the fire hazard in the building and some credit can be given for such spaces.*"

Another example of a nonoccupiable space was listed - vestibules - since those types of spaces are most often added to existing buildings (think public schools addressing safety concerns of people entering through a vestibule and office before getting into the school itself; and adding such vestibules to address energy conservation requirements).

By splitting the examples into two separate exceptions should help in discerning that they are two completely and different approaches.

Cost Impact Statement:

Will decrease cost of construction. If such exceptions were not allowed for stair, elevator, or vestibule "appendages" to exceed the allowable, then the only other ways to "add" them would be to sprinkle the entire building, separate them with a fire wall(s), or increase the construction type of the existing building - all very costly options.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB802.2-18

This proposal doesn't have any public comments.

Proposal # 93

EB802.2-18

EB904-18

VEBC: SECTION 904, 904.1, 904.3, 904.4, 904.5, 904.7, 904.8, 904.2, 904.10, 904.10.1, 904.10.2, 904.12, SECTION 905, 905.1, 905.2 (New), SECTION 906, 906.1, 906.2, 906.3, 906.4, 906.5, 906.5 (New), 906.6, 906.7, 906.8, 906.9, 906.10, 906.11, 906.12, 906.14

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

Delete without substitution:

SECTION 904 FIRE SAFETY

904.1 Scope.

~~Except as provided in Section 901, historic buildings undergoing alterations, changes of occupancy, or that are moved shall comply with this section.~~

904.2 General.

~~Every historic building that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the code official. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any facility.~~

904.3 Means of egress.

~~Existing door openings and corridor and stairway widths less than those specified elsewhere in this code shall be permitted, provided there is sufficient width and height for a person to pass through the opening or traverse the means of egress. The front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.~~

904.4 Transoms.

~~In fully sprinklered buildings of Group R-1, R-2 or R-3 occupancy, existing transoms in corridors and other fire-resistance-rated walls may be maintained if fixed in the closed position. A sprinkler shall be installed on each side of the transom.~~

904.5 Interior finishes.

~~The existing finishes of walls and ceilings shall be accepted when it is demonstrated that they are the historic finishes.~~

904.6 Stairway enclosure.

~~In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire resistance rating.~~

904.7 One-hour fire-resistant assemblies.

~~Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.~~

904.8 Glazing in fire-resistance-rated systems.

~~Historic glazing materials are permitted in interior walls required to have a 1-hour fire-resistance rating where the opening is provided with approved smoke seals and the area affected is provided with an automatic sprinkler system.~~

904.9 Stairway railings.

~~Grand stairways shall be accepted without complying with the handrail and guard requirements. Existing handrails and guards at all stairways shall be permitted to remain, provided they are not structurally dangerous.~~

904.10 Guards.

~~Guards shall comply with Sections 904.10.1 and 904.10.2.~~

904.10.1 Height.

~~Existing guards shall comply with the requirements of Section 501.2.~~

904.10.2 Guard openings.

~~The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a guard may be replaced in a manner that will preserve the historic appearance of the building or structure.~~

904.11 Exit signs.

~~Where exit sign or egress path marking location would damage the historic character of the building, alternative exit signs are permitted with approval of the code official. Alternative signs shall identify the exits and egress path.~~

904.12 Automatic fire-extinguishing systems.

~~Every historical building that cannot be made to conform to the construction requirements specified in the VCC for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an approved automatic fire-extinguishing system.~~

~~**Exception:** When the code official approves an alternative life safety system.~~

SECTION 905 ALTERATIONS

905.1 General. The provisions of Chapter 6, as applicable, shall apply to facilities designated as historic structures that undergo alterations, unless technically infeasible.

Revise as follows:

905.2 Exit signs and egress path markings. Where new exit signs or egress path markings would damage the historic character of the building or structure, alternative exit signs and egress path markings are permitted with approval of the code official. Alternative signs and egress path markings shall identify the exits and egress path.

SECTION 906 CHANGE OF OCCUPANCY

906.1 General. Historic buildings undergoing a change of occupancy shall comply with the applicable provisions of Chapter 7, except as specifically permitted in this chapter. When Chapter 7 requires compliance with specific requirements of Chapter 6 and when those requirements are subject to the exceptions elsewhere in Section 903 this code, the same exceptions shall apply to this section.

906.2 Building area. The When a change of occupancy classification is made to a higher hazard category as indicated in Table 706.2, the allowable floor area for historic buildings undergoing a change of occupancy shall be permitted to exceed by 20 percent the allowable areas specified in Chapter 5 of the VCC.

906.3 Location on property. Historic structures undergoing a change of use to a higher hazard category in accordance with Section 707.1 may use alternative methods to comply with the fire-resistance and exterior opening protective requirements. Such alternatives shall comply with Section 901.2.

906.4 Occupancy separation. Required occupancy separations of 1 hour may be omitted when the building is provided with an approved automatic sprinkler system throughout.

Delete without substitution:

906.5 Roof covering.

~~Regardless of occupancy or use group, Roof covering materials not less than Class C, when tested in accordance with ASTM E108 or UL 790, shall be permitted where a fire retardant roof covering is required.~~

Revise as follows:

906.5 Automatic fire-extinguishing systems. Every historical building or portion thereof, that cannot be made to conform to the construction requirements specified in Chapter 7 or this chapter for the occupancy or use and such change constitutes a fire hazard, shall be deemed to be in compliance if those spaces undergoing a change of occupancy are provided with an approved automatic fire-extinguishing system.

Exception : When the building official approves an alternative life-safety system.

906.6 Means of egress. Existing door openings and corridor and stairway widths less than those ~~that would be acceptable for nonhistoric buildings under these provisions~~ required elsewhere in this code shall be permitted, provided there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load, or where other operational controls to limit occupancy are approved by the code official.

906.7 Door swing. Existing front doors need not swing in the direction of exit travel, provided that other approved exits having sufficient capacity to serve the total occupant load are provided.

906.8 Transoms. In corridor walls required by ~~these provisions~~ Chapter 7 to be fire-resistance rated, existing transoms may be maintained if fixed in the closed position, and fixed wired glass set in a steel frame or other approved glazing shall be installed on one side of the transom.

Exception: ~~Transoms conforming to Section 904.4 shall be accepted.~~

906.9 Finishes. Interior finishes and trim materials.

~~Where interior finish materials are required to have a flame spread index of Class C or better, when tested in accordance with ASTM E84 or UL 723, existing nonconforming materials shall be surfaced with approved fire-retardant paint or finish.~~

Exception: Existing

When a change of occupancy classification is made to a higher hazard category as indicated in Table 705.2, existing nonconforming interior finish and trim materials shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required fire rating.

Exception: ~~Such nonconforming materials need not be surfaced~~ treated ~~with an approved fire-retardant paint or finish coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the VCC and the nonconforming materials can be substantiated as being historic in character.~~

906.10 One-hour fire-resistant assemblies. ~~Where 1-hour fire-resistance-rated construction is required by these provisions~~ this code, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.

906.11 Stairways, railings and guards. Existing stairways, railings and guards shall comply with the requirements of ~~these provisions. Section 705.~~ The code official shall ~~grant alternatives for stairways~~ approve alternative stairways, railings and guards if ~~alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. Existing stairways shall comply with Section 904.~~ Section 705.

Exception: For buildings less than 3,000 square feet (279 m²), existing conditions are permitted to remain at all stairways, railings and guards.

Delete without substitution:

906.12 Exit signs.

~~Where exit signs would damage the historic character of the building or structure, alternative locations shall be permitted. Such signs shall identify the exits and exit path.~~

906.13 906.12 Exit stair live load. ~~Existing stairways in buildings changed to a Group R-1 or R-2 occupancy~~ When a change of occupancy classification is made to a higher hazard category as indicated in Table 706.2, existing stairways shall be permitted to remain where it can be shown that the stairway can support a 75- pounds-per-square-foot (366 kg/m²) live load.

Delete without substitution:

906.14 Natural light.

~~When the natural light requirements of Section 709.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered acceptable.~~

Reason Statement:

Sections 904 and 906 had a number of duplicative language - or language that was similar. This proposal attempts to do some clean-up or provide further context to justify its requirements. The sections also included what were essentially "retrofit" requirements. In some instances, the requirements of Chapter 9 were MORE stringent than those of Chapter 7 - and since Chapter 9 is for HISTORIC BUILDINGS, such provisions should be somewhat less stringent because of the historic nature and the difficulties they oftentimes present to meet "current code."

This chapter should ENCOURAGE the rehabilitation of historic buildings, not place "new construction" and/or "retrofit" requirements throughout.

If we take our lead from the old "Prescriptive Compliance Method," that method had only two provisions: (1) What we currently have under 901.1, and (2) flood hazard areas. That was it! This proposal attempts to get closer to that approach to historic buildings.

Section 904:

904.1: Not necessary, since we end up deleting or relocating all of the provisions in Section 904.

904.2: Since alterations no longer trigger the need for a sprinkler system (per a previous proposal - "The Virginia Way"), this can be deleted. A change of occupancy can still trigger such a requirement and the "new" 906.5 takes care of that.

904.3 / 904.4 / 904.5 / 904.8: Already addressed in Section 906 and would otherwise be considered a retrofit requirement because it requires something even if you do not touch it - which is also contrary to "The Virginia Way."

904.6: This requires retrofit requirements even if not touching the exit enclosure. If a "new" exit enclosure is being provided, it would be addressed in Chapter 6 - Alterations (per 905.1).

904.7: It implies that if the construction is NOT wood or metal lath and plaster, that a rating WOULD be required. Again, if new construction, Chapter 6 would apply. If existing construction, then if you don't touch it, you shouldn't have to do anything to it anyway - as long as you maintain the level of fire protection that existed prior to the work.

904.9 / 904.10 / 904.10.1 / 904.10.2: Already addressed in Section 705.3, Exception 8 (old number) or 705.4. Thus it can be deleted here.

904.11: Relocated to Section 905 since this is an alteration.

904.12: Relocated to Section 906 - Change of occupancy - since an alteration would not require such systems - only a COO.

Section 905:

905.2: Reworded (from the old 904.11) to clarify the provision is addressing "new" construction, because if it were addressing "existing" signs and markings, they clearly would not be "damaging" the historic nature - if it did, they wouldn't be in there to start with.

Section 906:

906.1: Section 903 has no exceptions and involves repairs. I believe this is/was just an erroneous reference from days past and can be deleted without affecting the rest of the provision.

906.2: Even Section 706.4 allows the building area to be deemed acceptable where changes are to an equal or lesser hazard - so shouldn't a historic building be allowed to benefit as well?

906.5 (existing number): All roofing (or reroofing) is addressed in Chapter 3, so it is being proposed to be deleted.

906.5 (new number): Language was deleted under 904.12 and similar language was relocated here.

906.6: What provisions? Of 906.6? Of 906? Of Chapter 9? So, this proposes to substitute "this code" which is a bit more direct.

906.8: Since 904.4 was deleted, there would be no need for the exception anymore.

906.9: Added "trim" and "materials" to the mix to be consistent with the terms used in VCC Chapter 8. One should only be required to "coat" if changing to a higher hazard. Otherwise, Section 703.1 would apply.

906.10: What "provisions?" In Section 906? There are none. In Chapter 9? There are none. So, this is proposed to change it to read "this code."

906.11: What "provisions?" In Section 906? There are none for the stairways. So, this is proposed to change it to read "Section 705" which includes all of the requirements for stairways in a COO. The rest of the existing language remains to serve as a somewhat "exception" to the provisions of Section 705.

906.12: This is duplicated language from 904.11 and should be deleted.

906.13: We deleted the requirements for natural lighting in the 2015 VEBC, so this should have been deleted along with it. Also, what is it really requiring? Unless new windows are being added, why wouldn't the "existing level of natural lighting" always be acceptable?

Cost Impact Statement:

By deleting the "retrofit" requirements and requiring some provisions ONLY when changing to a higher hazard category, this proposal will **DECREASE** the construction costs for all work done in an historic building or structure.

Resiliency Impact Statement:

Will not increase or decrease resiliency

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for EB904-18

This proposal doesn't have any public comments.

Proposal # 180

EB904-18

EB904.10.1-18

VEBC: 904.10.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

904.10.1 Height. Existing guards shall comply with the requirements of Section 501.2 heights shall be deemed acceptable.

Reason Statement: In historic structures, unless the guard(s) itself is being altered, the existing guard(s) should be deemed acceptable. This approach is consistent with allowing other existing elements to remain as is and still be deemed acceptable: 904.3, 904.5, 904.9, and 904.10.2. As currently written, it may be interpreted that one can leave the guards "as is" as long as it involves a *repair*. How would this be interpreted if *alterations* were involved? Since there was no reference to 602.2, we must have meant to remove the existing guards and provide new guards that fully comply with the VCC. I do not believe this is the intent - especially given all of the other components that are allowed to remain - including means of egress, stairway railings, and guard openings.

Cost Impact Statement: The code change proposal will decrease the cost of construction. As currently written, it may be interpreted that one must replace the existing guards unless they are undergoing a repair. This proposal just classifies them as acceptable. Therefore, this proposal would save costs that otherwise would be required if the guards had to be replaced.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB904.10.1-18

This proposal doesn't have any public comments.

Proposal # 37

EB904.10.1-18

EB1401.6.1--18

VEBC: 1401.6.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

1401.6.1 Building height and number of stories. The value for *building* height and number of stories shall be the lesser value determined by the formula in Section 1401.6.1.1. Section 504 of the ~~International Building Code~~ VCC shall be used to determine the allowable height and number of stories of the *building*. Subtract the actual *building* height from the allowable height and divide by $12\frac{1}{2}$ feet (3810 mm). Enter the height value and its sign (positive or negative) in Table 1401.7 under Safety Parameter 1401.6.1, Building Height, for fire safety, means of egress, and general safety. The maximum score for a *building* shall be 10.

Reason Statement: When we do a state amendment, we consistently try to change references to the "iCodes" to the "Virginia" codes; otherwise, it may be interpreted that we meant to send them to the IBC and not the VCC (that might include state amendments). This proposal simply tries to maintain that consistency.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
An editorial change.

Resiliency Impact Statement:
Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB1401.6.1--18

This proposal doesn't have any public comments.

Proposal # 38

EB1401.6.1--18

EB1401.6.3-18

VEBC: 1401.6.3, TABLE 1401.6.3

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2015 Virginia Existing Building Code

1401.6.3 Compartmentation. Evaluate the compartments created by fire barriers or horizontal assemblies which comply with Sections 1401.6.3.1 and 1401.6.3.2 and which are exclusive of the wall elements considered under Sections 1401.6.4 and 1401.6.5. Conforming compartments shall be figured as the net area and do not include shafts, chases, stairways, walls, or columns. Using Table 1401.6.3, determine the appropriate compartmentation value (CV) and enter that value into Table 1401.7 under Safety Parameter 1401.6.3, Compartmentation, for fire safety, means of egress, and general ~~safety~~. For compartment sizes that fall between categories, the determination of the CV shall be permitted to be obtained by linear interpolation.

**TABLE 1401.6.3
COMPARTMENTATION VALUES**

OCCUPANCY	CATEGORIES				
	a Compartment size equal to or greater than 15,000 square feet	b Compartment size of 10,000 square feet	cCompartment size of 7,500 square feet	dCompartment size of 5,000 square feet	eCompartment size of 2,500 square feet or less
A-1, A-3	0	6	10	14	18
A-2	0	4	10	14	18
A-4, B, E, S-2	0	5	10	15	20
F, M, R, S-1	0	4	10	16	22

For SI: 1 square foot = 0.0929 m².

Reason Statement: This proposal is similar to EB121-19 submitted at ICC for the 2021 IEBC. It has not been approved; however, it seemed like a good code change worth including in the 2018 VEBC now.

Rather than use a footnote approach per EB121, this proposal just added the text to the end of the charging paragraph 1401.6.3. Of those building officials I have spoken with where this issue came up, they allowed interpolation.

EB121-19 reason statement below: edited to comport with this proposal.

This table when placed in the IEBC never carried over the footnote a that was found in the same table in the IBC Chapter 34. This question arises and this appears within the intent to allow interpolation.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. Since 2017 the BCAC has held 6 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: <https://www.iccsafe.org/codes-tech-support/codes/codedevelopment-process/building-code-actioncommittee-bcac>.

Cost Impact Statement:

Will not increase or decrease cost of construction.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB1401.6.3-18

This proposal doesn't have any public comments.

Proposal # 161

EB1401.6.3-18

EB3303.1-18

IBC®: SECTION 3303, 3303.1, 3303.2, 3303.3, 3303.4, 3303.5, 3303.6, 3303.7; VEBC: SECTION 1210 (New), 1210.1 (New), 1210.2 (New), 1210.3 (New), 1210.4 (New), 1210.5 (New), 1210.6 (New), 1210.7 (New)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

2018 International Building Code

Delete without substitution:

SECTION 3303 DEMOLITION

3303.1 Construction documents.

~~Construction documents and a schedule for demolition shall be submitted where required by the building official. Where such information is required, work shall not be done until such construction documents or schedule, or both, are approved.~~

3303.2 Pedestrian protection.

~~The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by this chapter.~~

3303.3 Means of egress.

~~A horizontal exit shall not be destroyed unless and until a substitute means of egress has been provided and approved.~~

3303.4 Vacant lot.

~~Where a structure has been demolished or removed, the vacant lot shall be filled and maintained to the existing grade or in accordance with the ordinances of the jurisdiction having authority.~~

3303.5 Water accumulation.

~~Provision shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.~~

3303.6 Utility connections.

~~Service utility connections shall be discontinued and capped in accordance with the approved rules and the requirements of the applicable governing authority.~~

3303.7 Fire safety during demolition.

~~Fire safety during demolition shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the International Fire Code.~~

2015 Virginia Existing Building Code

Add new text as follows:

SECTION 1210 DEMOLITION

1210.1 Construction documents.

Construction documents and a schedule for demolition shall be submitted where required by the building official. Where such information is required, no work shall be done until such construction documents or schedule, or both, are approved.

1210.2 Pedestrian protection.

The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by Chapter 33 of the VCC.

1210.3 Means of egress.

A horizontal exit shall not be destroyed unless and until a substitute means of egress has been provided and approved.

1210.4 Vacant lot.

Where a structure has been demolished or removed, the vacant lot shall be filled and maintained to the existing grade or in accordance with the ordinances of the jurisdiction having authority.

1210.5 Water accumulation.

Provision shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

1210.6 Utility connections.

Service utility connections shall be discontinued and capped in accordance with the approved rules and the requirements of the applicable governing authority.

1210.7 Fire safety during demolition.

Fire safety during demolition shall comply with the applicable requirements of the VCC and the applicable provisions of Chapter 33 of the International Fire Code.

Reason Statement: Existing building requirements belong in the VEBC, not the VCC (per VCC 103.1.1. So, the entire section is proposed to be deleted w/o substitution in the VCC and relocated to VEBC Chapter 12.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction Just moving requirements from one code to another.

Resiliency Impact Statement:

Will not increase or decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Consensus for Approval with Amendment
Amendments:

- Delete VCC section 3303.1 entirely
- VEBC 1210.1-1210.7 (new sections): approved without amendment.

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB3303.1-18

This proposal doesn't have any public comments.

Proposal # 34

EB3303.1-18

PM103.2.3-18

VMNC: 103.2.3

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

2015 Virginia Maintenance Code

103.2.3 Responsibility. *The owner of a structure shall provide and maintain all buildings, structures, systems, facilities and associated equipment in compliance with this code unless it is specifically expressed or implied that it is the responsibility of the tenant or occupant.*

Note: Where an owner states that a tenant is responsible for performing any of the owner's duties under this code, the code official may request information needed to verify the owner's statement, as allowed by Section 55-1-1209A.5 of the Code of Virginia.

Reason Statement: *The Virginia Residential Landlord and Tenant Act (VRLTA) requires that a rental housing provider "maintain fit premises." However, it also specifically provides that "a landlord and tenant may agree in writing that the tenant perform" certain of the landlord's specified duties (see excerpts below from Section 55.1-1220). Thus, a tenant, rather than a property owner, may be the responsible party to whom a code official should issue a notice of correction or notice of violation, depending on the maintenance duty in question.*

Some code officials, though, are unaware that the General Assembly has authorized such limited transfers of maintenance responsibilities, while others do not always recognize the right of parties to a lease to make such an agreement, and will cite only the owner or managing agent. In either case, the General Assembly's intent is defeated.

Code officials may understandably have uncertainty about whether and how they might verify the statement of a rental housing provider that a tenant has made a written agreement to assume certain of the owner's maintenance duties. However, the General Assembly has specifically authorized public officials to request and receive information from the rental housing provider that is necessary for the official to perform his or her duties (see excerpts below from VRLTA Section 55.1-1209).

This code change proposal will 1) inform code officials that a tenant, rather than a property owner, may be the party responsible for certain maintenance duties and, thus, may be the appropriate person to whom to issue a notice of correction or notice of violation; and 2) inform code officials (and their legal counsel) that they need not simply accept the statement by a rental housing provider, but can request information necessary to verify the assertion and perform his or her duties.

Virginia Residential Landlord and Tenant Act (Effective October 1, 2019)

§ 55.1-1220. **Landlord to maintain fit premises.**

A. The landlord shall:[...]

3. Keep all common areas shared by two or more dwelling units of a multifamily premises in a clean and structurally safe condition:[...]

6. Provide and maintain appropriate receptacles and conveniences for the collection, storage, and removal of ashes, garbage, rubbish, and other waste incidental to the occupancy of dwelling units and arrange for the removal of same:[...]

7. Supply running water and reasonable amounts of hot water at all times and reasonable air conditioning if provided and heat in season except where the dwelling unit is so constructed that heat, air conditioning, or hot water is generated by an installation within the exclusive control of the tenant or supplied by a direct public utility connection;[...]

D. The landlord and tenant may agree in writing that the tenant perform the landlord's duties specified in subdivisions A 3, 6, and 7 and also specified repairs, maintenance tasks, alterations, and remodeling, but only if the transaction is entered into in good faith and not for the purpose of evading the obligations of the landlord and if the agreement does not diminish or affect the obligation of the landlord to other tenants in the premises.

§ 55.1-1209. **Confidentiality of tenant records.**

A. No landlord or managing agent shall release information about a tenant or prospective tenant in the possession of the landlord or managing agent to a third party unless:[...]

5. The information is requested by a local, state, or federal law-enforcement or public safety official in the performance of his duties;

Cost Impact Statement:

This code change proposal will have no effect either way on the cost of construction.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Consensus as amended during meeting.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM103.2.3-18

This proposal doesn't have any public comments.

Proposal # 258

PM103.2.3-18

PM104.5.3.2-18

VMNC: 104.5.3.2

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

2015 Virginia Maintenance Code

104.5.3.2 Approved inspection agencies and individuals. The code official may accept reports of inspections or tests from individuals or inspection agencies approved in accordance with the code official's written policy required by Section 104.5.3.3. The individual or inspection agency shall meet the qualifications and reliability requirements established by the written policy. Reports of inspections by approved individuals or agencies shall be in writing, shall indicate if compliance with the applicable provisions of this code have been met, and shall be certified by the individual inspector or by the responsible officer when the report is from an agency. Reports of inspections conducted for the purpose of verifying compliance with the requirements of the USBC for elevators, escalators and related conveyances shall include the name and certification number of the elevator mechanic performing the tests witnessed by the third-party inspector or agency. The code official shall review and approve the report unless there is cause to reject it. Failure to approve a report shall be in writing within 5 working days of receiving it, stating the reasons for rejection.

Reason Statement: This proposal is to correlate the requirements in proposal A113.7(2)-18 that added the same language to VCC Section 113.7. Proposal A113.7(2)-18 was recommended as consensus for approval at the July 24, 2019 Workgroup 1 & 2 meeting.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This proposal is only correlating the requirements that are recommended to be added to the VCC, in the VMC.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency. This proposal is administrative in nature and will not impact resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM104.5.3.2-18

This proposal doesn't have any public comments.

Proposal # 271

PM104.5.3.2-18

PM105.2-18

VMNC: 105.2

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

2015 Virginia Maintenance Code

105.2 Notices, reports and orders. Upon findings by the code official that violations of this code exist, the code official shall issue a correction notice or notice of violation to the owner, tenant or the person responsible for the maintenance of the structure. Work done to correct violations of this code subject to the permit, inspection and approval provisions of the VCC shall not be construed as authorization to extend the time limits established for compliance with this code.

Reason Statement: The Virginia Residential Landlord and Tenant Act (VRLTA) requires that a rental housing provider "maintain fit premises." However, it also specifically provides that "a landlord and tenant may agree in writing that the tenant perform" certain of the landlord's specified duties (see excerpts below from Section 55.1-1220). Thus, a tenant, rather than a property owner, may be the responsible party to whom a code official should issue a notice of correction or notice of violation, depending on the maintenance duty in question.

Some code officials, though, are unaware that the General Assembly has authorized such limited transfers of maintenance responsibilities, while others do not always recognize the right of parties to a lease to make such an agreement, and will cite only the owner or managing agent. In either case, the General Assembly's intent is defeated.

This code change proposal provides clarity to code officials, tenants and owners by including specific reference to tenants as possible recipients of a correction notice or notice of violation.

Cost Impact Statement:

This code change proposal will have no effect whatsoever on the cost of construction.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover

- ☐ *Disapproved*
- ☐ *None*

Public Comments for PM105.2-18

This proposal doesn't have any public comments.

Proposal # 259

PM105.2-18

PM105.4-18

VMNC: 105.4

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

2015 Virginia Maintenance Code

105.4 Notice of violation. If the code official determines there are violations of this code a written notice of violation may be issued to the owner, tenant or the person responsible for the maintenance or use of the building or structure in lieu of a correction notice as provided for in Section 105.3. In addition, the code official shall issue a notice of violation for any uncorrected violation remaining from a correction notice established in Section 105.3. The code official shall provide the ~~section numbers to the owner for any~~ section numbers for any code provisions cited in the notice of ~~violation.~~ violation to the owner, tenant or the person responsible for the maintenance or use of the building or structure. The notice shall require correction of the violation or violations within a reasonable time. The owner, tenant or person to whom the notice of violation has been issued shall be responsible for contacting the code official within the time frame established for any re-inspections to assure the violations have been corrected. The code official will be responsible for making such inspection and verifying the violations have been corrected. In addition, the notice of violation shall indicate the right of appeal by referencing the appeals section of this code.

Exceptions:

1. Notices issued, and legal proceedings or emergency actions taken, under Section 106 for unsafe structures, unsafe equipment or structures unfit for human occupancy.
2. Notices issued for failing to maintain buildings and structures as required by Section 103.2, as evidenced by multiple or repeated violations on the same property, are not required to include a compliance deadline for correcting defects.

Reason Statement: The Virginia Residential Landlord and Tenant Act (VRLTA) requires that a rental housing provider "maintain fit premises." However, it also specifically provides that "a landlord and tenant may agree in writing that the tenant perform" certain of the landlord's specified duties (see excerpts below from Section 55.1-1220). Thus, a tenant, rather than a property owner, may be the responsible party to whom a code official should issue a notice of correction or notice of violation, depending on the maintenance duty in question.

Some code officials, though, are unaware that the General Assembly has authorized such limited transfers of maintenance responsibilities, while others do not always recognize the right of parties to a lease to make such an agreement, and will cite only the owner or managing agent. In either case, the General Assembly's intent is defeated.

This code change proposal provides clarity to code officials, tenants and owners by including specific reference to tenants as possible recipients of a correction notice or notice of violation, and also makes a technical insertion, for consistency, of language appearing earlier in the section.

Cost Impact Statement:

This code change proposal will have no effect whatsoever on the cost of construction.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for PM105.4-18

This proposal doesn't have any public comments.

Proposal # 260

PM105.4-18

PM106.3-18

VMNC: 106.3, 106.3.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Maintenance Code

Delete without substitution:

~~106.3 Unsafe conditions not related to maintenance.~~

~~When the code official finds a condition that constitutes a serious and dangerous hazard to life or health in a structure constructed prior to the initial edition of the USBC and when that condition is of a cause other than improper maintenance or failure to comply with state or local building codes that were in effect when the structure was constructed, then the code official shall be permitted to order those minimum changes to the design or construction of the structure to remedy the condition.~~

~~106.3.1 Limitation to requirements for retrofitting.~~

~~In accordance with Section 103.2, this code does not generally provide for requiring the retrofitting of any structure. However, conditions may exist in structures constructed prior to the initial edition of the USBC because of faulty design or equipment that constitute a danger to life or health or a serious hazard. Any changes to the design or construction required by the code official under this section shall be only to remedy the serious hazard or danger to life or health and such changes shall not be required to fully comply with the requirements of the VCC applicable to newly constructed buildings or structures.~~

Reason Statement: These provisions grant authority to the code official to require any level of retrofit to a building that they deem to be dangerous. There is no statute addressing this concept in title 36. The retrofit provisions in chapter 11 of the VEBC are very specific and set out by the legislature. These VMC provisions are not maintenance provisions, they are code official determined retrofit provisions. The fact that 106.3 states "cause other than improper maintenance" as the bases of the code provision should alone be justification to delete this provision from the "Maintenance" code.

Cost Impact Statement: The code change proposal will decrease the cost of construction
This will save money. An example is if a 2 story hotel built in 1969 legally without a sprinkler system is determined to be dangerous because it is not sprinklered and the code official has authority to require retrofit of a sprinkler system in the building.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This has nothing to do with resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: AIA Virginia supports.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM106.3-18

This proposal doesn't have any public comments.

Proposal # 225

PM106.3-18

PM302.5-18

VMNC: 302.5, 309.1,

Proponents: Gregory Revels (Greg.Revels@henrico.us)

2015 Virginia Maintenance Code

302.5 Rodent harborage. ~~All structures and adjacent premises~~ structures shall be kept free from rodent harborage and ~~infestation where such harborage or infestation adversely affects the structures.~~ infestation. Structures in which rodents are found shall be promptly exterminated by approved processes that will not be injurious to human health. After extermination, proper precautions shall be taken to prevent reinfestation.

309.1 Infestation. ~~This section shall apply to the extent that insect and rodent infestation adversely affects a structure. All~~ All structures shall be kept free from insect and rodent infestation. Structures in which insects or rodents are found shall be promptly exterminated by approved processes that will not be injurious to human health. After extermination, proper precautions shall be taken to prevent reinfestation.

INFESTATION. ~~The presence, within or contiguous to, a structure or premises of~~ presence of insects, rodents, vermin or other ~~pests.~~ pests in sufficient number to adversely affect the structure or health, safety and welfare of the occupants.

Reason Statement: The proposed changes are recommended to bring the Virginia Maintenance Code in agreement with the Code of Virginia, Federal Housing standards and Virginia Department of Health regulations. Section 36-99(A) of the Code of Virginia specifically requires that the Virginia Uniform Statewide Building include provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation. Federal housing standards administered by the Department of Housing and Urban Development prohibit insect and rodent infestations in low- and moderate-income housing that is federally subsidized. The Virginia Department of Health further prohibits infestations in hotel and motel properties as a condition of issuing annual lodging permits. The proposed language extends protection from infestations to non-subsidized and short term rental properties on all other rental and long term housing occupancies. The last 2 sentences added at 302.5 are proposed to be consistent with 309.1.

Cost Impact Statement:

The proposal will neither increase nor decrease construction costs. Provisions already exist in the Virginia Construction Code and the Virginia Residential Code

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency

This proposal does not increase the potential for natural disasters or climate change.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Mr. Revels provided an overview of proposal.

Mr. Gordon has issues with specific language, “adjacent premises” because it might not adversely affect the property. He would like to review this further with proponent.

7/24/19- Mr. Pharr and proponent will continue to work on this, carry over to next meeting.

CAAM 8/21 meeting

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM302.5-18

This proposal doesn't have any public comments.

Proposal # 79

PM302.5-18

PM304.1-18

VMNC: 304.1

Proponents: Teresa Gerber, Chesterfield County (gerbert@chesterfield.gov); Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Maintenance Code

Revise as follows:

304.1 General. The exterior of a structure shall be *maintained* in good repair
~~, structurally sound, and sanitary so as not to pose a threat to the health, safety, or welfare. and structurally sound.~~

Reason Statement: This proposal deletes "health, safety, or welfare" as this is addressed in Section 102.1. It also deletes "sanitary" based on the commentaries of the IPMC, which use sanitary as a reference to rubbish and garbage on the exterior of a structure.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This will not increase or decrease the cost of construction.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM304.1-18

This proposal doesn't have any public comments.

Proposal # 103

PM304.1-18

PM304.18-18

VMNC: 304.18, 604.3.1.1, 604.3.2.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Maintenance Code

304.18 Building security. Devices designed to provide security for the occupants and property within, when required by the *applicable building code*, or when provided, shall be *maintained* unless their removal is approved by the building official ~~under the VCC.~~

604.3.1.1 Electrical equipment. Electrical distribution equipment, motor circuits, power equipment, transformers, wire, cable, flexible cords, wiring devices, ground fault circuit interrupters, surge protectors, molded case circuit breakers, low-voltage fuses, luminaires, ballasts, motors, and electronic control, signaling, and communication equipment that have been exposed to water shall be replaced in accordance with the provisions of the ~~VCC.~~ VEBC.

Exception: The following equipment shall be allowed to be repaired or reused where an inspection report from the equipment manufacturer, an approved representative of the equipment manufacturer, a third-party licensed or certified electrician, or an electrical engineer indicates that the exposed equipment has not sustained damage that requires replacement:

1. Enclosed switches, rated 600 volts or less;
2. Busway, rated 600 volts or less;
3. Panelboards, rated 600 volts or less;
4. Switchboards, rated 600 volts or less;
5. Fire pump controllers, rated 600 volts or less;
6. Manual and magnetic motor controllers;
7. Motor control centers;
8. Alternating current high-voltage circuit breakers;
9. Low-voltage power circuit breakers;
10. Protective relays, meters and current transformers;
11. Low- and medium-voltage switchgear;
12. Liquid-filled transformers;
13. Cast-resin transformers;
14. Wire or cable that is suitable for wet locations and whose ends have not been exposed to water;
15. Wire or cable, not containing fillers, that is suitable for wet locations and whose ends have not been exposed to water;
16. Luminaires that are listed as submersible;
17. Motors; or
18. Electronic control, signaling and communication equipment.

604.3.2.1 Electrical equipment. Electrical switches, receptacles and fixtures, including furnace, water heating, security system and power distribution circuits, that have been exposed to fire, shall be replaced in accordance with the provisions of the ~~Virginia Construction Code~~ VEBC.

Exception: Electrical switches, receptacles and fixtures that shall be allowed to be repaired or reused where an inspection report from the equipment manufacturer or an approved representative of the equipment manufacturer, a

third-party licensed or certified electrician, or an electrical engineer indicates that the equipment has not sustained damage that requires replacement.

Reason Statement: These are a few sections that reference the VCC, which should reference the VEBC with all work on existing buildings addressed in the VEBC. In 304.18 there is not need to reference a code.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This proposal has no impact on cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal is not related to resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: No objection.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM304.18-18

This proposal doesn't have any public comments.

Proposal # 200

PM304.18-18

PM702.1-18

VMNC: [F] 702.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Maintenance Code

[F] 702.1 General. ~~A. The means of egress system shall be maintained in accordance with the applicable building code and Chapter 10 of the SFPC to provide a safe, continuous and unobstructed path of travel shall be provided from any point in a building or structure to the public way. Means of egress shall comply with the International Fire Code.~~

Reason Statement: This section has a reference to the IFC that is vague and incorrect in Virginia, and reads like a new construction provision or retrofit provision. This proposal corrects the section so it is a maintenance provision.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
There is no cost impact for this proposal.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal is not related to resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 2 - Proposed Reason: Proponent to work with Mr. Miliken.
CA 8/21 meeting

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM702.1-18

This proposal doesn't have any public comments.

Proposal # 201

PM702.1-18

A109.1.1-18

VCC: 109.1.1 (New)

Proponents: Debra McMahon (debra.mcmahon@fairfaxcounty.gov)

2015 Virginia Construction Code

Add new text as follows:

109.1.1 Electronic Plan Submissions

The Building Official shall be permitted to accept electronic plan submissions in lieu of a paper or mail-in submissions as long as the required information is included in said construction documents.

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Reason Statement: Under Section 108.3, the Building Official (BO) may accept applications electronically provided the required information is obtained. This needs to go a step further and propose an addition to Section 109 (Construction Documents) to cover electronic plan submissions.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
None

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
Not Applicable

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Disapproval

Workgroup 1 - Proposed Reason: Opposition doesn't believe this is necessary. VBCOA opposes as well for the same reasons.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications

- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A109.1.1-18

This proposal doesn't have any public comments.

Proposal # 66

A109.1.1-18

B1010.1.9.3 (1)-18

VCC: 1010.1.9.3, 1010.1.9.2

Proponents: Natalia Larrimer

2015 Virginia Construction Code

1010.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Groups B, F, M and S, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
 - 2.1. The locking device is readily distinguishable as locked.
 - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
 - 2.3. The use of the key-operated locking device is revokable by the building official for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
6. In buildings in occupancy Groups E and I-4, child day care facilities are required to be equipped with devices to prevent accidental exit by children.

1010.1.9.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

Exception Exceptions:

1. Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

2. Doors in Groups E and I-4, child care facilities are required to have door handles, pulls, latches, locks and other operating devices installed at 54 inches (1370 mm) maximum above the finished floor or ground.

Reason Statement: In child care facilities the allowable ratio of staff to children in VA are 5 toddlers/adults, 8 2yo per adult and 10/3yo per adult. The ratios make it almost impossible for the teacher to act immediately if a child accidentally exists the facility. It is expected that the adult responsible will have all the children with him/her and keep them safe as s/he is trying to address the situation.

Many child care facilities are located in close proximity to parking lots, roads and other hazards that could result in serious harm to a child. Although, many facilities undertake these types of preventative measures such as push bars, alarms, fencing unfortunately not all do. This simple prevention could save a child's life and yet children attend facilities where these types of preventative measures are not in place daily, often the parents are unaware as it is taken for granted. Not to mention that in today's world no doors in a place full of children should be easily opened in or out.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction

Depending on how the builder choses to meet this requirement it does will not increase the cost of construction. For example, placing the door handle at a higher level on the door. Including devices such as alarms will not have a notable impact on the overall construction budget.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency

This will not have an impact on resiliency from enviromental stand point, however will provide a greater assurance to the public that their children are safe when in the facility. There seems to be a general assumption that this type of preventions are already mandatory.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Disapproval

Workgroup 2 - Proposed Reason:

Comments:

4/10/19: Ms. Larrimer was not in attendance. Ms. Davis and Mr. Payne suggested that they wait for the school safety workgroup meeting to address. Mr. Brown contacted the proponent and she agreed to allow this issue to be vetted by the School Safety sub-workgroup.

7/11/19: The School Safety Subworkgroup reviewed this proposal at their July 11, 2019 meeting and unanimously recommended disapproval.

7/24/19: No support.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B1010.1.9.3 (1)-18

This proposal doesn't have any public comments.

Proposal # 83

B1010.1.9.3 (1)-18

B1010.1.9.3 (3)-18

VCC: 1010.1.9.3

Proponents: Keith Ruby (keith.ruby@fairfaxcounty.gov)

2015 Virginia Construction Code

1010.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Groups B, F, M and S, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
 - 2.1. The locking device is readily distinguishable as locked.
 - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
 - 2.3. The use of the key-operated locking device is revokable by the building official for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
6. Individual storage units in a self-storage facility or similar occupancy are permitted to be locked with a padlock or similar device provided they comply with all the following conditions:
 - 6.1. The individual storage unit meets the requirement of 1006.2.1 for a space with one exit or exit access doorway.
 - 6.2. The space does not exceed 1000 square feet.
 - 6.3. The door or latch can be locked open with a pad lock or similar device.

Reason Statement: This type of locking has been used for years at self-storage facilities but is not compliant with any of the locking provisions currently in the code. This code change would make the code more consistent with accepted industry practice.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. Most of the locks used in these types of facilities already contain provision to secure the latching device in the unlocked position. This should have no impact on the cost of construction.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Disapproval

Workgroup 2 - Proposed Reason: No support.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B1010.1.9.3 (3)-18

This proposal doesn't have any public comments.

Proposal # 215

B1010.1.9.3 (3)-18

RTP2717.3-18

VR: SECTION P2717, P2717.1, P2717.2, P2717.3 (New); VPC: SECTION 409, 409.1, 409.2, 409.3, 409.4 (New)

Proponents: MATTHEW GUNN

2015 Virginia Residential Code

SECTION P2717 DISHWASHING MACHINES

P2717.1 Protection of water supply. The water supply to a dishwasher shall be protected against backflow by an *air gap* complying with ASME A112.1.3 or A112.1.2 that is installed integrally within the machine or a backflow preventer in accordance with Section P2902.

P2717.2 Sink and dishwasher. The combined discharge from a dishwasher and a one- or two-compartment sink, with or without a food-waste disposer, shall be served by a trap of not less than 1½ inches (38 mm) in outside diameter. The dishwasher discharge pipe or tubing shall rise to the underside of the counter and be fastened or otherwise held in that position before connecting to the head of the food-waste disposer or to a wye fitting in the sink tailpiece.

Add new text as follows:

P2717.3 New Code Section - Required Pan

Where a dishwashing machine is installed where water leakage will cause damage or mold growth, the dishwasher shall be installed on a pan.

2015 Virginia Plumbing Code

SECTION 409 DISHWASHING MACHINES

409.1 Approval. Commercial dishwashing machines shall conform to ASSE 1004 and NSF 3.

409.2 Water connection. The water supply to a dishwashing machine shall be protected against backflow by an *air gap* that is integral with the machine or a backflow preventer shall be installed in accordance with Section 608. *Air gaps* shall comply with ASME A112.1.2 or A112.1.3.

409.3 Waste connection. The waste connection of a dishwashing machine shall comply with Section 802.1.6 or 802.1.7, as applicable.

Add new text as follows:

409.4 New Code Section - Required Pan

Where a dishwashing machine is installed where water leakage will cause damage or mold growth, the dishwasher shall be installed on a pan.

Reason Statement: Residential dishwasher leaks are costly to repair and are often not covered by a homeowner's insurance policy. Unnoticed dishwasher leaks create an environment for mold growth, which is hazardous to residents. Unnoticed leaks can cause structural damage which is unsafe and expensive to repair. In the unlikely instances where dishwasher leaks are covered by a homeowner's policy, it costs the insurance industry \$1.5 billion, annually. The overall cost is much higher because homeowner's insurance policies only cover sudden and accidental leaks.

Cost Impact Statement: The code change proposal will increase the cost of construction. Cost is increased due to the cost of the pan (less than \$100). Resident safety is improved because of reduced risk of mold exposure. Costly structural and finish repairs are avoided, due to the protection that the device offers against water leak damage.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Consensus Disapproval

Workgroup 3 - Proposed Reason: No support.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RTP2717.3-18

This proposal doesn't have any public comments.

Proposal # 186

RTP2717.3-18

EB1101.18-18

VEBC: 1101.18 (New)

Proponents: William Andrews (cyur2b@verizon.net)

2015 Virginia Existing Building Code

Add new text as follows:

1101.18 Smoke and carbon monoxide alarms in old rental residences

At least single station, battery powered smoke alarms shall be installed in rental residences in which older codes did not previously require smoke alarms. The landlord shall certify annually that the smoke alarms have been installed and maintained in good working order. The landlord shall also install a carbon monoxide alarm upon request by a tenant.

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Reason Statement: 2018 General Assembly HB 609 + SB 391 changed landlord-tenant act to require smoke alarms in rental residences, plus carbon monoxide alarm upon tenant's request. Appropriate to also include in here, so building and fire code officials require such cheap, vital life safety devices easily installed. Since older building codes not require smoke alarms, not include "in accordance with applicable building code" here; defaulting so install per manufacture's instructions and national standards. Other sub-sections require smoke alarms in transient residential buildings (hotels, motels, college dorms) and for landlord to install special smoke alarms for hearing impaired if occupant request. Code allows localities to require, thus should extend statewide so help alert all rental residents if fire.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
Not impact new construction. Minimal cost to improve safety of older rental residences. Cheap smoke alarms can cost less than \$10 each, and easily install. Required by landlord-tenant act, so need provide per that. This also adds so building and fire code officials help public safety.

Resiliency Impact Statement: This proposal will increase Resiliency
Improves residents safety and early alert of fire in building, thus reducing loss of life and property.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Disapproval

Workgroup 2 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for EB1101.18-18

This proposal doesn't have any public comments.

Proposal # 238

EB1101.18-18

PM312-18

VMNC: 312 (New), 312.1 (New)

Proponents: William Andrews (cyur2b@verizon.net)

2015 Virginia Maintenance Code

Add new text as follows:

312 **50+ YEARS OLD RENTAL RESIDENCE INSPECTION**

312.1 General.

Rental residential buildings over 50 years old shall be inspected by a qualified private inspector. Exception: when satisfactory inspection within recent 20 years completed.

The inspector shall inform the code official if serious hazards found. An inspection report shall be provided to the owner, and copy available to the code official.

Such buildings shall be inspected every 40 years after the most recent report.

Reason Statement: Add to 2018 Virginia Maintenance Code, to start 2021. Older buildings often develop concerns. Code officials lack resources to inspect most. Private inspections often when building sold, financed, or new insurance. Rental residences focus on life safety of people (families, maybe self-escape challenged) with little control over conditions. Buildings over 50 years old starts with those built before statewide building codes based on modern national codes. Requiring again inspect every 40 years helps record later conditions. Inspector need quickly report serious hazards to AHJ, which may get copy of report if ask.

Inspection should include structural, electrical, sanitary, environmental (heat, cool, ventilation), basic functions of doors, windows, existing safety systems (smoke detectors, fire alarm, etc.). Not need update (unless lack state required retro-fit, such as smoke detectors), merely see if changes not on record as approved by building code official and maintenance in accordance with applicable building codes. Not specify inspection details nor who qualified; allow owner, AHJ, inspection associations, and others affecting national standards to collaborate such.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
No impact construction. Increase cost to assure proper maintenance of rental residential buildings over 50 years old. Since merely inspect if building over 50 years old, then every 40 years; minor long-term cost. Some inspections already done when building sold, financed, or new insurance; thus codifies requirement, require inspector quickly report serious risk to AHJ, and enable AHJ to get report copy.

Resiliency Impact Statement: This proposal will increase Resiliency
Helps maintain old rental residences.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Consensus Disapproval

Workgroup 2 - Proposed Reason: No support.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM312-18

This proposal doesn't have any public comments.

Proposal # 217

PM312-18

A108.3-18

VCC: 108.3

Proponents: Allison Cook (ICC@Allison-Cook.com)

2015 Virginia Construction Code

108.3 Applicant information, processing by mail. Application for a permit shall be made by the *owner* or lessee of the relevant property or the agent of either or by the RDP, contractor or subcontractor associated with the work or any of their agents. The full name and address of the owner, lessee and applicant shall be provided in the application. If the *owner* or lessee is a corporate body, when and to the extent determined necessary by the building official, the full name and address of the *responsible* officers shall also be provided.

A permit application may be submitted by mail and such permit applications shall be processed by mail, unless the jurisdiction offers an online option for permit application and processing or the permit applicant voluntarily chooses otherwise. In no case shall an applicant be required to appear in person.

The building official may accept applications for a permit through electronic submissions provided the information required by this section is obtained.

Reason Statement: More local jurisdictions are offering online submission options that allow for the applicant to not come in person to submit an application and process a permit. Jurisdictions should not be required to accept applications by mail if an online option is available. Current language creates challenges for jurisdictions moving to an all digital service - which we are likely to see far more of in the next several years.

Cost Impact Statement: The code change proposal will decrease the cost of construction
Allowing for an online option instead of a mail-in (paper) option reduces the cost to local jurisdictions that want to move to all digital permitting services. It also reduces costs for architects and builders to submit digitally, rather than via mail/paper. Ultimately, reducing the cost of construction.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal does not impact resiliency

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 1 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A108.3-18

This proposal doesn't have any public comments.

Proposal # 266

A108.3-18

Workgroup 1

Virginia Construction Code

A108.3 Applicant information, processing with online option

Proponents: Allison Cook (ICC@Allison-Cook.com)

Comments: Ms. Cook summarized her proposal. Mr. Witt supports giving all options available to the customer. Mr. Clark spoke to the reliability or lack thereof to online submittals. Mr. Pharr spoke to the broadband issues in the commonwealth and argued for having online submittals as an option. Ms. Eggerton supported the proposal as an option, even the preferred option. Mr. Lederman (VDEQ) spoke to this being an issue for them as well.

Results: Non-Consensus

A113.8 Final inspection requiring energizing the structure

Proponents: Haywood Kines

Comments: Proponent summarizes his proposal. Mr. Witt gave some history on when power companies could be limited in their ability to support this. Mr. Cornwall asked how alternative power sources would be applicable to this change. Ms. Cook asked if this was a problem that has occurred where building offices were required to conduct final inspections on unpowered structures. Mr. Clements spoke in opposition. A comment was made that the existing provision in the USBC was added to allow a building official to require power when it was appropriate and mandating it for all final inspections would require it even when it is not feasible or appropriate. Mr. Redifer opposed this on the grounds that building offices should have the option to make the decision.

Results: Non-Consensus

A115.2(3) Notice of violation to those other than the permit holder for related work

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Proponent summarizes proposal.

Results: Consensus Approval

A115.2(2) Notice of violation to those other than the permit holder for related work

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Proponent summarizes proposal.

Results: Withdrawn

A113.8(1)-18

VCC: 113.8

Proponents: Haywood Kines (hkines@pwcgov.org)

2015 Virginia Construction Code

Revise as follows:

113.8 Final inspection. Upon completion of a *building* or *structure* and before the issuance of a certificate of occupancy, a final inspection shall be conducted to ensure that any defective work has been corrected and that all work complies with the USBC and has been approved, including any work associated with modifications under Section 106.3. The building official shall ~~be permitted to~~ require the electrical service to a *building* or *structure* to be energized prior to conducting the final inspection. The approval of a final inspection shall be permitted to serve as the new certificate of occupancy required by Section 116.1 in the case of additions or alterations to existing *buildings* or *structures* that already have a certificate of occupancy.

Reason Statement: Life Safety Systems such as Fire Alarm, Smoke Alarms, GFCI devices, AFCI devices, HVAC equipment, Emergency Lighting and Exit signs cannot be inspected without power.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction Power has to be connected for an occupancy .

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 1 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for A113.8(1)-18

This proposal doesn't have any public comments.

Proposal # 196

A113.8(1)-18

Workgroup 1

Virginia Construction Code

A108.3 Applicant information, processing with online option

Proponents: Allison Cook (ICC@Allison-Cook.com)

Comments: Ms. Cook summarized her proposal. Mr. Witt supports giving all options available to the customer. Mr. Clark spoke to the reliability or lack thereof to online submittals. Mr. Pharr spoke to the broadband issues in the commonwealth and argued for having online submittals as an option. Ms. Eggerton supported the proposal as an option, even the preferred option. Mr. Lederman (VDEQ) spoke to this being an issue for them as well.

Results: Non-Consensus

A113.8 Final inspection requiring energizing the structure

Proponents: Haywood Kines

Comments: Proponent summarizes his proposal. Mr. Witt gave some history on when power companies could be limited in their ability to support this. Mr. Cornwall asked how alternative power sources would be applicable to this change. Ms. Cook asked if this was a problem that has occurred where building offices were required to conduct final inspections on unpowered structures. Mr. Clements spoke in opposition. A comment was made that the existing provision in the USBC was added to allow a building official to require power when it was appropriate and mandating it for all final inspections would require it even when it is not feasible or appropriate. Mr. Redifer opposed this on the grounds that building offices should have the option to make the decision.

Results: Non-Consensus

A115.2(3) Notice of violation to those other than the permit holder for related work

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Proponent summarizes proposal.

Results: Consensus Approval

A115.2(2) Notice of violation to those other than the permit holder for related work

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Proponent summarizes proposal.

Results: Withdrawn

B108.1-18

VCC: 108.1, 110.1, 110.1.1 (New), 1 (New); IBC®: 1010.1.4.4, 1010.1.4.4.1, 1010.1.9, 1010.1.9.1, 1010.1.9.2, 1010.1.9.4, 1010.1.9.5, 1010.1.9.6, 1010.1.9.8, 1103.2, 1103.2.15 (New); VFC: 1 (New); IFC®: 404.2.3, 404.2.3.1, 404.2.3.2, 406.4.1 (New), 1001.4 (New), [BE] 1010.1.9; VFC: (N) 1010.1.9.3; IFC®: 1031.2, 1031.2.1; VFC: 1031.10 (New)

Proponents: DHCD Staff on behalf of the following stakeholders represented at the School Safety Subworkgroup: Virginia Building & Code Officials Association; Virginia Department of Education; Augusta County Public Schools; American Institute of Architects (AIA) Virginia; Virginia Tech

2015 Virginia Construction Code

108.1 When applications are required. Application for a permit shall be made to the building official and a permit shall be obtained prior to the commencement of any of the following activities, except that applications for emergency *construction*, alterations or *equipment* replacement shall be submitted by the end of the first *working day* that follows the day such work commences. In addition, the building official may authorize work to commence pending the receipt of an application or the issuance of a permit.

1. *Construction* or demolition of a *building* or *structure*. Installations or alterations involving (i) the removal or addition of any wall, partition or portion thereof; (ii) any structural component; (iii) the repair or replacement of any required component of a fire or smoke rated assembly; (iv) the alteration of any required means of egress system including the addition of emergency supplemental hardware; (v) water supply and distribution system, sanitary drainage system or vent system; (vi) electric wiring; (vii) fire protection system, mechanical systems, or fuel supply systems; or (viii) any equipment regulated by the USBC.
2. For change of occupancy, application for a permit shall be made when a new certificate of occupancy is required by the VEBC.
3. Movement of a lot line that increases the hazard to or decreases the level of safety of an existing building or structure in comparison to the building code under which such building or structure was constructed.
4. Removal or disturbing of any asbestos containing materials during the construction or demolition of a building or structure, including additions.

110.1 Approval and issuance of permits. The building official shall examine or cause to be examined all applications for permits or amendments to such applications within a reasonable time after filing. If the applications or amendments do not comply with the provisions of this code or all pertinent laws and ordinances, the permit shall not be issued and the permit applicant shall be notified in writing of the reasons for not issuing the permit. If the application complies with the applicable requirements of this code, a permit shall be issued as soon as practicable. The issuance of permits shall not be delayed in an effort to control the pace of *construction* of new detached one- or two-family dwellings.

Add new text as follows:

110.1.1 Consultation and notification.

Prior to approval of *emergency supplemental hardware*, the building code official shall consult with the local fire code official or state fire code official if no local fire code official exists, and head of the local law enforcement agency. The local fire code official, the state fire code official, and the local fire, EMS and law enforcement first responders shall be notified of such approval, after approval of such *emergency supplemental hardware* by the building code official.

EMERGENCY SUPPLEMENTAL HARDWARE.

Any *approved hardware* used only for emergency events or drills to keep intruders from entering the room during an active shooter or hostile threat event or drill.

2018 International Building Code

1010.1.4.4 Locking arrangements in educational occupancies. In Group E occupancies, except Group E day care facilities, and Group B educational occupancies, egress exit access doors from classrooms, offices and other occupied rooms ~~shall, except for exit doors and doors across corridors, shall be permitted to be provided with locking arrangements designed to keep intruders from entering the room~~ emergency supplemental hardware where all of the following conditions are met:

1. The door shall be capable of being ~~unlocked~~ opened from outside the room with a key, proprietary device provided by the manufacturer, or other approved means.
2. The door shall be openable from within the room in accordance with Section 1010.1.9, except emergency supplemental hardware is not required to comply with Chapter 11.

NOTE: School officials should consult with their legal counsel regarding provisions of the Americans with Disabilities Act and any other applicable requirements.

3. Installation of emergency supplemental hardware on fire door assemblies must comply with Section 716.2. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.
4. The emergency supplemental hardware shall not be capable of being used on other doors not intended to be used and shall at least one component that requires modification to, or is permanently affixed to, the surrounding wall, floor, door and/or frame assembly construction for it to properly function.
5. Employees shall engage in lockdown training procedures on how to deploy and remove the emergency supplemental hardware and its use shall be incorporated in the approved lockdown plan complying with the SFPC.
6. The emergency supplemental hardware and its components shall be maintained in accordance with the SFPC.
7. Approved emergency supplemental hardware shall be of consistent type throughout a building.
Exception: The building official may approve alternate types of emergency supplemental hardware in accordance with Section 110.1 when a consistent device cannot be installed.

1010.1.4.4.1 Remote operation of locks. Remote operation of locks complying with Section 1010.1.4.4 shall be permitted.

1010.1.9 Door operations. Except as specifically permitted by this section, egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

Exception : Emergency supplemental hardware provided in accordance with Section 1010.1.4.4.

1010.1.9.1 Hardware. Door handles, pulls, latches, locks and other operating devices on doors required to be *accessible* by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

Exception. Emergency supplemental hardware provided in accordance with Section 1010.1.4.4.

1010.1.9.2 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Emergency supplemental hardware provided in accordance with Section 1010.1.4.4, shall be installed 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

Exception: Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the latch release on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided that the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

1010.1.9.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
 - 2.1. The locking device is readily distinguishable as locked.
 - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
 - 2.3. The use of the key-operated locking device is revocable by the *building official* for due cause.
3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual *dwelling* or *sleeping units* of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
6. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.
7. Egress doors equipped with *emergency supplemental hardware* complying with Section 1010.1.4.4, from the egress side provided:
 - 7.1. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS HARDWARE SHALL BE USED BY AUTHORIZED PERSONNEL ONLY. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
 - 7.2. The use of the *emergency supplemental hardware* is revocable by the building official or fire official for due cause.

1010.1.9.5 Bolt locks. Manually operated flush bolts or surface bolts are not permitted.

Exceptions:

1. On doors not required for egress in individual *dwelling units* or *sleeping units*.
2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.
3. Where a pair of doors serves an *occupant load* of less than 50 persons in a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf. The inactive leaf shall not contain doorknobs, *panic* bars or similar operating hardware.
4. Where a pair of doors serves a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf provided that such inactive leaf is not needed to meet egress capacity requirements and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. The inactive leaf shall not contain doorknobs, *panic* bars or similar operating hardware.
5. Where a pair of doors serves patient care rooms in Group I-2 occupancies, self-latching edge- or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet egress capacity requirements and the inactive leaf shall not contain doorknobs, *panic* bars or similar operating hardware.
6. Emergency supplemental hardware provided in accordance with Section 1010.1.4.4.

1010.1.9.6 Unlatching. The unlatching of any door or leaf shall not require more than one operation.

Exceptions:

1. Places of detention or restraint.
2. Where manually operated bolt locks are permitted by Section 1010.1.9.5.
3. Doors with automatic flush bolts as permitted by Section 1010.1.9.4, Item 3.
4. Doors from individual *dwelling units* and *sleeping units* of Group R occupancies as permitted by Section 1010.1.9.4, Item 4.
5. One additional operation shall be permitted for release of *emergency supplemental hardware* provided in accordance with Section 1010.1.4.4.

1010.1.9.8 Delayed egress. Delayed egress locking systems shall be permitted to be installed on doors serving the following occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved automatic smoke or heat detection system* installed in accordance with Section 907.

1. Group B, F, I, M, R, S and U occupancies.
2. Group E classrooms with an *occupant load* of less than 50.

~~Exception~~ Exceptions:

1. Delayed egress locking systems shall be permitted to be installed on exit or *exit access* doors, other than the main exit or *exit access* door, serving a courtroom in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. Emergency supplemental hardware shall not be considered a delayed egress locking system.

1103.2 General exceptions. *Sites*, buildings, *structures*, *facilities*, elements and spaces shall be exempt from this chapter to the extent specified in this section.

Add new text as follows:

1103.2.15 Emergency supplemental hardware.

In Group E occupancies, except Group E day care facilities, and Group B educational occupancies, when *emergency supplemental hardware* is deployed during an active shooter or hostile threat event and provided in accordance with Section 1010.1.4.4.

2015 Virginia Statewide Prevention Fire Code

Add new text as follows:

EMERGENCY SUPPLEMENTAL HARDWARE.

Any approved hardware used only for emergency events or drills to keep intruders from entering the room during an active shooter or hostile threat event or drill.

2018 International Fire Code

404.2.3 Lockdown plans. Lockdown plans shall only be permitted where such plans are approved by the *fire code official* and are in compliance with Sections 404.2.3.1 and 404.2.3.2.

404.2.3.1 Lockdown plan contents. Lockdown plans shall include the following:

1. Identification of individuals authorized to issue a lockdown order.
2. Security measures used during normal operations, when the building is occupied, that could adversely affect egress or fire department operations.
3. A description of identified emergency and security threats addressed by the plan, including specific lockdown procedures to be implemented for each threat condition.
4. Means and methods of initiating a lockdown plan for each threat, including:
 - 4.1. The means of notifying occupants of a lockdown event, which shall be distinct from the fire alarm signal.
 - 4.2. Identification of each door or other access point that will be secured.
 - 4.3. A description of the means or methods used to secure doors and other access points.
 - 4.4. A description of how locking means and methods are in compliance with the requirements of the VCC and the applicable provisions of this code for egress and accessibility.
5. Procedures for reporting to the fire department any lockdown condition affecting egress or fire department operations.
6. Procedures for determining and reporting the presence or absence of occupants to emergency response agencies during a lockdown.
7. Means for providing two-way communication between a central location and each area subject to being secured during a lockdown.
8. Identification of the prearranged signal for terminating the lockdown.
9. Identification of individuals authorized to issue a lockdown termination order.
10. Procedures for unlocking doors and verifying that the means of egress has been returned to normal operations upon termination of the lockdown.
11. Training procedures and frequency of lockdown plan drills.

404.2.3.2 Drills. Lockdown plan drills shall be conducted in accordance with the approved plan. Such drills shall not be substituted for fire and evacuation drills required by Section 405.2.

Add new text as follows:

406.4.1 Emergency supplemental hardware training.

Where a facility has installed approved emergency supplemental hardware, employees shall be trained on their assigned duties and procedures for the use of such device. Records of in-service training shall be made available to the fire code official upon request.

1001.4 Unauthorized use of emergency supplemental hardware.

No person shall utilize any approved emergency supplemental hardware to prevent the ingress or egress from any occupied space.

Exceptions:

1. Utilized by authorized persons or other persons occupying such space in the event of any actual or perceived hostile threat or active shooter event.
2. Utilized in conjunction with any approved lockdown drill requiring the utilization of the approved emergency supplemental hardware.
3. Utilization for the testing, use and training by emergency response personnel.

Where such device is utilized in accordance with the Exceptions 1 through 3 above, the hardware device shall be removed immediately

following the conditions of such exceptions.

[BE] 1010.1.9 Door operations. Except as specifically permitted by this section or the applicable building code, egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

2015 Virginia Statewide Prevention Fire Code

:

(N) 1010.1.9.3 Locks and latches. Where required, a readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting ~~background and shall be maintained~~ background. Emergency supplemental hardware provided in accordance with the applicable building code shall be provided a readily visible durable sign posted on the egress side on or adjacent to the door stating: THIS HARDWARE SHALL BE USED BY AUTHORIZED PERSONNEL ONLY. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.

2018 International Fire Code

:

1031.2 Reliability. ~~Required~~ Unless otherwise permitted by the applicable building code, required *exit accesses, exits and exit discharges* shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency where the building area served by the *means of egress* is occupied. An *exit* or *exit passageway* shall not be used for any purpose that interferes with a *means of egress*.

1031.2.1 Security devices and egress locks. Security devices, excluding emergency supplemental hardware, affecting *means of egress* shall be subject to approval of the *fire code official*. Security devices and locking arrangements in the *means of egress* that restrict, control, or delay egress shall be installed and maintained as required by this ~~chapter~~ chapter or as otherwise permitted under the applicable building code.

2015 Virginia Statewide Prevention Fire Code

Add new text as follows:

1031.10 Maintenance of emergency supplemental hardware.

Emergency supplemental hardware shall be installed in accordance with the applicable building code and shall be maintained in accordance with this code and the manufacturer's instructions. The fire code official shall be authorized to direct the practical application of any such hardware device to ensure the device operates as designed, and is free from any defects, damage, or conditions which may restrict the deployment and removal of such hardware device.

Reason Statement: This proposal allows limited types of barricade door devices in Group E and B educational occupancies only, by “taking over” the current 2018 IBC language and adding exceptions to the various door-related requirements to allow such hardware. A barricade door device would not necessarily need to go through the code modification process in accordance with VCC 106.3, unless it was a type that did not comply with the “openable from outside,” limited height above finished floor requirements, and has a fixed component to function, among others.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 2 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B108.1-18

Public Comment by Jason Matznick

Aug 20, 2019 19:15 UTC

<https://drive.google.com/file/d/1WFZdzUmJ9gKqZsmWva8t6vQEw1JWdnbO/view?usp=sharing>

Public Comment by Jason Matznick

Aug 20, 2019 19:34 UTC

Temporary door barricade devices deliver a second layer of protection during an active threat event. The door and hardware industry is slow to recognize these innovative temporary lockdown devices, while primarily promoting traditional, costly locking solutions which can be compromised. Temporary lockdown devices are widely accepted and used in schools, universities, offices, government buildings, churches and commercial facilities nationwide. While there is on going legislation in several states, many have already passed bills to allow lockdown devices to protect citizens during an active shooter situation.

Proposal # 270

B108.1-18

Comments: Mr. Pharr summarizes his proposal and references his prior statements related to the Tenant Landlord Act.

Results: Consensus Approval

PM105.4 Adds 'tenant' to owner or other person responsible for Notice of violations

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

Comments: Rest on reason statement and references his prior statements related to the Tenant Landlord Act.

Results: Consensus Approval

PM106 Simply language of unsafe structure

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Mr. Clements speaks to the need for more time for his proposal and requests to carry over to continue discussions.

Results: Carryover to Final Phase.

Virginia Certification Standards

CS41 Editorial change for certification requirements

Proponents: Building Code Academy Advisory Committee (BCAAC)

Comments: No comments.

Results: Consensus Approval.

Workgroup 2

Virginia Construction Code

B108.1 Emergency supplemental hardware per SB1755

Proponents: DHCD Staff on behalf of the following stakeholders represented at the School Safety Subworkgroup: Virginia Building & Code Officials Association; Virginia Department of Education; Augusta County Public Schools; American Institute of Architects (AIA) Virginia; Virginia Tech

Comments: Ms. Davis recaps both of the two proposals brought forth from Senate Bill 1755 and the review of the use of barricade devices and locks during active shooter and emergency situations. She explained that the two proposals were the same except this proposal put the clarifying language in the body of the code and the alternate proposal puts the language in an appendix that would make it optional for jurisdictions to choose to use them. The concern with

the appendix is that one school district would be able to use an approved device as outlined in the appendix and the school in the next county would receive a notice of violation for using the exact same device. She opened the floor for other committee members to discuss relevant proposals. Ms. Frye stated that she has concerns that the proposal as written does not prohibit barricade devices from being installed on doors with required panic hardware. Mr. Witt stated that there had been four meetings with over twenty hours of discussion. He saw no benefit in rehashing the arguments at this meeting and suggested that both simply be moved forward as non consensus.

Results: Non-Consensus

BO108.1 Appendix O option per SB1755

Proponents: Linda Hale on behalf of VFPA and Steven Sites, Acting State Fire Marshal

Comments: See above. Ms. Davis asked Ms. Hale if the language in the appendix was identical to the other proposal. Ms. Hale stated that it was identical as she simply used the copy and paste to submit her proposal and that it was her intent that it be exactly the same. Mr. Milliken recommends moving the changes in VSFPC section 1010.1.9.3 to 1031. Mr. Payne indicated VA AIA would support the appendix option as well.

Results: Non-Consensus

B202(3) 'Permit holder' definition

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Stand on the reason statement. Mr. Witt asked what we would gain from this definition. Ms. Cook clarified how this would help. Mr. Pharr spoke in support. Mr. Beahm indicated how holder could be a distinct term.

Results: Carryover to Final Phase

B307.1(1) Eliminate Permissible fireworks MAQ tables

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Dean spoke to both his proposals and asked for withdraw on this item and carryover on the next.

Results: Carryover to Final Phase

B307.1(2) Eliminate Consumer fireworks in the MAQ tables

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Dean spoke to both his proposals. Ms. Davis asked if it was his intent to allow the doubling of quantities in a sprinklered building for consumer fireworks as that is what this proposal would do. Mr. Dean asked to withdraw this proposal and would focus on the Permissible proposal for the final phase.

Results: Withdrawn

BO101.1-18

VCC: Appendix O (New), Section O101 (New), Section O102 (New), Section O201 (New), Section O301 (New), Section O401 (New), 101.2; IFC®: 404.2.3.1; VFC: SECTION 202, 406.1.1 (New), 1031.2, 1031.2.1, 1031.2.2 (New), 1031.2.3 (New)

Proponents: Virginia Fire Prevention Association; Linda Hale (linda.hale@loudoun.gov); Steven Sites (steven.sites@vdfp.virginia.gov)

2015 Virginia Construction Code

Add new text as follows:

Appendix O **Emergency Supplemental Hardware**

Section O101 General

O101.1 Scope . The provisions of this appendix shall control the requirements for the installation of *emergency supplemental hardware* as defined herein.

O101.2 Precedence . The provisions of this appendix supersede any applicable provisions of the USBC or SFPC that address the same subject matter and impose differing requirements.

Section O102 Local Enforcement

O102.1 Local enforcement . In accordance with section 101.2 of this code, this appendix may be adopted by official action by a governing body of a jurisdiction and shall be enforceable by the local building code official. Those localities wishing to allow the installation of emergency supplemental hardware must adopt this appendix in its entirety.

O102.2 Consultation . Prior to approval of such emergency supplemental hardware, the building code official shall consult with the local fire code official or state fire code official if no local fire code official exists, and head of the local law enforcement agency.

O102.3 Notification . After approval of such emergency supplemental hardware by the building code official, the local fire code official, the state fire code official, and the local fire, EMS and law enforcement first responders shall be notified of such approval.

Section O201 Definition

EMERGENCY SUPPLEMENTAL HARDWARE . Any *approved* hardware used only for emergency events or drills to keep intruders from entering the room during an active shooter or hostile threat event or drill.

Section O301 Locality Permit and Approvals

O301.1 When applications are required. Application for a permit shall be made to the building official and a permit shall be obtained prior to the commencement of the installation of any emergency supplemental hardware.

O301.2 Approval and issuance of permits. The building official shall examine or cause to be examined all applications for permits or amendments to such applications within a reasonable time after filing. If the applications or amendments do not comply with the provisions of this code or all pertinent laws and ordinances, the permit shall not be issued and the permit applicant shall be notified in writing of the reasons for not issuing the permit. If the application complies with the applicable requirements of this code, a permit shall be issued as soon as practicable. The issuance of permits shall not be delayed in an effort to control the pace of construction of new detached one- or two-family dwellings.

Section O401 Locking Arrangements

O401.1 Locking arrangements in educational occupancies. In Group E occupancies, except Group E day care facilities, and Group B educational occupancies, exit access doors from classrooms, offices and other occupied rooms, except for *exit* doors and doors across corridors, shall be permitted to be provided with *emergency supplemental hardware* where all of the following conditions are met:

1. The door shall be capable of being opened from outside the room with a key, proprietary device provided by the manufacturer, or other approved means.
2. The door shall be openable from within the room in accordance with Section 1010.1.9, except *emergency supplemental hardware* is not required to comply with Chapter 11.

NOTE: School officials should consult with their legal counsel regarding provisions of the Americans with Disabilities Act and any other applicable requirements.

3. Installation of emergency supplemental hardware on fire door assemblies must comply with Section 716.2. Modifications shall not be

made to listed panic hardware, fire door hardware or door closers.

4. The *emergency supplemental hardware* shall not be capable of being used on other doors not intended to be used and shall at least one component that requires modification to, or is permanently affixed to, the surrounding wall, floor, door and/or frame assembly construction for it to properly function.

5. Employees shall engage in lockdown training procedures on how to deploy and remove the *emergency supplemental hardware* and its use shall be incorporated in the approved lockdown plan complying with the SFPC.

6. The *emergency supplemental hardware* and its components shall be maintained in accordance with the SFPC.

7. Approved emergency supplemental hardware shall be of a consistent type throughout a building.

Exception: The building official may approve alternate types of emergency supplemental hardware in accordance with Section O102.2 when a consistent device cannot be installed.

O401.2 Door operations . Egress doors, where *emergency supplemental hardware* has been deployed and complies with Section O401.1, shall not be required to be readily openable from the egress side and may require the use of a key or special knowledge or effort.

O401.2.1 Hardware . *Emergency supplemental hardware* shall not be required to comply with Chapter 11 of the VCC.

O401.2.2 Hardware height . *Emergency supplemental hardware* shall be installed 48 inches (1219 mm) maximum above the finished floor.

O401.2.3 Sign . *Emergency supplemental hardware* shall be permitted to prevent operation of doors where a readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS HARDWARE SHALL BE USED BY AUTHORIZED PERSONNEL ONLY. The sign shall be in letters 1 inch (25 mm) high on a contrasting background. The use of the *emergency supplemental hardware* is revocable by the building official or fire official for due cause.

O401.2.4 Bolt locks . For the purposes of this appendix, *emergency supplemental hardware* is not considered manually operated flush bolts or surface bolts.

O401.2.5 Unlatching . The unlatching of any door or leaf shall not require more than one operation, except when *emergency supplemental hardware* has been deployed. One additional operation shall be permitted for release of *emergency supplemental hardware* provided in accordance with Section O401.1.

O401.2.6 Delayed egress . *Emergency supplemental hardware* shall not be considered a delayed egress locking system.

Revise as follows:

101.2 Incorporation by reference. Chapters 2–35 of the 2015 International Building Code, published by the International Code Council, Inc., are adopted and incorporated by reference to be an enforceable part of the USBC. The term “IBC” means the 2015 International Building Code, published by the International Code Council, Inc. Any codes and standards referenced in the IBC are also considered to be part of the incorporation by reference, except that such codes and standards are used only to the prescribed extent of each such reference. In addition, any provisions of the appendices of the IBC specifically identified to be part of the USBC are also considered to be part of the incorporation by ~~reference~~. Appendix O may be adopted by official action of a jurisdictions governing body. Upon adoption by official action of the AHJ, appendix O shall become enforceable by the local building code official.

Note 1: The IBC references other International Codes and standards including the following major codes:

2015 International Plumbing Code (IPC)

2015 International Mechanical Code (IMC)

2014 NFPA 70

2015 International Fuel Gas Code (IFGC)

2015 International Energy Conservation Code (IECC)

2015 International Residential Code (IRC)

Note 2: The IRC is applicable to the *construction* of detached one-family and two-family dwellings and townhouses as set out in Section 310.

2018 International Fire Code

Revise as follows:

404.2.3.1 Lockdown plan contents. Lockdown plans shall include the following:

1. Identification of individuals authorized to issue a lockdown order.
2. Security measures used during normal operations, when the building is occupied, that could adversely affect egress or fire department operations.
3. A description of identified emergency and security threats addressed by the plan, including specific lockdown procedures to be implemented for each threat condition.
4. Means and methods of initiating a lockdown plan for each threat, including:
 - 4.1. The means of notifying occupants of a lockdown event, which shall be distinct from the fire alarm signal.
 - 4.2. Identification of each door or other access point that will be secured.
 - 4.3. A description of the means or methods used to secure doors and other access points.
 - 4.4. A description of how locking means and methods are in compliance with the requirements of this code for egress and accessibility and appendix O of the VCC if adopted by official action of the jurisdiction.
5. Procedures for reporting to the fire department any lockdown condition affecting egress or fire department operations.
6. Procedures for determining and reporting the presence or absence of occupants to emergency response agencies during a lockdown.
7. Means for providing two-way communication between a central location and each area subject to being secured during a lockdown.
8. Identification of the prearranged signal for terminating the lockdown.
9. Identification of individuals authorized to issue a lockdown termination order.
10. Procedures for unlocking doors and verifying that the means of egress has been returned to normal operations upon termination of the lockdown.
11. Training procedures and frequency of lockdown plan drills.

2015 Virginia Statewide Prevention Fire Code

Add new text as follows:

SECTION 202 GENERAL DEFINITIONS

-

EMERGENCY SUPPLEMENTAL HARDWARE . Any *approved* hardware used only for emergency events or drills to keep intruders from entering the room during an active shooter or hostile threat event or drill.

406.1.1 Emergency Supplemental hardware training

Where a facility has installed approved emergency supplemental hardware, employees shall be trained on their assigned duties and procedures for the use of such device. Records of in-service training shall be made available to the fire code official upon request.

Revise as follows:

1031.2 Reliability. ~~Required~~ Unless otherwise permitted by the applicable building code, required *exit accesses, exits and exit discharges* shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency where the building area served by the *means of egress* is occupied. An *exit* or *exit passageway* shall not be used for any purpose that interferes with a *means of egress*.

1031.2.1 Security devices and egress locks. Security devices ~~affecting~~ excluding approved emergency supplemental hardware, affecting *means of egress* shall be subject to approval of the *fire code official*. Security devices and locking arrangements in the *means of egress* that restrict, control, or delay egress shall be installed and maintained as required by this ~~chapter~~ chapter or as otherwise permitted under the applicable building code.

Add new text as follows:

1031.2.2 Maintenance of emergency supplemental hardware

Where approved, *Emergency supplemental hardware* shall be installed in accordance with the applicable building code and shall be maintained in accordance with this code and the manufacturer's instructions. The fire code official shall be authorized to direct the practical application of any such hardware device to ensure the device operates as designed, and is free from any defects, damage, or conditions which may restrict the deployment and removal of such hardware device.

1031.2.3 Unauthorized Use

No person shall utilize any *approved emergency supplemental hardware* to prevent the ingress or egress from any occupied space.

Exceptions:

1. Utilized by authorized persons or other persons occupying such space in the event of any actual or perceived hostile threat or active shooter event.
2. Utilized in conjunction with any approved lockdown drill requiring the utilization of the approved *emergency supplemental hardware*.
3. Utilization for the testing, use and training by emergency response personnel.

Where such device is utilized in accordance with the Exceptions 1 through 3 above, the hardware device shall be removed immediately following the conditions of such exceptions.

Reason Statement: The provisions of this appendix proposal were generated following the impaneling of a workgroup in April, 2019 to address the concerns associated with Virginia Senate Bill 1755 with regards to the development of proposals for changes to each such code for submission to the Board of Housing and Community Development. Such proposals shall have the goal of assisting in the provision of safety and security measures for the Commonwealth's public or private elementary and secondary schools and public or private institutions of higher education for active shooter or hostile threats. The school safety and security workgroup's leadership ultimately focused on item (ii) of SB 1755 which tasked the examination of barricade devices.

Such devices are perceived to protect school children from the dangers and threats associated with active shooter and hostile event situations. In formulating any proposed code language, the workgroup was tasked with evaluating reliable data from model code organizations, historical events, and other state actions in code development processes addressing these complex issues. Several items remained clear throughout the process; 1) it is a matter of personal opinion as for the need for such devices in addition to or in lieu of current code compliant door locking hardware, 2) a lack of supporting data for the justification of these devices could be found by reviewing historical active shooter and/or hostile events and model code organizations, 3) there is a desire to allow localities to address their perceived threats based on their demographics, abilities, resources, and assets.

During the workgroup process, four options were generated by the workgroup. One option which was presented and received the highest level of discussion and compromise by all representatives on the workgroup was the option of an appendix proposal.

By placing such language in an appendix, the decision for the individual communities or localities need for the adoption of such code language rest on the officials who were elected to represent the citizens of the respective community. This decision making process will involve the elected officials, local building code official, fire code official, school representatives, community law enforcement, fire and EMS responders and stakeholders of the community. This process may consider many factors that affect the community's preparedness for active shooter or hostile event to include: law enforcement staffing levels, availability of school security or law enforcement resource officers, teacher staffing levels, fire and EMS response times, construction and design of school buildings, etc. This allows the community to determine what is right or wrong for the protection of their children and school personnel. While conversely, it does not direct or negatively influence jurisdictions and their communities to accept hazards merely because a building applicant is uninformed to the risks.

Unfortunately, during the last official meeting of the workgroup on August 12, 2019, it was conveyed by DHCD Staff that direction from "their boss" and "high above" has decided that an appendix option was not a viable option and would not be proposed to the Board of Housing and Community Development for consideration from the workgroup. To the dismay of many in the room, this was not only frustrating, it was received as outside the scope of the charging language in SB 1755, and an unlawful direction. Upon mandating this direction it was determined by DHCD Staff that the workgroup would work solely on an option that allowed limited types of barricade devices and present the respective to the Board of Housing with a list of who supported and who did not support such language. Upon conclusion of this meeting, it was noted that a non-consensus was reached on the proposed language. Many in opposition of the proposed language indicated they would support such language in an appendix format that provided the option for local adoption should it be deemed appropriate by representatives of the individual community. DHCD staff advised that those members in support of a proposal for an appendix may submit a code proposal via CDPVa, on their own, but that DHCD staff would not allow such a proposal to be submitted via the workgroup.

As such, we have provided the respective language, as generated by the workgroup which failed to meet consensus approval, and provided

such language in an appendix format for consideration. There has been no alternation to the workgroups final product outside of the scoping language required to establish an appendix. This is the consensus document which the BHCD directed the workgroup to try and find, and is the middle ground allowing jurisdictions the ability to conduct an all hazards approach when determining if temporary barricade devices are warranted in their educational facilities (K-12 and higher) for both public and private schools.

It was cited by DHCD staff that the direction provide from “their boss”, was that there must be a uniform code applied to all of the Commonwealth. By removing the local adoption option allowed in an appendix and forcing the allowance into the Uniform Statewide Building and Statewide Fire Prevention Codes, it moves a perceived threat for one jurisdiction to an actual threat in many others. This is created when the elected officials, public safety and the communities are excluded and the building owner is the sole decision maker for each facility. Although a proposal outside of an appendix is touted as providing uniformity, its adoption and inclusion will have the opposite effect. It will make the problem worse as this sets up a significant lack of uniformity within a single jurisdiction as each building owner establishes conclusions for their own building and occupants without regard for the overall jurisdictional need. If there is lack of uniformity within a single jurisdiction, there will be greater diversity and confusion throughout the Commonwealth, not less.

It has been noted that the model code organizations have either not allowed such device(s) or developed an Ad Hoc Committee for School Safety. It has been explained by DHCD Staff who also serves on the ICC Executive Board of Directors that this Ad Hoc Committee may take several years to develop recommendations to meet the nation's code development and implementation needs. One should ask, if it will take the model code organization several years to evaluate this complex issue and develop code proposals, why should the Commonwealth rush the process and complete it in less than five months? The answer could be considered that this process cannot be treated as a “one size fits all” solution based on the many factors listed above. The appendix option is the best possible solution for the adoption of code language to meet a communities needs while considering a communities response capabilities, level of protections, etc.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction as noted

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency As noted:

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 2 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for BO101.1-18

Public Comment by Linda Hale

Aug 13, 2019 20:36 UTC

I agree with what is written. Press send when you are comfortable

Proposal # 264

BO101.1-18

Comments: Mr. Pharr summarizes his proposal and references his prior statements related to the Tenant Landlord Act.

Results: Consensus Approval

PM105.4 Adds 'tenant' to owner or other person responsible for Notice of violations

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

Comments: Rest on reason statement and references his prior statements related to the Tenant Landlord Act.

Results: Consensus Approval

PM106 Simply language of unsafe structure

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Mr. Clements speaks to the need for more time for his proposal and requests to carry over to continue discussions.

Results: Carryover to Final Phase.

Virginia Certification Standards

CS41 Editorial change for certification requirements

Proponents: Building Code Academy Advisory Committee (BCAAC)

Comments: No comments.

Results: Consensus Approval.

Workgroup 2

Virginia Construction Code

B108.1 Emergency supplemental hardware per SB1755

Proponents: DHCD Staff on behalf of the following stakeholders represented at the School Safety Subworkgroup: Virginia Building & Code Officials Association; Virginia Department of Education; Augusta County Public Schools; American Institute of Architects (AIA) Virginia; Virginia Tech

Comments: Ms. Davis recaps both of the two proposals brought forth from Senate Bill 1755 and the review of the use of barricade devices and locks during active shooter and emergency situations. She explained that the two proposals were the same except this proposal put the clarifying language in the body of the code and the alternate proposal puts the language in an appendix that would make it optional for jurisdictions to choose to use them. The concern with

the appendix is that one school district would be able to use an approved device as outlined in the appendix and the school in the next county would receive a notice of violation for using the exact same device. She opened the floor for other committee members to discuss relevant proposals. Ms. Frye stated that she has concerns that the proposal as written does not prohibit barricade devices from being installed on doors with required panic hardware. Mr. Witt stated that there had been four meetings with over twenty hours of discussion. He saw no benefit in rehashing the arguments at this meeting and suggested that both simply be moved forward as non consensus.

Results: Non-Consensus

BO108.1 Appendix O option per SB1755

Proponents: Linda Hale on behalf of VFPA and Steven Sites, Acting State Fire Marshal

Comments: See above. Ms. Davis asked Ms. Hale if the language in the appendix was identical to the other proposal. Ms. Hale stated that it was identical as she simply used the copy and paste to submit her proposal and that it was her intent that it be exactly the same. Mr. Milliken recommends moving the changes in VSFPC section 1010.1.9.3 to 1031. Mr. Payne indicated VA AIA would support the appendix option as well.

Results: Non-Consensus

B202(3) 'Permit holder' definition

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Stand on the reason statement. Mr. Witt asked what we would gain from this definition. Ms. Cook clarified how this would help. Mr. Pharr spoke in support. Mr. Beahm indicated how holder could be a distinct term.

Results: Carryover to Final Phase

B307.1(1) Eliminate Permissible fireworks MAQ tables

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Dean spoke to both his proposals and asked for withdraw on this item and carryover on the next.

Results: Carryover to Final Phase

B307.1(2) Eliminate Consumer fireworks in the MAQ tables

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Dean spoke to both his proposals. Ms. Davis asked if it was his intent to allow the doubling of quantities in a sprinklered building for consumer fireworks as that is what this proposal would do. Mr. Dean asked to withdraw this proposal and would focus on the Permissible proposal for the final phase.

Results: Withdrawn

B901.5.1-18

VCC: 901.5.1 (New)

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

2015 Virginia Construction Code

Add new text as follows:

901.5.1 Statement of Compliance.

Before requesting final approval of the installation, where required by the building or fire code official, the installing contractor shall furnish a written statement to the building and fire code official that the subject fire protection system has been installed in accordance with approved plans and has been tested in accordance with the manufacturer's specifications and the appropriate installation standard. Any deviations from the design standards shall be noted and copies of the approvals for such deviations shall be attached to the written statement.

Reason Statement: This new section is identical to language that has been in the International Fire Code for decades. It clarifies and emphasizes that an installing contractor shall furnish completion documentation prior to requesting final approval of fire protection systems. This section was removed from the Virginia Statewide Fire Prevention Code edit and is more appropriately located here in the VCC. These compliance documents are already required by many of the reference standards (NFPA 13, 20, 24, 72, etc.) however this section highlights and consolidates the requirement for code officials and installers.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
The code change proposal will not increase or decrease the cost of construction since no additional work or materials are required.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
The proposal involves documentation procedures and does not increase nor decrease resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 2 - Proposed Reason: Concerns with this being an administrative provision outside of chapter 1. VBCOA admin committee opposes the proposal, but would be open to additional discussion. Some spoke in support of the proposal.
8/21 NC

Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B901.5.1-18

Public Comment by Richard Witt

Jul 17, 2019 18:33 UTC

This change does not comport with the authority for approval based on state law. The building official is the authority having jurisdiction in approving the installation of a sprinkler system, not the fire official, as it is part of the Virginia Construction Code. The methodology for the building official to use in approving a system will be based on factors that best work for their locality

Proposal # 113

B901.5.1-18

Comments:

Mr. Clements gave an overview of proposal. He copied out of the 99 BOCA. He prefers option 2 and didn't see any technical data to support the way we were doing it in BOCA was a problem and it makes it a whole lot simpler. If there is reluctance then option 1 clears that up.

Mr. Payne supports this option.

Ms. Kim opposes this because if it catches fire it will quickly spread, how do we address that concern?

It was pointed out that two building on the same lot are separated by 1/16th of an inch there is no requirement to protect the two either building wing wall or to protect the perpendicular walls, the code is already inconsistent and is already recognized that it isn't a big hazard.

Mr. Milliken stated that he needs more time to read through this.

CARRYOVER TO AUGUST**B901.5.1**

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Reason Statement: This new section is identical to language that has been in the International Fire Code for decades. It clarifies and emphasizes that an installing contractor shall furnish completion documentation prior to requesting final approval of fire protection systems. This section was removed from the Virginia Statewide Fire Prevention Code edit and is more appropriately located here in the VCC. These compliance documents are already required by many of the reference standards (NFPA 13, 20, 24, 72, etc.) however this section highlights and consolidates the requirement for code officials and installers.

Comments:

Mr. Milliken gave an overview of proposal.

Mr. Witt has issues with this. It inserts the fire official into the new construction process and it's an administrative provisions and it's not applicable you have to go back to Chapter 1 of the ICC, doesn't feel this is necessary.

Mr. Tomberlin pointed out you don't leave it up to the locality. Either you require it or you don't.

Mr. Catlett pointed out that it's already in the standard and already a requirement.

CARRYOVER TO AUGUST**B905.3.1**

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Reason Statement: This proposal incorporates the current language from the 2018 International Building Code to clarify that any buildings with four or more stories above or below grade plane require a standpipe system. All other exceptions remain unchanged from the current Virginia amendment. This clarification provides consistency for first responders as well as the construction industry to know when buildings are expected to be equipped with a standpipe system.

Comments:

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

Comments: Mr. Payne defers to Mr. Milliken. Mr. Milliken summarized the proposal and its recent edits.

Results: Consensus Approval with Amendments

B901.5.1 Statement of compliance

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Comments: Mr. Milliken gives a brief summary and indicates that after conversation with other officials he recommends it move forward as non-consensus.

Results: Non-Consensus

B1010.1.9.3(2) Locks and latches

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

Comments: Mr. Payne summarizes his proposal and notes little support, and he moves for it to be withdrawn.

Results: Withdrawn

Virginia Statewide Fire Prevention Code

FP103.2.1 (VFSB SFPC Edits)

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Comments: Mr. Witt provided background on the work of this committee. He and the VBCOA Fire Code Committee supports all of the Subworkgroup items submitted on behalf of the Fire Code Edit Committee.

Results: Consensus Approval

FP202(3) Restricted explosives manufacturing definition

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Added the word “is”, an editorial change.

Results: Consensus Approval

FP316.6 Storage underneath bridges and elevated roadways

Proponents: Gerry Maiatico (gmaiatico@warrencountyfire.com)

Comments: Ms. Davis summarizes his proposal. Ms. Hale summarizes the proposal’s intent from the perspective of Mr. Maiatico and specific issues he’s having within his jurisdiction. Ms.

B906.1-18

VCC: [F] 906.1

Proponents: Dwayne Garriss (Dwayne501@comcast.net)

2015 Virginia Construction Code

[F] 906.1 Where required. Portable fire extinguishers shall be installed in all of the following locations:

1. In Groups A, B, E, F, H, I, M, R-1, R-2, R-4, and S occupancies.

Exceptions:

1. In ~~Groups A, B, and E occupancies equipped throughout with quick response sprinklers~~ Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in ~~Items 2 through 6~~ where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.
2. In Group I-3 occupancies, portable fire extinguishers shall be permitted to be located at staff locations and the access to such extinguishers shall be permitted to be locked.
3. In Group E occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each classroom is provided with a portable fire extinguisher having a minimum rating of 2-A:20-B:C.
2. Within 30 feet (9144 mm) of commercial cooking ~~equipment~~ equipment ~~and from domestic cooking equipment in Group I-1; I-2, Condition 1; and R-2 college dormitory occupancies.~~
3. In areas where flammable or combustible liquids are stored, used or dispensed.
4. On each floor of structures under *construction*, except Group R-3 occupancies, in accordance with Section 3315.1 of the International Fire Code.
5. Where required by the International Fire Code sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

Reason Statement: VA is in the severe minority of states which have added an exception for the removal of portable fire extinguishers in sprinklered buildings. The added language is the actual language from a nationally recognized and adopted consensus standard. A report of the U.S. Consumer Products Safety Commission published in 2009, only 5-10 percent of fires are reported to fire departments in the U.S. According to this 234 page report, people use portable extinguishers on 371,000 residential fires in the U.S. annually. In this same report, the agency stated that extinguishers were effective in 80 percent of the cases where they were used. Extinguishers are the appropriate tool and designed for use on incipient fires. Some of these fires are extinguished using fire extinguishers; others are being extinguished with makeshift means. Since people are, in fact, extinguishing small fires in their incipient stage on a very regular basis, the code should provide for the proper tools to do so - by maintaining the requirements for portable extinguishers. Providing portable fire extinguishers in facilities greatly enhances safety, including the safety of those who choose to extinguish a fire in its incipient phase; extinguishers should be available in all buildings. The entire report can be found at: <https://www.cpsc.gov/PageFiles/105297/UnreportedResidentialFires.pdf>

An NFPA report on fires in sprinklered buildings published in 2010 states that in fires reported in buildings equipped with sprinkler systems, the fire didn't grow large enough to activate the sprinklers in 65 percent of the cases (page 11). The fires cited in this report were large enough to be reported to the fire department; the sprinkler systems were operational and would have activated if the fire had grown larger, but were extinguished or otherwise mitigated prior to sprinkler activation. This report verifies that people are intervening when a fire is small, saving the property owner(s) substantial sums of money by putting the fire out before it grows larger, doing more damage and before sprinklers activate, while protecting the lives of building occupants. You can see that report here: http://www.tvsfpe.org/images/us_experience_with_sprinklers.pdf

Finally, the question of whether a person needs to be trained in order to use a portable extinguisher is sometimes mentioned. There is substantial evidence that people without training can and do use extinguishers safely and effectively. Specifically, Worcester Polytechnic Institute and Eastern Kentucky University conducted a study titled "Ordinary People and Fire Extinguisher Effectiveness". In that study of 276 untrained persons, over 90 percent operated the extinguisher effectively on a simulated fire, with 98% successfully pulling the pin, squeezing the trigger, and discharging the agent. 74% used proper techniques including aiming at the base of the fire and using a sweeping motion. This study dispels any doubt that extinguishers can be effective in the hands of novice users. You can find the report here: <http://www.femalifesafety.org/docs/WPIStudyFinal.pdf>

The added language in exception 3 is language which many from the AIA have requested as a designer's alternative choice. It does not remove portable fire extinguishers but allows for an alternative design by removing extinguisher cabinet locations from school corridors to constantly attended and monitored locations and thus continues to provide additional safety for the occupants.

Cost Impact Statement:

Where cost is a consideration, portable fire extinguishers are, without a doubt, one of the most cost effective layers of fire protection available. A life cycle cost analysis was conducted in 2014 by Richard Bukowski, P.E, then working for RJA. In that study, the actual cost of portable extinguishers in several facilities was used to determine the real-world cost of these devices. Using 12 facilities, the costs of initial purchase, installation, monthly and annual maintenance, as well as all associated maintenance required by NFPA-10 (the standard referenced in ICC Codes) were compiled and analyzed. According to this study, the actual costs of portable extinguishers in these facilities ranged from \$.015 (one and one half cent) to \$.04 (four cents) per square foot per year. His study also states that, if a facility were able to utilize the minimum number of extinguishers required by the Codes based upon coverage of an area, the costs would be between \$.005 (one half cent) and \$.01 (one cent) per square foot per year. This report can be found at: <http://www.femalifesafety.org/docs/006GRCAtt01RJAFinalReport011714.pdf>

Resiliency Impact Statement:

This modification can have a positive impact on resiliency of the building from environmental stand point when a natural disaster occurs many times electricity and even water supplies are affected. When buildings and their occupants rely solely on one system such a sprinkler system for protection and the system is inoperable due to the natural disaster occurrence portable fire extinguishers still provided a self contained level of protection. In addition, the use of some form of early extinguishment before a water-based fire suppression system activates has been documented in an NFPA report on fires in sprinklered buildings published in 2010 states that in fires reported in buildings equipped with sprinkler systems, the fire didn't grow large enough to activate the sprinklers in 65 percent of the cases (page 11). The fires cited in this report were large enough to be reported to the fire department; the sprinkler systems were operational and would have activated if the fire had grown larger, but were extinguished or otherwise mitigated prior to sprinkler activation. This report verifies that people are intervening when a fire is small, saving the property owner(s) substantial sums of money by putting the fire out before it grows larger, doing more damage and before sprinklers activate, while protecting the lives of building occupants. You can see that report here: http://www.tvsfpe.org/images/us_experience_with_sprinklers.pdf

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 2 - Proposed Reason: Mr. Pharr, representing AOBA, is in opposition. Mr. Miataco is in support. Mr. Witt spoke in opposition in terms of cost. BHCD has consistently turned down similar proposals in previous cycles.



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B906.1-18

Public Comment by Dwayne Garriss

Aug 30, 2019 2:41 UTC

Comments: Mr. Catlett pointed out that they are not properly trained and cause further issues. We've address in the code because you have to put supervision on those. He does not want to see someone put out a fire with a fire extinguisher that isn't trained. He thinks that what we have in Virginia works and it goes along with the national codes. The people need to get out of the building and not stay to try and put a fire out.

RESPONSE:

At the National Fire Prevention Association's annual conference this year in San Antonio a special program was provided called "Spotlight on Public Education (SOPE)". During the session information was provided by Marty Ahrens, Research Manager, Fire Analysis, in the NFPA's Applied Research group that it has been documented that 87% of building occupants will attempt to fight a fire before fleeing despite education efforts. Let's face it, portable fire extinguishers in some rudimentary form have been recognized and used as the initial line of defense against erupting flames for centuries.

The use of some form of early extinguishment before a water-based fire suppression system activates has been documented in an NFPA report on fires in sprinklered buildings published in 2010 states that in fires reported in buildings equipped with sprinkler systems, the fire didn't grow large enough to activate the sprinklers in 65 percent of the cases (page 11). The fires cited in this report were large enough to be reported to the fire department; the sprinkler systems were operational and would have activated if the fire had grown larger but were extinguished or otherwise mitigated prior to sprinkler activation. This report verifies that people are intervening when a fire is small, saving the property owner(s) substantial sums of money by putting the fire out before it grows larger, doing more damage and before sprinklers activate, while protecting the lives of building occupants. You can see that report here:

http://www.tvsfpe.org/_images/us_experience_with_sprinklers.pdf

Due to such research analytics, NFPA has revamped its 2018 educational messaging and desk top reference for the fire service and Fire and Life Safety Educators to include portable fire extinguishers and firefighting. The fireextinguisherssavelives.org website highlights successful fire extinguisher uses in an effort to bring further awareness to fire safety. Studies have shown that after notifying the fire department, the average person can help save lives and protect property by using a fire extinguisher during an emergency. It is a fact that 98% of the average untrained individual can properly use a portable fire extinguisher to safely and effectively to help save lives and protect property. An great example of a quick training video slightly over two minutes is <https://youtu.be/BLjoWjCrDqg> additional educational material can be found at <https://www.femalifesafety.org/>.

Sources:

<https://fireextinguisherssavelives.org/>

ANSI Blog: NFPA 10-2018: Standard for Portable Fire Extinguishers <https://blog.ansi.org/?p=16024>

<https://youtu.be/BLjoWjCrDqg>

<https://www.femalifesafety.org/>

http://www.tvsfpe.org/_images/us_experience_with_sprinklers.pdf

Comments: Mr. Pharr mentioned that the data is not persuasive here. There are plenty of reason why we don't ask people to put themselves in danger to put out recipient fires. This is what insurance is for and would rather deal with an aftermath of a sprinkler system then a death of an individual. He would like this to be consensus for disapproval.

RESPONSE:

I would tend to say that insurers disagree. Why pay costly clean-up, demolition and rehab costs by letting a potentially small fire which could be extinguished by an untrained individual while the fire is small (in the incipient stages) can properly and effectively 98% operate a portable fire extinguisher if provided to protect property. Please understand a fire must grow large enough and to the point of having the ceiling

ambient temperatures surrounding the sprinkler head(s) to activate. These temperatures for sprinkler head classified as light or ordinary hazard to activate range from 135°F - 170°F. This is a rather significant fire which all the time while growing is expelling contaminants into the building's interior adding to the cost of cleanup and rehab. Furthermore, VA I believe has firefighter cancer legislation which insurers are proving coverage in some form or fashion. By allowing the fire to grow exposes first responders to increased amounts of carcinogens and byproducts to being released into the building as well as outside environment. Do not misunderstand my intentions, I do believe sprinklers are important and should be required where indicated in the National model codes they in themselves are not a standalone solution to preventing property loss and providing life safety for the building occupants. The minimum National model codes rely on a multi-faceted approach which is why there are other requirements such as travel distances, exit numbers of exits as well as capacity factors and compartmentation requirements too. I request that Mr. Pharr's statement alluding to death of an individual attempting to suppress a small fire by utilizing a portable fire extinguisher be substantiated with documented facts. As a retired State Fire Marshal in Georgia of the 30+ years of service I have never seen a documented case of a death related to an individual's attempt to suppress a fire with a portable fire extinguisher. The insurance cost for water introduced into a building despite by a suppression system or the fire service is again an additive cost based upon the fire size being extinguished.

I would also like to bring up the positive impact on resiliency of the building from environmental standpoint the proposal would have. When a natural disaster occurs many times electricity and even water supplies are affected. When buildings and their occupants rely solely on one system such a sprinkler system for protection and the system is inoperable due to the natural disaster occurrence portable fire extinguishers still provided a self-contained level of protection. If fire is allowed to grow and not extinguished early the overall the effects on the environment are huge. That is, more water used, more water runoff which must be treated, more air pollutants released into the environment, and the more building debris which must be removed and disposed of properly. Not to mention the other effect of loss revenue from a business tax base, potential work displacement of individuals, increase cost of taxpayer supported resources are utilized, higher risk to first responders and the general public.

Comments: Mr. Maiatico mentioned that we teach individuals fight or flight and is personal preference to use fire extinguisher. He understands the value of having someone trained. It's not a mandated thing. The fire services stress the use and design of the fire extinguisher which is to extinguish an incipient fire before it develops. The fire services did not say don't use fire extinguishers, it's not an accurate statement. He is in support of this proposal.

RESPONSE:

I agree with Mr. Maiatico, the fire service does provide training as well as there are many other ways to conduct training including interactive learning with today's technology. As stated below, "Education" is defined by 29CFR Subpart L 1910.155(c)(14) as "the process of imparting knowledge or skill through systematic instruction. It does not require formal classroom instruction."

Comments: Mr. Witt mentioned that he is in opposition of this. The cost is significant not in just installation but the maintenance of them. We have professed for years to put sprinkler systems in so that will protect people and get people out of the buildings and thinks the board has seen this several codes cycles that it's not for Virginia.

RESPONSE:

As indicated previously, where cost is a consideration, portable fire extinguishers are, without a doubt, one of the most cost effective layers of fire protection available. A life cycle cost analysis was conducted in 2014 by Richard Bukowski, P.E, then working for RJA. In that study, the actual cost of portable extinguishers in several facilities was used to determine the real-world cost of these devices. Using 12 health care facilities, the costs of initial purchase, installation, monthly and annual maintenance, as well as all associated maintenance required by NFPA-10 (the standard referenced in ICC Codes) were compiled and analyzed. According to this study, the actual costs of portable extinguishers in these facilities ranged from \$.015 (one and one half cent) to \$.04 (four cents) per square foot per year. His study also states that, if a facility were able to utilize the minimum number of extinguishers required by the Codes based upon coverage of an area, the costs would be between \$.005 (one half cent) and \$.01 (one cent) per square foot per year. This report can be found at:
<http://www.femalifesafety.org/docs/006GRCAAtt01RJAFinalReport011714.pdf>

Fire extinguishers are the first line of defense for small, controllable fires. They are intended to be used for fires of limited size and easily controlled. If a fire is discovered in its early stages, the most effective means of protecting life and preventing property loss is to sound an alarm and then to control and/or extinguish the incipient stage fire with a portable fire extinguisher. To simply wait for the fire to grow large enough in size for a sprinkler head to activate, is contrary to lessons and guidance from fire service and fire protection professionals. Since fire extinguishers provide a first line of defense versus sprinklers, it remains unclear as to the justification for this exception.

It is for that reason that prior to the 2012 International Fire Code (IFC), more than 20 states adopted amended versions of the 2006 and 2009 IFC that removed the exception and required extinguishers throughout most buildings regardless of the presence of sprinklers. After considering a proposal from the National Association of State Fire Marshals (NASFM), the International Code Council (ICC) voted to remove this exception in the 2012 code. NASFM, and other supporters of the exception's removal, rightly argued that exempting occupancies from fire extinguisher requirements can leave those buildings without a proper firefighting tool for small, controllable fires. The ICC agreed with this rationale and removed the exception in the last two versions (2012 and 2015) of the IFC.

Comments: Mr. Catlett pointed out that it's up to the jurisdiction to fight or flight. They want you to leave the building and not fight the fire.

RESPONSE:

Mr. Catlett is correct in his statement that it is up to the jurisdiction/(OWNER) if they want or require an employee to leave the building or fight the fire. The requirements for portable fire extinguishers in general industry are governed by OSHA and are in 29 Code of Federal Regulations (CFR) 1910.157. The intent is to minimize employee exposure to hazardous situations involving fire and to provide for fire protection equipment and services for the safe evacuation or rescue of employees. Additionally, the National Fire Protection Association (NFPA) Standard for Portable Fire Extinguishers, NFPA 10, offers supplementary guidance. The OSHA Requirement for employee training is required when the employer requires or designates specific employees to utilize firefighting equipment. When that occurs under the OSHA requirements, the employer shall provide employees who have been designated to use firefighting equipment training on that equipment.

As a summary to one of the most commonly asked questions on what kind of training is required or whether or not "hands on" training is required for fire extinguishers. The answer is that it depends.

For employers who write into their emergency action plan and fire prevention plan (covered in 29 CFR 1910.38 and 29 CFR 1910.39, respectively) that all employees will immediately evacuate the building in case of a fire and that no one will use an extinguisher, neither education nor training is required in portable fire extinguisher use.

Unless employers have communicated differently, the assumption is that any employee can pick up an extinguisher in their area to put out a fire. 29 CFR 1910.157(g)(1) states, "Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire-fighting." The standard goes on to explain in paragraph (g)(2) that the "education" required in paragraph (g)(1) "must be provided to employees upon initial employment and at least annually thereafter." "Education" is defined by Subpart L 1910.155(c)(14) as "the process of imparting knowledge or skill through systematic instruction. It does not require formal classroom instruction."

If some or all employees are designated to use portable fire extinguishers, then it's a different story: 29 CFR 1910.157(g)(3) states that "the employer shall provide employees who have been designated to use fire-fighting equipment as part of an emergency action plan with training in the use of the appropriate equipment." In 29 CFR Subpart L at 1910.155(c)(41), "training" means "the process of making proficient through instruction and hands-on practice in the operation of equipment." Paragraph (g)(4) states that this training must be provided upon initial assignment and at least annually thereafter. as Employers having an emergency action plan which designates certain employees to be the only employees authorized to use the available portable fire extinguishers, and which requires all other employees in the fire area to immediately evacuate the affected work area upon the sounding of the fire alarm, are exempt from the distribution requirements of the standard. When extinguishers are not available, employers who have established and implemented a written fire safety policy which requires the immediate and total evacuation of employees from the workplace upon the sounding of a fire alarm signal are exempt from all requirements.

Sources

[29 CFR 1910.157](#), Portable Fire Extinguishers

[29 CFR 1910.38](#), Emergency Action Plans

[29 CFR 1910.39](#), Fire Prevention Plans

[2018 NFPA 10](#), Standard for Portable Fire Extinguishers

[UL 711 2018](#), Rating and Fire Testing of Fire Extinguishers

National Fire Protection Association, Fire Protection Handbook, 20th Edition

National Safety Council, Accident Prevention Manual: Engineering and Technology, 14th Edition

Granger Know How article, <https://www.grainger.com> › Safety › Emergency Response

Proposal # 173

B906.1-18

Mr. Milliken gave an overview of proposal.

CONSENSUS APPROVED

B906.1

Proponents: Dwayne Garriss (Dwayne501@comcast.net)

Reason Statement: VA is in the severe minority of states which have added an exception for the removal of portable fire extinguishers in sprinkler buildings. The added language is the actual language from a nationally recognized and adopted consensus standard. A report of the U.S. Consumer Products Safety Commission published in 2009, only 5-10 percent of fires are reported to fire departments in the U.S. According to this 234 page report, people use portable extinguishers on 371,000 residential fires in the U.S. annually. In this same report, the agency stated that extinguishers were effective in 80 percent of the cases where they were used. Extinguishers are the appropriate tool and designed for use on incipient fires. Some of these fires are extinguished using fire extinguishers; others are being extinguished with makeshift means. Since people are, in fact, extinguishing small fires in their incipient stage on a very regular basis, the code should provide for the proper tools to do so - by maintaining the requirements for portable extinguishers. Providing portable fire extinguishers in facilities greatly enhances safety, including the safety of those who choose to extinguish a fire in its incipient phase; extinguishers should be available in all buildings. The entire report can be found at: <https://www.cpsc.gov/PageFiles/105297/UnreportedResidentialFires.pdf>

Comments:

Mr. Garriss gave an overview of proposal.

Mr. Catlett pointed out that they are not properly trained and cause further issues. We've address in the code because you have to put supervision on those. He does not want to see someone put out a fire with a fire extinguisher that isn't trained. He thinks that what we have in Virginia works and it goes along with the national codes. The people need to get out of the building and not stay to try and put a fire out.

Mr. Pharr mentioned that the data is not persuasive here. There are plenty of reason why we don't ask people to put themselves in danger to put out recipient fires. This is what insurance is for and would rather deal with an aftermath of a sprinkler system then a death of an individual. He would like this to be consensus for disapproval.

Mr. Maiatico mentioned that we teach individuals fight or flight and is personal preference to use fire extinguisher. He understands the value of having someone trained. It's not a mandated thing. The fire services stress the use and design of the fire extinguisher which is to extinguish an excipient fire before it develops. The fire services did not say don't use fire extinguishers, it's not an accurate statement. He is in support of this proposal.

Mr. Witt mentioned that he is in opposition of this. The cost is significant not in just installation but the maintenance of them. We professed for years to put sprinkler systems in so that will protect people and get people out of the buildings and thinks the board has seen this several codes cycles that it's not for Virginia.

Mr. Catlett pointed out that it's up to the jurisdiction to fight or flight. They want you to leave the building and not fight the fire.

NONCONSENSUS

B916.1-18

VCC: 916.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Construction Code

916.1 General. For localities utilizing public safety wireless communications, dedicated infrastructure to accommodate and perpetuate continuous in-building *emergency communication equipment* to allow *emergency public safety personnel* to send and receive emergency communications shall be provided in new buildings and structures in accordance with this section.

Exceptions:

1. Buildings of Use Groups A-5, I-4, within dwelling units of R-2, R-3, R-4, R-5, and U.
2. Buildings of Types IV and V *construction* without basements, that are not considered unlimited area buildings in accordance with Section 507.
3. Above grade single story buildings of less than 20,000 square feet (1858 m²).
4. Buildings or leased spaces occupied by federal, state, or local governments, or the contractors thereof, with security requirements where the building official has approved an alternative method to provide *emergency communication equipment* for *emergency public safety personnel*.
5. Where the *owner* provides technological documentation from a qualified individual that the *structure* or portion thereof does not impede emergency communication signals.
- 6 Buildings in localities that do not provide the additional communication equipment required for the operation of the system.

Reason Statement: Many localities do not have the funding to provide the communication equipment required to operate in building communication systems. In such localities installation of radiating cable that will not be used makes little sense. Additionally, even if equipment will be provide some time in the future it is not possible to design the system to operate properly without knowing the equipment specifications at the time of building design. Furthermore, the requirement for the locality to provide the equipment puts localities in a position of violating the code when funding is not allocated to purchase the equipment.

Cost Impact Statement: The code change proposal will decrease the cost of construction
This will decrease the cost of construction by not requiring building infrastructure to be installed that will never be used.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This code provision is not related to resiliency.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 2 - Proposed Reason: Mr. Miliken opposes.



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for B916.1-18

This proposal doesn't have any public comments.

Proposal # 213

B916.1-18

B916.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Many localities do not have the funding to provide the communication equipment required to operate in building communication systems. In such localities installation of radiating cable that will not be used makes little sense. Additionally, even if equipment will be provide some time in the future it is not possible to design the system to operate properly without knowing the equipment specifications at the time of building design. Furthermore, the requirement for the locality to provide the equipment puts localities in a position of violating the code when funding is not allocated to purchase the equipment.

Comments:

Mr. Clements gave an overview of proposal.

Mr. Milliken pointed out that the locality doesn't know the building is coming and has concerns when that decision is made and stuck with. But to give an out to individuals ahead of time when the locality doesn't have funding doesn't make sense and this should be deleted all together.

Mr. Catlett mentioned that we have the ability to put a connection on which is very cheap and the cable is important to the equipment but not necessarily installed.

NONCONSENSUS

B1010.1.9.3(1)

Proponents: Natalia Larrimer

Reason Statement: In child care facilities the allowable ratio of staff to children in VA are 5 toddlers/adults, 8 2yo per adult and 10/3yo per adult. The ratios make it almost impossible for the teacher to act immediately if a child accidentally exists the facility. It is expected that the adult responsible will have all the children with him/her and keep them safe as s/he is trying to address the situation.

Comments:

This was discussed by the School Safety subworkgroup and was recommended to disapproval

CONSENSUS FOR DISAPPROVAL

B1010.1.9.3(2)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: All three hardware changes is to get the VCC to be the same as the IBC.

Comments:

Mr. Payne gave an overview of proposal.

We need to look at the language in chapter 4 (special locking arrangements) and 1010.1.9.7 #6 (clinical staff shall have keys, access to) and #7 (unlocking switch behind the nursing station, if you can't see the switch how are you going to unlock it) and the exception where it talks about the unlocking of the doors shall not apply occupied by persons because of clinical needs, what about dementia and safe and security measures.

CARRYOVER TO AUGUST

RB310.11-18

VCC: 310.11

Proponents: Glenn Dean (gad.pompier@gmail.com)

2015 Virginia Construction Code

Revise as follows:

310.11 Amendments to the IRC. The following changes shall be made to the IRC for its use as part of this code:

(DHCD Note: The changes to the IRC are available in the Virginia Residential Code published by ICC, or the pamphlet form of the VCC published by DHCD. They are not included in this printing of the VCC.)

Section R313

Automatic Fire Sprinkler Systems

R313.1 Townhouse automatic fire sprinkler systems. ~~Notwithstanding the requirements of Section 103.3, where installed, an automatic residential fire sprinkler system for townhouses shall be designed and installed in accordance with NFPA 13D or Section P2904. An automatic residential fire sprinkler system shall be installed in townhouses.~~

Exception: An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

R313.1.1 Design and installation. Automatic residential fire sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D.

R313.2 One-family and two-family dwellings automatic fire sprinkler systems. ~~Notwithstanding the requirements of Section 103.3, where installed, an automatic residential fire sprinkler system shall be designed and installed in accordance with NFPA 13D or Section P2904. An automatic residential fire sprinkler system shall be installed in one- and two-family dwellings.~~

Exception: An automatic residential fire sprinkler system shall not be required for additions or alterations to existing buildings that are not already provided with an automatic residential fire sprinkler system.

R313.2.1 Design and installation. Automatic residential fire sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.

Reason Statement: The facts supporting the requirement to install automatic fire sprinkler systems in townhouses and 1&2 family dwellings have not fundamentally changed over the past decade although they are stronger now than before. By the same token, the argument against requiring sprinklers is fundamentally the same, just somewhat weaker given the national expansion of them being required along with technical improvements, consumer, builder and local official's increased knowledge.

Attached is an article published online by Forbes dated August 3, 2019. It provides a concise overview of why fire sprinklers should be required in all newly constructed housing. (I've hi-lited a few important points.) In concert with the attachment, I urge watching a 10-minute video on YouTube (<https://www.youtube.com/watch?v=OiHgRJVChIQ>) that expands the article's cited example of Scottsdale, AZ, a locality with one of the oldest ordinances in the country requiring fire sprinklers. (There are other localities with similar requirements for fire sprinklers but their requirement is younger and thus don't have the more reliant record as Scottsdale, AZ does --- yet.) A fire sprinkler opponent in Virginia might say that Arizona is not Virginia and Arizona's fire experience is not the same as Virginia's. Really, about the only significant difference between Arizona and Virginia is the climate. People are people. Fire is fire. Construction is construction. They essentially use the same materials in Arizona as are used in Virginia. The only difference may be the appearance (architecture) once assembled.

One of the oldest arguments against fire sprinklers has been "cost". To require fire sprinklers will increase the cost of housing. Fire sprinklers will price people out housing. Fire sprinklers will hurt the economy. (Think *Chicken Little*.) These same tired arguments have been levied against other housing elements over the years. They've been used to argue against handrail geometry, stair geometry, GFIs, smoke detectors, window sizing, energy efficiencies, and the list goes on. The cost of installing fire sprinklers is LESS than the cost of most kitchen counter upgrades. They do not require a sprinkler contractor to install them. Under current DPOR licensing requirements, a plumber can install them. The plumbing loops in the house are lengthened in order to have a sprinkler head high on a wall in the middle of a ceiling. Maintenance is less than the amount of maintenance given to replacing worn washers in a faucet. (Other than someone physically damaging a fire sprinkler head, there's no maintenance.) The tap fee is a non-issue used for distraction. The same is true for the meter size because it does not need to be different from what is currently required or needed. The same is for houses on wells. Nor is there a need for a "stand by

fee". In the event of a fire, the amount of water flow (GPM) needed to operate a sprinkler head is no more than what would be needed to take a shower or refill a toilet. If there is sufficient potable water to supply the house for domestic use, then by default there is enough water to supply the fire sprinkler system.

Probably the most ludicrous statement ever made against fire sprinklers was, in a public forum no less, "only OLD houses burn". Really? If that were true, at what age does a newly construction house become "old"? (Please return to the attached article wherein it states that there have been NO fire deaths in any house constructed in Scottsdale, AZ since 1986.)

The technical merits and costs of requiring the installation of fire sprinklers in townhouses and 1&2 family dwellings are well known and have been for years. The argument against them hasn't changed much either. So it simply comes down to politics and which argument, for or against, do you wish to subscribe to. As quoted in the attached article, it can be, "A puddle of water or a pile of ashes." To that end, be mindful of the statutory charge that the USBC and its provisions "...**shall** be such as to protect the health, safety and welfare of the residents of the Commonwealth, provided that buildings and structures **should** be permitted to be constructed, rehabilitated and maintained at the least possible cost consistent with recognized standards of health, safety, energy conservation and water conservation, including provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation; and barrier-free provisions for the physically handicapped and aged." (§ 36-99 of the Code of Virginia) (Emphasis added to denote the order of placement and the hierarchy of the words "shall" and "should".)

Cost Impact Statement: The code change proposal will increase the cost of construction

Not including the cost of land, I estimate the cost of incorporating fire sprinkler systems into newly constructed townhouses and 1&2 family dwellings at 1% of the construction costs above the structure's foundation.

Resiliency Impact Statement: This proposal will increase Resiliency

COV Executive Order Twenty-four speaks to increasing Virginia's resilience to sea level rise and natural hazards. The Executive Order goes further in saying, "We must act now to protect lives and property from multiple threats and reduce taxpayer exposure through fiscally responsible planning." According to the **Resilient** Design Institute, **resilient** design is defined as "the intentional design of buildings, landscapes, communities, and regions in response to vulnerabilities to disaster and disruption of normal life". Fire is a natural hazard to a community whether it is a single house or an entire neighborhood. I submit this proposal provides resilience but it is targeted only to the hazards of fire on a scale smaller than what may be intended or described in Executive Order 24.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 3 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RB310.11-18

This proposal doesn't have any public comments.

Proposal # 251

RB310.11-18

2,355 views | Aug 3, 2019, 05:29pm

Why Fire Sprinkler Systems Should Be A Requirement In All Homes



Sheri Koones Contributor ①
Real Estate



Every day on the news you see another house going up in flames. People's total belongs gone in a flash, lives lost.

One simple solution to this problem is the installation of fire sprinkler systems. More important than granite counter tops and other luxury items in the home is the safety of the occupants. I have long been an advocate for sprinkler systems because the best living conditions in any home are those that are safe first, then sustainable and energy efficient Beautiful is an added plus!

Many argue that fire sprinkler systems add an extra expense to the cost of construction. But when you are investing in building a house – safety should be a major priority.

It's every homeowner's nightmare — a house fire, caused by faulty wiring, a kitchen accident, an act of nature or simple carelessness. When most homeowners think of house fires, they probably first consider the resulting property damage, and the numbers are staggering. Fires in single- and two-family homes caused \$6.1 billion in property loss, according to data compiled by the National Fire Protection Association (NFPA), based in Quincy, Mass.

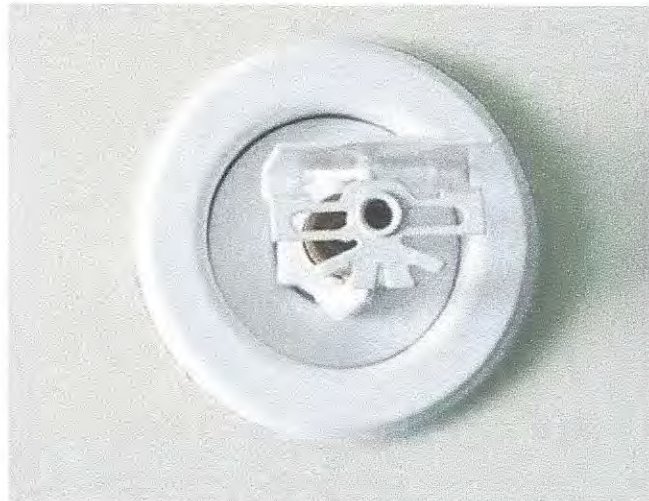
But more sobering is the loss of life that often results from house fires. Every year, more than 2,300 people perish due to fires in their homes. If residential fire sprinkler systems had been installed in those houses, property damage could have been greatly reduced, and lives could have been saved.



Pendent Sprinkler



Concealed Sprinkler



Sidewall Sprinkler



Concealed Sidewall Sprinkler

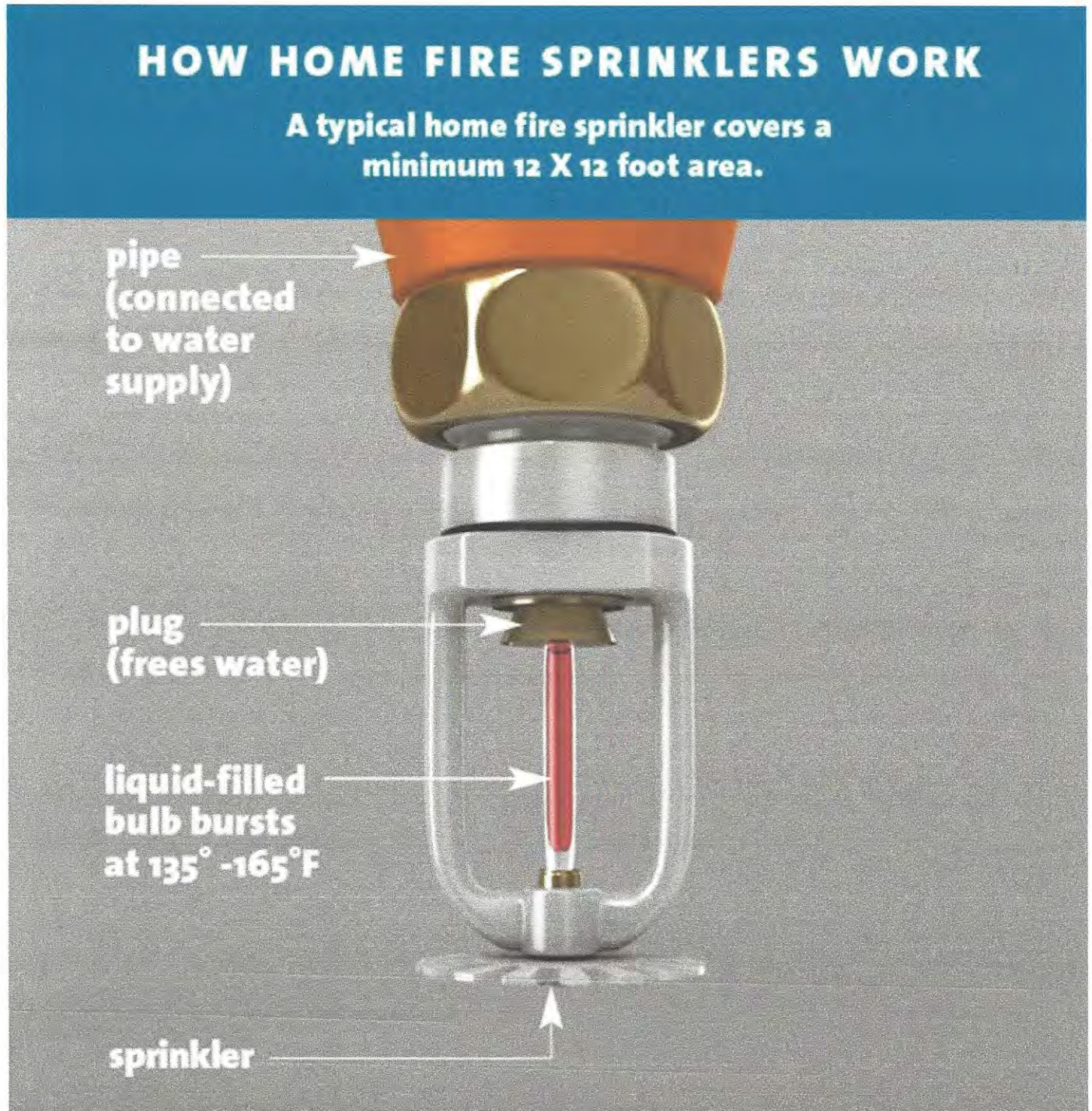
There are a variety of pendants available for use with a fire sprinkler system. Some of them can be nearly invisible.

PHOTO COURTESY OF THE HOME FIRE SPRINKLER COALITION

Despite this fact, many homeowners rarely consider installing a residential fire sprinkler system, for a variety of reasons. Swayed by common misconceptions, as well as what some perceive as an aesthetic issue, even safety-conscious homeowners steer away from home fire sprinkler systems. That's beginning to change, however, as more homeowners learn about the realities and benefits of these systems, as communities begin to mandate the installation of home fire sprinkler systems in new homes and as updated, less conspicuous systems become available.

In an ironic twist, many homeowners believe that sprinkler systems will cause more damage to a home than the fire itself. But that's faulty thinking. According to the Scottsdale Report, a 15-year study of sprinkler system effectiveness compiled by Deputy Chief and Fire Marshal Jim Ford of the Rural/Metro Fire Department in Scottsdale, Ariz. a fire sprinkler system delivers eight to 10 times less water than the hoses used by

firefighters to put out the flames, resulting in less water damage to a home. A fire hose dispenses up to 250 gallons of water per minute, while a typical residential sprinkler head will release just 25 gallons of water per minute. What's more, the fire department applies hose streams to a house fire in broad sweeps, while a sprinkler system is much more targeted. According to the Home Fire Sprinkler Coalition, 90 percent of all house fires are extinguished by a single sprinkler.



This is a simple diagram showing how a fire sprinkler works. PHOTO COURTESY OF THE HOME FIRE SPRINKLER COALITION

There's another important point to consider. When a house fire occurs, a sprinkler can respond almost immediately, reducing the amount of damage caused by the fire, whereas by the time the fire department arrives (usually in 5 to 10 minutes), the damage to the home can be far more substantial. In Scottsdale, according to the study, the average cost of fire damage in homes without sprinklers was \$45,000, compared to just \$2,166 for homes with a sprinkler system. Damage from smoke also was reduced in homes with sprinklers, because house fires were extinguished much more quickly.

Most importantly, in Scottsdale, where sprinklers have been required in all new homes built since 1986, there have been no deaths due to fire in homes with sprinklers. However there have been 13 deaths in homes without sprinklers.



VIDEO COURTESY OF THE HOME FIRE SPRINKLER COALITION

Some homeowners worry that sprinklers will activate accidentally, for no reason, or that all sprinklers will activate for a small, localized fire. However, automatic fire sprinklers are individually heat-activated and tied into a network of pipes with water under pressure. Only those sprinklers in the immediate area of the fire will operate, optimizing the use of the limited water they distribute.

Another contention about sprinkler systems is that they will detract from the aesthetics of the home. However, newer systems feature sprinklers, or pendants, can be concealed. The sprinklers can be inconspicuously installed on a ceiling or wall and almost completely concealed by small plates that can be matched to a room's colors.

An advantage of sprinkler systems besides the obvious advantages of saving lives and property, some insurance companies offer discounts to homeowners with fire sprinkler systems installed. Savings vary by company, so homeowners need to shop around.

The cost of installing a system in a new construction is estimated to be 1 to 1.5 percent of the total construction cost. Retrofitting a system in an existing house can be about 50 percent higher. In addition, a few municipalities have policies that charge fees, generally called tap fees, for the initial connection of the water sprinkler system (connection fees) and for maintaining the availability of water (standby charge).

According to sprinkler industry humor, homeowners have a choice: "A puddle of water or a pile of ashes." It is clear that sprinkler systems can save lives and reduce property loss, and should be considered an important option when building or remodeling a home. For further information check the web site of the [Home Fire Sprinkler Coalition](#) or the [National Fire Protection Association](#).

Follow me on [Twitter](#) or [LinkedIn](#). Check out some of my other work [here](#).



Sheri Koones

My next book coming out in October (Taunton Press) is titled – *Downsize: Living Large In a Small House* – profiles 33 exceptional houses that show how small can be comfo... **Read More**

DRAFT SUMMARY
DHCD COMBINED WORKGROUP (WG 1, 2, 3 AND 4) MEETING
2018 Code Change Cycle

August 21, 2019 at 9:30 a.m.
VIRGINIA HOUSING CENTER
4224 Cox Road
Glen Allen, VA

Workgroup 3

Virginia Construction Code

RB310.11 Requiring sprinkler coverage in residential construction

Proponent: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Clark speaks in opposition for homebuilders association. Currently, anyone can choose to install sprinklers if they want to. Proposal adds to cost of housing.

Results: Non-Consensus

RB311.3.2 Increase to 8 ¼ in. the floor elevation height for exterior doors

Proponent: Andrew Clark (aclark@hbav.com)

Comments: Rest on reason statement.

Results: Consensus Approval

RB332 Add Appendix Q: Tiny Houses

Proponent: Thom Stanton, Residential Uses Subworkgroup

Comments: Rest on reason statement

Results: Consensus Approval

BAQ104.1.2 Edit the IRC Appendix Q to include provisions from the 2021 Appendix Q

Proponent: Residential Uses Subworkgroup

Comments: Ms. Davis summarizes that this brings in 2021 language to Appendix Q for Tiny Homes

Results: Consensus Approval

RB401.3 Reduce to 1% the grade for impervious surfaces near building foundations

Proponents: Andrew Clark (aclark@hbav.com)

RTE3401.1-18

VRC: SECTION E3401, E3401.1, E3401.2, E3401.3, E3401.4

Proponents: Bryan Holland (Bryan.Holland@NEMA.org)

2015 Virginia Residential Code

SECTION E3401 GENERAL

Revise as follows:

E3401.1 Applicability. Electrical systems, equipment, and components for buildings under the scope of this code shall comply with the applicable provisions of NFPA 70, National Electrical Code. The provisions of Chapters 34 through 43 shall establish the general scope of the electrical system and equipment requirements of this code. Chapters 34 through 43 cover those wiring methods and materials most commonly encountered in the construction of one- and two-family dwellings and structures regulated by this code. Other wiring methods, materials and subject matter covered in NFPA 70 are also allowed by this code.

Delete without substitution:

E3401.2 Scope.

~~Chapters 34 through 43 shall cover the installation of electrical systems, equipment and components indoors and outdoors that are within the scope of this code, including services, power distribution systems, fixtures, appliances, devices and appurtenances. Services within the scope of this code shall be limited to 120/240-volt, 0- to 400-ampere, single-phase systems. These chapters specifically cover the equipment, fixtures, appliances, wiring methods and materials that are most commonly used in the construction or alteration of one- and two-family dwellings and accessory structures regulated by this code. The omission from these chapters of any material or method of construction provided for in the referenced standard NFPA 70 shall not be construed as prohibiting the use of such material or method of construction. Electrical systems, equipment or components not specifically covered in these chapters shall comply with the applicable provisions of NFPA 70.~~

E3401.3 Not covered.

~~Chapters 34 through 43 do not cover the following:~~

- ~~1. Installations, including associated lighting, under the exclusive control of communications utilities and electric utilities.~~
- ~~2. Services over 400 amperes.~~

Revise as follows:

E3401.4 Additions and alterations. ~~Any addition or alteration to an existing electrical system shall be made in conformity to the provisions of the Virginia Existing Building Code and NFPA 70, National Electrical Code, as applicable. Chapters 34 through 43. Where additions subject portions of existing systems to loads exceeding those permitted herein, such portions shall be made to comply with Chapters 34 through 43.~~

Reason Statement: This proposed modification to the VRC improves code usability and enhances proper enforcement of the code. Having electrical installation requirements for buildings under the scope of the VRC in both the NEC and Chapters 34-43 of the VRC creates confusion and complicates proper enforcement. Since the rules outlined in Chapters 34-43 are direct extracts from the NEC, these rules are not needed in the VRC. This proposed modification will enhance the enforcement and effectiveness of the code by simply referencing the NEC for electrical installation compliance.

Other states that have "reserved" or deleted Chapters 34-43 of the Residential Code include Florida, Georgia, North Carolina, and Tennessee.

Please see the attached document to review the complete proposal for all of Chapters 34-43.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This code change proposal will not increase or decrease the cost of construction.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase nor decrease Resiliency.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 3 - Proposed Reason: Two hands raised in support of proposal. Ainsle opposed.



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RTE3401.1-18

Public Comment by Kevin Arnold

Aug 13, 2019 15:47 UTC

Eaton fully supports proposal RTE3401.1-18. This proposal would promote consistency with electrical industry training, equipment installation, and field inspections. The NEC® has an extensively proven track record with expert industry knowledge and vetting process for the practical safeguarding of persons and property that may arise from electrical hazards.

Proposal # 199

RTE3401.1-18

CHAPTER 34

GENERAL REQUIREMENTS

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SECTION E3401

GENERAL

E3401.1 Applicability.

Electrical systems, equipment, and components for buildings under the scope of this code shall comply with the applicable provisions of NFPA 70, National Electrical Code. The provisions of Chapters 34 through 43 shall establish the general scope of the electrical system and equipment requirements of this code. Chapters 34 through 43 cover those wiring methods and materials most commonly encountered in the construction of one- and two-family dwellings and structures regulated by this code. Other wiring methods, materials and subject matter covered in NFPA 70 are also allowed by this code.

E3401.2 Scope.

RESERVED

Chapters 34 through 43 shall cover the installation of electrical systems, equipment and components indoors and outdoors that are within the scope of this code, including services, power distribution systems, fixtures, appliances, devices and appurtenances. Services within the scope of this code shall be limited to 120/240 volt, 0 to 400 ampere, single phase systems. These chapters specifically cover the equipment, fixtures, appliances, wiring methods and materials that are most commonly used in the construction or alteration of one- and two-family dwellings and accessory structures regulated by this code. The omission from these chapters of any material or method of construction provided for in the referenced standard NFPA 70 shall not be construed as prohibiting the use of such material or method of construction. Electrical systems, equipment or components not specifically covered in these chapters shall comply with the applicable provisions of NFPA 70.

E3401.3 Not covered.

RESERVED

Chapters 34 through 43 do not cover the following:

1. Installations, including associated lighting, under the exclusive control of communications utilities and electric utilities.
2. Services over 400 amperes.

E3401.4 Additions and alterations.

Any addition or alteration to an existing electrical system shall be made in conformity to the provisions of the Virginia Existing Building Code and NFPA 70, National Electrical Code, as applicable. Chapters 34 through 43. Where additions subject portions of existing systems to loads exceeding those permitted herein, such portions shall be made to comply with Chapters 34 through 43.

SECTION E3402

BUILDING STRUCTURE PROTECTION

E3402.1 Drilling and notching.

RESERVED

~~Wood framed structural members shall not be drilled, notched or altered in any manner except as provided for in this code.~~

E3402.2 Penetrations of fire-resistance-rated assemblies.

RESERVED

~~Electrical installations in hollow spaces, vertical shafts and ventilation or air handling ducts shall be made so that the possible spread of fire or products of combustion will not be substantially increased. Electrical penetrations into or through fire resistance rated walls, partitions, floors or ceilings shall be protected by approved methods to maintain the fire resistance rating of the element penetrated. Penetrations of fire resistance rated walls shall be limited as specified in Section R302.4. (300.21)~~

E3402.3 Penetrations of firestops and draftstops.

RESERVED

~~Penetrations through fire blocking and draftstopping shall be protected in an approved manner to maintain the integrity of the element penetrated.~~

SECTION E3403

INSPECTION AND APPROVAL

E3403.1 Approval.

RESERVED

~~Electrical materials, components and equipment shall be approved. (110.2)~~

E3403.2 Inspection required.

RESERVED

~~New electrical work and parts of existing systems affected by new work or alterations shall be inspected by the building official to ensure compliance with the requirements of Chapters 34 through 43.~~

E3403.3 Listing and labeling.

RESERVED

Electrical materials, components, devices, fixtures and equipment shall be listed for the application, shall bear the label of an approved agency and shall be installed, and used, or both, in accordance with the manufacturer's installation instructions. [110.3(B)]

SECTION E3404

GENERAL EQUIPMENT REQUIREMENTS

E3404.1 Voltages.

RESERVED

Throughout Chapters 34 through 43, the voltage considered shall be that at which the circuit operates. (110.4)

E3404.2 Interrupting rating.

RESERVED

Equipment intended to interrupt current at fault levels shall have a minimum interrupting rating of 10,000 amperes. Equipment intended to interrupt current at levels other than fault levels shall have an interrupting rating at nominal circuit voltage of not less than the current that must be interrupted. (110.9)

E3404.3 Circuit characteristics.

RESERVED

The overcurrent protective devices, total impedance, equipment short circuit current ratings and other characteristics of the circuit to be protected shall be so selected and coordinated as to permit the circuit protective devices that are used to clear a fault to do so without extensive damage to the electrical equipment of the circuit. This fault shall be assumed to be either between two or more of the circuit conductors or between any circuit conductor and the equipment grounding conductors permitted in Section E3908.8. Listed equipment applied in accordance with its listing shall be considered to meet the requirements of this section. (110.10)

E3404.4 Enclosure types.

RESERVED

Enclosures, other than surrounding fences or walls, of panelboards, meter sockets, enclosed switches, transfer switches, circuit breakers, pullout switches and motor controllers, rated not over 600 volts nominal and intended for such locations, shall be marked with an enclosure type number as shown in Table E3404.4.

Table E3404.4 shall be used for selecting these enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as

condensation, icing, corrosion, or contamination that might occur within the enclosure or enter through the conduit or unsealed openings. (110.28)

TABLE E3404.4 (Table 110.28)

ENCLOSURE SELECTION

RESERVED

PROVIDES A DEGREE OF PROTECTION AGAINST THE FOLLOWING ENVIRONMENTAL CONDITIONS	FOR OUTDOOR USE									
	Enclosure type Number									
	3	3R	3S	3X	3RX	3SX	4	4X	6	6P
Incidental contact with the enclosed equipment	X	X	X	X	X	X	X	X	X	X
Rain, snow and sleet	X	X	X	X	X	X	X	X	X	X
Sleet ^a	—	—	X	—	—	X	—	—	—	—
Windblown dust	X	—	X	X	—	X	X	X	X	X
Hosedown	—	—	—	—	—	—	X	X	X	X
Corrosive agents	—	—	—	X	X	X	—	X	—	X
Temporary submersion	—	—	—	—	—	—	—	—	X	X
Prolonged submersion	—	—	—	—	—	—	—	—	—	X
PROVIDES A DEGREE OF PROTECTION AGAINST THE FOLLOWING ENVIRONMENTAL CONDITIONS	FOR INDOOR USE									
	Enclosure type Number									
	1	2	4	4X	5	6	6P	12	12K	13
Incidental contact with the enclosed equipment	X	X	X	X	X	X	X	X	X	X

Falling dirt	X	X	X	X	X	X	X	X	X	X
Falling liquids and light splashing	—	X	X	X	X	X	X	X	X	X
Circulating dust, lint, fibers and flyings	—	—	X	X	—	X	X	X	X	X
Settling airborne dust, lint, fibers and flings	—	—	X	X	X	X	X	X	X	X
Hosedown and splashing water	—	—	X	X	—	X	X	—	—	—
Oil and coolant seepage	—	—	—	—	—	—	—	X	X	X
Oil or coolant spraying and splashing	—	—	—	—	—	—	—	—	—	X
Corrosive agents	—	—	—	X	—	—	X	—	—	—
Temporary submersion	—	—	—	—	—	X	X	—	—	—
Prolonged submersion	—	—	—	—	—	—	X	—	—	—

1. ~~a. Mechanism shall be operable when ice covered.~~
2. ~~Note 1: The term raintight is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 6 and 6P. The term rainproof is typically used in conjunction with Enclosure Types 3R and 3RX. The term watertight is typically used in conjunction with Enclosure Types 4, 4X, 6 and 6P. The term driptight is typically used in conjunction with Enclosure Types 2, 5, 12, 12K and 13. The term dusttight is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 5, 12, 12K and 13.~~
3. ~~Note 2: Ingress protection (IP) ratings are found in ANSI/NEMA 60529, *Degrees of Protection Provided by Enclosures*. IP ratings are not a substitute for enclosure type ratings.~~

E3404.5 Protection of equipment.

RESERVED

Equipment not identified for outdoor use and equipment identified only for indoor use, such as “dry locations,” “indoor use only,” “damp locations,” or enclosure Type 1, 2, 5, 12, 12K and/or 13, shall be protected against damage from the weather during construction. (110.11)

E3404.6 Unused openings.

RESERVED

~~Unused openings, other than those intended for the operation of equipment, those intended for mounting purposes, and those permitted as part of the design for listed equipment, shall be closed to afford protection substantially equivalent to the wall of the equipment. Where metallic plugs or plates are used with nonmetallic enclosures they shall be recessed at least $\frac{3}{4}$ inch (6.4 mm) from the outer surface of the enclosure. [110.12(A)]~~

E3404.7 Integrity of electrical equipment.

RESERVED

~~Internal parts of electrical equipment, including busbars, wiring terminals, insulators and other surfaces, shall not be damaged or contaminated by foreign materials such as paint, plaster, cleaners or abrasives, and corrosive residues. There shall not be any damaged parts that might adversely affect safe operation or mechanical strength of the equipment such as parts that are broken, bent, cut, deteriorated by corrosion, chemical action, or overheating. Foreign debris shall be removed from equipment. [110.12(B)]~~

E3404.8 Mounting.

RESERVED

~~Electrical equipment shall be firmly secured to the surface on which it is mounted. Wooden plugs driven into masonry, concrete, plaster, or similar materials shall not be used. [110.13(A)]~~

E3404.9 Energized parts guarded against accidental contact.

RESERVED

~~Approved enclosures shall guard energized parts that are operating at 50 volts or more against accidental contact. [110.27(A)]~~

E3404.10 Prevent physical damage.

RESERVED

~~In locations where electrical equipment is likely to be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent such damage. [110.27(B)]~~

E3404.11 Equipment identification.

RESERVED

~~The manufacturer's name, trademark or other descriptive marking by which the organization responsible for the product can be identified shall be placed on all electric equipment. Other markings shall be provided that indicate voltage, current, wattage or other ratings as specified elsewhere in~~

~~Chapters 34 through 43. The marking shall have the durability to withstand the environment involved.~~
~~{110.21(A)}~~

E3404.12 Field-applied hazard markings.

RESERVED

~~Where caution, warning, or danger signs or labels are required by this code, the labels shall meet the following requirements:~~

- ~~4. 1. The marking shall adequately warn of the hazard using effective words, colors, or symbols or combinations of such.~~
- ~~5. 2. Labels shall be permanently affixed to the equipment or wiring method.~~
- ~~6. 3. Labels shall not be hand written except for portions of labels or markings that are variable, or that could be subject to changes. Labels shall be legible.~~
- ~~7. 4. Labels shall be of sufficient durability to withstand the environment involved.~~
~~{110.21(B)}~~

E3404.13 Identification of disconnecting means.

RESERVED

~~Each disconnecting means shall be legibly marked to indicate its purpose, except where located and arranged so that the purpose is evident. The marking shall have the durability to withstand the environment involved. {110.22(A)}~~

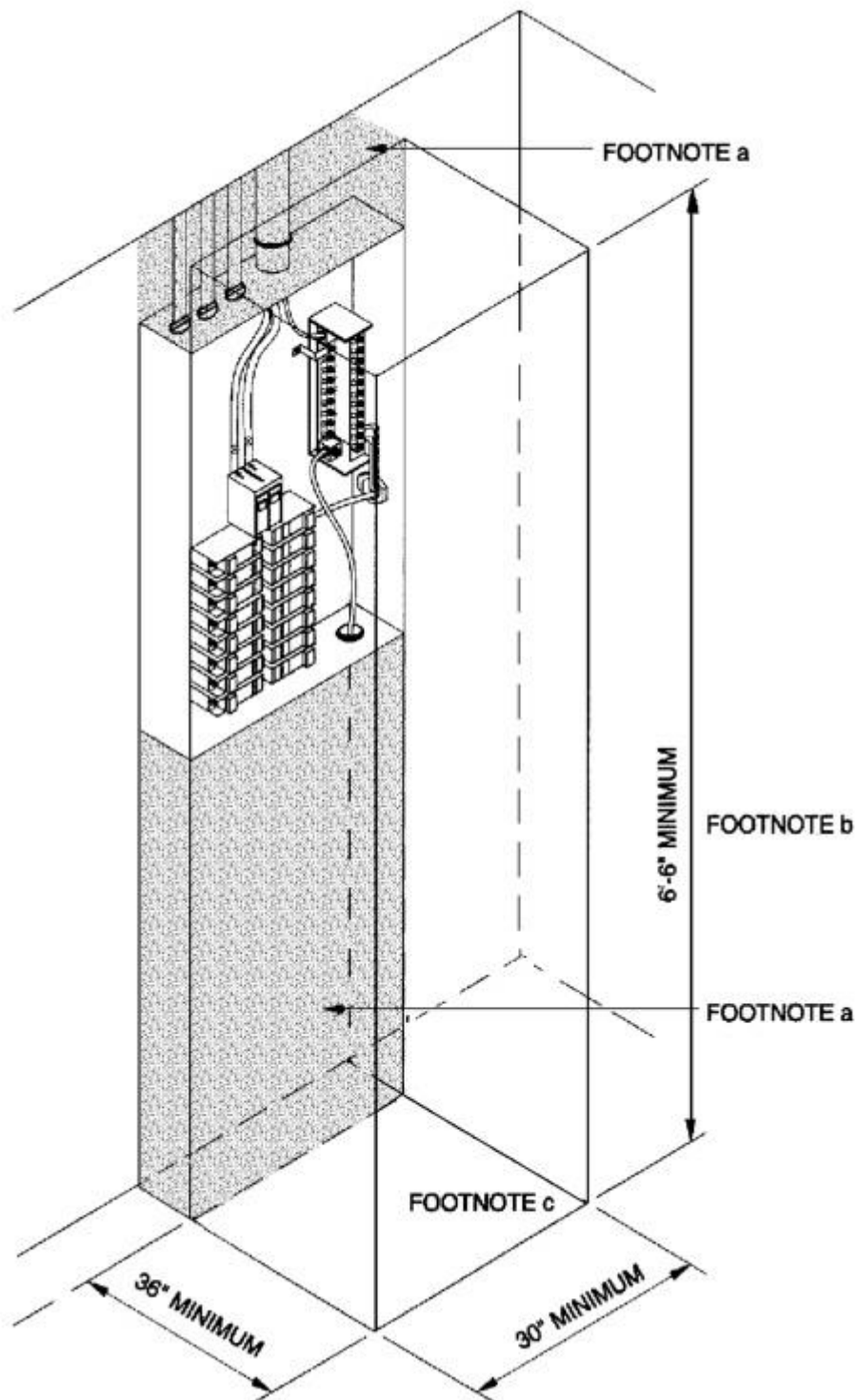
SECTION E3405

EQUIPMENT LOCATION AND CLEARANCES

E3405.1 Working space and clearances.

RESERVED

~~Access and working space shall be provided and maintained around all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with this section and Figure E3405.1. {110.26}~~



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

8. ~~a. Equipment, piping and ducts foreign to the electrical installation shall not be placed in the shaded areas extending from the floor to a height of 6 feet above the panelboard enclosure, or to the structural ceiling, whichever is lower.~~

9. ~~b. The working space shall be clear and unobstructed from the floor to a height of 6.5 feet or the height of the equipment, whichever is greater.~~
10. ~~c. The working space shall not be designated for storage.~~
11. ~~d. Panelboards, service equipment and similar enclosures shall not be located in bathrooms, toilet rooms, clothes closets or over the steps of a stairway.~~
12. ~~e. Such work spaces shall be provided with artificial lighting where located indoors and shall not be controlled by automatic means only.~~

FIGURE E3405.1 ~~a, b, c, d, e~~

~~WORKING SPACE AND CLEARANCES~~

E3405.2 Working clearances for energized equipment and panelboards.

RESERVED

Except as otherwise specified in Chapters 34 through 43, the dimension of the working space in the direction of access to panelboards and live parts of other equipment likely to require examination, adjustment, servicing or maintenance while energized shall be not less than 36 inches (914 mm) in depth. Distances shall be measured from the energized parts where such parts are exposed or from the enclosure front or opening where such parts are enclosed. In addition to the 36-inch dimension (914 mm), the work space shall not be less than 30 inches (762 mm) wide in front of the electrical equipment and not less than the width of such equipment. The work space shall be clear and shall extend from the floor or platform to a height of 6.5 feet (1981 mm) or the height of the equipment, whichever is greater. In all cases, the work space shall allow at least a 90-degree (1.57 rad) opening of equipment doors or hinged panels. Equipment associated with the electrical installation located above or below the electrical equipment shall be permitted to extend not more than 6 inches (152 mm) beyond the front of the electrical equipment. [110.26(A) (1), (2), (3)]

Exceptions:

13. 1. In existing dwelling units, service equipment and panelboards that are not rated in excess of 200 amperes shall be permitted in spaces where the height of the working space is less than 6.5 feet (1981 mm). [110.26(A)(3) Exception No. 1]
14. 2. Meters that are installed in meter sockets shall be permitted to extend beyond the other equipment. Meter sockets shall not be exempt from the requirements of this section. [110.26(A)(3) Exception No. 2]

E3405.3 Indoor dedicated panelboard space.

RESERVED

The indoor space equal to the width and depth of the panelboard and extending from the floor to a height of 6 feet (1829 mm) above the panelboard, or to the structural ceiling, whichever is lower, shall be dedicated to the electrical installation. Piping, ducts, leak protection apparatus and other equipment foreign to the electrical installation shall not be installed in such dedicated space. The area above the dedicated space shall be permitted to contain foreign systems, provided that protection is installed to avoid damage to the electrical equipment from condensation, leaks and breaks in such foreign systems (see Figure E3405.1).

Exception: Suspended ceilings with removable panels shall be permitted within the 6-foot (1829 mm) dedicated space.

E3405.4 Outdoor dedicated panelboard space.

RESERVED

The outdoor space equal to the width and depth of the panelboard, and extending from grade to a height of 6 feet (1.8 m) above the panelboard, shall be dedicated to the electrical installation. Piping and other equipment foreign to the electrical installation shall not be located in this zone.

E3405.5 Location of working spaces and equipment.

RESERVED

Required working space shall not be designated for storage. Panelboards and overcurrent protection devices shall not be located in clothes closets, in bathrooms, or over the steps of a stairway. [110.26(B), 240.24(D), (E), (F)]

E3405.6 Access and entrance to working space.

RESERVED

Access shall be provided to the required working space. [110.26(C)(1)]

E3405.7 Illumination.

RESERVED

Artificial illumination shall be provided for all working spaces for service equipment and panelboards installed indoors and shall not be controlled by automatic means only. Additional lighting outlets shall not be required where the work space is illuminated by an adjacent light source or as permitted by Exception 1 of Section E3903.2 for switched receptacles. [110.26(D)]

SECTION E3406

ELECTRICAL CONDUCTORS AND CONNECTIONS

E3406.1 General.

RESERVED

This section provides general requirements for conductors, connections and splices. These requirements do not apply to conductors that form an integral part of equipment, such as motors, appliances and similar equipment, or to conductors specifically provided for elsewhere in Chapters 34 through 43. (310.1)

E3406.2 Conductor material.

RESERVED

Conductors used to conduct current shall be of copper except as otherwise provided in Chapters 34 through 43. Where the conductor material is not specified, the material and the sizes given in these chapters shall apply to copper conductors. Where other materials are used, the conductor sizes shall be changed accordingly. (110.5)

E3406.3 Minimum size of conductors.

RESERVED

The minimum size of conductors for feeders and branch circuits shall be 14 AWG copper and 12 AWG aluminum. The minimum size of service conductors shall be as specified in Chapter 36. The minimum size of Class 2 remote control, signaling and power limited circuits conductors shall be as specified in Chapter 43. [310.106(A)]

E3406.4 Stranded conductors.

RESERVED

Where installed in raceways, conductors 8 AWG and larger shall be stranded. A solid 8 AWG conductor shall be permitted to be installed in a raceway only to meet the requirements of Sections E3610.2 and E4204. [310.106(C)]

E3406.5 Individual conductor insulation.

RESERVED

Except where otherwise permitted in Sections E3605.1 and E3908.9, and E4303, current-carrying conductors shall be insulated. Insulated conductors shall have insulation types identified as RHH, RHW, RHW-2, THHN, THHW, THW, THW-2, THWN, THWN-2, TW, UF, USE, USE-2, XHHW or XHHW-2. Insulation types shall be approved for the application. [310.106(C), 310.104]

E3406.6 Conductors in parallel.

RESERVED

Circuit conductors that are connected in parallel shall be limited to sizes 1/0 AWG and larger. Conductors in parallel shall: be of the same length; consist of the same conductor material; be the same circular mil area and have the same insulation type. Conductors in parallel shall be terminated in the same manner. Where run in separate raceways or cables, the raceway or cables shall have the same physical characteristics. Where conductors are in separate raceways or cables, the same number of conductors shall be used in each raceway or cable. [310.10(H)]

E3406.7 Conductors of the same circuit.

RESERVED

All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors and bonding conductors shall be contained within the same raceway, cable or cord. [300.3(B)]

E3406.8 Aluminum and copper connections.

RESERVED

Terminals and splicing connectors shall be identified for the material of the conductors joined. Conductors of dissimilar metals shall not be joined in a terminal or splicing connector where physical contact occurs between dissimilar conductors such as copper and aluminum, copper and copper-clad aluminum, or aluminum and copper-clad aluminum, except where the device is listed for the purpose and conditions of application. Materials such as inhibitors and compounds shall be suitable for the application and shall be of a type that will not adversely affect the conductors, installation or equipment. (110.14)

E3406.9 Fine stranded conductors.

RESERVED

Connectors and terminals for conductors that are more finely stranded than Class B and Class C stranding as shown in Table E3406.9, shall be identified for the specific conductor class or classes. (110.14)

TABLE E3406.9 (Chapter 9, Table 10)

CONDUCTOR STRANDING^c

CONDUCTOR SIZE		NUMBER OF STRANDS		
		Copper	Aluminum	
AWG or kcmil	mm²	Class-B	Class-C	Class-B

24-30	0.20-0.05	a	—	—
22	0.32	7	—	—
20	0.52	10	—	—
18	0.82	16	—	—
16	1.3	26	—	—
14-2	2.1-33.6	7	19	7 ^b
1-4/0	42.4-107	19	37	19
250-500	127-253	37	61	37
600-1000	304-508	61	91	61
1250-1500	635-759	91	127	91
1750-2000	886-1016	127	271	127

15. ~~a. Number of strands vary~~

16. ~~b. Aluminum 14 AWG (2.1 mm²) is not available.~~

17. ~~c. With the permission of Underwriters Laboratories, Inc., this material is reproduced from UL Standard 486A-B, Wire Connectors, which is copyrighted by Underwriters Laboratories, Inc., Northbrook, Illinois. While use of this material has been authorized, UL shall not be responsible for the manner in which the information is presented, nor for any interpretations thereof~~

E3406.10 Terminals.

RESERVED

~~Connection of conductors to terminal parts shall be made without damaging the conductors and shall be made by means of pressure connectors, including setscrew type, by means of splices to flexible leads, or for conductor sizes of 10 AWG and smaller, by means of wire binding screws or studs and nuts having upturned lugs or the equivalent. Terminals for more than one conductor and terminals for connecting aluminum conductors shall be identified for the application. [110.14(A)]~~

E3406.11 Splices.

RESERVED

~~Conductors shall be spliced or joined with splicing devices listed for the purpose. Splices and joints and the free ends of conductors shall be covered with an insulation equivalent to that of the conductors or with an insulating device listed for the purpose. Wire connectors or splicing means installed on conductors for direct burial shall be listed for such use. [110.14(B)]~~

E3406.11.1 Continuity.

RESERVED

~~Conductors in raceways shall be continuous between outlets, boxes, and devices and shall be without splices or taps in the raceway.~~

Exception: ~~Splices shall be permitted within surface-mounted raceways that have a removable cover. [300.13(A)]~~

E3406.11.2 Device connections.

RESERVED

~~The continuity of a grounded conductor in multiwire branch circuits shall not be dependent on connection to devices such as receptacles and lampholders. The arrangement of grounding connections shall be such that the disconnection or the removal of a receptacle, luminaire or other device fed from the box does not interfere with or interrupt the grounding continuity. [300.13(B)]~~

E3406.11.3 Length of conductor for splice or termination.

RESERVED

~~Where conductors are to be spliced, terminated or connected to fixtures or devices, a minimum length of 6 inches (152 mm) of free conductor shall be provided at each outlet, junction or switch point. The required length shall be measured from the point in the box where the conductor emerges from its raceway or cable sheath. Where the opening to an outlet, junction or switch point is less than 8 inches (200 mm) in any dimension, each conductor shall be long enough to extend at least 3 inches (75 mm) outside of such opening. (300.14)~~

E3406.12 Grounded conductor continuity.

RESERVED

~~The continuity of a grounded conductor shall not depend on connection to a metallic enclosure, raceway or cable armor. [200.2(B)]~~

E3406.13 Connection of grounding and bonding equipment.

RESERVED

~~The connection of equipment grounding conductors, grounding electrode conductors and bonding jumpers shall be in accordance with Sections E3406.13.1 and E3406.13.2.~~

E3406.13.1 Permitted methods.

RESERVED

~~Equipment grounding conductors, grounding electrode conductors, and bonding jumpers shall be connected by one or more of the following means:~~

- ~~18. 1. Listed pressure connectors.~~
- ~~19. 2. Terminal bars.~~
- ~~20. 3. Pressure connectors listed as grounding and bonding equipment.~~
- ~~21. 4. Exothermic welding process.~~
- ~~22. 5. Machine screw type fasteners that engage not less than two threads or are secured with a nut.~~
- ~~23. 6. Thread-forming machine screws that engage not less than two threads in the enclosure.~~
- ~~24. 7. Connections that are part of a listed assembly.~~
- ~~25. 8. Other listed means. [250.8 (A)]~~

E3406.13.2 Methods not permitted.

RESERVED

~~Connection devices or fittings that depend solely on solder shall not be used. [250.8 (B)]~~

SECTION E3407

CONDUCTOR AND TERMINAL IDENTIFICATION

E3407.1 Grounded conductors.

RESERVED

~~Insulated grounded conductors of sizes 6 AWG or smaller shall be identified by a continuous white or gray outer finish or by three continuous white or gray stripes on other than green insulation along the entire length of the conductors. Conductors of sizes 4 AWG or larger shall be identified either by a continuous white or gray outer finish or by three continuous white or gray stripes on other than green insulation along its entire length or at the time of installation by a distinctive white or gray marking at its terminations. This marking shall encircle the conductor or insulation. [200.6(A) & (B)]~~

E3407.2 Equipment grounding conductors.

RESERVED

~~Equipment grounding conductors of sizes 6 AWG and smaller shall be identified by a continuous green color or a continuous green color with one or more yellow stripes on the insulation or covering, except where bare. Conductors with insulation or individual covering that is green, green with one or more yellow stripes, or otherwise identified as permitted by this section shall not be used for ungrounded or grounded circuit conductors. (250.119)~~

~~Equipment grounding conductors 4 AWG and larger AWG that are not identified as required for conductors of sizes 6 AWG and smaller shall, at the time of installation, be permanently identified as an equipment grounding conductor at each end and at every point where the conductor is accessible, except where such conductors are bare.~~

~~The required identification for conductors 4 AWG and larger shall encircle the conductor and shall be accomplished by one of the following:~~

- ~~26. 1.Stripping the insulation or covering from the entire exposed length.~~
- ~~27. 2.Coloring the exposed insulation or covering green at the termination.~~
- ~~28. 3.Marking the exposed insulation or covering with green tape or green adhesive labels at the termination. [250.119(A)]~~

Exceptions:

- ~~29. 1.Conductors 4 AWG and larger shall not be required to be identified in conduit bodies that do not contain splices or unused hubs. [250.119(A)(1) Exception]~~
- ~~30. 2.Power limited, Class 2 or Class 3 circuit cables containing only circuits operating at less than 50 volts shall be permitted to use a conductor with green insulation for other than equipment grounding purposes. [250.119 Exception No. 1]~~

E3407.3 Ungrounded conductors.

RESERVED

~~Insulation on the ungrounded conductors shall be a continuous color other than white, gray and green. [310.110(C)]~~

Exception: ~~An insulated conductor that is part of a cable or flexible cord assembly and that has a white or gray finish or a finish marking with three continuous white or gray stripes shall be permitted to be used as an ungrounded conductor where it is permanently reidentified to indicate its use as an ungrounded conductor by marking tape, painting, or other effective means at all terminations and at each location where the conductor is visible and accessible. Identification shall encircle the insulation and shall be a color other than white, gray, and green. [200.7(C)(1)]~~

~~Where used for single pole, 3 way or 4 way switch loops, the reidentified conductor with white or gray insulation or three continuous white or gray stripes shall be used only for the supply to the switch, not as a return conductor from the switch to the outlet. [200.7(C)(2)]~~

E3407.4 Identification of terminals.

RESERVED

~~Terminals for attachment to conductors shall be identified in accordance with Sections E3407.4.1 and E3407.4.2.~~

E3407.4.1 Device terminals.

RESERVED

~~All devices excluding panelboards, provided with terminals for the attachment of conductors and intended for connection to more than one side of the circuit shall have terminals properly marked for identification, except where the terminal intended to be connected to the grounded conductor is clearly evident. [200.10(A)]~~

~~**Exception:** Terminal identification shall not be required for devices that have a normal current rating of over 30 amperes, other than polarized attachment caps and polarized receptacles for attachment caps as required in Section E3407.4.2. [200.10(A) Exception]~~

E3407.4.2 Receptacles, plugs and connectors.

RESERVED

~~Receptacles, polarized attachment plugs and cord connectors for plugs and polarized plugs shall have the terminal intended for connection to the grounded (white) conductor identified. Identification shall be by a metal or metal coating substantially white in color or by the word "white" or the letter "W" located adjacent to the identified terminal. Where the terminal is not visible, the conductor entrance hole for the connection shall be colored white or marked with the word "white" or the letter "W." [200.10(B)]~~

CHAPTER35 ELECTRICAL DEFINITIONS

RESERVED

~~**SECTION**~~**E3501**

~~**GENERAL**~~

~~**E3501.1 Scope.**~~

~~This chapter contains definitions that shall apply only to the electrical requirements of Chapters 34 through 43. Unless otherwise expressly stated, the following terms shall, for the purpose of this code,~~

have the meanings indicated in this chapter. Words used in the present tense include the future; the singular number includes the plural and the plural the singular. Where terms are not defined in this section and are defined in Section R202 of this code, such terms shall have the meanings ascribed to them in that section. Where terms are not defined in these sections, they shall have their ordinarily accepted meanings or such as the context implies.

ACCESSIBLE. (As applied to equipment.) Admitting close approach; not guarded by locked doors, elevation or other effective means.

ACCESSIBLE. (As applied to wiring methods.) Capable of being removed or exposed without damaging the building structure or finish, or not permanently closed in by the structure or finish of the building.

ACCESSIBLE, READILY. Capable of being reached quickly for operation, renewal or inspections, without requiring those to whom ready access is requisite to take actions such as to use tools, to climb over or remove obstacles or to resort to portable ladders, etc.

AMPACITY. The maximum current in amperes that a conductor can carry continuously under the conditions of use without exceeding its temperature rating.

APPLIANCE. Utilization equipment, normally built in standardized sizes or types, that is installed or connected as a unit to perform one or more functions such as clothes washing, air conditioning, food mixing, deep frying, etc.

APPROVED. Acceptable to the authority having jurisdiction.

ARC FAULT CIRCUIT INTERRUPTER. A device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when an arc fault is detected.

ATTACHMENT PLUG (PLUG CAP) (PLUG). A device that, by insertion into a receptacle, establishes connection between the conductors of the attached flexible cord and the conductors connected permanently to the receptacle.

AUTOMATIC. Performing a function without the necessity of human intervention.

BATHROOM. An area, including a basin, with one or more of the following: a toilet, a urinal, a tub, a shower, a bidet, or similar plumbing fixture.

BONDED (BONDING). Connected to establish electrical continuity and conductivity.

BONDING CONDUCTOR OR JUMPER. A reliable conductor to ensure the required electrical conductivity between metal parts required to be electrically connected.

BONDING JUMPER (EQUIPMENT). The connection between two or more portions of the equipment grounding conductor.

BONDING JUMPER, MAIN. The connection between the grounded circuit conductor and the equipment grounding conductor at the service.

BONDING JUMPER, SUPPLY SIDE. A conductor installed on the supply side of a service or within a service equipment enclosure(s) that ensures the required electrical conductivity between metal parts required to be electrically connected.

BRANCH CIRCUIT. The circuit conductors between the final overcurrent device protecting the circuit and the outlet(s).

BRANCH CIRCUIT, APPLIANCE. A branch circuit that supplies energy to one or more outlets to which appliances are to be connected, and that has no permanently connected luminaires that are not a part of an appliance.

BRANCH CIRCUIT, GENERAL PURPOSE. A branch circuit that supplies two or more receptacle outlets or outlets for lighting and appliances.

BRANCH CIRCUIT, INDIVIDUAL. A branch circuit that supplies only one utilization equipment.

BRANCH CIRCUIT, MULTIWIRE. A branch circuit consisting of two or more ungrounded conductors having voltage difference between them, and a grounded conductor having equal voltage difference between it and each ungrounded conductor of the circuit, and that is connected to the neutral or grounded conductor of the system.

CABINET. An enclosure designed either for surface or flush mounting and provided with a frame, mat or trim in which a swinging door or doors are or may be hung.

CIRCUIT BREAKER. A device designed to open and close a circuit by nonautomatic means and to open the circuit automatically on a predetermined overcurrent without damage to itself when properly applied within its rating.

CLOTHES CLOSET. A nonhabitable room or space intended primarily for storage of garments and apparel.

CONCEALED. Rendered inaccessible by the structure or finish of the building.

CONDUCTOR.

Bare. A conductor having no covering or electrical insulation whatsoever.

Covered. A conductor encased within material of composition or thickness that is not recognized by this code as electrical insulation.

Insulated. A conductor encased within material of composition and thickness that is recognized by this code as electrical insulation.

CONDUIT BODY. A separate portion of a conduit or tubing system that provides access through a removable cover(s) to the interior of the system at a junction of two or more sections of the system or at a terminal point of the system. Boxes such as FS and FD or larger cast or sheet metal boxes are not classified as conduit bodies.

CONNECTOR, PRESSURE (SOLDERLESS). A device that establishes a connection between two or more conductors or between one or more conductors and a terminal by means of mechanical pressure and without the use of solder.

CONTINUOUS LOAD. A load where the maximum current is expected to continue for 3 hours or more.

COOKING UNIT, COUNTER MOUNTED. A cooking appliance designed for mounting in or on a counter and consisting of one or more heating elements, internal wiring and built-in or separately mountable controls.

COPPER CLAD ALUMINUM CONDUCTORS. Conductors drawn from a copper clad aluminum rod with the copper metallurgically bonded to an aluminum core. The copper forms a minimum of 10 percent of the cross-sectional area of a solid conductor or each strand of a stranded conductor.

CUTOUT BOX. An enclosure designed for surface mounting and having swinging doors or covers secured directly to and telescoping with the walls of the box proper (see "Cabinet").

DEAD FRONT. Without live parts exposed to a person on the operating side of the equipment.

DEMAND FACTOR. The ratio of the maximum demand of a system, or part of a system, to the total connected load of a system or the part of the system under consideration.

DEVICE. A unit of an electrical system that carries or controls electrical energy as its principal function.

DISCONNECTING MEANS. A device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

DWELLING.

Dwelling unit. A single unit, providing complete and independent living facilities for one or more persons, including permanent provisions for living, sleeping, cooking and sanitation.

One-family dwelling. A building consisting solely of one dwelling unit.

Two-family dwelling. A building consisting solely of two dwelling units.

EFFECTIVE GROUND FAULT CURRENT PATH. An intentionally constructed, low-impedance electrically conductive path designed and intended to carry current under ground-fault conditions from the point of a ground fault on a wiring system to the electrical supply source and that facilitates the operation of the overcurrent protective device or ground fault detectors.

ENCLOSED. Surrounded by a case, housing, fence or walls that will prevent persons from accidentally contacting energized parts.

ENCLOSURE. The case or housing of apparatus, or the fence or walls surrounding an installation, to prevent personnel from accidentally contacting energized parts or to protect the equipment from physical damage.

ENERGIZED. Electrically connected to, or is, a source of voltage.

EQUIPMENT. A general term including material, fittings, devices, appliances, luminaires, apparatus, machinery and the like used as a part of, or in connection with, an electrical installation.

EXPOSED. (As applied to live parts.) Capable of being inadvertently touched or approached nearer than a safe distance by a person.

EXPOSED. (As applied to wiring methods.) On or attached to the surface or behind panels designed to allow access.

EXTERNALLY OPERABLE. Capable of being operated without exposing the operator to contact with live parts.

FEEDER. All circuit conductors between the service equipment, or the source of a separately derived system, or other power supply source and the final branch-circuit overcurrent device.

FITTING. An accessory such as a locknut, bushing or other part of a wiring system that is intended primarily to perform a mechanical rather than an electrical function.

GROUND. The earth.

GROUND (GROUNDING). Connected (connecting) to ground or to a conductive body that extends the ground connection.

GROUND, EFFECTIVELY. Intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the buildup of voltages that may result in undue hazards to connected equipment or to persons.

GROUNDING CONDUCTOR. A system or circuit conductor that is intentionally grounded.

GROUNDING CONDUCTOR, EQUIPMENT (EGC). The conductive path(s) that provides a ground-fault current path and connects normally noncurrent-carrying metal parts of equipment together and, to the system grounded conductor, the grounding electrode conductor or both.

GROUNDING ELECTRODE. A conducting object through which a direct connection to earth is established.

GROUNDING ELECTRODE CONDUCTOR. A conductor used to connect the system grounded conductor or the equipment to a grounding electrode or to a point on the grounding electrode system.

GROUND FAULT CIRCUIT INTERRUPTER. A device intended for the protection of personnel that functions to deenergize a circuit or portion thereof within an established period of time when a current to ground exceeds the value for a Class A device.

GROUND FAULT CURRENT PATH. An electrically conductive path from the point of a ground fault on a wiring system through normally non-current-carrying conductors, equipment, or the earth to the electrical supply source.

Examples of ground-fault current paths are any combination of equipment grounding conductors, metallic raceways, metallic cable sheaths, electrical equipment, and any other electrically conductive material such as metal, water, and gas piping; steel framing members; stucco mesh; metal ducting; reinforcing steel; shields of communications cables; and the earth itself.

GUARDED. Covered, shielded, fenced, enclosed or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats or platforms to remove the likelihood of approach or contact by persons or objects to a point of danger.

IDENTIFIED. (As applied to equipment.) Recognizable as suitable for the specific purpose, function, use, environment, application, etc., where described in a particular code requirement.

INTERRUPTING RATING. The highest current at rated voltage that a device is identified to interrupt under standard test conditions.

INTERSYSTEM BONDING TERMINATION. A device that provides a means for connecting intersystem bonding conductors for communications systems to the grounding electrode system.

ISOLATED. (As applied to location.) Not readily accessible to persons unless special means for access are used.

KITCHEN. An area with a sink and permanent provisions for food preparation and cooking.

LABELED. Equipment or materials to which has been attached a label, symbol or other identifying mark of an organization acceptable to the authority having jurisdiction and concerned with product evaluation that maintains periodic inspection of production of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

LIGHTING OUTLET. An outlet intended for the direct connection of a lampholder or luminaire.

LIGHTING TRACK (Track Lighting). A manufactured assembly designed to support and energize luminaires that are capable of being readily repositioned on the track. Its length can be altered by the addition or subtraction of sections of track.

LISTED. Equipment, materials or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation

of services, and whose listing states either that the equipment, material or services meets identified standards or has been tested and found suitable for a specified purpose.

LIVE PARTS. Energized conductive components.

LOCATION, DAMP. Location protected from weather and not subject to saturation with water or other liquids but subject to moderate degrees of moisture.

LOCATION, DRY. A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.

LOCATION, WET. Installations underground or in concrete slabs or masonry in direct contact with the earth and locations subject to saturation with water or other liquids, such as vehicle washing areas, and locations exposed to weather.

LUMINAIRE. A complete lighting unit consisting of a light source such as a lamp or lamps together with the parts designed to position the light source and connect it to the power supply. A luminaire can include parts to protect the light source or the ballast or to distribute the light. A lampholder itself is not a luminaire.

MULTIOUTLET ASSEMBLY. A type of surface, or flush, or freestanding raceway; designed to hold conductors and receptacles, assembled in the field or at the factory.

NEUTRAL CONDUCTOR. The conductor connected to the neutral point of a system that is intended to carry current under normal conditions.

NEUTRAL POINT. The common point on a wye connection in a polyphase system or midpoint on a single phase, 3-wire system, or midpoint of a single phase portion of a 3-phase delta system, or a midpoint of a 3-wire, direct current system.

OUTLET. A point on the wiring system at which current is taken to supply utilization equipment.

OVERCURRENT. Any current in excess of the rated current of equipment or the ampacity of a conductor. Such current might result from overload, short circuit or ground fault.

OVERLOAD. Operation of equipment in excess of normal, full load rating, or of a conductor in excess of rated ampacity that, when it persists for a sufficient length of time, would cause damage or dangerous overheating. A fault, such as a short circuit or ground fault, is not an overload.

PANELBOARD. A single panel or group of panel units designed for assembly in the form of a single panel, including buses and automatic overcurrent devices, and equipped with or without switches for the control of light, heat or power circuits, designed to be placed in a cabinet or cutout box placed in or against a wall, partition or other support and accessible only from the front.

PLENUM. A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system.

POWER OUTLET. An enclosed assembly that may include receptacles, circuit breakers, fuseholders, fused switches, buses and watt-hour meter mounting means, intended to supply and control power to mobile homes, recreational vehicles or boats, or to serve as a means for distributing power required to operate mobile or temporarily installed equipment.

PREMISES WIRING (SYSTEM). Interior and exterior wiring, including power, lighting, control and signal circuit wiring together with all of their associated hardware, fittings and wiring devices, both permanently and temporarily installed. This includes wiring from the service point or power source to the outlets and wiring from and including the power source to the outlets where there is no service point. Such wiring does not include wiring internal to appliances, luminaires, motors, controllers, and similar equipment.

QUALIFIED PERSON. One who has the skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.

RACEWAY. An enclosed channel of metallic or nonmetallic materials designed expressly for holding wires, cables, or busbars, with additional functions as permitted in this code.

RAINPROOF. Constructed, protected or treated so as to prevent rain from interfering with the successful operation of the apparatus under specified test conditions.

RAIN TIGHT. Constructed or protected so that exposure to a beating rain will not result in the entrance of water under specified test conditions.

RECEPTACLE. A receptacle is a contact device installed at the outlet for the connection of an attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is two or more contact devices on the same yoke.

RECEPTACLE OUTLET. An outlet where one or more receptacles are installed.

SERVICE. The conductors and equipment for delivering energy from the serving utility to the wiring system of the premises served.

SERVICE CABLE. Service conductors made up in the form of a cable.

SERVICE CONDUCTORS. The conductors from the service point to the service disconnecting means.

SERVICE CONDUCTORS, OVERHEAD. The overhead conductors between the service point and the first point of connection to the service entrance conductors at the building or other structure.

SERVICE CONDUCTORS, UNDERGROUND. The underground conductors between the service point and the first point of connection to the service entrance conductors in a terminal box, meter, or other enclosure, inside or outside of the building wall.

SERVICE DROP. The overhead service conductors between the utility electric supply system and the service point.

SERVICE ENTRANCE CONDUCTORS, OVERHEAD SYSTEM. The service conductors between the terminals of the service equipment and a point usually outside of the building, clear of building walls, where joined by tap or splice to the service drop or overhead service conductors.

SERVICE ENTRANCE CONDUCTORS, UNDERGROUND SYSTEM. The service conductors between the terminals of the service equipment and the point of connection to the service lateral or underground service conductors.

SERVICE EQUIPMENT. The necessary equipment, usually consisting of a circuit breaker(s) or switch(es) and fuse(s), and their accessories, connected to the load end of the service conductors to a building or other structure, or an otherwise designated area, and intended to constitute the main control and cutoff of the supply.

SERVICE LATERAL. The underground service conductors between the electric utility supply system and the service point.

SERVICE POINT. The point of connection between the facilities of the serving utility and the premises wiring.

STRUCTURE. That which is built or constructed.

SWITCHES.

General use switch. A switch intended for use in general distribution and branch circuits. It is rated in amperes and is capable of interrupting its rated current at its rated voltage.

General use snap switch. A form of general use switch constructed so that it can be installed in device boxes or on box covers or otherwise used in conjunction with wiring systems recognized by this code.

Isolating switch. A switch intended for isolating an electric circuit from the source of power. It has no interrupting rating and is intended to be operated only after the circuit has been opened by some other means.

Motor circuit switch. A switch, rated in horsepower that is capable of interrupting the maximum operating overload current of a motor of the same horsepower rating as the switch at the rated voltage.

UNGROUND. Not connected to ground or to a conductive body that extends the ground connection.

UTILIZATION EQUIPMENT. Equipment that utilizes electric energy for electronic, electromechanical, chemical, heating, lighting or similar purposes.

VENTILATED. Provided with a means to permit circulation of air sufficient to remove an excess of heat, fumes or vapors.

VOLTAGE (OF A CIRCUIT). The greatest root meansquare (rms) (effective) difference of potential between any two conductors of the circuit concerned.

VOLTAGE, NOMINAL. A nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class (e.g., 120/240). The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment.

VOLTAGE TO GROUND. For grounded circuits, the voltage between the given conductor and that point or conductor of the circuit that is grounded. For ungrounded circuits, the greatest voltage between the given conductor and any other conductor of the circuit.

WATERTIGHT. Constructed so that moisture will not enter the enclosure under specified test conditions.

WEATHERPROOF. Constructed or protected so that exposure to the weather will not interfere with successful operation.

CHAPTER 36 SERVICES

RESERVED

SECTIONE3601

GENERAL SERVICES

E3601.1 Scope.

This chapter covers service conductors and equipment for the control and protection of services and their installation requirements. (230.1)

E3601.2 Number of services.

One and two family dwellings shall be supplied by only one service. (230.2)

E3601.3 One building or other structure not to be supplied through another.

Service conductors supplying a building or other structure shall not pass through the interior of another building or other structure.

E3601.4 Other conductors in raceway or cable.

Conductors other than service conductors shall not be installed in the same service raceway or service cable. (230.7)

Exceptions:

- 1.—1. Grounding electrode conductors and equipment bonding jumpers or conductors.
- 2.—2. Load management control conductors having overcurrent protection.

~~E3601.5 Raceway seal.~~

~~Where a service raceway enters from an underground distribution system, it shall be sealed in accordance with Section E3803.6. (230.8)~~

~~E3601.6 Service disconnect required.~~

~~Means shall be provided to disconnect all conductors in a building or other structure from the service entrance conductors. (230.70)~~

~~E3601.6.1 Marking of service equipment and disconnects.~~

~~Service disconnects shall be permanently marked as a service disconnect. [230.70(B)]~~

~~E3601.6.2 Service disconnect location.~~

~~The service disconnecting means shall be installed at a readily accessible location either outside of a building or inside nearest the point of entrance of the service conductors. Service disconnecting means shall not be installed in bathrooms. Each occupant shall have access to the disconnect serving the dwelling unit in which they reside. [230.70(A)(1), 230.72(C)]~~

~~E3601.7 Maximum number of disconnects.~~

~~The service disconnecting means shall consist of not more than six switches or six circuit breakers mounted in a single enclosure or in a group of separate enclosures. [230.71(A)]~~

~~SECTION E3602~~

~~SERVICE SIZE AND RATING~~

~~E3602.1 Ampacity of ungrounded conductors.~~

~~Ungrounded service conductors shall have an ampacity of not less than the load served. For one-family dwellings, the ampacity of the ungrounded conductors shall be not less than 100 amperes, 3-wire. For all other installations, the ampacity of the ungrounded conductors shall be not less than 60 amperes. [230.42(B), 230.79(C) & (D)]~~

~~E3602.2 Service load.~~

~~The minimum load for ungrounded service conductors and service devices that serve 100 percent of the dwelling unit load shall be computed in accordance with Table E3602.2. Ungrounded service conductors and service devices that serve less than 100 percent of the dwelling unit load shall be computed as required for feeders in accordance with Chapter 37. [220.82(A)]~~

~~TABLE E3602.2~~

~~MINIMUM SERVICE LOAD CALCULATION~~

LOADS AND PROCEDURE

~~3 volt-amperes per square foot of floor area for general lighting and general use receptacle outlets.~~

Plus

~~1,500 volt-amperes multiplied by total number of 20-ampere-rated small appliance and laundry circuits.~~

Plus

~~The nameplate volt-ampere rating of all fastened-in-place, permanently connected or dedicated circuit-supplied appliances such as ranges, ovens, cooking units, clothes dryers not connected to the laundry branch circuit and water heaters.~~

Apply the following demand factors to the above subtotal:

~~The minimum subtotal for the loads above shall be 100 percent of the first 10,000 volt-amperes of the sum of the above loads plus 40 percent of any portion of the sum that is in excess of 10,000 voltamperes.~~

Plus the largest of the following:

~~One hundred percent of the nameplate rating(s) of the air-conditioning and cooling equipment.~~

~~One hundred percent of the nameplate rating(s) of the heat pump where a heat pump is used without any supplemental electric heating.~~

~~One hundred percent of the nameplate rating of the electric thermal storage and other heating systems where the usual load is expected to be continuous at the full nameplate value. Systems qualifying under this selection shall not be figured under any other category in this table.~~

~~One hundred percent of nameplate rating of the heat pump compressor and sixty-five percent of the supplemental electric heating load for central electric space heating systems. If the heat pump compressor is prevented from operating at the same time as the supplementary heat, the compressor load does not need to be added to the supplementary heat load for the total central electric space heating load.~~

~~Sixty-five percent of nameplate rating(s) of electric space heating units if less than four separately controlled units.~~

Forty percent of nameplate rating(s) of electric space-heating units of four or more separately controlled units.

~~The minimum total load in amperes shall be the volt-ampere sum calculated above divided by 240 volts.~~

~~E3602.2.1 Services under 100 amperes.~~

~~Services that are not required to be 100 amperes shall be sized in accordance with Chapter 37. [230.42(A), (B), and (C)]~~

~~E3602.3 Rating of service disconnect.~~

~~The combined rating of all individual service disconnects serving a single dwelling unit shall be not less than the load determined from Table E3602.2 and shall be not less than as specified in Section E3602.1. (230.79 & 230.80)~~

~~E3602.4 Voltage rating.~~

~~Systems shall be three-wire, 120/240-volt, single-phase with a grounded neutral. [220.82(A)]~~

~~SECTION E3603~~

~~SERVICE, FEEDER AND GROUNDING~~

~~ELECTRODE CONDUCTOR SIZING~~

~~E3603.1 Grounded and ungrounded service conductor size.~~

~~Service and feeder conductors supplied by a single-phase, 120/240-volt system shall be sized in accordance with Sections E3603.1.1 through E3603.1.4 and Table 3705.1.~~

~~E3603.1.1 Ungrounded service conductors.~~

~~For a service rated at 100 through 400 amperes, the service conductors supplying the entire load associated with a one-family dwelling, or the service conductors supplying the entire load associated with an individual dwelling unit in a two-family dwelling, shall have an ampacity of not less than 83 percent of the service rating.~~

~~E3603.1.2 Ungrounded feeder conductors.~~

~~For a feeder rated at 100 through 400 amperes, the feeder conductors supplying the entire load associated with a one-family dwelling, or the feeder conductors supplying the entire load associated with an individual dwelling unit in a two-family dwelling, shall have an ampacity of not less than 83 percent of the feeder rating.~~

~~E3603.1.3 Feeder size relative to service size.~~

A feeder for an individual dwelling unit shall not be required to have an ampacity greater than that specified in Sections E3603.1.1 and E3603.1.2.

~~E3603.1.4~~ Grounded conductors.

The grounded conductor ampacity shall be not less than the maximum unbalance of the load and the size of the grounded conductor shall be not smaller than the required minimum grounding electrode conductor size specified in Table E3603.4. [310.15(B)(7)]

~~E3603.2~~ Ungrounded service conductors for accessory buildings and structures.

Ungrounded conductors for other than dwelling units shall have an ampacity of not less than 60 amperes and shall be sized as required for feeders in Chapter 37. [230.79(D)]

Exceptions:

- ~~3.—1.~~ For limited loads of a single branch circuit, the service conductors shall have an ampacity of not less than 15 amperes. [230.79(A)]
- ~~4.—2.~~ For loads consisting of not more than two two-wire branch circuits, the service conductors shall have an ampacity of not less than 30 amperes. [230.79(C)]

~~E3603.3~~ Overload protection.

Each ungrounded service conductor shall have overload protection. (230.90)

~~E3603.3.1~~ Ungrounded conductor.

Overload protection shall be provided by an overcurrent device installed in series with each ungrounded service conductor. The overcurrent device shall have a rating or setting not higher than the allowable service or feeder rating specified in Section E3603.1. A set of fuses shall be considered to be all of the fuses required to protect all of the ungrounded conductors of a circuit. Single pole circuit breakers, grouped in accordance with Section E3601.7, shall be considered as one protective device. [230.90(A)]

Exception: Two to six circuit breakers or sets of fuses shall be permitted as the overcurrent device to provide the overload protection. The sum of the ratings of the circuit breakers or fuses shall be permitted to exceed the ampacity of the service conductors, provided that the calculated load does not exceed the ampacity of the service conductors. [230.90(A) Exception No. 3]

~~E3603.3.2~~ Not in grounded conductor.

Overcurrent devices shall not be connected in series with a grounded service conductor except where a circuit breaker is used that simultaneously opens all conductors of the circuit. [230.90(B)]

~~E3603.3.3~~ Location.

The service overcurrent device shall be an integral part of the service disconnecting means or shall be located immediately adjacent thereto. (230.91)

E3603.4 Grounding electrode conductor size.

The grounding electrode conductors shall be sized based on the size of the service entrance conductors as required in Table E3603.4. (250.66)

TABLE E3603.4

GROUNDING ELECTRODE CONDUCTOR SIZE^{a, b, c, d, e, f}

SIZE OF LARGEST UNGROUNDED SERVICE ENTRANCE CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS (AWG/kcmil)

SIZE OF GROUNDING ELECTRODE CONDUCTOR (AWG/kcmil)

Copper	Aluminum or copper-clad aluminum	Copper	Aluminum or copper-clad aluminum
2 or smaller	1/0 or smaller	8	6
1 or 1/0	2/0 or 3/0	6	4
2/0 or 3/0	4/0 or 250	4	2
Over 3/0	Over 250	2	1/0
through 350	through 500		
Over 350	Over 500	1/0	3/0
through 600	through 900		

- 5.—a. If multiple sets of service entrance conductors connect directly to a service drop, set of overhead service conductors, set of underground service conductors, or service lateral, the equivalent size of the largest service entrance conductor shall be determined by the largest sum of the areas of the corresponding conductors of each set.
- 6.—b. Where there are no service entrance conductors, the grounding electrode conductor size shall be determined by the equivalent size of the largest service entrance conductor required for the load to be served.
- 7.—c. Where protected by a ferrous metal raceway, grounding electrode conductors shall be electrically bonded to the ferrous metal raceway at both ends. [250.64(E)(1)]

8. ~~d. An 8 AWG grounding electrode conductor shall be protected with rigid metal conduit, intermediate metal conduit, rigid polyvinyl chloride (Type PVC) nonmetallic conduit, rigid thermosetting resin (Type RTRC) nonmetallic conduit, electrical metallic tubing or cable armor. [250.64(B)]~~
9. ~~e. Where not protected, 6 AWG grounding electrode conductor shall closely follow a structural surface for physical protection. The supports shall be spaced not more than 24 inches on center and shall be within 12 inches of any enclosure or termination. [250.64(B)]~~
10. ~~f. Where the sole grounding electrode system is a ground rod or pipe as covered in Section E3608.3, the grounding electrode conductor shall not be required to be larger than 6 AWG copper or 4 AWG aluminum. Where the sole grounding electrode system is the footing steel as covered in Section E3608.1.2, the grounding electrode conductor shall not be required to be larger than 4 AWG copper conductor. [250.66(A) and (B)]~~

~~E3603.5 Temperature limitations.~~

~~Except where the equipment is marked otherwise, conductor ampacities used in determining equipment termination provisions shall be based on Table E3705.1. [110.14(C)(1)]~~

~~SECTION E3604~~

~~OVERHEAD SERVICE AND SERVICE- ENTRANCE CONDUCTOR INSTALLATION~~

~~E3604.1 Clearances on buildings.~~

~~Open conductors and multiconductor cables without an overall outer jacket shall have a clearance of not less than 3 feet (914 mm) from the sides of doors, porches, decks, stairs, ladders, fire escapes and balconies, and from the sides and bottom of windows that open. See Figure E3604.1. [230.9(A)]~~

~~For SI: 1 foot = 304.8 mm.~~

~~FIGURE E3604.1~~

~~CLEARANCES FROM BUILDING OPENINGS~~

~~E3604.2 Vertical clearances.~~

~~Overhead service conductors shall not have ready access and shall comply with Sections E3604.2.1 and E3604.2.2. (230.24)~~

~~E3604.2.1 Above roofs.~~

Conductors shall have a vertical clearance of not less than 8 feet (2438 mm) above the roof surface. The vertical clearance above the roof level shall be maintained for a distance of not less than 3 feet (914 mm) in all directions from the edge of the roof. See Figure E3604.2.1. [230.24(A)]

Exceptions:

- ~~11. 1. Conductors above a roof surface subject to pedestrian traffic shall have a vertical clearance from the roof surface in accordance with Section E3604.2.2. [230.24(A) Exception No. 1]~~
- ~~12. 2. Where the roof has a slope of 4 inches (102 mm) in 12 inches (305 mm), or greater, the minimum clearance shall be 3 feet (914 mm). [230.24(A) Exception No. 2]~~
- ~~13. 3. The minimum clearance above only the overhanging portion of the roof shall not be less than 18 inches (457 mm) where not more than 6 feet (1829 mm) of overhead service conductor length passes over 4 feet (1219 mm) or less of roof surface measured horizontally and such conductors are terminated at a through-the-roof raceway or approved support. [230.24(A) Exception No. 3]~~
- ~~14. 4. The requirement for maintaining the vertical clearance for a distance of 3 feet (914 mm) from the edge of the roof shall not apply to the final conductor span where the service drop is attached to the side of a building. [230.24(A) Exception No. 4]~~
- ~~15. 5. Where the voltage between conductors does not exceed 300 and the roof area is guarded or isolated, a reduction in clearance to 3 feet (914 mm) shall be permitted. [230.24(A) Exception No. 5]~~

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE E3604.2.1

CLEARANCES FROM ROOFS

E3604.2.2 Vertical clearance from grade.

Overhead service conductors shall have the following minimum clearances from final grade:

- ~~16. 1. For conductors supported on and cabled together with a grounded bare messenger wire, the minimum vertical clearance shall be 10 feet (3048 mm) at the electric service entrance to buildings, at the lowest point of the drip loop of the building electric entrance, and above areas or sidewalks accessed by pedestrians only. Such clearance shall be measured from final grade or other accessible surfaces.~~
- ~~17. 2. Twelve feet (3658 mm)—over residential property and driveways.~~

~~18. 3.Eighteen feet (5486 mm)—over public streets, alleys, roads or parking areas subject to truck traffic. [(230.24(B)(1), (2), and (4))]~~

~~E3604.3Point of attachment.~~

~~The point of attachment of the overhead service conductors to a building or other structure shall provide the minimum clearances as specified in Sections E3604.1 through E3604.2.2. The point of attachment shall be not less than 10 feet (3048 mm) above finished grade. (230.26)~~

~~E3604.4Means of attachment.~~

~~Multiconductor cables used for overhead service conductors shall be attached to buildings or other structures by fittings approved for the purpose. (230.27)~~

~~E3604.5Service masts as supports.~~

~~A service mast used for the support of service drop or overhead service conductors shall comply with Sections E3604.5.1 and E3604.5.2. Only power service drop or overhead service conductors shall be attached to a service mast.~~

~~E3604.5.1Strength.~~

~~The service mast shall be of adequate strength or shall be supported by braces or guys to safely withstand the strain imposed by the service drop or overhead service conductors. Hubs intended for use with a conduit that serves as a service mast shall be identified for use with service entrance equipment.~~

~~E3604.5.2Attachment.~~

~~Service drop or overhead service conductors shall not be attached to a service mast at a point between a coupling and a weatherhead or the end of the conduit, where the coupling is located above the last point of securement of the building or other structure or is located above the building or other structure. [230.28(A) & (B)]~~

~~E3604.6Supports over buildings.~~

~~Service conductors passing over a roof shall be securely supported. Where practicable, such supports shall be independent of the building. (230.29)~~

~~SECTIONE3605~~

~~SERVICE-ENTRANCE CONDUCTORS~~

~~E3605.1Insulation of service entrance conductors.~~

~~Service entrance conductors entering or on the exterior of buildings or other structures shall be insulated in accordance with Section E3406.5. (230.41)~~

~~Exceptions:~~

~~19. 1. A copper grounded conductor shall not be required to be insulated where it is:~~

- ~~1. 1.1. In a raceway or part of a service cable assembly,~~
- ~~2. 1.2. Directly buried in soil of suitable condition, or~~
- ~~3. 1.3. Part of a cable assembly listed for direct burial without regard to soil conditions.~~

~~20. 2. An aluminum or copper-clad aluminum grounded conductor shall not be required to be insulated where part of a cable or where identified for direct burial or utilization in underground raceways. (230.41 Exception)~~

~~E3605.2 Wiring methods for services.~~

~~Service entrance wiring methods shall be installed in accordance with the applicable requirements in Chapter 38. (230.43)~~

~~E3605.3 Spliced conductors.~~

~~Service entrance conductors shall be permitted to be spliced or tapped. Splices shall be made in enclosures or, if directly buried, with listed underground splice kits. Conductor splices shall be made in accordance with Chapters 34, 37, 38 and 39. (230.33, 230.46)~~

~~E3605.4 Protection of underground service entrance conductors.~~

~~Underground service entrance conductors shall be protected against physical damage in accordance with Chapter 38. (230.32)~~

~~E3605.5 Protection of all other service cables.~~

~~Aboveground service entrance cables, where subject to physical damage, shall be protected by one or more of the following: rigid metal conduit, intermediate metal conduit, Schedule 80 PVC conduit, electrical metallic tubing or other approved means. [230.50(1)]~~

~~E3605.6 Locations exposed to direct sunlight.~~

~~Insulated conductors and cables used where exposed to direct rays of the sun shall comply with one of the following:~~

- ~~21. 1. The conductors and cables shall be listed, or listed and marked, as being sunlight resistant.~~
- ~~22. 2. The conductors and cables are covered with insulating material, such as tape or sleeving, that is listed, or listed and marked, as being sunlight resistant. [310.10(D)]~~

~~E3605.7 Mounting supports.~~

~~Service entrance cables shall be supported by straps or other approved means within 12 inches (305 mm) of every service head, gooseneck or connection to a raceway or enclosure and at intervals not exceeding 30 inches (762 mm). [230.51(A)]~~

~~E3605.8 Raceways to drain.~~

~~Where exposed to the weather, raceways enclosing service entrance conductors shall be suitable for use in wet locations and arranged to drain. Where embedded in masonry, raceways shall be arranged to drain. (230.53)~~

~~E3605.9 Overhead service locations.~~

~~Connections at service heads shall be in accordance with Sections E3605.9.1 through E3605.9.7. (230.54)~~

~~E3605.9.1 Rain-tight service head.~~

~~Service raceways shall be equipped with a service head at the point of connection to service drop or overhead conductors. The service head shall be listed for use in wet locations. [230.54(A)]~~

~~E3605.9.2 Service cable, service head or gooseneck.~~

~~Service entrance cable shall be equipped with a service head or shall be formed into a gooseneck in an approved manner. The service head shall be listed for use in wet locations. [230.54(B)]~~

~~E3605.9.3 Service head location.~~

~~Service heads, and goosenecks in service entrance cables, shall be located above the point of attachment of the service drop or overhead service conductors to the building or other structure. [230.54(C)]~~

Exception: ~~Where it is impracticable to locate the service head or gooseneck above the point of attachment, the service head or gooseneck location shall be not more than 24 inches (610 mm) from the point of attachment. [230.54(C) Exception]~~

~~E3605.9.4 Separately bushed openings.~~

~~Service heads shall have conductors of different potential brought out through separately bushed openings. [230.54(E)]~~

~~E3605.9.5 Drip loops.~~

~~Drip loops shall be formed on individual conductors. To prevent the entrance of moisture, service-entrance conductors shall be connected to the service drop or overhead conductors either below the level of the service head or below the level of the termination of the service-entrance cable sheath. [230.54(F)]~~

~~E3605.9.6 Conductor arrangement.~~

~~Service entrance and overhead service conductors shall be arranged so that water will not enter service raceways or equipment. [230.54(G)]~~

~~E3605.9.7Secured.~~

~~Service entrance cables shall be held securely in place. [230.54(D)]~~

~~SECTIONE3606~~

~~SERVICE EQUIPMENT—GENERAL~~

~~E3606.1Service equipment enclosures.~~

~~Energized parts of service equipment shall be enclosed. (230.62)~~

~~E3606.2Working space.~~

~~The working space in the vicinity of service equipment shall be not less than that specified in Chapter 34. (110.26)~~

~~E3606.3Available short-circuit current.~~

~~Service equipment shall be suitable for the maximum fault current available at its supply terminals, but not less than 10,000 amperes. (110.9)~~

~~E3606.4Marking.~~

~~Service equipment shall be marked to identify it as being suitable for use as service equipment. Service equipment shall be listed. Individual meter socket enclosures shall not be considered as service equipment. (230.66)~~

~~SECTIONE3607~~

~~SYSTEM GROUNDING~~

~~E3607.1System service ground.~~

~~The premises wiring system shall be grounded at the service with a grounding electrode conductor connected to a grounding electrode system as required by this code. Grounding electrode conductors shall be sized in accordance with Table E3603.4. [250.20(B)(1) and 250.24(A)]~~

~~E3607.2Location of grounding electrode conductor connection.~~

~~The grounding electrode conductor shall be connected to the grounded service conductor at any accessible point from the load end of the overhead service conductors, service drop, underground service conductors, or service lateral to and including the terminal or bus to which the grounded service conductor is connected at the service disconnecting means. A grounding connection shall not be made to any grounded circuit conductor on the load side of the service disconnecting means, except as provided in Section E3607.3.2. [250.24(A)(1) and (A)(5)]~~

~~E3607.3 Buildings or structures supplied by feeder(s) or branch circuit(s).~~

~~Buildings or structures supplied by feeder(s) or branch circuit(s) shall have a grounding electrode or grounding electrode system installed in accordance with Section E3608. The grounding electrode conductor(s) shall be connected in a manner specified in Section E3607.3.1 or, for existing premises wiring systems only, Section E3607.3.2. Where there is no existing grounding electrode, the grounding electrode(s) required in Section E3608 shall be installed. [250.32(A)]~~

~~**Exception:** A grounding electrode shall not be required where only one branch circuit, including a multiwire branch circuit, supplies the building or structure and the branch circuit includes an equipment grounding conductor for grounding the noncurrent-carrying parts of all equipment. For the purposes of this section, a multiwire branch circuit shall be considered as a single branch circuit. [250.32(A) Exception]~~

~~E3607.3.1 Equipment grounding conductor.~~

~~An equipment grounding conductor as described in Section E3908 shall be run with the supply conductors and connected to the building or structure disconnecting means and to the grounding electrode(s). The equipment grounding conductor shall be used for grounding or bonding of equipment, structures or frames required to be grounded or bonded. The equipment grounding conductor shall be sized in accordance with Section E3908.12. Any installed grounded conductor shall not be connected to the equipment grounding conductor or to the grounding electrode(s). [250.32(B) and Table 250.122]~~

~~E3607.3.2 Grounded conductor, existing premises.~~

~~For installations made in compliance with previous editions of this code that permitted such connection and where an equipment grounding conductor is not run with the supply conductors to the building or structure, there are no continuous metallic paths bonded to the grounding system in both buildings or structures involved, and ground-fault protection of equipment has not been installed on the supply side of the feeder(s), the grounded conductor run with the supply to the buildings or structure shall be connected to the building or structure disconnecting means and to the grounding electrode(s) and shall be used for grounding or bonding of equipment, structures, or frames required to be grounded or bonded. Where used for grounding in accordance with this provision, the grounded conductor shall be not smaller than the larger of:~~

~~23. 1. That required by Section E3704.3.~~

~~24. 2. That required by Section E3908.12. [250.32(B)(1) Exception]~~

~~E3607.4 Grounding electrode conductor.~~

~~A grounding electrode conductor shall be used to connect the equipment grounding conductors, the service equipment enclosures, and the grounded service conductor to the grounding electrode(s). This conductor shall be sized in accordance with Table E3603.4. [250.24(D)]~~

~~E3607.5 Main bonding jumper.~~

~~An unspliced main bonding jumper shall be used to connect the equipment grounding conductor(s) and the service disconnect enclosure to the grounded conductor of the system within the enclosure for each service disconnect. [250.24(B)]~~

~~E3607.6 Common grounding electrode.~~

~~Where an ac system is connected to a grounding electrode in or at a building or structure, the same electrode shall be used to ground conductor enclosures and equipment in or on that building or structure. Where separate services, feeders or branch circuits supply a building and are required to be connected to a grounding electrode(s), the same grounding electrode(s) shall be used. Two or more grounding electrodes that are effectively bonded together shall be considered as a single grounding electrode system. (250.58)~~

~~SECTION E3608~~

~~GROUNDING ELECTRODE SYSTEM~~

~~E3608.1 Grounding electrode system.~~

~~All electrodes specified in Sections E3608.1.1, E3608.1.2, E3608.1.3, E3608.1.4 E3608.1.5 and E3608.1.6 that are present at each building or structure served shall be bonded together to form the grounding electrode system. Where none of these electrodes are present, one or more of the electrodes specified in Sections E3608.1.3, E3608.1.4, E3608.1.5 and E3608.1.6 shall be installed and used. (250.50)~~

~~**Exception:** Concrete-encased electrodes of existing buildings or structures shall not be required to be part of the grounding electrode system where the steel reinforcing bars or rods are not accessible for use without disturbing the concrete. (250.50 Exception)~~

~~E3608.1.1 Metal underground water pipe.~~

~~A metal underground water pipe that is in direct contact with the earth for 10 feet (3048 mm) or more, including any well casing effectively bonded to the pipe and that is electrically continuous, or made electrically continuous by bonding around insulating joints or insulating pipe to the points of connection of the grounding electrode conductor and the bonding conductors, shall be considered as a grounding electrode (see Section E3608.1). [250.52(A)(1)]~~

~~E3608.1.1.1 Interior metal water piping.~~

~~Interior metal water piping located more than 5 feet (1524 mm) from the entrance to the building shall not be used as a conductor to interconnect electrodes that are part of the grounding electrode system. [250.68(C)(1)]~~

~~E3608.1.1.2 Installation.~~

Continuity of the grounding path or the bonding connection to interior piping shall not rely on water meters, filtering devices and similar equipment. A metal underground water pipe shall be supplemented by an additional electrode of a type specified in Sections E3608.1.2 through E3608.1.6. The supplemental electrode shall be bonded to the grounding electrode conductor, the grounded service-entrance conductor, a nonflexible grounded service raceway, any grounded service enclosure or to the equipment grounding conductor provided in accordance with Section E3607.3.1. Where the supplemental electrode is a rod, pipe or plate electrode in accordance with Section E3608.1.4 or E3608.1.5, it shall comply with Section E3608.4.

Where the supplemental electrode is a rod, pipe or plate electrode in accordance with Section E3608.1.4 or E3608.1.5, that portion of the bonding jumper that is the sole connection to the supplemental grounding electrode shall not be required to be larger than 6 AWG copper or 4 AWG aluminum wire. [250.53(D) and (E)]

~~E3608.1.2 Concrete-encased electrode.~~

~~A concrete-encased electrode consisting of at least 20 feet (6096 mm) of either of the following shall be considered as a grounding electrode:~~

- ~~25. 1. One or more bare or zinc galvanized or other electrically conductive coated steel reinforcing bars or rods not less than $\frac{1}{2}$ inch (13 mm) in diameter, installed in one continuous 20-foot (6096 mm) length, or if in multiple pieces connected together by the usual steel tie wires, exothermic welding, welding, or other effective means to create a 20-foot (6096 mm) or greater length.~~

- ~~26. 2. A bare copper conductor not smaller than 4 AWG.~~

~~Metallic components shall be encased by at least 2 inches (51 mm) of concrete and shall be located horizontally within that portion of a concrete foundation or footing that is in direct contact with the earth or within vertical foundations or structural components or members that are in direct contact with the earth.~~

~~Where multiple concrete-encased electrodes are present at a building or structure, only one shall be required to be bonded into the grounding electrode system. [250.52(A)(3)]~~

~~E3608.1.3 Ground rings.~~

~~A ground ring encircling the building or structure, in direct contact with the earth at a depth below the earth's surface of not less than 30 inches (762 mm), consisting of at least 20 feet (6096 mm) of bare copper conductor not smaller than 2 AWG shall be considered as a grounding electrode. [250.52(A)(4)]~~

~~E3608.1.4 Rod and pipe electrodes.~~

~~Rod and pipe electrodes not less than 8 feet (2438 mm) in length and consisting of the following materials shall be considered as a grounding electrode:~~

~~27. 1. Grounding electrodes of pipe or conduit shall not be smaller than trade size $\frac{3}{4}$ (metric designator 21) and, where of iron or steel, shall have the outer surface galvanized or otherwise metal-coated for corrosion protection.~~

~~28. 2. Rod-type grounding electrodes of stainless steel and copper or zinc-coated steel shall be at least $\frac{5}{8}$ inch (15.9 mm) in diameter unless listed. [250.52(A)(5)]~~

~~E3608.1.4.1 Installation.~~

~~The rod and pipe electrodes shall be installed such that at least 8 feet (2438 mm) of length is in contact with the soil. They shall be driven to a depth of not less than 8 feet (2438 mm) except that, where rock bottom is encountered, electrodes shall be driven at an oblique angle not to exceed 45 degrees (0.79 rad) from the vertical or shall be buried in a trench that is at least 30 inches (762 mm) deep. The upper end of the electrodes shall be flush with or below ground level except where the aboveground end and the grounding electrode conductor attachment are protected against physical damage. (250.53(G))~~

~~E3608.1.5 Plate electrodes.~~

~~A plate electrode that exposes not less than 2 square feet (0.186 m²) of surface to exterior soil shall be considered as a grounding electrode. Electrodes of bare or conductively coated iron or steel plates shall be at least $\frac{3}{4}$ inch (6.4 mm) in thickness. Solid, uncoated electrodes of nonferrous metal shall be at least 0.06 inch (1.5 mm) in thickness. Plate electrodes shall be installed not less than 30 inches (762 mm) below the surface of the earth. [250.52(A)(7)]~~

~~E3608.1.6 Other electrodes.~~

~~In addition to the grounding electrodes specified in Sections E3608.1.1 through E3608.1.5, other listed grounding electrodes shall be permitted. [250.52(A)(6)]~~

~~E3608.2 Bonding jumper.~~

~~The bonding jumper(s) used to connect the grounding electrodes together to form the grounding electrode system shall be installed in accordance with Sections E3610.2, and E3610.3, shall be sized in accordance with Section E3603.4, and shall be connected in the manner specified in Section E3611.1. [250.53(C)]~~

~~E3608.3 Rod, pipe and plate electrode requirements.~~

~~Where practicable, rod, pipe and plate electrodes shall be embedded below permanent moisture level. Such electrodes shall be free from nonconductive coatings such as paint or enamel. Where more than one such electrode is used, each electrode of one grounding system shall be not less than 6 feet (1829 mm) from any other electrode of another grounding system. Two or more grounding electrodes that are effectively bonded together shall be considered as a single grounding electrode system. That portion of a bonding jumper that is the sole connection to a rod, pipe or plate electrode shall not be required to be larger than 6 AWG copper or 4 AWG aluminum wire. [250.53(A)(1), 250.53(B), 250.53(C)]~~

~~E3608.4 Supplemental electrode required.~~

~~A single rod, pipe, or plate electrode shall be supplemented by an additional electrode of a type specified in Sections E3608.1.2 through E3608.1.6. The supplemental electrode shall be bonded to one of the following:~~

- ~~29. 1. A rod, pipe, or plate electrode.~~
- ~~30. 2. A grounding electrode conductor.~~
- ~~31. 3. A grounded service entrance conductor.~~
- ~~32. 4. A nonflexible grounded service raceway.~~
- ~~33. 5. A grounded service enclosure.~~

~~Where multiple rod, pipe, or plate electrodes are installed to meet the requirements of this section, they shall not be less than 6 feet (1829 mm) apart. [250.53(A)(2) and (A)(3)]~~

~~**Exception:** Where a single rod, pipe, or plate grounding electrode has a resistance to earth of 25 ohms or less, the supplemental electrode shall not be required. [250.53(A)(2) Exception]~~

~~E3608.5 Aluminum electrodes.~~

~~Aluminum electrodes shall not be permitted. [250.52(B)(2)]~~

~~E3608.6 Metal underground gas piping system.~~

~~A metal underground gas piping system shall not be used as a grounding electrode. [250.52(B)(1)]~~

~~SECTION E3609~~

~~BONDING~~

~~E3609.1 General.~~

~~Bonding shall be provided where necessary to ensure electrical continuity and the capacity to conduct safely any fault current likely to be imposed. (250.90)~~

~~E3609.2 Bonding of equipment for services.~~

~~The noncurrent-carrying metal parts of the following equipment shall be effectively bonded together:~~

- ~~34. 1. Raceways or service cable armor or sheath that enclose, contain, or support service conductors.~~
- ~~35. 2. Service enclosures containing service conductors, including meter fittings, and boxes, interposed in the service raceway or armor. [250.92(A)]~~

~~E3609.3 Bonding for other systems.~~

An intersystem bonding termination for connecting intersystem bonding conductors required for other systems shall be provided external to enclosures at the service equipment or metering equipment enclosure and at the disconnecting means for any additional buildings or structures. The intersystem bonding termination shall comply with all of the following:

~~36. 1. It shall be accessible for connection and inspection.~~

~~37. 2. It shall consist of a set of terminals with the capacity for connection of not less than three intersystem bonding conductors.~~

~~38. 3. It shall not interfere with opening of the enclosure for a service, building or structure disconnecting means, or metering equipment.~~

~~39. 4. Where located at the service equipment, it shall be securely mounted and electrically connected to an enclosure for the service equipment, to the meter enclosure, or to an exposed nonflexible metallic service raceway, or shall be mounted at one of these enclosures and connected to the enclosure or to the grounding electrode conductor with a 6 AWG or larger copper conductor.~~

~~40. 5. Where located at the disconnecting means for a building or structure, it shall be securely mounted and electrically connected to the metallic enclosure for the building or structure disconnecting means, or shall be mounted at the disconnecting means and connected to the metallic enclosure or to the grounding electrode conductor with a 6 AWG or larger copper conductor.~~

~~41. 6. It shall be listed as grounding and bonding equipment. (250.94)~~

~~E3609.4 Method of bonding at the service.~~

~~Bonding jumpers meeting the requirements of this chapter shall be used around impaired connections, such as reducing washers or oversized, concentric, or eccentric knockouts. Standard locknuts or bushings shall not be the only means for the bonding required by this section but shall be permitted to be installed to make mechanical connections of raceways. Electrical continuity at service equipment, service raceways and service conductor enclosures shall be ensured by one or more of the methods specified in Sections E3609.4.1 through E3609.4.4.~~

~~E3609.4.1 Grounded service conductor.~~

~~Equipment shall be bonded to the grounded service conductor in a manner provided in this code.~~

~~E3609.4.2 Threaded connections.~~

~~Equipment shall be bonded by connections using threaded couplings or threaded hubs on enclosures. Such connections shall be made wrench tight.~~

~~E3609.4.3 Threadless couplings and connectors.~~

Equipment shall be bonded by threadless couplings and connectors for metal raceways and metal clad cables. Such couplings and connectors shall be made wrench tight. Standard locknuts or bushings shall not be used for the bonding required by this section.

E3609.4.4Other devices.

Equipment shall be bonded by other listed devices, such as bonding type locknuts, bushings and bushings with bonding jumpers. [250.92(B)]

E3609.5Sizing supply-side bonding jumper and main bonding jumper.

The bonding jumper shall not be smaller than the sizes shown in Table E3603.4 for grounding electrode conductors. Where the service entrance conductors are paralleled in two or more raceways or cables, and an individual supply-side bonding jumper is used for bonding these raceways or cables, the supply-side bonding jumper for each raceway or cable shall be selected from Table E3603.4 based on the size of the ungrounded supply conductors in each raceway or cable. A single supply-side bonding jumper installed for bonding two or more raceways or cables shall be sized in accordance with Table E3603.4 based on the largest set of parallel ungrounded supply conductors. [250.102(C)]

E3609.6Metal water piping bonding.

The metal water piping system shall be bonded to the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes used. The bonding jumper shall be sized in accordance with Table E3603.4. The points of attachment of the bonding jumper(s) shall be accessible. [250.104(A) and 250.104(A)(1)]

E3609.7Bonding other metal piping.

Where installed in or attached to a building or structure, metal piping systems, including gas piping, capable of becoming energized shall be bonded to the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes used. The bonding conductor(s) or jumper(s) shall be sized in accordance with Table E3908.12 using the rating of the circuit capable of energizing the piping. The equipment grounding conductor for the circuit that is capable of energizing the piping shall be permitted to serve as the bonding means. The points of attachment of the bonding jumper(s) shall be accessible. [250.104(B)]

SECTION E3610

GROUNDING ELECTRODE CONDUCTORS

E3610.1Continuous.

The grounding electrode conductor shall be installed in one continuous length without splices or joints and shall run to any convenient grounding electrode available in the grounding electrode system where the other electrode(s), if any, are connected by bonding jumpers in accordance with Section E3608.2, or to one or more grounding electrode(s) individually. The grounding electrode conductor shall be sized for

~~the largest grounding electrode conductor required among all of the electrodes connected to it.~~
~~[250.64(C)]~~

Exception: ~~Splicing of the grounding electrode conductor by irreversible compression-type connectors listed as grounding and bonding equipment or by the exothermic welding process shall not be prohibited.~~ ~~[250.64(C)(1)]~~

~~E3610.2~~Securing and protection against physical damage.

~~Where exposed, a grounding electrode conductor or its enclosure shall be securely fastened to the surface on which it is carried. Grounding electrode conductors shall be permitted to be installed on or through framing members. A 4 AWG or larger conductor shall be protected where exposed to physical damage. A 6 AWG grounding conductor that is free from exposure to physical damage shall be permitted to be run along the surface of the building construction without metal covering or protection where it is and securely fastened to the construction; otherwise, it shall be in rigid metal conduit, intermediate metal conduit, rigid polyvinyl chloride (PVC), nonmetallic conduit, reinforced thermosetting resin (RTRC) nonmetallic conduit, electrical metallic tubing or cable armor. Grounding electrode conductors smaller than 6 AWG shall be in rigid metal conduit, intermediate metal conduit, rigid polyvinyl chloride (PVC) nonmetallic conduit, reinforced thermosetting resin (RTRC) nonmetallic conduit, electrical metallic tubing or cable armor. Grounding electrode conductors and grounding electrode bonding jumpers shall not be required to comply with Section E3803.~~ ~~[250.64(B)]~~

~~Bare aluminum or copper-clad aluminum grounding electrode conductors shall not be used where in direct contact with masonry or the earth or where subject to corrosive conditions. Where used outside, aluminum or copper-clad aluminum grounding electrode conductors shall not be installed within 18 inches (457 mm) of the earth.~~ ~~[250.64(A)]~~

~~E3610.3~~Raceways and enclosures for grounding electrode conductors.

~~Ferrous metal raceways and enclosures for grounding electrode conductors shall be electrically continuous from the point of attachment to cabinets or equipment to the grounding electrode, and shall be securely fastened to the ground clamp or fitting. Nonferrous metal raceways and enclosures shall not be required to be electrically continuous. Ferrous metal raceways and enclosures shall be bonded at each end of the raceway or enclosure to the grounding electrode or to the grounding electrode conductor. Bonding methods in compliance with Section E3609.4 for installations at service equipment locations and with E3609.4.2 through E3609.4.4 for other than service equipment locations shall apply at each end and to all intervening ferrous raceways, boxes, and enclosures between the cabinets or equipment and the grounding electrode. The bonding jumper for a grounding electrode conductor raceway shall be the same size or larger than the required enclosed grounding electrode conductor.~~

~~Where a raceway is used as protection for a grounding conductor, the installation shall comply with the requirements of Chapter 38.~~ ~~[250.64(E)(4)]~~

~~E3610.4~~Prohibited use.

An equipment grounding conductor shall not be used as a grounding electrode conductor. (250.121)

Exception: A wire-type equipment grounding conductor shall be permitted to serve as both an equipment grounding conductor and a grounding electrode conductor where installed in accordance with the applicable requirements for both the equipment grounding conductor and the grounding electrode conductor in Chapters 36 and 39. Where used as a grounding electrode conductor, the wiretype equipment grounding conductor shall be installed and arranged in a manner that will prevent objectionable current. [250.121 Exception, 250.6(A)]

SECTION 3611

GROUNDING-ELECTRODE CONDUCTOR

CONNECTION TO THE GROUNDING ELECTRODES

E3611.1 Methods of grounding conductor connection to electrodes.

The grounding or bonding conductor shall be connected to the grounding electrode by exothermic welding, listed lugs, listed pressure connectors, listed clamps or other listed means. Connections depending on solder shall not be used. Ground clamps shall be listed for the materials of the grounding electrode and the grounding electrode conductor and, where used on pipe, rod or other buried electrodes, shall also be listed for direct soil burial or concrete encasement. Not more than one conductor shall be connected to the grounding electrode by a single clamp or fitting unless the clamp or fitting is listed for multiple conductors. One of the methods indicated in the following items shall be used:

42. 1. A pipe fitting, pipe plug or other approved device screwed into a pipe or pipe fitting.
43. 2. A listed bolted clamp of cast bronze or brass, or plain or malleable iron.
44. 3. For indoor communications purposes only, a listed sheet metal strap-type ground clamp having a rigid metal base that seats on the electrode and having a strap of such material and dimensions that it is not likely to stretch during or after installation.
45. 4. Other equally substantial approved means. (250.70)

E3611.2 Accessibility.

All mechanical elements used to terminate a grounding electrode conductor or bonding jumper to the grounding electrodes that are not buried or concrete encased shall be accessible. [250.68(A) and 250.68(A) Exception]

E3611.3 Effective grounding path.

The connection of the grounding electrode conductor or bonding jumper shall be made in a manner that will ensure a permanent and effective grounding path. Where necessary to ensure effective grounding for a metal piping system used as a grounding electrode, effective bonding shall be provided around insulated joints and sections and around any equipment that is likely to be disconnected for repairs or

replacement. Bonding jumpers shall be of sufficient length to permit removal of such equipment while retaining the integrity of the grounding path. [250.68(B)]

~~E3611.4 Interior metal water piping.~~

~~Where grounding electrode conductors and bonding jumpers are connected to interior metal water piping as a means to extend the grounding electrode conductor connection to an electrode(s), such piping shall be located not more than 5 feet (1524 mm) from the point of entry into the building.~~

~~Where interior metal water piping is used as a conductor to interconnect electrodes that are part of the grounding electrode system, such piping shall be located not more than 5 feet (1524 mm) from the point of entry into the building. [250.68(C)(1)]~~

~~E3611.5 Protection of ground clamps and fittings.~~

~~Ground clamps or other fittings shall be approved for applications without protection or shall be protected from physical damage by installing them where they are not likely to be damaged or by enclosing them in metal, wood or equivalent protective coverings. (250.10)~~

~~E3611.6 Clean surfaces.~~

~~Nonconductive coatings (such as paint, enamel and lacquer) on equipment to be grounded shall be removed from threads and other contact surfaces to ensure good electrical continuity or shall be connected by fittings that make such removal unnecessary. (250.12)~~

CHAPTER 37 BRANCH CIRCUIT AND FEEDER REQUIREMENTS

RESERVED

~~SECTION E3701~~

~~GENERAL~~

~~E3701.1 Scope.~~

~~This chapter covers branch circuits and feeders and specifies the minimum required branch circuits, the allowable loads and the required overcurrent protection for branch circuits and feeders that serve less than 100 percent of the total dwelling unit load. Feeder circuits that serve 100 percent of the dwelling unit load shall be sized in accordance with the procedures in Chapter 36. [310.15(B)(7)(2)]~~

~~E3701.2 Branch circuit and feeder ampacity.~~

~~Branch circuit and feeder conductors shall have ampacities not less than the maximum load to be served. Where a branch circuit or a feeder supplies continuous loads or any combination of continuous and noncontinuous loads, the minimum branch circuit or feeder conductor size, before the application of any adjustment or correction factors, shall have an allowable ampacity equal to or greater than the noncontinuous load plus 125 percent of the continuous load. [210.19(A)(1)(a) and 215.2(A)(1)(a)]~~

Exception: The grounded conductors of feeders that are not connected to an overcurrent device shall be permitted to be sized at 100 percent of the continuous and noncontinuous load. [215.1(A)(1) Exception No. 2]

E3701.3 Selection of ampacity.

Where more than one calculated or tabulated ampacity could apply for a given circuit length, the lowest value shall be used. [310.15(A)(2)]

Exception: Where two different ampacities apply to adjacent portions of a circuit, the higher ampacity shall be permitted to be used beyond the point of transition, a distance equal to 10 feet (3048 mm) or 10 percent of the circuit length figured at the higher ampacity, whichever is less. [310.15(A)(2) Exception]

E3701.4 Branch circuits with more than one receptacle.

Conductors of branch circuits supplying more than one receptacle for cord-and-plug-connected portable loads shall have ampacities of not less than the rating of the branch circuit. [210.19(A)(2)]

E3701.5 Multiwire branch circuits.

All conductors for multiwire branch circuits shall originate from the same panelboard or similar distribution equipment. Except where all ungrounded conductors are opened simultaneously by the branch-circuit overcurrent device, multiwire branch circuits shall supply only line-to-neutral loads or only one appliance. [210.4(A) and 210.4(C)]

E3701.5.1 Disconnecting means.

Each multiwire branch circuit shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point where the branch circuit originates. [210.4(B)]

E3701.5.2 Grouping.

The ungrounded and grounded circuit conductors of each multiwire branch circuit shall be grouped by cable ties or similar means in at least one location within the panelboard or other point of origination. [210.4(D)]

Exception: Grouping shall not be required where the circuit conductors enter from a cable or raceway unique to the circuit, thereby making the grouping obvious, or where the conductors are identified at their terminations with numbered wire markers corresponding to their appropriate circuit number. [210.4(D) Exception].

SECTION E3702

BRANCH CIRCUIT RATINGS

E3702.1 Branch-circuit voltage limitations.

The voltage ratings of branch circuits that supply luminaires or receptacles for cord and plug-connected loads of up to 1,400 volt-amperes or of less than 1/4 horsepower (0.186 kW) shall be limited to a maximum rating of 120 volts, nominal, between conductors.

Branch circuits that supply cord and plug-connected or permanently connected utilization equipment and appliances rated at over 1,440 volt-amperes or 1/4 horsepower (0.186 kW) and greater shall be rated at 120 volts or 240 volts, nominal. [210.6(A), (B), and (C)]

~~E3702.2 Branch-circuit ampere rating.~~

Branch circuits shall be rated in accordance with the maximum allowable ampere rating or setting of the overcurrent protection device. The rating for other than individual branch circuits shall be 15, 20, 30, 40 and 50 amperes. Where conductors of higher ampacity are used, the ampere rating or setting of the specified over-current device shall determine the circuit rating. (210.3)

~~E3702.3 Fifteen and 20 ampere branch circuits.~~

A 15- or 20-ampere branch circuit shall be permitted to supply lighting units, or other utilization equipment, or a combination of both. The rating of any one cord and plug-connected utilization equipment not fastened in place shall not exceed 80 percent of the branch-circuit ampere rating. The total rating of utilization equipment fastened in place, other than luminaires, shall not exceed 50 percent of the branch-circuit ampere rating where lighting units, cord and plug-connected utilization equipment not fastened in place, or both, are also supplied. [210.23(A)(1) and (2)]

~~E3702.4 Thirty ampere branch circuits.~~

A 30-ampere branch circuit shall be permitted to supply fixed utilization equipment. A rating of any one cord and plug-connected utilization equipment shall not exceed 80 percent of the branch-circuit ampere rating. [210.23(B)]

~~E3702.5 Branch circuits serving multiple loads or outlets.~~

General-purpose branch circuits shall supply lighting outlets, appliances, equipment or receptacle outlets, and combinations of such. Multioutlet branch circuits serving lighting or receptacles shall be limited to a maximum branch-circuit rating of 20 amperes. [210.23(A), (B), and (C)]

~~E3702.6 Branch circuits serving a single motor.~~

Branch-circuit conductors supplying a single motor shall have an ampacity not less than 125 percent of the motor full-load current rating. [430.22(A)]

~~E3702.7 Branch circuits serving motor-operated and combination loads.~~

For circuits supplying loads consisting of motor-operated utilization equipment that is fastened in place and that has a motor larger than 1/8 horsepower (0.093 kW) in combination with other loads, the total

calculated load shall be based on 125 percent of the largest motor load plus the sum of the other loads. [220.18(A)]

~~E3702.8 Branch-circuit inductive and LED lighting loads.~~

~~For circuits supplying luminaires having ballasts or LED drivers, the calculated load shall be based on the total ampere ratings of such units and not on the total watts of the lamps. [220.18(B)]~~

~~E3702.9 Branch-circuit load for ranges and cooking appliances.~~

~~It shall be permissible to calculate the branch-circuit load for one range in accordance with Table E3704.2(2). The branch-circuit load for one wall-mounted oven or one counter-mounted cooking unit shall be the nameplate rating of the appliance. The branch-circuit load for a counter-mounted cooking unit and not more than two wall-mounted ovens all supplied from a single branch circuit and located in the same room shall be calculated by adding the nameplate ratings of the individual appliances and treating the total as equivalent to one range. (220.55 Note 4)~~

~~E3702.9.1 Minimum branch circuit for ranges.~~

~~Ranges with a rating of 8.75 kVA or more shall be supplied by a branch circuit having a minimum rating of 40 amperes. [210.19(A)(3)]~~

~~E3702.10 Branch circuits serving heating loads.~~

~~Electric space-heating and water-heating appliances shall be considered to be continuous loads. Branch circuits supplying two or more outlets for fixed electric space-heating equipment shall be rated 15, 20, 25 or 30 amperes. [424.3(A)]~~

~~E3702.11 Branch circuits for air-conditioning and heat pump equipment.~~

~~The ampacity of the conductors supplying multimotor and combination load equipment shall be not less than the minimum circuit ampacity marked on the equipment. The branch-circuit overcurrent device rating shall be the size and type marked on the appliance. [440.4(B), 440.35, 440.62(A)]~~

~~E3702.12 Branch circuits serving room air conditioners.~~

~~A room air conditioner shall be considered as a single motor unit in determining its branch-circuit requirements where all the following conditions are met:~~

- ~~1. It is cord- and attachment plug-connected.~~
- ~~2. The rating is not more than 40 amperes and 250 volts; single phase.~~
- ~~3. Total rated-load current is shown on the room air conditioner nameplate rather than individual motor currents.~~

4. The rating of the branch-circuit short-circuit and ground-fault protective device does not exceed the ampacity of the branch-circuit conductors, or the rating of the branch-circuit conductors, or the rating of the receptacle, whichever is less. [440.62(A)]

~~E3702.12.1 Where no other loads are supplied.~~

The total marked rating of a cord-and-attachment plug-connected room air conditioner shall not exceed 80 percent of the rating of a branch circuit where no other appliances are also supplied. [440.62(B)]

~~E3702.12.2 Where lighting units or other appliances are also supplied.~~

The total marked rating of a cord-and-attachment plug-connected room air conditioner shall not exceed 50 percent of the rating of a branch circuit where lighting or other appliances are also supplied. Where the circuitry is interlocked to prevent simultaneous operation of the room air conditioner and energization of other outlets on the same branch circuit, a cord-and-attachment plug-connected room air conditioner shall not exceed 80 percent of the branch-circuit rating. [440.62(C)]

~~E3702.13 Electric vehicle branch circuit.~~

Outlets installed for the purpose of charging electric vehicles shall be supplied by a separate branch circuit. Such circuit shall not supply other outlets. (210.17)

~~E3702.14 Branch-circuit requirement—summary.~~

The requirements for circuits having two or more outlets, or receptacles, other than the receptacle circuits of Sections E3703.2, E3703.3 and E3703.4, are summarized in Table E3702.14. Branch circuits in dwelling units shall supply only loads within that dwelling unit or loads associated only with that dwelling unit. Branch circuits installed for the purpose of lighting, central alarm, signal, communications or other purposes for public or common areas of a two-family dwelling shall not be supplied from equipment that supplies an individual dwelling unit. (210.24 and 210.25)

TABLE E3702.14 (Table 210.24)

~~BRANCH CIRCUIT REQUIREMENTS SUMMARY^{a, b}~~

	CIRCUIT RATING		
	15-amp	20-amp	30-amp
Conductors: Minimum size (AWG) circuit conductors	14	12	10
Maximum overcurrent-protection device rating (Ampere rating)	15	20	30

Outlet devices: Lampholders permitted Receptacle rating (amperes)	Any type 15 maximum	Any type 15 or 20	N/A 30
Maximum load (amperes)	15	20	30

a. These gages are for copper conductors.

b. N/A means not allowed.

SECTION E3703

REQUIRED BRANCH CIRCUITS

E3703.1 Branch circuits for heating.

Central heating equipment other than fixed electric space heating shall be supplied by an individual branch circuit. Permanently connected air-conditioning equipment, and auxiliary equipment directly associated with the central heating equipment such as pumps, motorized valves, humidifiers and electrostatic air cleaners, shall not be prohibited from connecting to the same branch circuit as the central heating equipment. (422.12 and 422.12 Exceptions No. 1 and No. 2)

E3703.2 Kitchen and dining area receptacles.

A minimum of two 20-ampere-rated branch circuits shall be provided to serve all wall and floor receptacle outlets located in the kitchen, pantry, breakfast area, dining area or similar area of a dwelling. The kitchen countertop receptacles shall be served by a minimum of two 20-ampere-rated branch circuits, either or both of which shall also be permitted to supply other receptacle outlets in the same kitchen, pantry, breakfast and dining area including receptacle outlets for refrigeration appliances. [210.11(C)(1) and 210.52(B)(1) and (B)(2)]

Exception: The receptacle outlet for refrigeration appliances shall be permitted to be supplied from an individual branch circuit rated 15 amperes or greater. [210.52(B)(1) Exception No. 2]

E3703.3 Laundry circuit.

A minimum of one 20-ampere-rated branch circuit shall be provided for receptacles located in the laundry area and shall serve only receptacle outlets located in the laundry area. [210.11(C)(2)]

E3703.4 Bathroom branch circuits.

A minimum of one 20-ampere branch circuit shall be provided to supply bathroom receptacle outlet(s). Such circuits shall have no other outlets. [210.11(C)(3)]

Exception: Where the 20-ampere circuit supplies a single bathroom, outlets for other equipment within the same bathroom shall be permitted to be supplied in accordance with Section E3702. [210.11(C)(3) Exception]

E3703.5 Number of branch circuits.

The minimum number of branch circuits shall be determined from the total calculated load and the size or rating of the circuits used. The number of circuits shall be sufficient to supply the load served. In no case shall the load on any circuit exceed the maximum specified by Section E3702. [210.11(A)]

E3703.6 Branch-circuit load proportioning.

Where the branch-circuit load is calculated on a volt-amperes-per-square-foot (m2) basis, the wiring system, up to and including the branch-circuit panelboard(s), shall have the capacity to serve not less than the calculated load. This load shall be evenly proportioned among multioutlet branch circuits within the panelboard(s). Branch-circuit overcurrent devices and circuits shall only be required to be installed to serve the connected load. [210.11(B)]

SECTION E3704

FEEDER REQUIREMENTS

E3704.1 Conductor size.

Feeder conductors that do not serve 100 percent of the dwelling unit load and branch-circuit conductors shall be of a size sufficient to carry the load as determined by this chapter. Feeder conductors shall not be required to be larger than the service-entrance conductors that supply the dwelling unit. The load for feeder conductors that serve as the main power feeder to a dwelling unit shall be determined as specified in Chapter 36 for services. [310.15(B)(7)(2) and (3)]

E3704.2 Feeder loads.

The minimum load in volt-amperes shall be calculated in accordance with the load calculation procedure prescribed in Table E3704.2(1). The associated table demand factors shall be applied to the actual load to determine the minimum load for feeders. (220.40)

TABLE E3704.2(1) (Table 220.12, 220.14, Table 220.42, 220.50, 220.51, 220.52, 220.53, 220.54, 220.55, and 220.60)

FEEDER LOAD CALCULATION

LOAD CALCULATION PROCEDURE

Lighting and receptacles: A unit load of not less than 3 VA per square foot of total floor area shall constitute the lighting and 120-volt, 15- and 20-ampere general-use receptacle load. 1,500 VA shall be added for each 20-ampere branch circuit serving receptacles in the kitchen, dining room, pantry, breakfast area and laundry area.

APPLIED DEMAND FACTOR

100 percent of first 3,000 VA or less and 35 percent of that in excess of 3,000 VA.

Plus

~~Appliances and motors: The nameplate rating load of all fastened-in-place appliances other than dryers, ranges, air conditioning and space heating equipment.~~

~~100 percent of load for three or less appliances. 75 percent of load for four or more appliances.~~

Plus

~~Fixed motors: Full load current of motors plus 25 percent of the full load current of the largest motor.~~

Plus

~~Electric clothes dryer: The dryer load shall be 5,000 VA for each dryer circuit or the nameplate rating load of each dryer, whichever is greater.~~

Plus

~~Cooking appliances: The nameplate rating of ranges, wall mounted ovens, counter mounted cooking units and other cooking appliances rated in excess of 1.75 kVA shall be summed.~~

~~Demand factors shall be as allowed by Table E3704.2(2).~~

~~Plus the largest of either the heating or cooling load~~

~~Largest of the following two selections:~~

~~1.100 percent of the nameplate rating(s) of the air conditioning and cooling, including heat pump compressors.~~

~~2.100 percent of the fixed electric space heating.~~

~~For SI: 1 square foot = 0.0929 m².~~

~~TABLE E3704.2(2) (220.55 and Table 220.55)~~

~~DEMAND LOADS FOR ELECTRIC RANGES, WALL MOUNTED OVENS, COUNTER-MOUNTED COOKING UNITS AND OTHER COOKING APPLIANCES OVER 13/4 kVA RATING^{a, b}~~

~~NUMBER OF
APPLIANCES~~

~~MAXIMUM DEMAND^{b, c}~~

~~DEMAND FACTORS (percent)^d~~

~~Column A maximum 12~~

~~Column B less than 31/2~~

~~Column C 31/2 to 83/4~~

	kVA rating	kVA rating	kVA rating
1	8kVA	80	80
2	11kVA	75	65

a. ~~Column A shall be used in all cases except as provided for in Footnote d.~~

b. ~~For ranges all having the same rating and individually rated more than 12 kVA but not more than 27 kVA, the maximum demand in Column A shall be increased 5 percent for each additional kVA of rating or major fraction thereof by which the rating of individual ranges exceeds 12 kVA.~~

c. ~~For ranges of unequal ratings and individually rated more than 8.75 kVA, but none exceeding 27 kVA, an average value of rating shall be computed by adding together the ratings of all ranges to obtain the total connected load (using 12 kVA for any ranges rated less than 12 kVA) and dividing by the total number of ranges; and then the maximum demand in Column A shall be increased 5 percent for each kVA or major fraction thereof by which this average value exceeds 12 kVA.~~

d. ~~Over 1.75 kVA through 8.75 kVA. As an alternative to the method provided in Column A, the nameplate ratings of all ranges rated more than 1.75 kVA but not more than 8.75 kVA shall be added and the sum shall be multiplied by the demand factor specified in Column B or C for the given number of appliances.~~

E3704.3 Feeder neutral load.

~~The feeder neutral load shall be the maximum unbalance of the load determined in accordance with this chapter. The maximum unbalanced load shall be the maximum net calculated load between the neutral and any one ungrounded conductor. For a feeder or service supplying electric ranges, wall-mounted ovens, counter-mounted cooking units and electric dryers, the maximum unbalanced load shall be considered as 70 percent of the load on the ungrounded conductors. [220.61(A) and (B)]~~

E3704.4 Lighting and general use receptacle load.

~~A unit load of not less than 3 volt-amperes shall constitute the minimum lighting and general use receptacle load for each square foot of floor area (33 VA for each square meter of floor area). The floor area for each floor shall be calculated from the outside dimensions of the building. The calculated floor area shall not include open porches, garages, or unused or unfinished spaces not adaptable for future use. [220.12, Table 220.12, and 220.14(J)]~~

E3704.5 Ampacity and calculated loads.

~~The calculated load of a feeder shall be not less than the sum of the loads on the branch circuits supplied, as determined by Section E3704, after any applicable demand factors permitted by Section E3704 have been applied. (220.40)~~

~~E3704.6 Equipment grounding conductor.~~

~~Where a feeder supplies branch circuits in which equipment grounding conductors are required, the feeder shall include or provide an equipment grounding conductor that is one or more or a combination of the types specified in Section E3908.8, to which the equipment grounding conductors of the branch circuits shall be connected. Where the feeder supplies a separate building or structure, the requirements of Section E3607.3.1 shall apply. (215.6)~~

~~SECTION E3705~~

~~CONDUCTOR SIZING~~

~~AND OVERCURRENT PROTECTION~~

~~E3705.1 General.~~

~~Ampacities for conductors shall be determined based in accordance with Table E3705.1 and Sections E3705.2 and E3705.3. [310.15(A)]~~

~~TABLE E3705.1~~

~~ALLOWABLE AMPACITIES~~

CONDUCTOR SIZE	CONDUCTOR TEMPERATURE RATING						CONDUCTOR SIZE
	60°C	75°C	90°C	60°C	75°C	90°C	
	Types RHW, THHW, TW, UF	Types RHW, THHW, THW, THWN, USE, XHHW	Types RHW-2, THHN, THHW, THW-2, THWN-2, XHHW, XHHW- 2, USE-2	Types RHW, THHW, TW, UF	Types RHW, THHW, THW, THWN, USE, XHHW	Types RHW-2, THHN, THHW, THW-2, THWN-2, XHHW, XHHW- 2, USE-2	
Copper				Aluminum or copper-clad aluminum			
14a	15	20	25	—	—	—	—
12a	20	25	30	15	20	25	12a
10a	30	35	40	25	30	35	10a
8	40	50	55	35	40	45	8

6	55	65	75	40	50	55	6
4	70	85	95	55	65	75	4
3	85	100	115	65	75	85	3
2	95	115	130	75	90	100	2
1	110	130	145	85	100	115	1
1/0	125	150	170	100	120	135	1/0
2/0	145	175	195	115	135	150	2/0
3/0	165	200	225	130	155	175	3/0
4/0	195	230	260	150	180	205	4/0
250	215	255	290	170	205	230	250
300	240	285	320	195	230	260	300
350	260	310	350	210	250	280	350
400	280	335	380	225	270	305	400
500	320	380	430	260	310	350	500
600	350	420	475	285	340	385	600
700	385	460	520	315	375	425	700
750	400	475	535	320	385	435	750
800	410	490	555	330	395	445	800
900	435	520	585	355	425	480	900

For SI: °C = [(°F) - 32]/1.8.

a. See Table E3705.5.3 for conductor overcurrent protection limitations.

E3705.2 Correction factor for ambient temperatures.

For ambient temperatures other than 30°C (86°F), multiply the allowable ampacities specified in Table E3705.1 by the appropriate correction factor shown in Table E3705.2. [310.15(B)(2)]

TABLE E3705.2 [Table 310.15(B)(2)(a)]

AMBIENT TEMPERATURE CORRECTION FACTORS

For ambient temperatures other than 30°C (86°F), multiply the allowable ampacities specified in the ampacity tables by the appropriate correction factor shown below.

Ambient Temperature (°C)	Temperature Rating of Conductor			Ambient Temperature (°F)
	60°C	75°C	90°C	
10 or less	1.29	1.20	1.15	50 or less
11-15	1.22	1.15	1.12	51-59
16-20	1.15	1.11	1.08	60-68
21-25	1.08	1.05	1.04	69-77
26-30	1.00	1.00	1.00	78-86
31-35	0.91	0.94	0.96	87-95
36-40	0.82	0.88	0.91	96-104
41-45	0.71	0.82	0.87	105-113
46-50	0.58	0.75	0.82	114-122
51-55	0.41	0.67	0.76	123-131
56-60	—	0.58	0.71	132-140
61-65	—	0.47	0.65	141-149

66-70	—	0.33	0.58	150-158
71-75	—	—	0.50	159-167
76-80	—	—	0.41	168-176
81-85	—	—	0.29	177-185

For SI: $1^{\circ}\text{C} = [(^{\circ}\text{F}) - 32]/1.8$.

E3705.3 Adjustment factor for conductor proximity.

Where the number of current-carrying conductors in a raceway or cable exceeds three, or where single conductors or multiconductor cables are stacked or bundled for distances greater than 24 inches (610 mm) without maintaining spacing and are not installed in raceways, the allowable ampacity of each conductor shall be reduced as shown in Table E3705.3. [310.15(B)(3)]

Exceptions:

1. Adjustment factors shall not apply to conductors in nipples having a length not exceeding 24 inches (610 mm). [310.15(B)(3)(2)]

2. Adjustment factors shall not apply to underground conductors entering or leaving an outdoor trench if those conductors have physical protection in the form of rigid metal conduit, intermediate metal conduit, or rigid nonmetallic conduit having a length not exceeding 10 feet (3048 mm) and the number of conductors does not exceed four. [310.15(B)(3)(3)]

3. Adjustment factors shall not apply to type AC cable or to type MC cable without an overall outer jacket meeting all of the following conditions:

3.1. Each cable has not more than three current-carrying conductors.

3.2. The conductors are 12 AWG copper.

3.3. Not more than 20 current-carrying conductors are bundled, stacked or supported on bridle rings. [310.15(B)(3)(4)]

4. An adjustment factor of 60 percent shall be applied to Type AC cable and Type MC cable where all of the following conditions apply:

4.1. The cables do not have an overall outer jacket.

4.2. The number of current-carrying conductors exceeds 20.

4.3. The cables are stacked or bundled longer than 24 inches (607 mm) without spacing being maintained. [310.15(B)(3)(5)]

TABLE E3705.3 [Table 310.15(B)(3)(a)]

CONDUCTOR PROXIMITY ADJUSTMENT FACTORS

NUMBER OF CURRENT-CARRYING CONDUCTORS IN CABLE OR RACEWAY	PERCENT OF VALUES IN TABLE E3705.1
4-6	80
7-9	70
10-20	50
21-30	45
31-40	40
41 and above	35

E3705.4 Temperature limitations.

The temperature rating associated with the ampacity of a conductor shall be so selected and coordinated to not exceed the lowest temperature rating of any connected termination, conductor or device. Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustment, correction, or both. Except where the equipment is marked otherwise, conductor ampacities used in determining equipment termination provisions shall be based on Table E3705.1. [110.14(C)]

E3705.4.1 Conductors rated 60°C.

Except where the equipment is marked otherwise, termination provisions of equipment for circuits rated 100 amperes or less, or marked for 14 AWG through 1 AWG conductors, shall be used only for one of the following:

1. Conductors rated 60°C (140°F);
2. Conductors with higher temperature ratings, provided that the ampacity of such conductors is determined based on the 60°C (140°F) ampacity of the conductor size used;
3. Conductors with higher temperature ratings where the equipment is listed and identified for use with such conductors; or

4. For motors marked with design letters B, C, or D conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used provided that the ampacity of such conductors does not exceed the 75°C (167°F) ampacity. [110.14(C)(1)(a)]

E3705.4.2 Conductors rated 75°C.

Termination provisions of equipment for circuits rated over 100 amperes, or marked for conductors larger than 1 AWG, shall be used only for:

1. Conductors rated 75°C (167°F).

2. Conductors with higher temperature ratings provided that the ampacity of such conductors does not exceed the 75°C (167°F) ampacity of the conductor size used, or provided that the equipment is listed and identified for use with such conductors. [110.14(C)(1)(b)]

E3705.4.3 Separately installed pressure connectors.

Separately installed pressure connectors shall be used with conductors at the ampacities not exceeding the ampacity at the listed and identified temperature rating of the connector. [110.14(C)(2)]

E3705.4.4 Conductors of Type NM cable.

Conductors in NM cable assemblies shall be rated at 90°C (194°F). Types NM, NMC, and NMS cable identified by the markings NM-B, NMC-B, and NMS-B meet this requirement. The allowable ampacity of Types NM, NMC, and NMS cable shall not exceed that of 60°C (140°F) rated conductors and shall comply with Section E3705.1 and Table E3705.5.3. The 90°C (194°F) rating shall be permitted to be used for ampacity adjustment and calculations provided that the final corrected or adjusted ampacity does not exceed that for a 60°C (140°F) rated conductor. Where more than two NM cables containing two or more current-carrying conductors are installed, without maintaining spacing between the cables, through the same opening in wood framing that is to be sealed with thermal insulation, caulk or sealing foam, the allowable ampacity of each conductor shall be adjusted in accordance with Table E3705.3. Where more than two NM cables containing two or more current-carrying conductors are installed in contact with thermal insulation without maintaining spacing between cables, the allowable ampacity of each conductor shall be adjusted in accordance with Table E3705.3. (334.80 and 334.112)

E3705.4.5 Conductors of Type SE cable.

Where used as a branch circuit or feeder wiring method within the interior of a building and installed in thermal insulation, the ampacity of the conductors in Type SE cable assemblies shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, provided that the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor. [338.10(B)(4)(a)]

E3705.5 Overcurrent protection required.

All ungrounded branch circuit and feeder conductors shall be protected against overcurrent by an overcurrent device installed at the point where the conductors receive their supply. Overcurrent devices shall not be connected in series with a grounded conductor. Overcurrent protection and allowable loads for branch circuits and for feeders that do not serve as the main power feeder to the dwelling unit load shall be in accordance with this chapter.

Branch circuit conductors and equipment shall be protected by overcurrent protective devices having a rating or setting not exceeding the allowable ampacity specified in Table E3705.1 and Sections E3705.2, E3705.3 and E3705.4 except where otherwise permitted or required in Sections E3705.5.1 through E3705.5.3. [240.4, 240.21, and 310.15(B)(7)(2)]

E3705.5.1 Cords.

Cords shall be protected in accordance with Section E3909.2. [240.5(B)]

E3705.5.2 Overcurrent devices of the next higher rating.

The next higher standard overcurrent device rating, above the ampacity of the conductors being protected, shall be permitted to be used, provided that all of the following conditions are met:

1. The conductors being protected are not part of a branch circuit supplying more than one receptacle for cord and plug connected portable loads.
2. The ampacity of conductors does not correspond with the standard ampere rating of a fuse or a circuit breaker without overload trip adjustments above its rating (but that shall be permitted to have other trip or rating adjustments).
3. The next higher standard device rating does not exceed 400 amperes. [240.4(B)]

E3705.5.3 Small conductors.

Except as specifically permitted by Section E3705.5.4, the rating of overcurrent protection devices shall not exceed the ratings shown in Table E3705.5.3 for the conductors specified therein. [240.4(D)]

TABLE E3705.5.3 [240.4(D)]

OVERCURRENT PROTECTION RATING

COPPER		ALUMINUM OR COPPER-CLAD ALUMINUM	
Size (AWG)	Maximum overcurrent protection device rating (amps)	Size (AWG)	Maximum overcurrent protection device rating (amps)
14	15	12	15

12	20	10	25
10	30	8	30

~~a. The maximum overcurrent protection device rating shall not exceed the conductor allowable ampacity determined by the application of the correction and adjustment factors in accordance with Sections E3705.2 and E3705.3.~~

~~E3705.5.4 Air conditioning and heat pump equipment.~~

~~Air conditioning and heat pump equipment circuit conductors shall be permitted to be protected against overcurrent in accordance with Section E3702.11. [240.4(G)]~~

~~E3705.6 Fuses and fixed trip circuit breakers.~~

~~The standard ampere ratings for fuses and inverse time circuit breakers shall be considered 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350 and 400 amperes. (240.6)~~

~~E3705.7 Location of overcurrent devices in or on premises.~~

~~Overcurrent devices shall:~~

- ~~1. Be readily accessible. [240.24(A)]~~
- ~~2. Not be located where they will be exposed to physical damage. [240.24(C)]~~
- ~~3. Not be located where they will be in the vicinity of easily ignitable material such as in clothes closets. [240.24(D)]~~
- ~~4. Not be located in bathrooms. [240.24(E)]~~
- ~~5. Not be located over steps of a stairway.~~
- ~~6. Be installed so that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, is not more than 6 feet 7 inches (2007 mm) above the floor or working platform. [240.24(A)]~~

~~Exceptions:~~

- ~~1. This section shall not apply to supplementary overcurrent protection that is integral to utilization equipment. [240.24(A)(2)]~~
- ~~2. Overcurrent devices installed adjacent to the utilization equipment that they supply shall be permitted to be accessible by portable means. [240.24(A)(4)]~~

~~E3705.8 Ready access for occupants.~~

~~Each occupant shall have ready access to all overcurrent devices protecting the conductors supplying that occupancy. [240.24(B)]~~

~~E3705.9 Enclosures for overcurrent devices.~~

~~Overcurrent devices shall be enclosed in cabinets, cutout boxes, or equipment assemblies. The operating handle of a circuit breaker shall be permitted to be accessible without opening a door or cover. [240.30(A) and (B)]~~

~~SECTION E3706~~

~~PANELBOARDS~~

~~E3706.1 Panelboard rating.~~

~~All panelboards shall have a rating not less than that of the minimum service or feeder capacity required for the calculated load. (408.30)~~

~~E3706.2 Panelboard circuit identification.~~

~~All circuits and circuit modifications shall be legibly identified as to their clear, evident, and specific purpose or use. The identification shall include an approved degree of detail that allows each circuit to be distinguished from all others. Spare positions that contain unused overcurrent devices or switches shall be described accordingly. The identification shall be included in a circuit directory located on the face of the panelboard enclosure or inside the panel door. Circuits shall not be described in a manner that depends on transient conditions of occupancy. [408.4(A)]~~

~~E3706.3 Panelboard overcurrent protection.~~

~~In addition to the requirement of Section E3706.1, a panelboard shall be protected by an overcurrent protective device having a rating not greater than that of the panelboard. Such overcurrent protective device shall be located within or at any point on the supply side of the panelboard. (408.36)~~

~~E3706.4 Grounded conductor terminations.~~

~~Each grounded conductor shall terminate within the panelboard on an individual terminal that is not also used for another conductor, except that grounded conductors of circuits with parallel conductors shall be permitted to terminate on a single terminal where the terminal is identified for connection of more than one conductor. (408.41 and 408.41 Exception)~~

~~E3706.5 Back fed devices.~~

~~Plug-in type overcurrent protection devices or plug-in type main lug assemblies that are back fed and used to terminate field-installed ungrounded supply conductors shall be secured in place by an additional fastener that requires other than a pull to release the device from the mounting means on the panel. [408.36(D)].~~

CHAPTER 38
WIRING METHODS

RESERVED

SECTION E3801

GENERAL REQUIREMENTS

E3801.1 Scope.

This chapter covers the wiring methods for services, feeders and branch circuits for electrical power and distribution. (300.1)

E3801.2 Allowable wiring methods.

The allowable wiring methods for electrical installations shall be those listed in Table E3801.2. Single conductors shall be used only where part of one of the recognized wiring methods listed in Table E3801.2. As used in this code, abbreviations of the wiring method types shall be as indicated in Table E3801.2. [110.8, 300.3(A)]

TABLE E3801.2

ALLOWABLE WIRING METHODS

ALLOWABLE WIRING METHOD	DESIGNATED ABBREVIATION
Armored cable	AC
Electrical metallic tubing	EMT
Electrical nonmetallic tubing	ENT
Flexible metal conduit	FMC
Intermediate metal conduit	IMC
Liquidtight flexible conduit	LFC
Metal clad cable	MC
Nonmetallic sheathed cable	NM
Rigid polyvinyl chloride conduit (Type PVC)	RNC

Rigid metallic conduit	RMC
Service entrance cable	SE
Surface raceways	SR
Underground feeder cable	UF
Underground service cable	USE

E3801.3 Circuit conductors.

All conductors of a circuit, including equipment grounding conductors and bonding conductors, shall be contained in the same raceway, trench, cable or cord. [300.3(B)]

E3801.4 Wiring method applications.

Wiring methods shall be applied in accordance with Table E3801.4. (Chapter 3 and 300.2)

TABLE E3801.4 (Chapter 3 and 300.2)

ALLOWABLE APPLICATIONS FOR WIRING METHODS^{a, b, c, d, e, f, g, h, i, j, k}

ALLOWABLE APPLICATIONS (application allowed where marked with an "A")	AC	EMT	ENT	FMC	IMC RMC RNC	LFCa, g	MC	NM	SR	SE	UF	USE
Services	—	A	A ^h	A ⁱ	A	A ⁱ	A	—	—	A	—	A
Feeders	A	A	A	A	A	A	A	A	—	A ^b	A	A ^b
Branch circuits	A	A	A	A	A	A	A	A	A	A ^e	A	—
Inside a building	A	A	A	A	A	A	A	A	A	A	A	—
Wet locations exposed to sunlight	—	A	A ^h	—	A	A	A	—	—	A	A ^e	A ^e
Damp locations	—	A	A	A ^d	A	A	A	—	—	A	A	A
Embedded in noncinder concrete in dry location	—	A	A	—	A	A ^j	—	—	—	—	—	—

In noncinder concrete in contact with grade	—	Af	A	—	Af	Aj	—	—	—	—	—	—
Embedded in plaster not exposed to dampness	A	A	A	A	A	A	A	—	—	A	A	—
Embedded in masonry	—	A	A	—	Af	A	A	—	—	—	—	—
In masonry voids and cells exposed to dampness or below grade line	—	Af	A	Ad	Af	A	A	—	—	A	A	—
Fished in masonry voids	A	—	—	A	—	A	A	A	—	A	A	—
In masonry voids and cells not exposed to dampness	A	A	A	A	A	A	A	A	—	A	A	—
Run-exposed	A	A	A	A	A	A	A	A	A	A	A	—
Run-exposed and subject to physical damage	—	—	—	—	Ag	—	—	—	—	—	—	—
For direct burial	—	Af	—	—	Af	A	Af	—	—	—	A	A

For SI: 1 foot = 304.8 mm.

a. Liquid-tight flexible nonmetallic conduit without integral reinforcement within the conduit wall shall not exceed 6 feet in length.

b. Type USE cable shall not be used inside buildings.

c. The grounded conductor shall be insulated.

d. Conductors shall be a type approved for wet locations and the installation shall prevent water from entering other raceways.

e. Shall be listed as "Sunlight Resistant."

f. Metal raceways shall be protected from corrosion and approved for the application. Aluminum RMC requires approved supplementary corrosion protection.

g. RNC shall be Schedule 80.

h. Shall be listed as "Sunlight Resistant" where exposed to the direct rays of the sun.

i. Conduit shall not exceed 6 feet in length.

j. Liquid tight flexible nonmetallic conduit is permitted to be encased in concrete where listed for direct burial and only straight connectors listed for use with LFNC are used.

k. In wet locations under any of the following conditions:

1. The metallic covering is impervious to moisture.

2. A lead sheath or moisture impervious jacket is provided under the metal covering.

3. The insulated conductors under the metallic covering are listed for use in wet locations and a corrosion-resistant jacket is provided over the metallic sheath.

SECTION E3802

ABOVE-GROUND INSTALLATION REQUIREMENTS

E3802.1 Installation and support requirements.

Wiring methods shall be installed and supported in accordance with Table E3802.1. (Chapter 3 and 300.11)

TABLE E3802.1 (Chapter 3)

GENERAL INSTALLATION AND SUPPORT REQUIREMENTS FOR WIRING METHODS a, b, c, d, e, f, g, h, i, j, k

INSTALLATION REQUIREMENTS (Requirement applicable only to wiring methods marked "A")	AC MC	EMT IMC RMC	ENT	FMC LFC	NM UF	RNC	SE	SRa	USE

Where run parallel with the framing member or furring strip, the wiring shall be not less than 1 1/4 inches from the edge of a furring strip or a framing member such as a joist, rafter or stud or shall be physically protected.

A	—	A	A	A	—	A	—	—

Bored holes in framing members for wiring shall be located not less than 1 1/4 inches from the edge of the framing member or shall be protected with a minimum 0.0625-inch steel plate or sleeve, a listed steel plate or other physical protection.

Ak	—	Ak	Ak	Ak	—	Ak	—	—

Where installed in grooves, to be covered by wallboard, siding, paneling, carpeting, or similar finish, wiring methods shall be protected by

A	—	A	A	A	—	A	A	A

0.0625-inch-thick steel plate, sleeve, or equivalent, a listed steel plate or by not less than 1 1/4-inch free space for the full length of the groove in which the cable or raceway is installed.

Securely fastened bushings or grommets shall be provided to protect wiring run through openings in metal framing members.

The maximum number of 90-degree bends shall not exceed four between junction boxes.

Bushings shall be provided where entering a box, fitting or enclosure unless the box or fitting is designed to afford equivalent protection.

Ends of raceways shall be reamed to remove rough edges.

Maximum allowable on-center support spacing for the wiring method in feet.

Maximum support distance in inches from box or other terminations.

— — Aj — Aj — Aj — —

— A A A — A — — —

A A A A — A — A —

— A A A — A — A —

4.5b, 10f 3b 4.5b 4.5i 3d, 2.5e — 2.5
e †

12b, 36 36 12b, 12h, 36 12 — —
f g i

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.0175 rad.

a. Installed in accordance with listing requirements.

b. Supports not required in accessible ceiling spaces between light fixtures where lengths do not exceed 6 feet.

c. Six feet for MC cable.

d. Five feet for trade sizes greater than 1 inch.

e. Two and one-half feet where used for service or outdoor feeder and 4.5 feet where used for branch circuit or indoor feeder.

f. Twenty-four inches for Type AC cable and thirty-six inches for interlocking Type MC cable where flexibility is necessary.

g. Where flexibility after installation is necessary, lengths of flexible metal conduit and liquidtight flexible metal conduit measured from the last point where the raceway is securely fastened shall not exceed: 36

inches for trade sizes 1/2 through 1 1/4, 48 inches for trade sizes 1 1/2 through 2 and 5 feet for trade sizes 2 1/2 and larger.

h. Within 8 inches of boxes without cable clamps.

i. Flat cables shall not be stapled on edge.

j. Bushings and grommets shall remain in place and shall be listed for the purpose of cable protection.

k. See Sections R502.8 and R802.7 for additional limitations on the location of bored holes in horizontal framing members.

E3802.2 Cables in accessible attics.

Cables in attics or roof spaces provided with access shall be installed as specified in Sections E3802.2.1 and E3802.2.2. (320.3 and 334.23)

E3802.2.1 Across structural members.

Where run across the top of floor joists, or run within 7 feet (2134 mm) of floor or floor joists across the face of rafters or studding, in attics and roof spaces that are provided with access, the cable shall be protected by substantial guard strips that are at least as high as the cable. Where such spaces are not provided with access by permanent stairs or ladders, protection shall only be required within 6 feet (1829 mm) of the nearest edge of the attic entrance. [330.23(A) and 334.23]

E3802.2.2 Cable installed through or parallel to framing members.

Where cables are installed through or parallel to the sides of rafters, studs or floor joists, guard strips and running boards shall not be required, and the installation shall comply with Table E3802.1. [330.23(B) and 334.23]

E3802.3 Exposed cable.

In exposed work, except as provided for in Sections E3802.2 and E3802.4, cable assemblies shall be installed as specified in Sections E3802.3.1 and E3802.3.2. (330.15 and 334.15)

E3802.3.1 Surface installation.

Cables shall closely follow the surface of the building finish or running boards. [334.15(A)]

E3802.3.2 Protection from physical damage.

Where subject to physical damage, cables shall be protected by rigid metal conduit, intermediate metal conduit, electrical metallic tubing, Schedule 80 PVC rigid nonmetallic conduit, or other approved means. Where passing through a floor, the cable shall be enclosed in rigid metal conduit, intermediate metal conduit, electrical metallic tubing, Schedule 80 PVC rigid nonmetallic conduit or other approved means extending not less than 6 inches (152 mm) above the floor. [334.15(B)]

~~E3802.3~~Locations exposed to direct sunlight.

~~Insulated conductors and cables used where exposed to direct rays of the sun shall be listed or listed and marked, as being "sunlight resistant," or shall be covered with insulating material, such as tape or sleeving, that is listed or listed and marked as being "sunlight resistant."~~ [310.10(D)]

~~E3802.4~~In unfinished basements and crawl spaces.

~~Where type NM or SE cable is run at angles with joists in unfinished basements and crawl spaces, cable assemblies containing two or more conductors of sizes 6 AWG and larger and assemblies containing three or more conductors of sizes 8 AWG and larger shall not require additional protection where attached directly to the bottom of the joists. Smaller cables shall be run either through bored holes in joists or on running boards. Type NM or SE cable installed on the wall of an unfinished basement shall be permitted to be installed in a listed conduit or tubing or shall be protected in accordance with Table E3802.1. Conduit or tubing shall be provided with a suitable insulating bushing or adapter at the point where the cable enters the raceway. The sheath of the Type NM or SE cable shall extend through the conduit or tubing and into the outlet or device box not less than 1/4 inch (6.4 mm). The cable shall be secured within 12 inches (305 mm) of the point where the cable enters the conduit or tubing. Metal conduit, tubing, and metal outlet boxes shall be connected to an equipment grounding conductor complying with Section E3908.13.~~ [334.15(C)]

~~E3802.5~~Bends.

~~Bends shall be made so as not to damage the wiring method or reduce the internal diameter of raceways.~~

~~For types NM and SE cable, bends shall be so made, and other handling shall be such that the cable will not be damaged and the radius of the curve of the inner edge of any bend shall be not less than five times the diameter of the cable.~~ (334.24 and 338.24)

~~E3802.6~~Raceways exposed to different temperatures.

~~Where portions of a raceway or sleeve are known to be subjected to different temperatures and where condensation is known to be a problem, as in cold storage areas of buildings or where passing from the interior to the exterior of a building, the raceway or sleeve shall be filled with an approved material to prevent the circulation of warm air to a colder section of the raceway or sleeve.~~ [300.7(A)]

~~E3802.7~~Raceways in wet locations above grade.

~~Where raceways are installed in wet locations above grade, the interior of such raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceways in wet locations above grade shall be listed for use in wet locations.~~ (300.9)

SECTION E3803

UNDERGROUND INSTALLATION REQUIREMENTS

~~E3803.1 Minimum cover requirements.~~

~~Direct buried cable or raceways shall be installed in accordance with the minimum cover requirements of Table E3803.1. [300.5(A)]~~

~~TABLE E3803.1 (Table 300.5)~~

~~MINIMUM COVER REQUIREMENTS, BURIAL IN INCHESa, b, c, d, e~~

~~LOCATION OF WIRING METHOD OR CIRCUIT~~	~~TYPE OF WIRING METHOD OR CIRCUIT~~				
	~~1 Direct burial cables or conductors~~	~~2 Rigid metal conduit or intermediate metal conduit~~	~~3 Nonmetallic raceways listed for direct burial without concrete encasement or other approved raceways~~	~~4 Residential branch circuits rated 120 volts or less with GFCI protection and maximum overcurrent protection of 20 amperes~~	~~5 Circuits for control of irrigation and landscape lighting limited to not more than 30 volts and installed with type UF or in other identified cable or raceway~~
~~All locations not specified below~~	~~24~~	~~6~~	~~18~~	~~12~~	~~6~~
~~In trench below 2- inch-thick concrete or equivalent~~	~~18~~	~~6~~	~~12~~	~~6~~	~~6~~
~~Under a building~~	~~0 (In raceway only or Type MC identified for direct burial)~~	~~0~~	~~0~~	~~0 (In raceway only or Type MC identified for direct burial)~~	~~0 (In raceway only or Type MC identified for direct burial)~~
~~Under minimum of 4-inch-thick concrete exterior slab with no vehicular traffic~~	~~18~~	~~4~~	~~4~~	~~6 (Direct burial) 4 (In raceway)~~	~~6 (Direct burial) 4 (In raceway)~~

and the slab
extending not less
than 6 inches
beyond the
underground
installation

Under streets,
highways, roads,
alleys, driveways
and parking lots

24

24

24

24

24

One- and two-
family dwelling
driveways and
outdoor parking
areas, and used
only for dwelling-
related purposes

18

18

18

12

18

In solid rock where
covered by
minimum of 2
inches concrete
extending down to
rock

2 (In
raceway
only)

2

2

2 (In raceway
only)

2 (In raceway
only)

For SI: 1 inch = 25.4 mm.

a. Raceways approved for burial only where encased concrete shall require concrete envelope not less than 2 inches thick.

b. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.

c. Where one of the wiring method types listed in columns 1 to 3 is combined with one of the circuit types in columns 4 and 5, the shallower depth of burial shall be permitted.

d. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in metal or nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 2 inches of concrete extending down to the rock.

e. Cover is defined as the shortest distance in inches (millimeters) measured between a point on the top surface of any direct-buried conductor, cable, conduit or other raceway and the top surface of finished grade, concrete, or similar cover.

E3803.2 Warning ribbon.

Underground service conductors that are not encased in concrete and that are buried 18 inches (457 mm) or more below grade shall have their location identified by a warning ribbon that is placed in the trench not less than 12 inches (305 mm) above the underground installation. [300.5(D)(3)]

E3803.3 Protection from damage.

Direct buried conductors and cables emerging from the ground shall be protected by enclosures or raceways extending from the minimum cover distance below grade required by Section E3803.1 to a point at least 8 feet (2438 mm) above finished grade. In no case shall the protection be required to exceed 18 inches (457 mm) below finished grade. Conductors entering a building shall be protected to the point of entrance. Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in rigid metal conduit, intermediate metal conduit, Schedule 80 rigid nonmetallic conduit or the equivalent. [300.5(D)(1)]

E3803.4 Splices and taps.

Direct buried conductors or cables shall be permitted to be spliced or tapped without the use of splice boxes. The splices or taps shall be made by approved methods with materials listed for the application. [300.5(E)]

E3803.5 Backfill.

Backfill containing large rock, paving materials, cinders, large or sharply angular substances, or corrosive material shall not be placed in an excavation where such materials cause damage to raceways, cables or other substructures or prevent adequate compaction of fill or contribute to corrosion of raceways, cables or other substructures. Where necessary to prevent physical damage to the raceway or cable, protection shall be provided in the form of granular or selected material, suitable boards, suitable sleeves or other approved means. [300.5(F)]

E3803.6 Raceway seals.

Conduits or raceways shall be sealed or plugged at either or both ends where moisture will enter and contact live parts. [300.5(G)]

E3803.7 Bushing.

A bushing, or terminal fitting, with an integral bushed opening shall be installed on the end of a conduit or other raceway that terminates underground where the conductors or cables emerge as a direct burial wiring method. A seal incorporating the physical protection characteristics of a bushing shall be considered equivalent to a bushing. [300.5(H)]

~~E3803.8 Single conductors.~~

~~All conductors of the same circuit and, where present, the grounded conductor and all equipment grounding conductors shall be installed in the same raceway or shall be installed in close proximity in the same trench. [300.5(I)]~~

~~Exception: Conductors shall be permitted to be installed in parallel in raceways, multiconductor cables, and direct-buried single conductor cables. Each raceway or multiconductor cable shall contain all conductors of the same circuit, including equipment grounding conductors. Each direct-buried single conductor cable shall be located in close proximity in the trench to the other single conductor cables in the same parallel set of conductors in the circuit, including equipment grounding conductors. [300.5(I) Exception No.1]~~

~~E3803.9 Earth movement.~~

~~Where direct-buried conductors, raceways or cables are subject to movement by settlement or frost, direct-buried conductors, raceways or cables shall be arranged to prevent damage to the enclosed conductors or to equipment connected to the raceways. [300.5(J)]~~

~~E3803.10 Wet locations.~~

~~The interior of enclosures or raceways installed underground shall be considered to be a wet location. Insulated conductors and cables installed in such enclosures or raceways in underground installations shall be listed for use in wet locations. Connections or splices in an underground installation shall be approved for wet locations. [300.5(B)]~~

~~E3803.11 Under buildings.~~

~~Underground cable and conductors installed under a building shall be in a raceway. [300.5(C)]~~

~~Exception: Type MC Cable shall be permitted under a building without installation in a raceway where the cable is listed and identified for direct burial or concrete encasement and one or more of the following applies:~~

- ~~1.The metallic covering is impervious to moisture.~~
- ~~2.A moisture-impervious jacket is provided under the metal covering.~~
- ~~3.The insulated conductors under the metallic covering are listed for use in wet locations, and a corrosion-resistant jacket is provided over the metallic sheath. [300.5(C) Exception No.2]~~

CHAPTER 39 POWER AND LIGHTING DISTRIBUTION

RESERVED

SECTION E3901 RECEPTACLE OUTLETS

E3901.1 General.

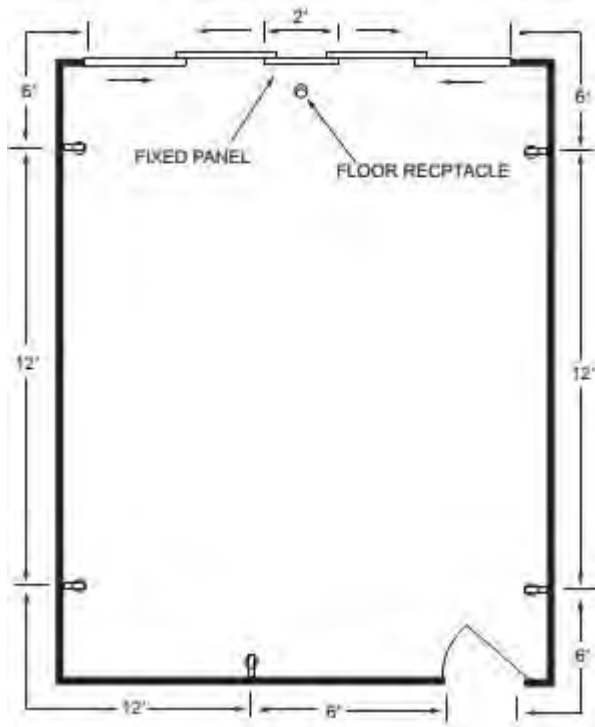
Outlets for receptacles rated at 125 volts, 15 and 20 amperes shall be provided in accordance with Sections E3901.2 through E3901.11. Receptacle outlets required by this section shall be in addition to any receptacle that is:

1. Part of a luminaire or appliance;
2. Located within cabinets or cupboards;
3. Controlled by a wall switch in accordance with Section E3903.2, Exception 1; or
4. Located over 5.5 feet (1676 mm) above the floor.

Permanently installed electric baseboard heaters equipped with factory-installed receptacle outlets, or outlets provided as a separate assembly by the baseboard manufacturer shall be permitted as the required outlet or outlets for the wall space utilized by such permanently installed heaters. Such receptacle outlets shall not be connected to the heater circuits. (210.52)

E3901.2 General purpose receptacle distribution.

In every kitchen, family room, dining room, living room, parlor, library, den, sun room, bedroom, recreation room, or similar room or area of dwelling units, receptacle outlets shall be installed in accordance with the general provisions specified in Sections E3901.2.1 through E3901.2.3 (see Figure E3901.2).



For SI: 1 foot = 304.8 mm.

FIGURE E3901.2

GENERAL USE RECEPTACLE DISTRIBUTION

E3901.2.1 Spacing.

Receptacles shall be installed so that no point measured horizontally along the floor line of any wall space is more than 6 feet (1829 mm), from a receptacle outlet. [210.52(A)(1)]

E3901.2.2 Wall space.

As used in this section, a wall space shall include the following: [210.52(A)(2)]

1. Any space that is 2 feet (610 mm) or more in width, including space measured around corners, and that is unbroken along the floor line by doorways and similar openings, fireplaces, and fixed cabinets.
2. The space occupied by fixed panels in exterior walls, excluding sliding panels.
3. The space created by fixed room dividers such as railings and freestanding bar-type counters.

E3901.2.3 Floor receptacles.

Receptacle outlets in floors shall not be counted as part of the required number of receptacle outlets except where located within 18 inches (457 mm) of the wall. [210.52(A)(3)]

~~E3901.2.4 Countertop receptacles.~~

~~Receptacles installed for countertop surfaces as specified in Section E3901.4 shall not be considered as the receptacles required by Section E3901.2. [210.52(A)(4)]~~

~~E3901.3 Small appliance receptacles.~~

~~In the kitchen, pantry, breakfast room, dining room, or similar area of a dwelling unit, the two or more 20-ampere small-appliance branch circuits required by Section E3703.2, shall serve all wall and floor receptacle outlets covered by Sections E3901.2 and E3901.4 and those receptacle outlets provided for refrigeration appliances. [210.52(B)(1)]~~

~~Exceptions:~~

~~1. In addition to the required receptacles specified by Sections E3901.1 and E3901.2, switched receptacles supplied from a general-purpose branch circuit as defined in Section E3903.2, Exception 1 shall be permitted. [210.52(B)(1) Exception No. 1]~~

~~2. The receptacle outlet for refrigeration appliances shall be permitted to be supplied from an individual branch circuit rated at 15 amperes or greater. [210.52(B)(1) Exception No. 2]~~

~~E3901.3.1 Other outlets prohibited.~~

~~The two or more small-appliance branch circuits specified in Section E3901.3 shall serve no other outlets. [210.52(B)(2)]~~

~~Exceptions:~~

~~1. A receptacle installed solely for the electrical supply to and support of an electric clock in any of the rooms specified in Section E3901.3. [210.52(B)(2) Exception No. 1]~~

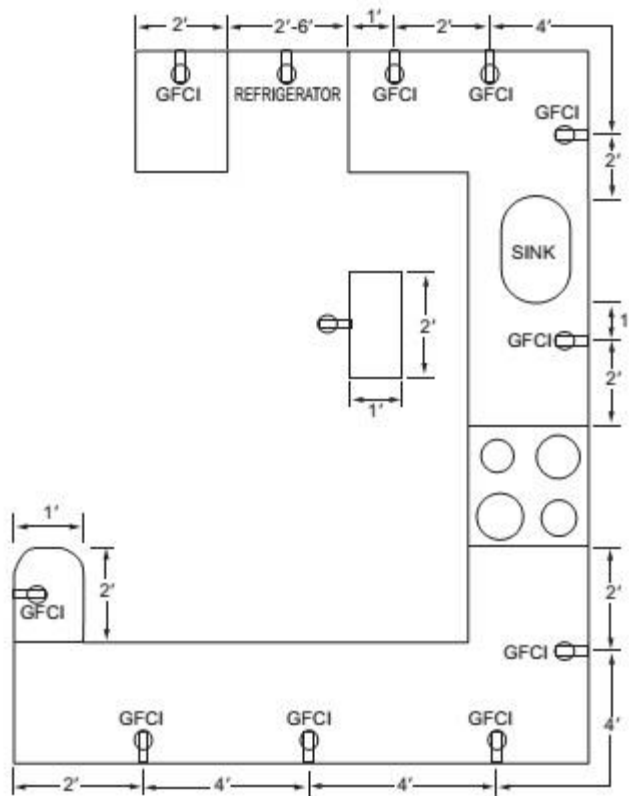
~~2. Receptacles installed to provide power for supplemental equipment and lighting on gas-fired ranges, ovens, and counter-mounted cooking units. [210.52(B)(2) Exception No. 2]~~

~~E3901.3.2 Limitations.~~

~~Receptacles installed in a kitchen to serve countertop surfaces shall be supplied by not less than two small-appliance branch circuits, either or both of which shall also be permitted to supply receptacle outlets in the same kitchen and in other rooms specified in Section E3901.3. Additional small-appliance branch circuits shall be permitted to supply receptacle outlets in the kitchen and other rooms specified in Section E3901.3. A small-appliance branch circuit shall not serve more than one kitchen. [210.52(B)(3)]~~

~~E3901.4 Countertop receptacles.~~

In kitchens, pantries, breakfast rooms, dining rooms and similar areas of dwelling units, receptacle outlets for countertop spaces shall be installed in accordance with Sections E3901.4.1 through E3901.4.5 (see Figure E3901.4). [210.52(C)]



For SI: 1 foot = 304.8 mm.

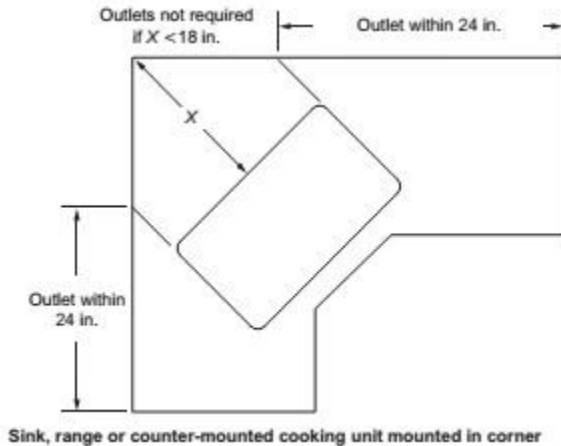
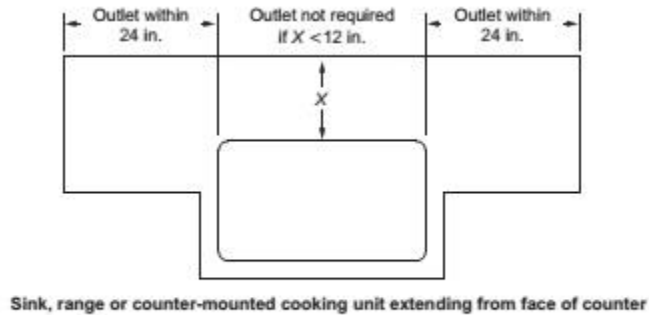
FIGURE E3901.4

COUNTERTOP RECEPTACLES

E3901.4.1 Wall countertop space.

A receptacle outlet shall be installed at each wall countertop space 12 inches (305 mm) or wider. Receptacle outlets shall be installed so that no point along the wall line is more than 24 inches (610 mm), measured horizontally from a receptacle outlet in that space. [210.52(C)(1)]

Exception: Receptacle outlets shall not be required on a wall directly behind a range, counter-mounted cooking unit or sink in the installation described in Figure E3901.4.1. [210.52(C)(1) Exception]



For SI: 1 inch = 25.4 mm.

FIGURE E3901.4.1

DETERMINATION OF AREA BEHIND SINK OR RANGE

E3901.4.2 Island countertop spaces.

At least one receptacle outlet shall be installed at each island countertop space with a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. [210.52(C)(2)]

E3901.4.3 Peninsular countertop space.

At least one receptacle outlet shall be installed at each peninsular countertop space with a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. A peninsular countertop is measured from the connecting edge. [210.52(C)(3)]

E3901.4.4 Separate spaces.

Countertop spaces separated by range tops, refrigerators, or sinks shall be considered as separate countertop spaces in applying the requirements of Sections E3901.4.1, E3901.4.2 and E3901.4.3. Where a range, counter-mounted cooking unit, or sink is installed in an island or peninsular countertop and the depth of the countertop behind the range, counter-mounted cooking unit, or sink is less than 12 inches (305 mm), the range, counter-mounted cooking unit, or sink has divided the countertop space into two

~~separate countertop spaces as defined in Section E3901.4.4. Each separate countertop space shall comply with the applicable requirements of this section. [210.52(C)(4)]~~

~~E3901.4.5 Receptacle outlet location.~~

~~Receptacle outlets shall be located not more than 20 inches (508 mm) above the countertop. Receptacle outlet assemblies installed in countertops shall be listed for the application. Receptacle outlets shall not be installed in a face-up position in the work surfaces or countertops. Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks or rangetops as addressed in the exception to Section E3901.4.1, or appliances occupying dedicated space shall not be considered as these required outlets. [210.52(C)(5)]~~

~~Exception: Receptacle outlets shall be permitted to be mounted not more than 12 inches (305 mm) below the countertop in construction designed for the physically impaired and for island and peninsular countertops where the countertop is flat across its entire surface and there are no means to mount a receptacle within 20 inches (508 mm) above the countertop, such as in an overhead cabinet. Receptacles mounted below the countertop in accordance with this exception shall not be located where the countertop extends more than 6 inches (152 mm) beyond its support base. [210.52(C)(5) Exception]~~

~~E3901.5 Appliance receptacle outlets.~~

~~Appliance receptacle outlets installed for specific appliances, such as laundry equipment, shall be installed within 6 feet (1829 mm) of the intended location of the appliance. (210.50(C))~~

~~E3901.6 Bathroom.~~

~~At least one wall receptacle outlet shall be installed in bathrooms and such outlet shall be located within 36 inches (914 mm) of the outside edge of each lavatory basin. The receptacle outlet shall be located on a wall or partition that is adjacent to the lavatory basin location, located on the countertop, or installed on the side or face of the basin cabinet. The receptacle shall be located not more than 12 inches (305 mm) below the top of the basin.~~

~~Receptacle outlets shall not be installed in a face-up position in the work surfaces or countertops in a bathroom basin location. Receptacle outlet assemblies installed in countertops shall be listed for the application. [210.52(D)]~~

~~E3901.7 Outdoor outlets.~~

~~Not less than one receptacle outlet that is readily accessible from grade level and located not more than 6 feet, 6 inches (1981 mm) above grade, shall be installed outdoors at the front and back of each dwelling unit having direct access to grade level. Balconies, decks, and porches that are accessible from inside of the dwelling unit shall have at least one receptacle outlet installed within the perimeter of the balcony, deck, or porch. The receptacle shall be located not more than 6 feet, 6 inches (1981 mm) above the balcony, deck, or porch surface. [210.52(E)]~~

~~E3901.8 Laundry areas.~~

~~Not less than one receptacle outlet shall be installed in areas designated for the installation of laundry equipment.~~

~~E3901.9 Basements, garages and accessory buildings.~~

~~Not less than one receptacle outlet, in addition to any provided for specific equipment, shall be installed in each separate unfinished portion of a basement, in each attached garage, and in each detached garage or accessory building that is provided with electrical power. The branch circuit supplying the receptacle(s) in a garage shall not supply outlets outside of the garage and not less than one receptacle outlet shall be installed for each motor vehicle space. [210.52(G)(1), (2), and (3)]~~

~~E3901.10 Hallways.~~

~~Hallways of 10 feet (3048 mm) or more in length shall have at least one receptacle outlet. The hall length shall be considered the length measured along the centerline of the hall without passing through a doorway. [210.52(H)]~~

~~E3901.11 Foyers.~~

~~Foyers that are not part of a hallway in accordance with Section E3901.10 and that have an area that is greater than 60 ft² (5.57 m²) shall have a receptacle(s) located in each wall space that is 3 feet (914 mm) or more in width. Doorways, door-side windows that extend to the floor, and similar openings shall not be considered as wall space. [210.52(H)]~~

~~E3901.12 HVAC outlet.~~

~~A 125-volt, single-phase, 15- or 20-ampere-rated receptacle outlet shall be installed at an accessible location for the servicing of heating, air conditioning and refrigeration equipment. The receptacle shall be located on the same level and within 25 feet (7620 mm) of the heating, air conditioning and refrigeration equipment. The receptacle outlet shall not be connected to the load side of the HVAC equipment disconnecting means. (210.63)~~

~~Exception: A receptacle outlet shall not be required for the servicing of evaporative coolers. (210.63 Exception)~~

~~SECTION E3902~~

~~GROUND-FAULT AND ARC-FAULT~~

~~CIRCUIT INTERRUPTER PROTECTION~~

~~E3902.1 Bathroom receptacles.~~

~~125-volt, single-phase, 15- and 20-ampere receptacles installed in bathrooms shall have ground-fault circuit interrupter protection for personnel. [210.8(A)(1)]~~

~~E3902.2 Garage and accessory building receptacles.~~

~~125-volt, single-phase, 15- or 20-ampere receptacles installed in garages and grade-level portions of unfinished accessory buildings used for storage or work areas shall have ground-fault circuit-interrupter protection for personnel. [210.8(A)(2)]~~

~~E3902.3 Outdoor receptacles.~~

~~125-volt, single-phase, 15- and 20-ampere receptacles installed outdoors shall have ground-fault circuit-interrupter protection for personnel. [210.8(A)(3)]~~

~~Exception: Receptacles as covered in Section E4101.7. [210.8(A)(3) Exception]~~

~~E3902.4 Crawl-space receptacles.~~

~~Where a crawl space is at or below grade level, 125-volt, single-phase, 15- and 20-ampere receptacles installed in such spaces shall have ground-fault circuit-interrupter protection for personnel. [210.8(A)(4)]~~

~~E3902.5 Unfinished basement receptacles.~~

~~125-volt, single-phase, 15- and 20-ampere receptacles installed in unfinished basements shall have ground-fault circuit-interrupter protection for personnel. For purposes of this section, unfinished basements are defined as portions or areas of the basement not intended as habitable rooms and limited to storage areas, work areas, and similar areas. [210.8(A)(5)]~~

~~Exception: A receptacle supplying only a permanently installed fire alarm or burglar alarm system. Receptacles installed in accordance with this exception shall not be considered as meeting the requirement of Section E3901.9. [210.8(A)(5) Exception]~~

~~E3902.6 Kitchen receptacles.~~

~~125-volt, single-phase, 15- and 20-ampere receptacles that serve countertop surfaces shall have ground-fault circuit-interrupter protection for personnel. [210.8(A)(6)]~~

~~E3902.7 Sink receptacles.~~

~~125-volt, single-phase, 15- and 20-ampere receptacles that are located within 6 feet (1829 mm) of the outside edge of a sink shall have ground-fault circuit-interrupter protection for personnel. Receptacle outlets shall not be installed in a face-up position in the work surfaces or countertops. [210.8(A)(7)]~~

~~E3902.8 Bathtub or shower stall receptacles.~~

~~125-volt, single-phase, 15- and 20-ampere receptacles that are located within 6 feet (1829 mm) of the outside edge of a bathtub or shower stall shall have ground-fault circuit-interrupter protection for personnel. [210.8(A)(8)]~~

~~E3902.9 Laundry areas.~~

~~125-volt, single-phase, 15- and 20-ampere receptacles installed in laundry areas shall have ground-fault circuit interrupter protection for personnel. [210.8(A)(9)]~~

~~E3902.10 Kitchen dishwasher branch circuit.~~

~~Ground-fault circuit interrupter protection shall be provided for outlets that supply dishwashers in dwelling unit locations. [210.8(D)]~~

~~E3902.11 Boathouse receptacles.~~

~~125-volt, single-phase, 15- or 20-ampere receptacles installed in boathouses shall have ground-fault circuit interrupter protection for personnel. [210.8(A)(8)]~~

~~E3902.12 Boat hoists.~~

~~Ground-fault circuit interrupter protection for personnel shall be provided for 240-volt and less outlets that supply boat hoists. [210.8(C)]~~

~~E3902.13 Electrically heated floors.~~

~~Ground-fault circuit interrupter protection for personnel shall be provided for electrically heated floors in bathrooms, kitchens and in hydromassage bathtub, spa and hot tub locations. [424.44(G)]~~

~~E3902.14 Location of ground-fault circuit interrupters.~~

~~Ground-fault circuit interrupters shall be installed in a readily accessible location. [210.8(A)]~~

~~E3902.15 Location of arc-fault circuit interrupters.~~

~~Arc-fault circuit interrupters shall be installed in readily accessible locations.~~

~~E3902.16 Arc-fault circuit interrupter protection.~~

~~Branch circuits that supply 120-volt, single-phase, 15- and 20-ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sun rooms, recreation rooms, closets, hallways, laundry areas and similar rooms or areas shall be protected by any of the following: [210.12(A)]~~

~~1. A listed combination-type arc-fault circuit interrupter, installed to provide protection of the entire branch circuit. [210.12(A)(1)]~~

~~2. A listed branch/feeder-type AFCI installed at the origin of the branch circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit. The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit. [210.12(A)(2)]~~

3. A listed supplemental arc protection circuit breaker installed at the origin of the branch circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit where all of the following conditions are met:

3.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.

3.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.

3.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit. [210.12(A)(3)]

4. A listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet on the branch circuit in combination with a listed branch-circuit overcurrent protective device where all of the following conditions are met:

4.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.

4.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.

4.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit.

4.4. The combination of the branch-circuit overcurrent device and outlet branch-circuit AFCI shall be identified as meeting the requirements for a system combination-type AFCI and shall be listed as such. [210.12(A)(4)]

5. Where metal outlet boxes and junction boxes and RMC, IMC, EMT, Type MC or steel-armored Type AC cables meeting the requirements of Section E3908.8, metal wireways or metal auxiliary gutters are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit. [210.12(A)(5)]

6. Where a listed metal or nonmetallic conduit or tubing or Type MC cable is encased in not less than 2 inches (50.8 mm) of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit. [210.12(A)(6)]

Exception: AFCI protection is not required for an individual branch circuit supplying only a fire alarm system where the branch circuit is wired with metal outlet and junction boxes and RMC, IMC, EMT or steel sheathed armored cable Type AC or Type MC meeting the requirements of Section E3908.8.

E3902.17 Arc fault circuit interrupter protection for branch circuit extensions or modifications.

Where branch circuit wiring is modified, replaced, or extended in any of the areas specified in Section E3902.16, the branch circuit shall be protected by one of the following:

1. A combination-type AFCI located at the origin of the branch circuit
2. An outlet branch circuit type AFCI located at the first receptacle outlet of the existing branch circuit. [210.12(B)]

Exception: AFCI protection shall not be required where the extension of the existing conductors is not more than 6 feet (1.8 m) in length and does not include any additional outlets or devices. [210.12(B) Exception]

SECTION E3903 LIGHTING OUTLETS

E3903.1 General.

Lighting outlets shall be provided in accordance with Sections E3903.2 through E3903.4. [210.70(A)]

E3903.2 Habitable rooms.

At least one wall switch-controlled lighting outlet shall be installed in every habitable room and bathroom. [210.70(A)(1)]

Exceptions:

1. In other than kitchens and bathrooms, one or more receptacles controlled by a wall switch shall be considered equivalent to the required lighting outlet. [210.70(A)(1) Exception No. 1]
2. Lighting outlets shall be permitted to be controlled by occupancy sensors that are in addition to wall switches, or that are located at a customary wall switch location and equipped with a manual override that will allow the sensor to function as a wall switch. [210.70(A)(1) Exception No. 2]

E3903.3 Additional locations.

At least one wall switch-controlled lighting outlet shall be installed in hallways, stairways, attached garages, and detached garages with electric power. At least one wall switch-controlled lighting outlet shall be installed to provide illumination on the exterior side of each outdoor egress door having grade level access, including outdoor egress doors for attached garages and detached garages with electric power. A vehicle door in a garage shall not be considered as an outdoor egress door. Where one or more lighting outlets are installed for interior stairways, there shall be a wall switch at each floor level

and landing level that includes an entryway to control the lighting outlets where the stairway between floor levels has six or more risers. [210.70(A)(2)]

Exception: In hallways, stairways, and at outdoor egress doors, remote, central, or automatic control of lighting shall be permitted. [210.70(A)(2) Exception]

E3903.4 Storage or equipment spaces.

In attics, under floor spaces, utility rooms and basements, at least one lighting outlet shall be installed where these spaces are used for storage or contain equipment requiring servicing. Such lighting outlet shall be controlled by a wall switch or shall have an integral switch. At least one point of control shall be at the usual point of entry to these spaces. The lighting outlet shall be provided at or near the equipment requiring servicing. [210.70(A)(3)]

SECTION E3904

GENERAL INSTALLATION REQUIREMENTS

E3904.1 Electrical continuity of metal raceways and enclosures.

Metal raceways, cable armor and other metal enclosures for conductors shall be mechanically joined together into a continuous electric conductor and shall be connected to all boxes, fittings and cabinets so as to provide effective electrical continuity. Raceways and cable assemblies shall be mechanically secured to boxes, fittings cabinets and other enclosures. (300.10)

Exception: Short sections of raceway used to provide cable assemblies with support or protection against physical damage. (300.10 Exception No. 1)

E3904.2 Mechanical continuity—raceways and cables.

Metal or nonmetallic raceways, cable armors and cable sheaths shall be continuous between cabinets, boxes, fittings or other enclosures or outlets.

Exception: Short sections of raceway used to provide cable assemblies with support or protection against physical damage. (300.12 Exception No. 1)

E3904.3 Securing and supporting.

Raceways, cable assemblies, boxes, cabinets and fittings shall be securely fastened in place. (300.11)

E3904.3.1 Prohibited means of support.

Cable wiring methods shall not be used as a means of support for other cables, raceways and nonelectrical equipment. [300.11(C)]

E3904.4 Raceways as means of support.

Raceways shall be used as a means of support for other raceways, cables or non-electric equipment only under the following conditions:

1. Where the raceway or means of support is identified as a means of support; or
2. Where the raceway contains power supply conductors for electrically controlled equipment and is used to support Class 2 circuit conductors or cables that are solely for the purpose of connection to the control circuits of the equipment served by such raceway; or
3. Where the raceway is used to support boxes or conduit bodies in accordance with Sections E3906.8.4 and E3906.8.5. [300.11(B)]

E3904.5 Raceway installations.

Raceways shall be installed complete between outlet, junction or splicing points prior to the installation of conductors. (300.18)

Exception: Short sections of raceways used to contain conductors or cable assemblies for protection from physical damage shall not be required to be installed complete between outlet, junction, or splicing points. (300.18 Exception)

E3904.6 Conduit and tubing fill.

The maximum number of conductors installed in conduit or tubing shall be in accordance with Tables E3904.6(1) through E3904.6(10). (300.17, Chapter 9, Table 1 and Annex C)

TABLE E3904.6(1) (Annex C, Table C.1)

MAXIMUM NUMBER OF CONDUCTORS IN ELECTRICAL METALLIC TUBING (EMT)^a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)					
		1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	4	7	11	20	27	46
	12	3	6	9	17	23	38
	10	2	5	8	13	18	30
	8	1	2	4	7	9	16
	6	1	1	3	5	8	13

	4	1	1	2	4	6	10
	3	1	1	1	4	5	9
	2	1	1	1	3	4	7
	1	0	1	1	1	3	5
	1/0	0	1	1	1	2	4
	2/0	0	1	1	1	2	4
	3/0	0	0	1	1	1	3
	4/0	0	0	1	1	1	3
	14	8	15	25	43	58	96
	12	6	11	19	33	45	74
~~TW, THHW, THW, THW-2~~	10	5	8	14	24	33	55
	8	2	5	8	13	18	30
	14	6	10	16	28	39	64
	12	4	8	13	23	31	51
~~RHHa, RHWa, RHW-2a~~	10	3	6	10	18	24	40
	8	1	4	6	10	14	24
	6	1	3	4	8	11	18
~~RHHa, RHWa, RHW-2a, TW, THW, THHW,~~	4	1	1	3	6	8	13
~~THW-2~~	3	1	1	3	5	7	12
	2	1	1	2	4	6	10

	1	1	1	3	4	7
	1/0	0	1	1	2	6
	2/0	0	1	1	1	5
	3/0	0	1	1	1	4
	4/0	0	0	1	1	3
	14	12	22	35	61	138
	12	9	16	26	45	101
	10	5	10	16	28	63
	8	3	6	9	16	36
	6	2	4	7	12	26
	4	1	2	4	7	16
THHN, THWN, THWN-2	3	1	1	3	6	13
	2	1	1	3	5	11
	1	1	1	1	4	8
	1/0	1	1	1	3	7
	2/0	0	1	1	2	6
	3/0	0	1	1	1	5
	4/0	0	1	1	1	4
	14	8	15	25	43	96
XHH, XHHW, XHHW-2	12	6	11	19	33	74

	10	5	8	14	24	33	55
	8	2	5	8	13	18	30
	6	1	3	6	10	14	22
	4	1	2	4	7	10	16
	3	1	1	3	6	8	14
	2	1	1	3	5	7	11
	1	1	1	1	4	5	8
	1/0	1	1	1	3	4	7
	2/0	0	1	1	2	3	6
	3/0	0	1	1	1	3	5
	4/0	0	1	1	1	2	4

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(2) (Annex C, Table C.2)

MAXIMUM NUMBER OF CONDUCTORS IN ELECTRICAL NONMETALLIC TUBING (ENT)^a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)					
		1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	3	6	10	19	26	43
	12	2	5	9	16	22	36
	10	1	4	7	13	17	29
	8	1	1	3	6	9	15

	6	1	1	3	5	7	12
	4	1	1	2	4	6	9
	3	1	1	1	3	5	8
	2	0	1	1	3	4	7
	1	0	1	1	1	3	5
	1/0	0	0	1	1	2	4
	2/0	0	0	1	1	1	3
	3/0	0	0	1	1	1	3
RHH, RHW, RHW-2	4/0	0	0	1	1	1	2
	14	7	13	22	40	55	92
	12	5	10	17	31	42	71
TW, THHW, THW, THW-2	10	4	7	13	23	32	52
	8	1	4	7	13	17	29
	14	4	8	15	27	37	61
	12	3	7	12	21	29	49
RHHa, RHWa, RHW-2a	10	3	5	9	17	23	38
	8	1	3	5	10	14	23
	6	1	2	4	7	10	17
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	4	1	1	3	5	8	13
	3	1	1	2	5	7	11

	2	1	1	2	4	6	9
	1	0	1	1	3	4	6
	1/0	0	1	1	2	3	5
	2/0	0	1	1	1	3	5
	3/0	0	0	1	1	2	4
	4/0	0	0	1	1	1	3
	14	10	18	32	58	80	132
	12	7	13	23	42	58	96
	10	4	8	15	26	36	60
	8	2	5	8	15	21	35
THHN, THWN, THWN-2	6	1	3	6	11	15	25
	4	1	1	4	7	9	15
	3	1	1	3	5	8	13
	2	1	1	2	5	6	11
	1	1	1	1	3	5	8
	1/0	0	1	1	3	4	7
THHN, THWN, THWN-2	2/0	0	1	1	2	3	5
	3/0	0	1	1	1	3	4
	4/0	0	0	1	1	2	4
XHH, XHHW, XHHW-2	14	7	13	22	40	55	92

	12	5	10	17	31	42	71
	10	4	7	13	23	32	52
	8	1	4	7	13	17	29
	6	1	3	5	9	13	21
	4	1	1	4	7	9	15
	3	1	1	3	6	8	13
	2	1	1	2	5	6	11
	1	1	1	1	3	5	8
	1/0	0	1	1	3	4	7
	2/0	0	1	1	2	3	6
	3/0	0	1	1	1	3	5
	4/0	0	0	1	1	2	4

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(3) (Annex C, Table C.3)

MAXIMUM NUMBER OF CONDUCTORS IN FLEXIBLE METALLIC CONDUIT (FMC)^a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)					
		1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	4	7	11	17	25	44
	12	3	6	9	14	21	37
	10	3	5	7	11	17	30

	8	1	2	4	6	9	15
	6	1	1	3	5	7	12
	4	1	1	2	4	5	10
	3	1	1	1	3	5	7
	2	1	1	1	3	4	7
	1	0	1	1	1	2	5
RHH, RHW, RHW-2	1/0	0	1	1	1	2	4
	2/0	0	1	1	1	1	3
	3/0	0	0	1	1	1	3
	14	9	15	23	36	53	94
	12	7	11	18	28	41	72
TW, THHW, THW, THW-2	10	5	8	13	21	30	54
	8	3	5	7	11	17	30
	14	6	10	15	24	35	62
	12	5	8	12	19	28	50
RHHa, RHWa, RHW-2a	10	4	6	10	15	22	39
	8	1	4	6	9	13	23
	6	1	3	4	7	10	18
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	4	1	1	3	5	7	13
	3	1	1	3	4	6	11

	2	1	1	2	4	5	10
	1	1	1	1	2	4	7
	1/0	0	1	1	1	3	6
	2/0	0	1	1	1	3	5
	3/0	0	1	1	1	2	4
	4/0	0	0	1	1	1	3
	4/0	0	0	1	1	1	2
	14	13	22	33	52	76	134
	12	9	16	24	38	56	98
THHN, THWN, THWN-2	10	6	10	15	24	35	62
	8	3	6	9	14	20	35
	6	2	4	6	10	14	25
	4	1	2	4	6	9	16
	3	1	1	3	5	7	13
	2	1	1	3	4	6	11
THHN, THWN, THWN-2	1	1	1	1	3	4	8
	1/0	1	1	1	2	4	7
	2/0	0	1	1	1	3	6
	3/0	0	1	1	1	2	5
	4/0	0	1	1	1	1	4

XHH, XHHW, XHHW-2	14	9	15	23	36	53	94
	12	7	11	18	28	41	72
	10	5	8	13	21	30	54
	8	3	5	7	11	17	30
	6	1	3	5	8	12	22
	4	1	2	4	6	9	16
	3	1	1	3	5	7	13
	2	1	1	3	4	6	11
	1	1	1	1	3	5	8
	1/0	1	1	1	2	4	7
	2/0	0	1	1	2	3	6
	3/0	0	1	1	1	3	5
	4/0	0	1	1	1	2	4

For SI: 1 inch = 25.4 mm.

a. Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(4) (Annex C, Table C.4)

MAXIMUM NUMBER OF CONDUCTORS IN INTERMEDIATE METALLIC CONDUIT (IMC)^a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)					
		1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	4	8	13	22	30	49
	12	4	6	11	18	25	41

	10	3	5	8	15	20	33
	8	1	3	4	8	10	17
	6	1	1	3	6	8	14
	4	1	1	3	5	6	11
	3	1	1	2	4	6	9
	2	1	1	1	3	5	8
	1	0	1	1	2	3	5
	1/0	0	1	1	1	3	4
	2/0	0	1	1	1	2	4
	3/0	0	0	1	1	1	3
	4/0	0	0	1	1	1	3
	14	10	17	27	47	64	104
	12	7	13	21	36	49	80
TW, THHW, THW, THW-2	10	5	9	15	27	36	59
	8	3	5	8	15	20	33
	14	6	11	18	31	42	69
	12	5	9	14	25	34	56
RHHa, RHWa, RHW-2a	10	4	7	11	19	26	43
	8	2	4	7	12	16	26
RHHa, RHWa, RHW-2a, TW, THW, THHW,	6	1	3	5	9	12	20

THW-2	4	1	2	4	6	9	15
	3	1	1	3	6	8	13
	2	1	1	3	5	6	11
	1	1	1	1	3	4	7
	1/0	1	1	1	3	4	6
	2/0	0	1	1	2	3	5
	3/0	0	1	1	1	3	4
	4/0	0	1	1	1	2	4
	14	14	24	39	68	91	149
	12	10	17	29	49	67	109
	10	6	11	18	31	42	68
	8	3	6	10	18	24	39
	6	2	4	7	13	17	28
THHN, THWN, THWN-2	4	1	3	4	8	10	17
	3	1	2	4	6	9	15
	2	1	1	3	5	7	12
	1	1	1	2	4	5	9
	1/0	1	1	1	3	4	8
	2/0	1	1	1	3	4	6
THHN, THWN, THWN-2	3/0	0	1	1	2	3	5

XHH, XHHW, XHHW-2	2/0	0	1	1	1	2	4
	14	10	17	27	47	64	104
	12	7	13	21	36	49	80
	10	5	9	15	27	36	59
	8	3	5	8	15	20	33
	6	1	4	6	11	15	24
	4	1	3	4	8	11	18
	3	1	2	4	7	9	15
	2	1	1	3	5	7	12
	1	1	1	2	4	5	9
	1/0	1	1	1	3	5	8
	2/0	1	1	1	3	4	6
	3/0	0	1	1	2	3	5
	4/0	0	1	1	1	2	4

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(5) (Annex C, Table C.5)

MAXIMUM NUMBER OF CONDUCTORS IN LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUIT (FNMCB)^a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)						
		3/8	1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	2	4	7	12	21	27	44

	12	1	3	6	10	17	22	36
	10	1	3	5	8	14	18	29
	8	1	1	2	4	7	9	1
	6	1	1	1	3	6	7	12
	4	0	1	1	2	4	6	9
	3	0	1	1	1	4	5	8
	2	0	1	1	1	3	4	7
	1	0	0	1	1	1	3	5
RHH, RHW, RHW-2	1/0	0	0	1	1	1	2	4
	2/0	0	0	1	1	1	1	3
	3/0	0	0	0	1	1	1	3
	4/0	0	0	0	1	1	1	2
	14	5	9	15	25	44	57	93
	12	4	7	12	19	33	43	71
TW, THHW, THW, THW-2	10	3	5	9	14	25	32	53
	8	1	3	5	8	14	18	29
	14	3	6	10	16	29	38	62
	12	3	5	8	13	23	30	50
RHHa, RHWa, RGW-2a	10	1	3	6	10	18	23	39
	8	1	1	4	6	11	14	23

RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	6	1	1	3	5	8	11	18
	4	1	1	1	3	6	8	13
	3	1	1	1	3	5	7	11
	2	0	1	1	2	4	6	9
	1	0	1	1	1	3	4	7
	1/0	0	0	1	1	2	3	6
	2/0	0	0	1	1	2	3	5
	3/0	0	0	1	1	1	2	4
	4/0	0	0	0	1	1	1	3
	14	8	13	22	36	63	81	133
THHN, THWN, THWN-2	12	5	9	16	26	46	59	97
	10	3	6	10	16	29	37	61
	8	1	3	6	9	16	21	35
	6	1	2	4	7	12	15	25
	4	1	1	2	4	7	9	15
THHN, THWN, THWN-2	3	1	1	1	3	6	8	13
	2	1	1	1	3	5	7	11
	1	0	1	1	1	4	5	8
	1/0	0	1	1	1	3	4	7
	2/0	0	0	1	1	2	3	6

XHH, XHHW, XHHW-2	3/0	0	0	1	1	1	3	5
	4/0	0	0	1	1	1	2	4
	14	5	9	15	25	44	57	93
	12	4	7	12	19	33	43	71
	10	3	5	9	14	25	32	53
	8	1	3	5	8	14	18	29
	6	1	1	3	6	10	13	22
	4	1	1	2	4	7	9	16
	3	1	1	1	3	6	8	13
	2	1	1	1	3	5	7	11
	1	0	1	1	1	4	5	8
	1/0	0	1	1	1	3	4	7
	2/0	0	0	1	1	2	3	6
	3/0	0	0	1	1	1	3	5
	4/0	0	0	1	1	1	2	4

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(6) (Annex C, Table C.6)

MAXIMUM NUMBER OF CONDUCTORS IN LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUIT (FNMCA)a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)						
		3/8	1/2	3/4	1	1 1/4	1 1/2	2

RHH, RHW, RHW-2	14	2	4	7	11	20	27	45
	12	1	3	6	9	17	23	38
	10	1	3	5	8	13	18	30
	8	1	1	2	4	7	9	16
	6	1	1	1	3	5	7	13
	4	0	1	1	2	4	6	10
	3	0	1	1	1	4	5	8
	2	0	1	1	1	3	4	7
	1	0	0	1	1	1	3	5
	1/0	0	0	1	1	1	2	4
	2/0	0	0	1	1	1	1	4
	3/0	0	0	0	1	1	1	3
	4/0	0	0	0	1	1	1	3
	14	5	9	15	24	43	58	96
TW, THHW, THW, THW-2	12	4	7	12	19	33	44	74
	10	3	5	9	14	24	33	55
	8	1	3	5	8	13	18	30
	14	3	6	10	16	28	38	64
RHHa, RHWa, RHW-2a	12	3	4	8	13	23	31	51
	10	1	3	6	10	18	24	40

	8	1	1	4	6	10	14	24
	6	1	1	3	4	8	11	18
	4	1	1	1	3	6	8	13
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	3	1	1	1	3	5	7	11
	2	0	1	1	2	4	6	10
	1	0	1	1	1	3	4	7
	1/0	0	0	1	1	2	3	6
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	2/0	0	0	1	1	1	3	5
	3/0	0	0	1	1	1	2	4
	4/0	0	0	0	1	1	1	3
	14	8	13	22	35	62	83	137
	12	5	9	16	25	45	60	100
	10	3	6	10	16	28	38	63
	8	1	3	6	9	16	22	36
	6	1	2	4	6	12	16	26
THHN, THWN, THWN-2	4	1	1	2	4	7	9	16
	3	1	1	1	3	6	8	13
	2	1	1	1	3	5	7	11
	1	0	1	1	1	4	5	8
	1/0	0	1	1	1	3	4	7

	2/0	0	0	1	1	2	3	6
	3/0	0	0	1	1	1	3	5
	4/0	0	0	1	1	1	2	4
XHH, XHHW, XHHW-2	14	5	9	15	24	43	58	96
	12	4	7	12	19	33	44	74
	10	3	5	9	14	24	33	55
	8	1	3	5	8	13	18	30
	6	1	1	3	5	10	13	22
	4	1	1	2	4	7	10	16
	3	1	1	1	3	6	8	14
	2	1	1	1	3	5	7	11
	1	0	1	1	1	4	5	8
XHH, XHHW, XHHW-2	1/0	0	1	1	1	3	4	7
	2/0	0	0	1	1	2	3	6
	3/0	0	0	1	1	1	3	5
	4/0	0	0	1	1	1	2	4

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(7) (Annex C, Table C.7)

MAXIMUM NUMBER OF CONDUCTORS IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC)a

TYPE LETTERS	CONDUCTOR SIZE	TRADE SIZES (inches)

	AWG/kcmil	1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	4	7	12	21	27	44
	12	3	6	10	17	22	36
	10	3	5	8	14	18	29
	8	1	2	4	7	9	15
	6	1	1	3	6	7	12
	4	1	1	2	4	6	9
	3	1	1	1	4	5	8
	2	1	1	1	3	4	7
	1	0	1	1	1	3	5
	1/0	0	1	1	1	2	4
	2/0	0	1	1	1	1	3
	3/0	0	0	1	1	1	3
	4/0	0	0	1	1	1	2
	14	9	15	25	44	57	93
~~TW, THHW, THW, THW-2~~	12	7	12	19	33	43	71
	10	5	9	14	25	32	53
	8	3	5	8	14	18	29
~~RHHa, RHWa, RHW-2a, THHW, THW, THW-2~~	14	6	10	16	29	38	62
	12	5	8	13	23	30	50

	10	3	6	10	18	23	39
	8	1	4	6	11	14	23
	6	1	3	5	8	11	18
	4	1	1	3	6	8	13
	3	1	1	3	5	7	11
	2	1	1	2	4	6	9
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	1	1	1	1	3	4	7
	1/0	0	1	1	2	3	6
	2/0	0	1	1	2	3	5
	3/0	0	1	1	1	2	4
	4/0	0	0	1	1	1	3
	14	13	22	36	63	81	133
	12	9	16	26	46	59	97
	10	6	10	16	29	37	61
	8	3	6	9	16	21	35
THHN, THWN, THWN-2	6	2	4	7	12	15	25
	4	1	2	4	7	9	15
	3	1	1	3	6	8	13
	2	1	1	3	5	7	11
	1	1	1	1	4	5	8

XHH, XHHW, XHHW-2	1/0	1	1	1	3	4	7
	2/0	0	1	1	2	3	6
	3/0	0	1	1	1	3	5
	4/0	0	1	1	1	2	4
	14	9	15	25	44	57	93
	12	7	12	19	33	43	71
	10	5	9	14	25	32	53
	8	3	5	8	14	18	29
	6	1	3	6	10	13	22
	4	1	2	4	7	9	16
XHH, XHHW, XHHW-2	3	1	1	3	6	8	13
	2	1	1	3	5	7	11
	1	1	1	1	4	5	8
	1/0	1	1	1	3	4	7
	2/0	0	1	1	2	3	6
	3/0	0	1	1	1	3	5
	4/0	0	1	1	1	2	4

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(8) (Annex C, Table C.8)

MAXIMUM NUMBER OF CONDUCTORS IN RIGID METAL CONDUIT (RMC)a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)					
		1/2	3/4	1	1 1/4	1 1/2	2
~~RRH, RHW, RHW-2~~	14	4	7	12	21	28	46
	12	3	6	10	17	23	38
	10	3	5	8	14	19	31
	8	1	2	4	7	10	16
	6	1	1	3	6	8	13
	4	1	1	2	4	6	10
	3	1	1	2	4	5	9
	2	1	1	1	3	4	7
	1	0	1	1	1	3	5
	1/0	0	1	1	1	2	4
	2/0	0	1	1	1	2	4
	3/0	0	0	1	1	1	3
	4/0	0	0	1	1	1	3
	14	9	15	25	44	59	98
	12	7	12	19	33	45	75
~~TW, THHW, THW, THW-2~~	10	5	9	14	25	34	56
	8	3	5	8	14	19	31
	14	6	10	17	29	39	65
~~RRHa, RHWa, RHW-2a~~	14	6	10	17	29	39	65

	12	5	8	13	23	32	52
	10	3	6	10	18	25	41
	8	1	4	6	11	15	24
	6	1	3	5	8	11	18
	4	1	1	3	6	8	14
	3	1	1	3	5	7	12
	2	1	1	2	4	6	10
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	1	1	1	1	3	4	7
	1/0	0	1	1	2	3	6
	2/0	0	1	1	2	3	5
	3/0	0	1	1	1	2	4
	4/0	0	0	1	1	1	3
	14	13	22	36	63	85	140
	12	9	16	26	46	62	102
	10	6	10	17	29	39	64
	8	3	6	9	16	22	37
THHN, THWN, THWN-2	6	2	4	7	12	16	27
	4	1	2	4	7	10	16
	3	1	1	3	6	8	14
	2	1	1	3	5	7	11

THHN, THWN, THWN-2	1	1	1	4	5	8
	1/0	1	1	3	4	7
	2/0	0	1	1	3	6
	3/0	0	1	1	3	5
	4/0	0	1	1	2	4
	14	9	15	25	44	59
	12	7	12	19	33	45
	10	5	9	14	25	34
	8	3	5	8	14	19
	6	1	3	6	10	14
XHH, XHHW, XHHW-2	4	1	2	4	7	10
	3	1	1	3	6	8
	2	1	1	3	5	7
	1	1	1	4	5	9
	1/0	1	1	1	3	4
	2/0	0	1	1	2	3
	3/0	0	1	1	1	3
	4/0	0	1	1	1	2

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(9) (Annex C, Table C.9)

MAXIMUM NUMBER OF CONDUCTORS IN RIGID PVC CONDUIT, SCHEDULE 80 (PVC 80)a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)					
		1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	3	5	9	17	23	39
	12	2	4	7	14	19	32
	10	1	3	6	11	15	26
	8	1	1	3	6	8	13
	6	1	1	2	4	6	11
	4	1	1	1	3	5	8
	3	0	1	1	3	4	7
	2	0	1	1	3	4	6
	1	0	1	1	1	2	4
	1/0	0	0	1	1	1	3
RHH, RHW, RHW-2	2/0	0	0	1	1	1	3
	3/0	0	0	1	1	1	3
	4/0	0	0	0	1	1	2
	14	6	11	20	35	49	82
	12	5	9	15	27	38	63
	10	3	6	11	20	28	47
	8	1	3	6	11	15	26
TW, THHW, THW, THW-2							

	14	4	8	13	23	32	55
	12	3	6	10	19	26	44
RHHa, RHWa, RHW-2a	10	2	5	8	15	20	34
	8	1	3	5	9	12	20
	6	1	1	3	7	9	16
	4	1	1	3	5	7	12
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	3	1	1	2	4	6	10
	2	1	1	1	3	5	8
	1	0	1	1	2	3	6
	1/0	0	1	1	1	3	5
	2/0	0	1	1	1	2	4
RHHa, RHWa, RHW-2a, TW, THW, THHW, THW-2	3/0	0	0	1	1	1	3
	4/0	0	0	1	1	1	3
	14	9	17	28	51	70	118
	12	6	12	20	37	51	86
	10	4	7	13	23	32	54
THHN, THWN, THWN-2	8	2	4	7	13	18	31
	6	1	3	5	9	13	22
	4	1	1	3	6	8	14
	3	1	1	3	5	7	12

	2	1	1	2	4	6	10
	1	0	1	1	3	4	7
	1/0	0	1	1	2	3	6
	2/0	0	1	1	1	3	5
	3/0	0	1	1	1	2	4
	4/0	0	0	1	1	1	3
	14	6	11	20	35	49	82
	12	5	9	15	27	38	63
XHH, XHHW, XHHW-2	10	3	6	11	20	28	47
	8	1	3	6	11	15	26
	6	1	2	4		11	19
	14	6	11	20	35	49	82
	12	5	9	15	27	38	63
	10	3	6	11	20	28	47
	8	1	3	6	11	15	26
XHH, XHHW, XHHW-2	6	1	2	4	8	11	19
	4	1	1	3	6	8	14
	3	1	1	3	5	7	12
	2	1	1	2	4	6	10
	1	0	1	1	3	4	7

	1/0	0	1	1	2	3	6
	2/0	0	1	1	1	3	5
	3/0	0	1	1	1	2	4
	4/0	0	0	1	1	1	3

For SI: 1 inch = 25.4 mm.

a.Types RHW, and RHW-2 without outer covering.

TABLE E3904.6(10) (Annex C, Table C.10)

MAXIMUM NUMBER OF CONDUCTORS IN RIGID PVC CONDUIT SCHEDULE 40 (PVC-40)a

TYPE LETTERS	CONDUCTOR SIZE AWG/kcmil	TRADE SIZES (inches)					
		1/2	3/4	1	1 1/4	1 1/2	2
RHH, RHW, RHW-2	14	4	7	11	20	27	45
	12	3	5	9	16	22	37
	10	2	4	7	13	18	30
	8	1	2	4	7	9	15
	6	1	1	3	5	7	12
	4	1	1	2	4	6	10
	3	1	1	1	4	5	8
	2	1	1	1	3	4	7
RHH, RHW, RHW-2	1	0	1	1	1	3	5
	1/0	0	1	1	1	2	4
	2/0	0	0	1	1	1	3

TW, THHW, THW, THW-2	3/0	0	0	1	1	1	3
	4/0	0	0	1	1	1	2
	14	8	14	24	42	57	94
	12	6	11	18	32	44	72
	10	4	8	13	24	32	54
	8	2	4	7	13	18	30
	14	5	9	16	28	38	63
	12	4	8	13	22	30	50
	10	3	6	10	17	24	39
	8	1	3	6	10	14	23
RHHa, RHWa, RHW-2a	6	1	2	4	8	11	18
	4	1	1	3	6	8	13
	3	1	1	3	5	7	11
	2	1	1	2	4	6	10
	1	0	1	1	3	4	7
	1/0	0	1	1	2	3	6
	2/0	0	1	1	1	3	5
	3/0	0	1	1	1	2	4
	4/0	0	0	1	1	1	3
	14	11	21	34	60	82	135
THHN, THWN, THWN-2							

THHN, THWN, THWN-2	12	8	15	25	43	59	99
	10	5	9	15	27	37	62
	8	3	5	9	16	21	36
	6	1	4	6	11	15	26
	4	1	2	4	7	9	16
	3	1	1	3	6	8	13
	2	1	1	3	5	7	11
	1	1	1	1	3	5	8
	1/0	1	1	1	3	4	7
	2/0	0	1	1	2	3	6
	3/0	0	1	1	1	3	5
	4/0	0	1	1	1	2	4
	14	8	14	24	42	57	94
	12	6	11	18	32	44	72
	10	4	8	13	24	32	54
XHH, XHHW, XHHW-2	8	2	4	7	13	18	30
	6	1	3	5	10	13	22
	4	1	2	4	7	9	16
	3	1	1	3	6	8	13
	2	1	1	3	5	7	11

1	1	1	3	5	8
1/0	1	1	3	4	7
2/0	0	1	1	3	6
3/0	0	1	1	3	5
4/0	0	1	1	2	4

For SI: 1 inch = 25.4 mm.

a. Types RHW, and RHW-2 without outer covering.

~~E3904.7 Air handling stud cavity and joist spaces.~~

~~Where wiring methods having a nonmetallic covering pass through stud cavities and joist spaces used for air handling, such wiring shall pass through such spaces perpendicular to the long dimension of the spaces. [300.22(C) Exception]~~

SECTION E3905

BOXES, CONDUIT BODIES AND FITTINGS

~~E3905.1 Box, conduit body or fitting—where required.~~

~~A box or conduit body shall be installed at each conductor splice point, outlet, switch point, junction point and pull point except as otherwise permitted in Sections E3905.1.1 through E3905.1.6.~~

~~Fittings and connectors shall be used only with the specific wiring methods for which they are designed and listed. (300.15)~~

~~E3905.1.1 Equipment.~~

~~An integral junction box or wiring compartment that is part of listed equipment shall be permitted to serve as a box or conduit body. [300.15(B)]~~

~~E3905.1.2 Protection.~~

~~A box or conduit body shall not be required where cables enter or exit from conduit or tubing that is used to provide cable support or protection against physical damage. A fitting shall be provided on the end(s) of the conduit or tubing to protect the cable from abrasion. [300.15(C)]~~

~~E3905.1.3 Integral enclosure.~~

~~A wiring device with integral enclosure identified for the use, having brackets that securely fasten the device to walls or ceilings of conventional on-site frame construction, for use with nonmetallic-sheathed cable, shall be permitted in lieu of a box or conduit body. [300.15(E)]~~

~~E3905.1.4 Fitting.~~

~~A fitting identified for the use shall be permitted in lieu of a box or conduit body where such fitting is accessible after installation and does not contain spliced or terminated conductors. [300.15(F)]~~

~~E3905.1.5 Buried conductors.~~

~~Splices and taps in buried conductors and cables shall not be required to be enclosed in a box or conduit body where installed in accordance with Section E3803.4.~~

~~E3905.1.6 Luminaires.~~

~~Where a luminaire is listed to be used as a raceway, a box or conduit body shall not be required for wiring installed therein. [300.15(J)]~~

~~E3905.2 Metal boxes.~~

~~Metal boxes shall be grounded. (314.4)~~

~~E3905.3 Nonmetallic boxes.~~

~~Nonmetallic boxes shall be used only with cabled wiring methods with entirely nonmetallic sheaths, flexible cords and nonmetallic raceways. (314.3)~~

~~Exceptions:~~

~~1. Where internal bonding means are provided between all entries, nonmetallic boxes shall be permitted to be used with metal raceways and metal-armored cables. (314.3 Exception No. 1)~~

~~2. Where integral bonding means with a provision for attaching an equipment grounding jumper inside the box are provided between all threaded entries in nonmetallic boxes listed for the purpose, nonmetallic boxes shall be permitted to be used with metal raceways and metal-armored cables. (314.3 Exception No. 2)~~

~~E3905.3.1 Nonmetallic-sheathed cable and nonmetallic boxes.~~

~~Where nonmetallic-sheathed cable is used, the cable assembly, including the sheath, shall extend into the box not less than 1/4 inch (6.4 mm) through a nonmetallic-sheathed cable knockout opening. (314.7(C))~~

~~E3905.3.2 Securing to box.~~

~~Wiring methods shall be secured to the boxes. [314.17(C)]~~

Exception: Where nonmetallic-sheathed cable is used with boxes not larger than a nominal size of 2 1/4 inches by 4 inches (57 mm by 102 mm) mounted in walls or ceilings, and where the cable is fastened within 8 inches (203 mm) of the box measured along the sheath, and where the sheath extends through a cable knockout not less than 1/4 inch (6.4 mm), securing the cable to the box shall not be required. [314.17(C) Exception]

E3905.3.3 Conductor rating.

Nonmetallic boxes shall be suitable for the lowest temperature-rated conductor entering the box. [314.17(C)]

E3905.4 Minimum depth of boxes for outlets, devices, and utilization equipment.

Outlet and device boxes shall have an approved depth to allow equipment installed within them to be mounted properly and without the likelihood of damage to conductors within the box. (314.24)

E3905.4.1 Outlet boxes without enclosed devices or utilization equipment.

Outlet boxes that do not enclose devices or utilization equipment shall have an internal depth of not less than 1/2 inch (12.7 mm). [314.24(A)]

E3905.4.2 Utilization equipment.

Outlet and device boxes that enclose devices or utilization equipment shall have a minimum internal depth that accommodates the rearward projection of the equipment and the size of the conductors that supply the equipment. The internal depth shall include that of any extension boxes, plaster rings, or raised covers. The internal depth shall comply with all of the applicable provisions that follow. [314.24(B)]

Exception: Utilization equipment that is listed to be installed with specified boxes.

1.Large equipment. Boxes that enclose devices or utilization equipment that projects more than 17/8 inches (48 mm) rearward from the mounting plane of the box shall have a depth that is not less than the depth of the equipment plus 1/4 inch (6.4 mm). [314.24(B)(1)]

2.Conductors larger than 4 AWG. Boxes that enclose devices or utilization equipment supplied by conductors larger than 4 AWG shall be identified for their specific function. [314.24(B)(2)]

3.Conductors 8, 6, or 4 AWG. Boxes that enclose devices or utilization equipment supplied by 8, 6, or 4 AWG conductors shall have an internal depth that is not less than 21/16 inches (52.4 mm). [314.24(B)(3)]

4.Conductors 12 or 10 AWG. Boxes that enclose devices or utilization equipment supplied by 12 or 10 AWG conductors shall have an internal depth that is not less than 13/16 inches (30.2 mm). Where the equipment projects rearward from the mounting plane of the box by more than 1 inch (25.4 mm), the box shall have a depth that is not less than that of the equipment plus 1/4 inch (6.4 mm). [314.24(B)(4)]

~~5. Conductors 14 AWG and smaller. Boxes that enclose devices or utilization equipment supplied by 14 AWG or smaller conductors shall have a depth that is not less than 15/16 inch (23.8 mm). [314.24(B)(5)]~~

~~E3905.5 Boxes enclosing flush-mounted devices.~~

~~Boxes enclosing flush-mounted devices shall be of such design that the devices are completely enclosed at the back and all sides and shall provide support for the devices. Screws for supporting the box shall not be used for attachment of the device contained therein. [314.19]~~

~~E3905.6 Boxes at luminaire outlets.~~

~~Outlet boxes used at luminaire or lampholder outlets shall be designed for the support of luminaires and lampholders and shall be installed as required by Section E3904.3. [314.27(A)]~~

~~E3905.6.1 Vertical surface outlets.~~

~~Boxes used at luminaire or lampholder outlets in or on a vertical surface shall be identified and marked on the interior of the box to indicate the maximum weight of the luminaire or lamp holder that is permitted to be supported by the box if other than 50 pounds (22.7 kg). [314.27(A)(1)]~~

~~Exception: A vertically mounted luminaire or lampholder weighing not more than 6 pounds (2.7 kg) shall be permitted to be supported on other boxes or plaster rings that are secured to other boxes, provided that the luminaire or its supporting yoke is secured to the box with not fewer than two No. 6 or larger screws. [314.27(A)(1) Exception]~~

~~E3905.6.2 Ceiling outlets.~~

~~For outlets used exclusively for lighting, the box shall be designed or installed so that a luminaire or lampholder can be attached. Such boxes shall be capable of supporting a luminaire weighing up to 50 pounds (22.7 kg). A luminaire that weighs more than 50 pounds (22.7 kg) shall be supported independently of the outlet box, unless the outlet box is listed and marked on the interior of the box to indicate the maximum weight that the box is permitted to support. [314.27(A)(2)]~~

~~E3905.7 Floor boxes.~~

~~Where outlet boxes for receptacles are installed in the floor, such boxes shall be listed specifically for that application. [314.27(B)]~~

~~E3905.8 Boxes at fan outlets.~~

~~Outlet boxes and outlet box systems used as the sole support of ceiling-suspended fans (paddle) shall be marked by their manufacturer as suitable for this purpose and shall not support ceiling-suspended fans (paddle) that weigh more than 70 pounds (31.8 kg). For outlet boxes and outlet box systems designed to support ceiling-suspended fans (paddle) that weigh more than 35 pounds (15.9 kg), the required marking shall include the maximum weight to be supported.~~

~~Where spare, separately-switched, ungrounded conductors are provided to a ceiling-mounted outlet box and such box is in a location acceptable for a ceiling-suspended (paddle) fan, the outlet box or outlet box system shall be listed for sole support of a ceiling-suspended (paddle) fan. [314.27(C)]~~

~~E3905.9 Utilization equipment.~~

~~Boxes used for the support of utilization equipment other than ceiling-suspended (paddle) fans shall meet the requirements of Sections E3905.6.1 and E3905.6.2 for the support of a luminaire that is the same size and weight. [314.27(D)]~~

~~Exception: Utilization equipment weighing not more than 6 pounds (2.7 kg) shall be permitted to be supported on other boxes or plaster rings that are secured to other boxes, provided that the equipment or its supporting yoke is secured to the box with not fewer than two No. 6 or larger screws. [314.27(D) Exception]~~

~~E3905.10 Conduit bodies and junction, pull and outlet boxes to be accessible.~~

~~Conduit bodies and junction, pull and outlet boxes shall be installed so that the wiring therein can be accessed without removing any part of the building or structure or, in underground circuits, without excavating sidewalks, paving, earth or other substance used to establish the finished grade. (314.29)~~

~~Exception: Boxes covered by gravel, light aggregate or noncohesive granulated soil shall be listed for the application, and the box locations shall be effectively identified and access shall be provided for excavation. (314.29 Exception)~~

~~E3905.11 Damp or wet locations.~~

~~In damp or wet locations, boxes, conduit bodies and fittings shall be placed or equipped so as to prevent moisture from entering or accumulating within the box, conduit body or fitting. Boxes, conduit bodies and fittings installed in wet locations shall be listed for use in wet locations. Where drainage openings are installed in the field in boxes or conduit bodies listed for use in damp or wet locations, such openings shall be approved and not larger than 1/4 inch (6.4 mm). For listed drain fittings, larger openings are permitted where installed in the field in accordance with the manufacturer's instructions. (314.15)~~

~~E3905.12 Number of conductors in outlet, device, and junction boxes, and conduit bodies.~~

~~Boxes and conduit bodies shall be of an approved size to provide free space for all enclosed conductors. In no case shall the volume of the box, as calculated in Section E3905.12.1, be less than the box fill calculation as calculated in Section E3905.12.2. The minimum volume for conduit bodies shall be as calculated in Section E3905.12.3. The provisions of this section shall not apply to terminal housings supplied with motors or generators. (314.16)~~

~~E3905.12.1 Box volume calculations.~~

~~The volume of a wiring enclosure (box) shall be the total volume of the assembled sections, and, where used, the space provided by plaster rings, domed covers, extension rings, etc., that are marked with~~

their volume in cubic inches or are made from boxes the dimensions of which are listed in Table E3905.12.1. [314.16(A)]

TABLE E3905.12.1 [Table 314.16(A)]

MAXIMUM NUMBER OF CONDUCTORS IN METAL BOXES^a

BOX DIMENSIONS (inches trade size and type)	MAXIMUM CAPACITY (cubic inches)	MAXIMUM NUMBER OF CONDUCTORS ^a						
		18 Awg	16 Awg	14 Awg	12 Awg	10 Awg	8 Awg	6 Awg
4 × 1 1/4 round or octagonal	12.5	8	7	6	5	5	4	2
4 × 1 1/2 round or octagonal	15.5	10	8	7	6	6	5	3
4 × 2 1/8 round or octagonal	21.5	14	12	10	9	8	7	4
4 × 1 1/4 square	18.0	12	10	9	8	7	6	3
4 × 1 1/2 square	21.0	14	12	10	9	8	7	4
4 × 2 1/8 square	30.3	20	17	15	13	12	10	6
4 11/16 × 1 1/4 square	25.5	17	14	12	11	10	8	5
4 11/16 × 1 1/2 square	29.5	19	16	14	13	11	9	5
4 11/16 × 2 1/8 square	42.0	28	24	21	18	16	14	8
3 × 2 × 1 1/2 device	7.5	5	4	3	3	3	2	1
3 × 2 × 2 device	10.0	6	5	5	4	4	3	2
3 × 2 × 2 1/4 device	10.5	7	6	5	4	4	3	2
3 × 2 × 2 1/2 device	12.5	8	7	6	5	5	4	2
3 × 2 × 2 3/4 device	14.0	9	8	7	6	5	4	2
3 × 2 × 3 1/2 device	18.0	12	10	9	8	7	6	3

4 × 21/8 × 11/2 device	10.3	6	5	5	4	4	3	2
4 × 21/8 × 17/8 device	13.0	8	7	6	5	5	4	2
4 × 21/8 × 21/8 device	14.5	9	8	7	6	5	4	2
33/4 × 2 × 21/2 masonry box/gang	14.0	9	8	7	6	5	4	2
33/4 × 2 × 31/2 masonry box/gang	21.0	14	12	10	9	8	7	4

For SI: 1 inch = 25.4 mm, 1 cubic inch = 16.4 cm³.

~~a. Where volume allowances are not required by Sections E3905.12.2.2 through E3905.12.2.5.~~

~~E3905.12.1.1 Standard boxes.~~

~~The volumes of standard boxes that are not marked with a cubic-inch capacity shall be as given in Table E3905.12.1. [314.16(A)(1)]~~

~~E3905.12.1.2 Other boxes.~~

~~Boxes 100 cubic inches (1640 cm³) or less, other than those described in Table E3905.12.1, and nonmetallic boxes shall be durably and legibly marked by the manufacturer with their cubic-inch capacity. Boxes described in Table E3905.12.1 that have a larger cubic-inch capacity than is designated in the table shall be permitted to have their cubic-inch capacity marked as required by this section. [314.16(A)(2)]~~

~~E3905.12.2 Box fill calculations.~~

~~The volumes in Section E3905.12.2.1 through Section E3905.12.2.5, as applicable, shall be added together. No allowance shall be required for small fittings such as locknuts and bushings. [314.16(B)]~~

~~E3905.12.2.1 Conductor fill.~~

~~Each conductor that originates outside the box and terminates or is spliced within the box shall be counted once, and each conductor that passes through the box without splice or termination shall be counted once. Each loop or coil of unbroken conductor having a length equal to or greater than twice that required for free conductors by Section E3406.11.3, shall be counted twice. The conductor fill, in cubic inches, shall be computed using Table E3905.12.2.1. A conductor, no part of which leaves the box, shall not be counted. [314.16(B)(1)]~~

~~Exception: An equipment grounding conductor or not more than four fixture wires smaller than No. 14, or both, shall be permitted to be omitted from the calculations where such conductors enter a box from a domed fixture or similar canopy and terminate within that box. [314.16(B)(1) Exception]~~

~~TABLE E3905.12.2.1 [Table 314.16(B)]~~

~~VOLUME ALLOWANCE REQUIRED PER CONDUCTOR~~

~~SIZE OF CONDUCTOR~~	~~FREE SPACE WITHIN BOX FOR EACH CONDUCTOR (cubic inches)~~
~~18 AWG~~	~~1.50~~
~~16 AWG~~	~~1.75~~
~~14 AWG~~	~~2.00~~
~~12 AWG~~	~~2.25~~
~~10 AWG~~	~~2.50~~
~~8 AWG~~	~~3.00~~
~~6 AWG~~	~~5.00~~

~~For SI: 1 cubic inch = 16.4 cm³.~~

~~E3905.12.2.2 Clamp fill.~~

~~Where one or more internal cable clamps, whether factory or field supplied, are present in the box, a single volume allowance in accordance with Table E3905.12.2.1 shall be made based on the largest conductor present in the box. An allowance shall not be required for a cable connector having its clamping mechanism outside of the box. A clamp assembly that incorporates a cable termination for the cable conductors shall be listed and marked for use with specific nonmetallic boxes. Conductors that originate within the clamp assembly shall be included in conductor fill calculations provided in Section E3905.12.2.1 as though they entered from outside of the box. The clamp assembly shall not require a fill allowance, but, the volume of the portion of the assembly that remains within the box after installation shall be excluded from the box volume as marked in accordance with Section E3905.12.1.2.~~

~~[314.16(B)(2)]~~

~~E3905.12.2.3 Support fittings fill.~~

~~Where one or more fixture studs or hickey are present in the box, a single volume allowance in accordance with Table E3905.12.2.1 shall be made for each type of fitting based on the largest conductor present in the box. [314.16(B)(3)]~~

~~E3905.12.2.4 Device or equipment fill.~~

~~For each yoke or strap containing one or more devices or equipment, a double volume allowance in accordance with Table E3905.12.2.1 shall be made for each yoke or strap based on the largest conductor connected to a device(s) or equipment supported by that yoke or strap. For a device or utilization equipment that is wider than a single 2-inch (51 mm) device box as described in Table E3905.12.1, a double volume allowance shall be made for each ganged portion required for mounting of the device or equipment. [314.16(B)(4)]~~

~~E3905.12.2.5 Equipment grounding conductor fill.~~

~~Where one or more equipment grounding conductors or equipment bonding jumpers enters a box, a single volume allowance in accordance with Table E3905.12.2.1 shall be made based on the largest equipment grounding conductor or equipment bonding jumper present in the box. [314.16(B)(5)]~~

~~E3905.12.3 Conduit bodies.~~

~~Conduit bodies enclosing 6 AWG conductors or smaller, other than short-radius conduit bodies, shall have a cross-sectional area not less than twice the cross-sectional area of the largest conduit or tubing to which they can be attached. The maximum number of conductors permitted shall be the maximum number permitted by Section E3904.6 for the conduit to which it is attached. [314.16(C)(1)]~~

~~E3905.12.3.1 Splices, taps or devices.~~

~~Only those conduit bodies that are durably and legibly marked by the manufacturer with their cubic inch capacity shall be permitted to contain splices, taps or devices. The maximum number of conductors shall be calculated using the same procedure for similar conductors in other than standard boxes. [314.16(C)(2)]~~

~~E3905.12.3.2 Short-radius conduit bodies.~~

~~Conduit bodies such as capped elbows and service-entrance elbows that enclose conductors 6 AWG or smaller and that are only intended to enable the installation of the raceway and the contained conductors, shall not contain splices, taps, or devices and shall be of sufficient size to provide free space for all conductors enclosed in the conduit body. [314.16(C)(3)]~~

~~SECTION E3906~~

~~INSTALLATION OF BOXES,~~

~~CONDUIT BODIES AND FITTINGS~~

~~E3906.1 Conductors entering boxes, conduit bodies or fittings.~~

~~Conductors entering boxes, conduit bodies or fittings shall be protected from abrasion. (314.17)~~

~~E3906.1.1 Insulated fittings.~~

~~Where raceways contain 4 AWG or larger insulated circuit conductors and these conductors enter a cabinet, box enclosure, or raceway, the conductors shall be protected by an identified fitting providing a smoothly rounded insulating surface, unless the conductors are separated from the fitting or raceway by identified insulating material securely fastened in place. [300.4(G)]~~

~~Exception: Where threaded hubs or bosses that are an integral part of a cabinet, box enclosure, or raceway provide a smoothly rounded or flared entry for conductors. [300.4(G) Exception]~~

~~Conduit bushings constructed wholly of insulating material shall not be used to secure a fitting or raceway. The insulating fitting or insulating material shall have a temperature rating not less than the insulation temperature rating of the installed conductors. [330.4(G)]~~

~~E3906.2 Openings.~~

~~Openings through which conductors enter shall be closed in an approved manner. [314.17(A)]~~

~~E3906.3 Metal boxes and conduit bodies.~~

~~Where raceway or cable is installed with metal boxes, or conduit bodies, the raceway or cable shall be secured to such boxes and conduit bodies. [314.17(B)]~~

~~E3906.4 Unused openings.~~

~~Unused openings other than those intended for the operation of equipment, those intended for mounting purposes, or those permitted as part of the design for listed equipment, shall be closed to afford protection substantially equivalent to that of the wall of the equipment. Metal plugs or plates used with nonmetallic boxes or conduit bodies shall be recessed at least 1/4 inch (6.4 mm) from the outer surface of the box or conduit body. [110.12(A)]~~

~~E3906.5 In wall or ceiling.~~

~~In walls or ceilings of concrete, tile or other noncombustible material, boxes employing a flush type cover or faceplate shall be installed so that the front edge of the box, plaster ring, extension ring, or listed extender will not be set back from the finished surface more than 1/4 inch (6.4 mm). In walls and ceilings constructed of wood or other combustible material, boxes, plaster rings, extension rings and listed extenders shall be flush with the finished surface or project therefrom. (314.20)~~

~~E3906.6 Noncombustible surfaces.~~

~~Openings in noncombustible surfaces that accommodate boxes employing a flush type cover or faceplate shall be made so that there are no gaps or open spaces greater than 1/8 inch (3.2 mm) around the edge of the box. (314.21)~~

~~E3906.7 Surface extensions.~~

~~Surface extensions shall be made by mounting and mechanically securing an extension ring over the box. (314.22)~~

Exception: A surface extension shall be permitted to be made from the cover of a flush-mounted box where the cover is designed so it is unlikely to fall off, or be removed if its securing means becomes loose. The wiring method shall be flexible for an approved length that permits removal of the cover and provides access to the box interior and shall be arranged so that any bonding or grounding continuity is independent of the connection between the box and cover. (314.22 Exception)

E3906.8 Supports.

Boxes and enclosures shall be supported in accordance with one or more of the provisions in Sections E3906.8.1 through E3906.8.6. (314.23)

E3906.8.1 Surface mounting.

An enclosure mounted on a building or other surface shall be rigidly and securely fastened in place. If the surface does not provide rigid and secure support, additional support in accordance with other provisions of Section E3906.8 shall be provided. [314.23(A)]

E3906.8.2 Structural mounting.

An enclosure supported from a structural member or from grade shall be rigidly supported either directly, or by using a metal, polymeric or wood brace. [314.23(B)]

E3906.8.2.1 Nails and screws.

Nails and screws, where used as a fastening means, shall be attached by using brackets on the outside of the enclosure, or they shall pass through the interior within 1/4 inch (6.4 mm) of the back or ends of the enclosure. Screws shall not be permitted to pass through the box except where exposed threads in the box are protected by an approved means to avoid abrasion of conductor insulation. [314.23(B)(1)]

E3906.8.2.2 Braces.

Metal braces shall be protected against corrosion and formed from metal that is not less than 0.020 inch (0.508 mm) thick uncoated. Wood braces shall have a cross-section not less than nominal 1 inch by 2 inches (25.4 mm by 51 mm). Wood braces in wet locations shall be treated for the conditions. Polymeric braces shall be identified as being suitable for the use. [314.23(B)(2)]

E3906.8.3 Mounting in finished surfaces.

An enclosure mounted in a finished surface shall be rigidly secured there to by clamps, anchors, or fittings identified for the application. [314.23(C)]

E3906.8.4 Raceway supported enclosures without devices or fixtures.

An enclosure that does not contain a device(s), other than splicing devices, or support a luminaire, lampholder or other equipment, and that is supported by entering raceways shall not exceed 100 cubic inches (1640 cm³) in size. The enclosure shall have threaded entries or identified hubs. The enclosure shall be supported by two or more conduits threaded wrenchtight into the enclosure or hubs. Each

conduit shall be secured within 3 feet (914 mm) of the enclosure, or within 18 inches (457 mm) of the enclosure if all entries are on the same side of the enclosure. [314.23(E)]

Exception: Rigid metal, intermediate metal, or rigid polyvinyl chloride nonmetallic conduit or electrical metallic tubing shall be permitted to support a conduit body of any size, provided that the conduit body is not larger in trade size than the largest trade size of the supporting conduit or electrical metallic tubing. [314.23(E) Exception]

~~E3906.8.5 Raceway supported enclosures, with devices or luminaire.~~

~~An enclosure that contains a device(s), other than splicing devices, or supports a luminaire, lampholder or other equipment and is supported by entering raceways shall not exceed 100 cubic inches (1640 cm³) in size. The enclosure shall have threaded entries or identified hubs. The enclosure shall be supported by two or more conduits threaded wrench tight into the enclosure or hubs. Each conduit shall be secured within 18 inches (457 mm) of the enclosure. [314.23(F)]~~

~~Exceptions:~~

~~1. Rigid metal or intermediate metal conduit shall be permitted to support a conduit body of any size, provided that the conduit bodies are not larger in trade size than the largest trade size of the supporting conduit. [314.23(F) Exception No. 1]~~

~~2. An unbroken length(s) of rigid or intermediate metal conduit shall be permitted to support a box used for luminaire or lampholder support, or to support a wiring enclosure that is an integral part of a luminaire and used in lieu of a box in accordance with Section E3905.1.1, where all of the following conditions are met:~~

~~2.1. The conduit is securely fastened at a point so that the length of conduit beyond the last point of conduit support does not exceed 3 feet (914 mm).~~

~~2.2. The unbroken conduit length before the last point of conduit support is 12 inches (305 mm) or greater, and that portion of the conduit is securely fastened at some point not less than 12 inches (305 mm) from its last point of support.~~

~~2.3. Where accessible to unqualified persons, the luminaire or lampholder, measured to its lowest point, is not less than 8 feet (2438 mm) above grade or standing area and at least 3 feet (914 mm) measured horizontally to the 8-foot (2438 mm) elevation from windows, doors, porches, fire escapes, or similar locations.~~

~~2.4. A luminaire supported by a single conduit does not exceed 12 inches (305 mm) in any direction from the point of conduit entry.~~

~~2.5. The weight supported by any single conduit does not exceed 20 pounds (9.1 kg).~~

~~2.6. At the luminaire or lampholder end, the conduit(s) is threaded wrench tight into the box, conduit body, or integral wiring enclosure, or into hubs identified for the purpose. Where a box or conduit body~~

is used for support, the luminaire shall be secured directly to the box or conduit body, or through a threaded conduit nipple not over 3 inches (76 mm) long. [314.23(F) Exception No. 2]

~~E3906.8.6 Enclosures in concrete or masonry.~~

An enclosure supported by embedment shall be identified as being suitably protected from corrosion and shall be securely embedded in concrete or masonry. [314.23(G)]

~~E3906.9 Covers and canopies.~~

Outlet boxes shall be effectively closed with a cover, faceplate or fixture canopy. Screws used for the purpose of attaching covers, or other equipment to the box shall be either machine screws matching the thread gauge or size that is integral to the box or shall be in accordance with the manufacturer's instructions. (314.25)

~~E3906.10 Covers and plates.~~

Covers and plates shall be nonmetallic or metal. Metal covers and plates shall be grounded. [314.25(A)]

~~E3906.11 Exposed combustible finish.~~

Combustible wall or ceiling finish exposed between the edge of a fixture canopy or pan and the outlet box shall be covered with noncombustible material where required by Section E4004.2. [314.25(B)]

~~SECTION E3907~~

~~CABINETS AND PANELBOARDS~~

~~E3907.1 Switch and overcurrent device enclosures with splices, taps, and feed-through conductors.~~

Where the wiring space of enclosures for switches or overcurrent devices contains conductors that are feeding through, spliced, or tapping off to other enclosures, switches, or overcurrent devices, all of the following conditions shall apply:

- ~~1. The total area of all conductors installed at any cross section of the wiring space shall not exceed 40 percent of the cross-sectional area of that space.~~
- ~~2. The total area of all conductors, splices, and taps installed at any cross section of the wiring space shall not exceed 75 percent of the cross-sectional area of that space.~~
- ~~3. A warning label shall be applied to the enclosure that identifies the closest disconnecting means for any feed-through conductors. (312.8)~~

~~E3907.2 Damp and wet locations.~~

In damp or wet locations, cabinets and panelboards of the surface type shall be placed or equipped so as to prevent moisture or water from entering and accumulating within the cabinet, and shall be mounted to provide an air space not less than 1/4 inch (6.4 mm) between the enclosure and the wall or

other supporting surface. Cabinets installed in wet locations shall be weatherproof. For enclosures in wet locations, raceways and cables entering above the level of uninsulated live parts shall be installed with fittings listed for wet locations. (312.2)

Exception: Nonmetallic enclosures installed on concrete, masonry, tile, or similar surfaces shall not be required to be installed with an air space between the enclosure and the wall or supporting surface. (312.2 Exception)

E3907.3 Position in wall.

In walls of concrete, tile or other noncombustible material, cabinets and panelboards shall be installed so that the front edge of the cabinet will not set back of the finished surface more than 1/4 inch (6.4 mm). In walls constructed of wood or other combustible material, cabinets shall be flush with the finished surface or shall project there from. (312.3)

E3907.4 Repairing noncombustible surfaces.

Noncombustible surfaces that are broken or incomplete shall be repaired so that there will not be gaps or open spaces greater than 1/8 inch (3.2 mm) at the edge of the cabinet or cutout box employing a flush type cover. (312.4)

E3907.5 Unused openings.

Unused openings, other than those intended for the operation of equipment, those intended for mounting purposes, and those permitted as part of the design for listed equipment, shall be closed to afford protection substantially equivalent to that of the wall of the equipment. Metal plugs and plates used with nonmetallic cabinets shall be recessed at least 1/4 inch (6.4 mm) from the outer surface. Unused openings for circuit breakers and switches shall be closed using identified closures, or other approved means that provide protection substantially equivalent to the wall of the enclosure. (110.12(A))

E3907.6 Conductors entering cabinets.

Conductors entering cabinets and panelboards shall be protected from abrasion and shall comply with Section E3906.1.1. (312.5)

E3907.7 Openings to be closed.

Openings through which conductors enter cabinets, panelboards and meter sockets shall be closed in an approved manner. [312.5(A)]

E3907.8 Cables.

Where cables are used, each cable shall be secured to the cabinet, panelboard, cutout box, or meter socket enclosure. [312.5(C)]

Exception: Cables with entirely nonmetallic sheaths shall be permitted to enter the top of a surface-mounted enclosure through one or more sections of rigid raceway not less than 18 inches (457 mm) nor more than 10 feet (3048 mm) in length, provided all the following conditions are met:

1. Each cable is fastened within 12 inches (305 mm), measured along the sheath, of the outer end of the raceway.
2. The raceway extends directly above the enclosure and does not penetrate a structural ceiling.
3. A fitting is provided on each end of the raceway to protect the cable(s) from abrasion and the fittings remain accessible after installation.
4. The raceway is sealed or plugged at the outer end using approved means so as to prevent access to the enclosure through the raceway.
5. The cable sheath is continuous through the raceway and extends into the enclosure beyond the fitting not less than 1/4 inch (6.4 mm).
6. The raceway is fastened at its outer end and at other points in accordance with Section E3802.1.
7. The allowable cable fill shall not exceed that permitted by Table E3907.8. A multiconductor cable having two or more conductors shall be treated as a single conductor for calculating the percentage of conduit fill area. For cables that have elliptical cross sections, the cross-sectional area calculation shall be based on the major diameter of the ellipse as a circle diameter. [312.5(C) Exception]

TABLE E3907.8 (Chapter 9, Table 1)

PERCENT OF CROSS SECTION OF CONDUIT AND TUBING FOR CONDUCTORS

NUMBER OF CONDUCTORS	MAXIMUM PERCENT OF CONDUIT AND TUBING AREA FILLED BY CONDUCTORS
1	53
2	31
Over 2	40

E3907.9 Wire-bending space within an enclosure containing a panelboard.

Wire-bending space within an enclosure containing a panelboard shall comply with the requirements of Sections E3907.9.1 through E3907.9.3.

E3907.9.1 Top and bottom wire-bending space.

The top and bottom wire-bending space for a panelboard enclosure shall be sized in accordance with Table E3907.9.1(1) based on the largest conductor entering or leaving the enclosure. [408.55 (A)]

Exceptions:

1. For a panelboard rated at 225 amperes or less and designed to contain not more than 42 overcurrent devices, either the top or bottom wire-bending space shall be permitted to be sized in accordance with Table E3907.9.1(2). For the purposes of this exception, a 2-pole or a 3-pole circuit breaker shall be considered as two or three overcurrent devices, respectively. [408.55(A) Exception No. 1]

2. For any panelboard, either the top or bottom wire-bending space shall be permitted to be sized in accordance with Table E3907.9.1(2) where the wire-bending space on at least one side is sized in accordance with Table E3907.9.1(1) based on the largest conductor to be terminated in any side wire-bending space. [408.55(A) Exception No. 2]

3. Where the panelboard is designed and constructed for wiring using only a single 90-degree bend for each conductor, including the grounded circuit conductor, and the wiring diagram indicates and specifies the method of wiring that must be used, the top and bottom wire-bending space shall be permitted to be sized in accordance with Table E3907.9.1(2). [408.55(A) Exception No. 3]

4. Where there are no conductors terminated in that space, either the top or the bottom wire-bending space, shall be permitted to be sized in accordance with Table E3907.9.1(2). [408.55(A) Exception No. 4]

TABLE E3907.9.1(1) [Table 312.6(B)]

MINIMUM WIRE-BENDING SPACE AT TERMINALS (see note 1)

WIRE SIZE (AWG or kcmil)		WIRES PER TERMINAL			
All other conductors	Compact stranded AA-8000 aluminum alloy conductors (see Note 3)	One (see note 2)		Two	
		inches	mm	inches	mm
14-10	12-8	Not specified	Not specified	—	—
8	6	1 1/2	38.1	—	—
6	4	2	50.8	—	—
4	2	3	76.2	—	—

3	1	3	76.2	—	—
2	1/0	3 1/2	88.9	—	—
1	2/0	4 1/2	114	—	—
1/0	3/0	5 1/2	140	5 1/2	140
2/0	4/0	6	152	6	152
3/0	250	6 1/2a	165a	6 1/2a	165a
4/0	300	7b	178b	7 1/2c	190c
250	350	8 1/2d	216d	8 1/2d	229d
300	400	10e	254e	10d	254d
350	500	12e	305e	12e	305e
400	600	13e	330e	13e	330e
500	700-750	14e	356e	14e	356e
600	800-900	15e	381e	16e	406e
700	1000	16e	406e	18e	457e

1. Bending space at terminals shall be measured in a straight line from the end of the lug or wire connector in a direction perpendicular to the enclosure wall.

2. For removable and lay-in wire terminals intended for only one wire, bending space shall be permitted to be reduced by the following number of millimeters (inches):

a. 1/2 inches (12.7 mm)

b. 1 inches (25.4 mm)

c. 1 1/2 inches (38.1 mm)

d. 2 inches (50.8 mm)

~~3. This column shall be permitted to determine the required wire bending space for compact stranded aluminum conductors in sizes up to 1000 kcmil and manufactured using AA-8000 series electrical grade aluminum alloy conductor material.~~

TABLE E3907.9.1(2) [Table 312.6(A)]

~~MINIMUM WIRE BENDING SPACE AT TERMINALS AND MINIMUM WIDTH OF WIRING GUTTERS (see note 1)~~

WIRE SIZE (AWG or kcmil)	WIRES PER TERMINAL			
	One		Two	
	inches	mm	inches	mm
14-10	Not specified	Not specified	—	—
8-6	1 1/2	38.1	—	—
4-3	2	50.8	—	—
2	2 1/2	63.5	—	—
1	2	76.2	—	—
1/0-2/0	3 1/2	88.9	5	127
3/0-4/0	4	102	6	152
250	4 1/2	114	6	152
300-350	5	127	8	203
400-500	6	152	8	203
600-700	8	203	10	254

~~1. Bending space at terminals shall be measured in a straight line from the end of the lug or wire connector in the direction that the wire leaves the terminal to the wall, barrier, or obstruction.~~

~~E3907.9.2 Side wire bending space.~~

Side wire bending space shall be in accordance with Table E3907.9.1(2) based on the largest conductor to be terminated in that space. [408.55(B)]

~~E3907.9.3 Back wire bending space.~~

~~The distance between the center of the rear entry and the nearest termination for the entering conductors shall be not less than the distance given in Table E3907.9.1(1). Where a raceway or cable entry is in the wall of the enclosure, opposite a removable cover, the distance from that wall to the cover shall be permitted to comply with the distance required in Table E3907.9.1(2). [408.55 (C)]~~

SECTION ~~E3908~~

GROUNDING

~~E3908.1 Metal enclosures.~~

~~Metal enclosures of conductors, devices and equipment shall be connected to the equipment grounding conductor. (250.86)~~

~~Exceptions:~~

~~1.Short sections of metal enclosures or raceways used to provide cable assemblies with support or protection against physical damage. (250.86 Exception No. 2)~~

~~2.A metal elbow that is installed in an underground installation of rigid nonmetallic conduit and is isolated from possible contact by a minimum cover of 18 inches (457 mm) to any part of the elbow or that is encased in not less than 2 inches (51 mm) of concrete. (250.86 Exception No. 3)~~

~~E3908.2 Equipment fastened in place or connected by permanent wiring methods (fixed).~~

~~Exposed, normally noncurrent-carrying metal parts of fixed equipment supplied by or enclosing conductors or components that are likely to become energized shall be connected to the equipment grounding conductor where any of the following conditions apply:~~

~~1.Where within 8 feet (2438 mm) vertically or 5 feet (1524 mm) horizontally of earth or grounded metal objects and subject to contact by persons;~~

~~2.Where located in a wet or damp location and not isolated; or~~

~~3.Where in electrical contact with metal. (250.110)~~

~~E3908.3 Specific equipment fastened in place (fixed) or connected by permanent wiring methods.~~

~~Exposed, normally noncurrent-carrying metal parts of the following equipment and enclosures shall be connected to an equipment grounding conductor:~~

~~1.Luminaires as provided in Chapter 40. [250.112(J)]~~

~~2. Motor-operated water pumps, including submersible types. Where a submersible pump is used in a metal well casing, the well casing shall be connected to the pump circuit equipment grounding conductor. [250.112(L)]~~

~~E3908.4 Effective ground-fault current path.~~

~~Electrical equipment and wiring and other electrically conductive material likely to become energized shall be installed in a manner that creates a low-impedance circuit facilitating the operation of the overcurrent device or ground detector for high-impedance grounded systems. Such circuit shall be capable of safely carrying the maximum ground-fault current likely to be imposed on it from any point on the wiring system where a ground fault might occur to the electrical supply source. [250.(A)(5)]~~

~~E3908.5 Earth as a ground-fault current path.~~

~~The earth shall not be considered as an effective ground-fault current path. [250.4(A)(5)]~~

~~E3908.6 Load-side grounded conductor neutral.~~

~~A grounded conductor shall not be connected to normally noncurrent-carrying metal parts of equipment, to equipment grounding conductor(s), or be reconnected to ground on the load side of the service disconnecting means. [250.24(A)(5)]~~

~~E3908.7 Load-side equipment.~~

~~A grounded circuit conductor shall not be used for grounding noncurrent-carrying metal parts of equipment on the load side of the service disconnecting means. [250.142(B)]~~

~~E3908.8 Types of equipment grounding conductors.~~

~~The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:~~

~~1. A copper, aluminum or copper-clad conductor. This conductor shall be solid or stranded; insulated, covered or bare; and in the form of a wire or a busbar of any shape. [250.118(1)]~~

~~2. Rigid metal conduit. [250.118(2)]~~

~~3. Intermediate metal conduit. [250.118(3)]~~

~~4. Electrical metallic tubing. [250.118(4)]~~

~~5. Armor of Type AC cable in accordance with Section E3908.4. [250.118(8)]~~

~~6. Type MC cable that provides an effective ground-fault current path in accordance with one or more of the following:~~

~~6.1. It contains an insulated or uninsulated equipment grounding conductor in compliance with Item 1 of this section.~~

~~6.2.The combined metallic sheath and uninsulated equipment grounding/bonding conductor of interlocked metal tape type MC cable that is listed and identified as an equipment grounding conductor.~~

~~6.3.The metallic sheath or the combined metallic sheath and equipment grounding conductors of the smooth or corrugated tube type MC cable that is listed and identified as an equipment grounding conductor. [250.118(10)]~~

~~7.Other electrically continuous metal raceways and auxiliary gutters. [250.118(13)]~~

~~8.Surface metal raceways listed for grounding. [250.118(14)]~~

~~E3908.8.1 Flexible metal conduit.~~

~~Flexible metal conduit shall be permitted as an equipment grounding conductor where all of the following conditions are met:~~

~~1.The conduit is terminated in listed fittings.~~

~~2.The circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.~~

~~3.The combined length of flexible metal conduit and flexible metallic tubing and liquid tight flexible metal conduit in the same ground return path does not exceed 6 feet (1829 mm).~~

~~If used to connect equipment where flexibility is necessary to minimize the transmission of vibration from equipment or to provide flexibility for equipment that requires movement after installation, an equipment grounding conductor shall be installed. [250.118(5)]~~

~~E3908.8.2 Liquid-tight flexible metal conduit.~~

~~Liquid tight flexible metal conduit shall be permitted as an equipment grounding conductor where all of the following conditions are met:~~

~~1.The conduit is terminated in listed fittings.~~

~~2.For trade sizes 3/8 through 1/2 (metric designator 12 through 16), the circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.~~

~~3.For trade sizes 3/4 through 1 1/4 (metric designator 21 through 35), the circuit conductors contained in the conduit are protected by overcurrent devices rated at not more than 60 amperes and there is no flexible metal conduit, flexible metallic tubing, or liquid tight flexible metal conduit in trade sizes 3/8 inch or 1/2 inch (9.5 mm through 12.7 mm) in the ground fault current path.~~

~~4.The combined length of flexible metal conduit and flexible metallic tubing and liquid-tight flexible metal conduit in the same ground return path does not exceed 6 feet (1829 mm).~~

If used to connect equipment where flexibility is necessary to minimize the transmission of vibration from equipment or to provide flexibility for equipment that requires movement after installation, an equipment grounding conductor shall be installed. [250.118(6)]

~~E3908.8.3 Nonmetallic sheathed cable (Type NM).~~

In addition to the insulated conductors, the cable shall have an insulated, covered, or bare equipment grounding conductor. Equipment grounding conductors shall be sized in accordance with Table E3908.12. (334.108)

~~E3908.9 Equipment fastened in place or connected by permanent wiring methods.~~

Noncurrent-carrying metal parts of equipment, raceways and other enclosures, where required to be grounded, shall be grounded by one of the following methods: (250.134)

1. By any of the equipment grounding conductors permitted by Sections E3908.8 through E3908.8.3. [250.134(A)]

2. By an equipment grounding conductor contained within the same raceway, cable or cord, or otherwise run with the circuit conductors. Equipment grounding conductors shall be identified in accordance with Section E3407.2. [250.134(B)]

~~E3908.10 Methods of equipment grounding.~~

Fixtures and equipment shall be considered grounded where mechanically connected to an equipment grounding conductor as specified in Sections E3908.8 through E3908.8.3. Wire type equipment grounding conductors shall be sized in accordance with Section E3908.12. (250 Part VII)

~~E3908.11 Equipment grounding conductor installation.~~

Where an equipment grounding conductor consists of a raceway, cable armor or cable sheath or where such conductor is a wire within a raceway or cable, it shall be installed in accordance with the provisions of this chapter and Chapters 34 and 38 using fittings for joints and terminations approved for installation with the type of raceway or cable used. All connections, joints and fittings shall be made tight using suitable tools. (250.120)

~~E3908.12 Equipment grounding conductor size.~~

Copper, aluminum and copper-clad aluminum equipment grounding conductors of the wire type shall be not smaller than shown in Table E3908.12, but they shall not be required to be larger than the circuit conductors supplying the equipment. Where a raceway or a cable armor or sheath is used as the equipment grounding conductor, as provided in Section E3908.8, it shall comply with Section E3908.4. Where ungrounded conductors are increased in size from the minimum size that has sufficient ampacity for the intended installation, wire type equipment grounding conductors shall be increased proportionally according to the circular mil area of the ungrounded conductors. [250.122(A) and (B)]

TABLE E3908.12 (Table 250.122)

EQUIPMENT GROUNDING CONDUCTOR SIZING

RATING OR SETTING OF AUTOMATIC OVERCURRENT DEVICE IN CIRCUIT AHEAD OF EQUIPMENT, CONDUIT, ETC., NOT EXCEEDING THE FOLLOWING RATINGS (amperes)	MINIMUM SIZE	
	Copper wire No. (AWG)	Aluminum or copper- clad aluminum wire No. (AWG)
15	14	12
20	12	10
60	10	8
100	8	6
200	6	4
300	4	2
400	3	1

E3908.12.1 Multiple circuits.

Where a single equipment grounding conductor is run with multiple circuits in the same raceway or cable, it shall be sized for the largest overcurrent device protecting conductors in the raceway or cable. [250.122(C)]

E3908.13 Continuity and attachment of equipment grounding conductors to boxes.

Where circuit conductors are spliced within a box or terminated on equipment within or supported by a box, any equipment grounding conductors associated with the circuit conductors shall be connected within the box or to the box with devices suitable for the use. Connections depending solely on solder shall not be used. Splices shall be made in accordance with Section E3406.10 except that insulation shall not be required. The arrangement of grounding connections shall be such that the disconnection or removal of a receptacle, luminaire or other device fed from the box will not interfere with or interrupt the grounding continuity. [250.146(A) and (C)]

E3908.14 Connecting receptacle grounding terminal to box.

An equipment bonding jumper, sized in accordance with Table E3908.12 based on the rating of the overcurrent device protecting the circuit conductors, shall be used to connect the grounding terminal of a grounding-type receptacle to a grounded box except where grounded in accordance with one of the following: (250.146)

1.Surface mounted box. Where the box is mounted on the surface, direct metal-to-metal contact between the device yoke and the box shall be permitted to ground the receptacle to the box. At least one of the insulating washers shall be removed from receptacles that do not have a contact yoke or device designed and listed to be used in conjunction with the supporting screws to establish the grounding circuit between the device yoke and flush-type boxes. This provision shall not apply to cover-mounted receptacles except where the box and cover combination are listed as providing satisfactory ground continuity between the box and the receptacle. A listed exposed work cover shall be considered to be the grounding and bonding means where the device is attached to the cover with at least two fasteners that are permanent, such as a rivet or have a thread locking or screw locking means and where the cover mounting holes are located on a flat non-raised portion of the cover. [250.146(A)]

2.Contact devices or yokes. Contact devices or yokes designed and listed for the purpose shall be permitted in conjunction with the supporting screws to establish equipment bonding between the device yoke and flush-type boxes. [250.146(B)]

3.Floor boxes. The receptacle is installed in a floor box designed for and listed as providing satisfactory ground continuity between the box and the device. [250.146(C)]

E3908.15 Metal boxes.

A connection shall be made between the one or more equipment grounding conductors and a metal box by means of a grounding screw that shall be used for no other purpose, equipment listed for grounding or by means of a listed grounding device. Where screws are used to connect grounding conductors or connection devices to boxes, such screws shall be one or more of the following: [250.148(C)]

1.Machine screw-type fasteners that engage not less than two threads.

2.Machine screw-type fasteners that are secured with a nut.

3.Thread forming machine screws that engage not less than two threads in the enclosure. [250.8(5) and (6)]

E3908.16 Nonmetallic boxes.

One or more equipment grounding conductors brought into a nonmetallic outlet box shall be arranged to allow connection to fittings or devices installed in that box. [250.148(D)]

E3908.17 Clean surfaces.

~~Nonconductive coatings such as paint, lacquer and enamel on equipment to be grounded shall be removed from threads and other contact surfaces to ensure electrical continuity or the equipment shall be connected by means of fittings designed so as to make such removal unnecessary. (250.12)~~

~~E3908.18 Bonding other enclosures.~~

~~Metal raceways, cable armor, cable sheath, enclosures, frames, fittings and other metal noncurrent-carrying parts that serve as equipment grounding conductors, with or without the use of supplementary equipment grounding conductors, shall be effectively bonded where necessary to ensure electrical continuity and the capacity to conduct safely any fault current likely to be imposed on them. Any nonconductive paint, enamel and similar coating shall be removed at threads, contact points and contact surfaces, or connections shall be made by means of fittings designed so as to make such removal unnecessary. [250.96(A)]~~

~~E3908.19 Size of equipment bonding jumper on load side of an overcurrent device.~~

~~The equipment bonding jumper on the load side of an overcurrent devices shall be sized, as a minimum, in accordance with Table E3908.12, but shall not be required to be larger than the circuit conductors supplying the equipment. An equipment bonding conductor shall be not smaller than No. 14 AWG.~~

~~A single common continuous equipment bonding jumper shall be permitted to connect two or more raceways or cables where the bonding jumper is sized in accordance with Table E3908.12 for the largest overcurrent device supplying circuits therein. [250.102(D) and 250.122]~~

~~E3908.20 Installation equipment bonding jumper.~~

~~Bonding jumpers or conductors and equipment bonding jumpers shall be installed either inside or outside of a raceway or an enclosure in accordance with Sections E3908.20.1 and E3908.20.2. [250.102(E)]~~

~~E3908.20.1 Inside raceway or enclosure.~~

~~Where installed inside a raceway or enclosure, equipment bonding jumpers and bonding jumpers or conductors shall comply with the requirements of Sections E3407.2 and E3908.13. [250.102(E)(1)]~~

~~E3908.20.2 Outside raceway or enclosure.~~

~~Where installed outside of a raceway or enclosure, the length of the bonding jumper or conductor or equipment bonding jumper shall not exceed 6 feet (1829 mm) and shall be routed with the raceway or enclosure. [250.102(E)(2)]~~

~~Equipment bonding jumpers and supply-side bonding jumpers installed for bonding grounding electrodes and installed at outdoor pole locations for the purpose of bonding or grounding isolated sections of metal raceways or elbows installed in exposed risers of metal conduit or other metal raceway, shall not be limited in length and shall not be required to be routed with a raceway or enclosure. [250.102(E)(2) Exception]~~

~~E3908.20.3 Protection.~~

~~Bonding jumpers or conductors and equipment bonding jumpers shall be installed in accordance with Section E3610.2. [250.102(E)(3)]~~

~~SECTION E3909~~

~~FLEXIBLE CORDS~~

~~E3909.1 Where permitted.~~

~~Flexible cords shall be used only for the connection of appliances where the fastening means and mechanical connections of such appliances are designed to permit ready removal for maintenance, repair or frequent interchange and the appliance is listed for flexible cord connection. Flexible cords shall not be installed as a substitute for the fixed wiring of a structure; shall not be run through holes in walls, structural ceilings, suspended ceilings, dropped ceilings or floors; shall not be concealed behind walls, floors, ceilings or located above suspended or dropped ceilings. (400.7 and 400.8)~~

~~E3909.2 Loading and protection.~~

~~The ampere load of flexible cords serving fixed appliances shall be in accordance with Table E3909.2. This table shall be used in conjunction with applicable end use product standards to ensure selection of the proper size and type. Where flexible cord is approved for and used with a specific listed appliance, it shall be considered to be protected where applied within the appliance listing requirements. [240.4, 240.5(A), 240.5(B)(1), 400.5, and 400.13]~~

~~TABLE E3909.2 [Table 400.5(A)(1)]~~

~~MAXIMUM AMPERE LOAD FOR FLEXIBLE CORDS~~

~~CORD SIZE (AWG)~~	~~CORD TYPES S, SE, SEO, SJ, SJE, SJE0, SJO, SJO0, SJT, SJTO, SJTO0, SO, SOO, SRD, SRDE, SRDT, ST, STD, SV, SVO, SVO0, SVTO, SVTO0~~	
	~~Maximum ampere load~~	
	~~Three current-carrying conductors~~	~~Two current-carrying conductors~~
~~18~~	~~7~~	~~10~~
~~16~~	~~10~~	~~13~~
~~14~~	~~15~~	~~18~~
~~12~~	~~20~~	~~25~~

~~E3909.3 Splices.~~

~~Flexible cord shall be used only in continuous lengths without splices or taps. (400.9)~~

~~E3909.4 Attachment plugs.~~

~~Where used in accordance with Section E3909.1, each flexible cord shall be equipped with an attachment plug and shall be energized from a receptacle outlet. [400.7(B)]~~

CHAPTER 40 DEVICES AND LUMINAIRES

RESERVED

SECTION E4001 SWITCHES

~~E4001.1 Rating and application of snap switches.~~

~~General use snap switches shall be used within their ratings and shall control only the following loads:~~

- ~~1. 1. Resistive and inductive loads not exceeding the ampere rating of the switch at the voltage involved.~~
- ~~2. 2. Tungsten filament lamp loads not exceeding the ampere rating of the switch at 120 volts.~~
- ~~3. 3. Motor loads not exceeding 80 percent of the ampere rating of the switch at its rated voltage. [404.14(A)]~~

~~E4001.2 CO/ALR snap switches.~~

~~Snap switches rated 20 amperes or less directly connected to aluminum conductors shall be marked CO/ALR. [404.14(C)]~~

~~E4001.3 Indicating.~~

~~General use and motor circuit switches and circuit breakers shall clearly indicate whether they are in the open OFF or closed ON position. Where single throw switches or circuit breaker handles are operated vertically rather than rotationally or horizontally, the up position of the handle shall be the closed (on) position.~~

~~E4001.4 Time switches and similar devices.~~

~~Time switches and similar devices shall be of the enclosed type or shall be mounted in cabinets or boxes or equipment enclosures. A barrier shall be used around energized parts to prevent operator exposure when making manual adjustments or switching. (404.5)~~

E4001.5 Grounding of enclosures.

~~Metal enclosures for switches or circuit breakers shall be connected to an equipment grounding conductor. Metal enclosures for switches or circuit breakers used as service equipment shall comply with the provisions of Section E3609.4. Where nonmetallic enclosures are used with metal raceways or metal-armored cables, provisions shall be made for connecting the equipment grounding conductor.~~

~~Nonmetallic boxes for switches shall be installed with a wiring method that provides or includes an equipment grounding conductor. (404.12)~~

E4001.6 Access.

~~Switches and circuit breakers used as switches shall be located to allow operation from a readily accessible location. Such devices shall be installed so that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, will not be more than 6 feet 7 inches (2007 mm) above the floor or working platform. [404.8(A)]~~

Exception: ~~This section shall not apply to switches and circuit breakers that are accessible by portable means and are installed adjacent to the motors, appliances and other equipment that they supply. [404.8(A) Exception]~~

E4001.7 Damp or wet locations.

~~A surface mounted switch or circuit breaker located in a damp or wet location or outside of a building shall be enclosed in a weatherproof enclosure or cabinet. A flush mounted switch or circuit breaker in a damp or wet location shall be equipped with a weatherproof cover. Switches shall not be installed within wet locations in tub or shower spaces unless installed as part of a listed tub or shower assembly. [404.8(A), (B), and (C)]~~

E4001.8 Grounded conductors.

~~Switches or circuit breakers shall not disconnect the grounded conductor of a circuit except where the switch or circuit breaker simultaneously disconnects all conductors of the circuit. [404.2(B)]~~

E4001.9 Switch connections.

~~Three- and four-way switches shall be wired so that all switching occurs only in the ungrounded circuit conductor. Color coding of switch connection conductors shall comply with Section E3407.3. Where in metal raceways or metal-jacketed cables, wiring between switches and outlets shall be in accordance with Section E3406.7. [404.2(A)]~~

Exception: ~~Switch loops do not require a grounded conductor. [404.2(A) Exception]~~

E4001.10 Box mounted.

~~Flush-type snap switches mounted in boxes that are recessed from the finished wall surfaces as covered in Section E3906.5 shall be installed so that the extension plaster ears are seated against the surface of~~

the wall. Flush type snap switches mounted in boxes that are flush with the finished wall surface or project therefrom shall be installed so that the mounting yoke or strap of the switch is seated against the box. Screws used for the purpose of attaching a snap switch to a box shall be of the type provided with a listed snap switch, or shall be machine screws having 32 threads per inch or part of listed assemblies or systems, in accordance with the manufacturer's instructions. [404.10(B)]

~~E4001.11 Snap switch faceplates.~~

~~Faceplates provided for snap switches mounted in boxes and other enclosures shall be installed so as to completely cover the opening and, where the switch is flush mounted, seat against the finished surface. [404.9(A)]~~

~~E4001.11.1 Faceplate grounding.~~

~~Snap switches, including dimmer and similar control switches, shall be connected to an equipment grounding conductor and shall provide a means to connect metal faceplates to the equipment grounding conductor, whether or not a metal faceplate is installed. Snap switches shall be considered to be part of an effective ground-fault current path if either of the following conditions is met:~~

- ~~4.—1. The switch is mounted with metal screws to a metal box or metal cover that is connected to an equipment grounding conductor or to a nonmetallic box with integral means for connecting to an equipment grounding conductor.~~
- ~~5.—2. An equipment grounding conductor or equipment bonding jumper is connected to an equipment grounding termination of the snap switch. [404.9(B)]~~

Exceptions:

- ~~6.—1. Where a means to connect to an equipment grounding conductor does not exist within the snap switch enclosure or where the wiring method does not include or provide an equipment grounding conductor, a snap switch without a grounding connection to an equipment grounding conductor shall be permitted for replacement purposes only. A snap switch wired under the provisions of this exception and located within 8 feet (2438 mm) vertically or 5 feet (1524 mm) horizontally of ground or exposed grounded metal objects, shall be provided with a faceplate of nonconducting noncombustible material with nonmetallic attachment screws, except where the switch mounting strap or yoke is nonmetallic or the circuit is protected by a ground-fault circuit interrupter. [404.9(B) Exception No.1]~~
- ~~7.—2. Listed kits or listed assemblies shall not be required to be connected to an equipment grounding conductor if all of the following conditions apply:~~
 - ~~1.—2.1. The device is provided with a nonmetallic faceplate that cannot be installed on any other type of device.~~

- ~~2. 2.2. The device does not have mounting means to accept other configurations of faceplates.~~
- ~~3. 2.3. The device is equipped with a nonmetallic yoke.~~
- ~~4. 2.4. All parts of the device that are accessible after installation of the faceplate are manufactured of nonmetallic materials. [404.9(B) Exception No. 2]~~
- ~~8. 3. Connection to an equipment grounding conductor shall not be required for snap switches that have an integral nonmetallic enclosure complying with Section E3905.1.3. [404.9(B) Exception No. 3]~~

~~E4001.12 Dimmer switches.~~

~~General-use dimmer switches shall be used only to control permanently installed incandescent luminaires (lighting fixtures) except where listed for the control of other loads and installed accordingly. [404.14(E)]~~

~~E4001.13 Multipole snap switches.~~

~~A multipole, general-use snap switch shall not be fed from more than a single circuit unless it is listed and marked as a two-circuit or three-circuit switch. [404.8(C)]~~

~~E4001.14 Cord and plug-connected loads.~~

~~Where snap switches are used to control cord and plug-connected equipment on a general-purpose branch circuit, each snap switch controlling receptacle outlets or cord connectors that are supplied by permanently connected cord pendants shall be rated at not less than the rating of the maximum permitted ampere rating or setting of the overcurrent device protecting the receptacles or cord connectors, as provided in Sections E4002.1.1 and E4002.1.2. [404.14(F)]~~

~~E4001.15 Switches controlling lighting loads.~~

~~The grounded circuit conductor for the controlled lighting circuit shall be provided at the location where switches control lighting loads that are supplied by a grounded general-purpose branch circuit for other than the following:~~

- ~~9. 1. Where conductors enter the box enclosing the switch through a raceway, provided that the raceway is large enough for all contained conductors, including a grounded conductor.~~
- ~~10. 2. Where the box enclosing the switch is accessible for the installation of an additional or replacement cable without removing finish materials.~~
- ~~11. 3. Where snap switches with integral enclosures comply with E3905.1.3.~~
- ~~12. 4. Where the switch does not serve a habitable room or bathroom.~~

~~13. 5. Where multiple switch locations control the same lighting load such that the entire floor area of the room or space is visible from the single or combined switch locations.~~

~~14. 6. Where lighting in the area is controlled by automatic means.~~

~~15. 7. Where the switch controls a receptacle load. [404.2(C)]~~

~~SECTION E4002~~

~~RECEPTACLES~~

~~E4002.1 Rating and type.~~

~~Receptacles and cord connectors shall be rated at not less than 15 amperes, 125 volts, or 15 amperes, 250 volts, and shall not be a lampholder type. Receptacles shall be rated in accordance with this section. [406.3(B)]~~

~~E4002.1.1 Single receptacle.~~

~~A single receptacle installed on an individual branch circuit shall have an ampere rating not less than that of the branch circuit. [210.21(B)]~~

~~E4002.1.2 Two or more receptacles.~~

~~Where connected to a branch circuit supplying two or more receptacles or outlets, receptacles shall conform to the values listed in Table E4002.1.2. [210.21(B)(3)]~~

~~TABLE E4002.1.2 [Table 210.21(B)(3)]~~

~~RECEPTACLE RATINGS FOR VARIOUS SIZE MULTI-OUTLET CIRCUITS~~

~~CIRCUIT RATING (amperes)~~	~~RECEPTACLE RATING (amperes)~~
~~15~~	~~15~~
~~20~~	~~15 or 20~~
~~30~~	~~30~~
~~40~~	~~40 or 50~~
~~50~~	~~50~~

~~E4002.2 Grounding type.~~

~~Receptacles installed on 15- and 20-ampere-rated branch circuits shall be of the grounding type. [406.4(A)]~~

E4002.3CO/ALR receptacles.

Receptacles rated at 20 amperes or less and directly connected to aluminum conductors shall be marked CO/ALR. [406.3(C)]

E4002.4Faceplates.

Metal face plates shall be grounded. [406.6(B)]

E4002.5Position of receptacle faces.

After installation, receptacle faces shall be flush with or project from face plates of insulating material and shall project a minimum of 0.015 inch (0.381 mm) from metal face plates. Faceplates shall be installed so as to completely cover the opening and seat against the mounting surface. Receptacle faceplates mounted inside of a box having a recess-mounted receptacle shall effectively close the opening and seat against the mounting surface. [406.5(D), 406.6]

Exception: Listed kits or assemblies encompassing receptacles and nonmetallic faceplates that cover the receptacle face, where the plate cannot be installed on any other receptacle, shall be permitted. [406.5(D) Exception]

E4002.6Receptacle mounted in boxes.

Receptacles mounted in boxes that are set back from the finished wall surface as permitted by Section E3906.5 shall be installed so that the mounting yoke or strap of the receptacle is held rigidly at the finished surface of the wall. Screws used for the purpose of attaching receptacles to a box shall be of the type provided with a listed receptacle, or shall be machine screws having 32 threads per inch or part of listed assemblies or systems, in accordance with the manufacturer's instructions. Receptacles mounted in boxes that are flush with the wall surface or project therefrom shall be so installed that the mounting yoke or strap is seated against the box or raised cover. [406.5(A) and (B)]

E4002.7Receptacles mounted on covers.

Receptacles mounted to and supported by a cover shall be held rigidly against the cover by more than one screw or shall be a device assembly or box cover listed and identified for securing by a single screw. [406.5(C)]

E4002.8Damp locations.

A receptacle installed outdoors in a location protected from the weather or in other damp locations shall have an enclosure for the receptacle that is weatherproof when the receptacle cover(s) is closed and an attachment plug cap is not inserted. An installation suitable for wet locations shall also be considered suitable for damp locations. A receptacle shall be considered to be in a location protected from the weather where located under roofed open porches, canopies and similar structures and not subject to rain or water runoff. Fifteen and 20 ampere, 125 and 250 volt nonlocking receptacles installed in damp locations shall be listed a weather-resistant type. [406.9(A)]

~~E4002.9 Fifteen- and 20-ampere receptacles in wet locations.~~

~~Where installed in a wet location, 15- and 20-ampere, 125- and 250-volt receptacles shall have an enclosure that is weatherproof whether or not the attachment plug cap is inserted. An outlet box hood installed for this purpose shall be listed and identified as "extra-duty." Fifteen- and 20-ampere, 125- and 250-volt nonlocking receptacles installed in wet locations shall be a listed weather-resistant type. [406.9(B)(1)]~~

~~E4002.10 Other receptacles in wet locations.~~

~~Where a receptacle other than a 15- or 20-amp, 125- or 250-volt receptacle is installed in a wet location and where the product intended to be plugged into it is not attended while in use, the receptacle shall have an enclosure that is weatherproof both when the attachment plug cap is inserted and when it is removed. Where such receptacle is installed in a wet location and where the product intended to be plugged into it will be attended while in use, the receptacle shall have an enclosure that is weatherproof when the attachment plug cap is removed. [406.9(B)(2)]~~

~~E4002.11 Bathtub and shower space.~~

~~A receptacle shall not be installed within or directly over a bathtub or shower stall. [406.9(C)]~~

~~E4002.12 Flush mounting with faceplate.~~

~~In damp or wet locations, the enclosure for a receptacle installed in an outlet box flush-mounted in a finished surface shall be made weatherproof by means of a weatherproof faceplate assembly that provides a water-tight connection between the plate and the finished surface. [406.9(E)]~~

~~E4002.13 Exposed terminals.~~

~~Receptacles shall be enclosed so that live wiring terminals are not exposed to contact. [406.5(G)]~~

~~E4002.14 Tamper-resistant receptacles.~~

~~In areas specified in Section E3901.1, 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles. [406.12(A)]~~

Exception: ~~Receptacles in the following locations shall not be required to be tamper resistant:~~

~~16. 1. Receptacles located more than 5.5 feet (1676 mm) above the floor.~~

~~17. 2. Receptacles that are part of a luminaire or appliance.~~

~~18. 3. A single receptacle for a single appliance or a duplex receptacle for two appliances where such receptacles are located in spaces dedicated for the appliances served and, under conditions of normal use, the appliances are not easily moved from one place to another. The appliances shall be cord-and-plug-connected to such receptacles in accordance with Section E3909.4. [406.12(A) Exception]~~

~~E4002.15 Dimmer-controlled receptacles.~~

~~A receptacle supplying lighting loads shall not be connected to a dimmer except where the plug and receptacle combination is a nonstandard configuration type that is specifically listed and identified for each such unique combination.~~

~~SECTION E4003~~

~~LUMINAIRES~~

~~E4003.1 Energized parts.~~

~~Luminaires, lampholders, and lamps shall not have energized parts normally exposed to contact. (410.5)~~

~~E4003.2 Luminaires near combustible material.~~

~~Luminaires shall be installed or equipped with shades or guards so that combustible material will not be subjected to temperatures in excess of 90°C (194°F). (410.11)~~

~~E4003.3 Exposed conductive parts.~~

~~The exposed metal parts of luminaires shall be connected to an equipment grounding conductor or shall be insulated from the equipment grounding conductor and other conducting surfaces. Lamp tie wires, mounting screws, clips and decorative bands on glass spaced at least 1³/₂ inches (38 mm) from lamp terminals shall not be required to be grounded. (410.42)~~

~~E4003.4 Screw-shell type.~~

~~Lampholders of the screw-shell type shall be installed for use as lampholders only. (410.90)~~

~~E4003.5 Recessed incandescent luminaires.~~

~~Recessed incandescent luminaires shall have thermal protection and shall be listed as thermally protected. [410.115(C)]~~

~~Exceptions:~~

~~19. 1. Thermal protection shall not be required in recessed luminaires listed for the purpose and installed in poured concrete. [410.115(C) Exception No.1]~~

~~20. 2. Thermal protection shall not be required in recessed luminaires having design, construction, and thermal performance characteristics equivalent to that of thermally protected luminaires, and such luminaires are identified as inherently protected. [410.115(C) Exception No. 2]~~

~~E4003.6 Thermal protection.~~

~~The ballast of a fluorescent luminaire installed indoors shall have integral thermal protection. Replacement ballasts shall also have thermal protection integral with the ballast. A simple reactance~~

ballast in a fluorescent luminaire with straight tubular lamps shall not be required to be thermally protected. [410.130(E)(1)]

~~E4003.7 High-intensity discharge luminaires.~~

~~Recessed high-intensity luminaires designed to be installed in wall or ceiling cavities shall have thermal protection and be identified as thermally protected. Thermal protection shall not be required in recessed high-intensity luminaires having design, construction and thermal performance characteristics equivalent to that of thermally protected luminaires, and such luminaires are identified as inherently protected. Thermal protection shall not be required in recessed high-intensity discharge luminaires installed in and identified for use in poured concrete. A recessed remote ballast for a high-intensity discharge luminaire shall have thermal protection that is integral with the ballast and shall be identified as thermally protected. [110.130(F)(1), (2), (3), and (4)]~~

~~E4003.8 Metal halide lamp containment.~~

~~Luminaires that use a metal halide lamp other than a thick-glass parabolic reflector lamp (PAR) shall be provided with a containment barrier that encloses the lamp, or shall be provided with a physical means that allows the use of only a lamp that is Type O. [(110.130(F)(5))]~~

~~E4003.9 Wet or damp locations.~~

~~Luminaires installed in wet or damp locations shall be installed so that water cannot enter or accumulate in wiring compartments, lampholders or other electrical parts. All luminaires installed in wet locations shall be marked SUITABLE FOR WET LOCATIONS. All luminaires installed in damp locations shall be marked SUITABLE FOR WET LOCATIONS or SUITABLE FOR DAMP LOCATIONS. (410.10)~~

~~E4003.10 Lampholders in wet or damp locations.~~

~~Lampholders installed in wet locations shall be listed for use in wet locations. Lampholders installed in damp locations shall be listed for damp locations or shall be listed for wet locations. (410.96)~~

~~E4003.11 Bathtub and shower areas.~~

~~Cord-connected luminaires, chain-, cable-, or cord-suspended luminaires, lighting track, pendants, and ceiling-suspended (paddle) fans shall not have any parts located within a zone measured 3 feet (914 mm) horizontally and 8 feet (2438 mm) vertically from the top of a bathtub rim or shower stall threshold. This zone is all encompassing and includes the space directly over the tub or shower. Luminaires within the actual outside dimension of the bathtub or shower to a height of 8 feet (2438 mm) vertically from the top of the bathtub rim or shower threshold shall be marked for damp locations and where subject to shower spray, shall be marked for wet locations. [410.4(D)]~~

~~E4003.12 Luminaires in clothes closets.~~

~~For the purposes of this section, storage space shall be defined as a volume bounded by the sides and back closet walls and planes extending from the closet floor vertically to a height of 6 feet (1829 mm) or~~

the highest clothes hanging rod and parallel to the walls at a horizontal distance of 24 inches (610 mm) from the sides and back of the closet walls respectively, and continuing vertically to the closet ceiling parallel to the walls at a horizontal distance of 12 inches (305 mm) or the width of the shelf, whichever is greater. For a closet that permits access to both sides of a hanging rod, the storage space shall include the volume below the highest rod extending 12 inches (305 mm) on either side of the rod on a plane horizontal to the floor extending the entire length of the rod (see Figure E4003.12). (410.2)

The types of luminaires installed in clothes closets shall be limited to surface-mounted or recessed incandescent or LED luminaires with completely enclosed light sources, surface-mounted or recessed fluorescent luminaires, and surface-mounted fluorescent or LED luminaires identified as suitable for installation within the closet storage area. Incandescent luminaires with open or partially enclosed lamps and pendant luminaires or lamp holders shall be prohibited. The minimum clearance between luminaires installed in clothes closets and the nearest point of a closet storage area shall be as follows: [410.16(A) and (B)]

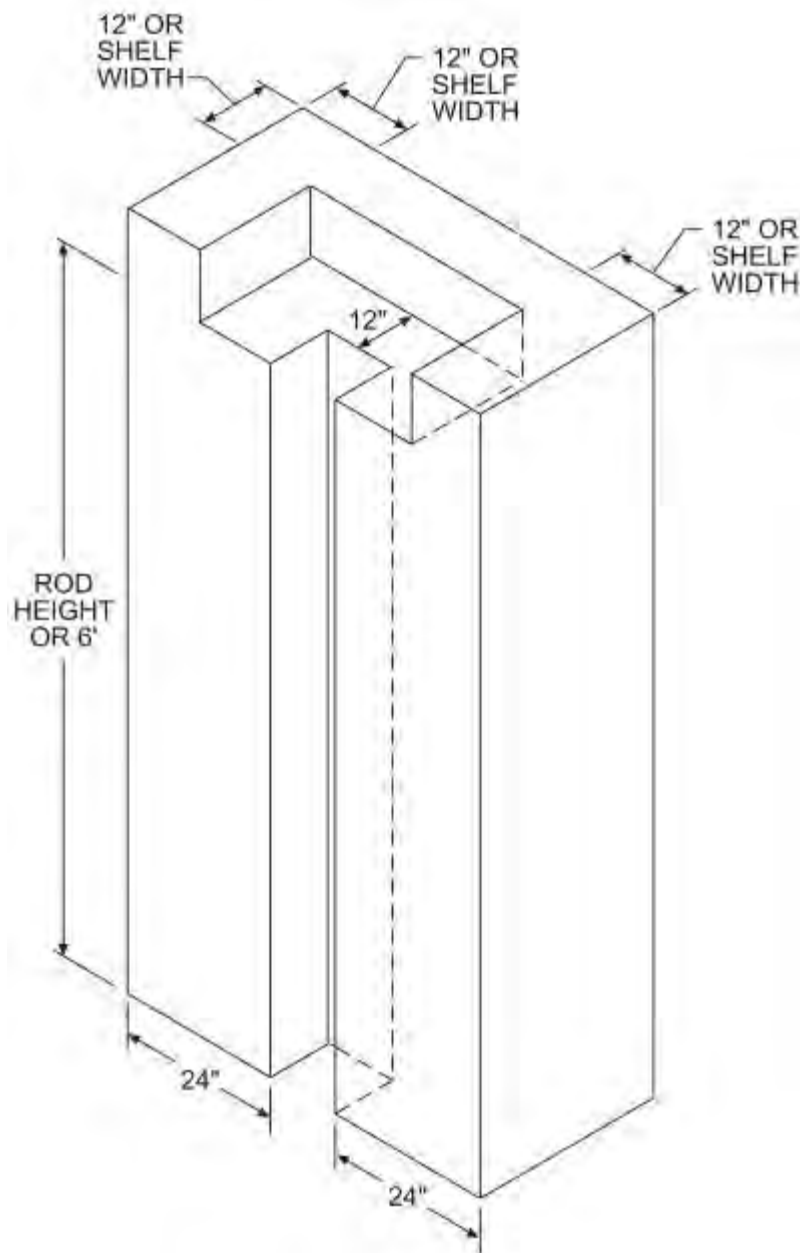
~~21. 1. Surface-mounted incandescent or LED luminaires with a completely enclosed light source shall be installed on the wall above the door or on the ceiling, provided that there is a minimum clearance of 12 inches (305 mm) between the fixture and the nearest point of a storage space.~~

~~22. 2. Surface-mounted fluorescent luminaires shall be installed on the wall above the door or on the ceiling, provided that there is a minimum clearance of 6 inches (152 mm).~~

~~23. 3. Recessed incandescent luminaires or LED luminaires with a completely enclosed light source shall be installed in the wall or the ceiling provided that there is a minimum clearance of 6 inches (152 mm).~~

~~24. 4. Recessed fluorescent luminaires shall be installed in the wall or on the ceiling provided that there is a minimum clearance of 6 inches (152 mm) between the fixture and the nearest point of a storage space.~~

~~25. 5. Surface-mounted fluorescent or LED luminaires shall be permitted to be installed within the closet storage space where identified for this use. [410.16(C)]~~



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE E4003.12

CLOSET STORAGE SPACE

E4003.13 ~~Luminaire wiring—general.~~

~~Wiring on or within luminaires shall be neatly arranged and shall not be exposed to physical damage. Excess wiring shall be avoided. Conductors shall be arranged so that they are not subjected to temperatures above those for which the conductors are rated. (410.48)~~

~~E4003.13.1Polarization of luminaires.~~

~~Luminaires shall be wired so that the screw shells of lampholders will be connected to the same luminaire or circuit conductor or terminal. The grounded conductor shall be connected to the screw shell.~~

~~E4003.13.2Luminaires as raceways.~~

~~Luminaires shall not be used as raceways for circuit conductors except where such luminaires are listed and marked for use as a raceway or are identified for through wiring. Luminaires designed for end-to-end connection to form a continuous assembly, and luminaires connected together by recognized wiring methods, shall not be required to be listed as a raceway where they contain the conductors of one 2-wire branch circuit or one multiwire branch circuit and such conductors supply the connected luminaires. One additional 2-wire branch circuit that separately supplies one or more of the connected luminaires shall also be permitted. [410.64(A), (B), and (C)]~~

SECTION E4004

LUMINAIRE INSTALLATION

E4004.1Outlet box covers.

~~In a completed installation, each outlet box shall be provided with a cover except where covered by means of a luminaire canopy, lampholder or device with a faceplate. (410.22)~~

E4004.2Combustible material at outlet boxes.

~~Combustible wall or ceiling finish exposed between the inside edge of a luminaire canopy or pan and the outlet box and having a surface area of 180 in.² (116 129 mm²) or more shall be covered with a noncombustible material. (410.23)~~

E4004.3Access.

~~Luminaires shall be installed so that the connections between the luminaire conductors and the circuit conductors can be accessed without requiring the disconnection of any part of the wiring. Luminaires that are connected by attachment plugs and receptacles meet the requirement of this section. (410.8)~~

E4004.4Supports.

~~Luminaires and lampholders shall be securely supported. A luminaire that weighs more than 6 pounds (2.72 kg) or exceeds 16 inches (406 mm) in any dimension shall not be supported by the screw shell of a lampholder. [410.30(A)]~~

E4004.5Means of support.

~~Outlet boxes or fittings installed as required by Sections E3905 and E3906 shall be permitted to support luminaires. [410.36(A)]~~

~~E4004.6Exposed components.~~

~~Luminaires having exposed ballasts, transformers, LED drivers or power supplies shall be installed so that such ballasts, transformers, LED drivers or power supplies are not in contact with combustible material unless listed for such condition. [410.136(A)]~~

~~E4004.7Combustible low density cellulose fiberboard.~~

~~Where a surface mounted luminaire containing a ballast, transformer, LED driver or power supply is installed on combustible low density cellulose fiberboard, the luminaire shall be marked for this purpose or it shall be spaced not less than 1³/₂ inches (38 mm) from the surface of the fiberboard. Where such luminaires are partially or wholly recessed, the provisions of Sections E4004.8 and E4004.9 shall apply. [410.136(B)]~~

~~E4004.8Recessed luminaire clearance.~~

~~A recessed luminaire that is not identified for contact with insulation shall have all recessed parts spaced at least ³/₂ inch (12.7 mm) from combustible materials. The points of support and the finish trim parts at the opening in the ceiling, wall or other finished surface shall be permitted to be in contact with combustible materials. A recessed luminaire that is identified for contact with insulation, Type IC, shall be permitted to be in contact with combustible materials at recessed parts, points of support, and portions passing through the building structure and at finish trim parts at the opening in the ceiling or wall. [410.116(A)(1) and (A)(2)]~~

~~E4004.9Recessed luminaire installation.~~

~~Thermal insulation shall not be installed above a recessed luminaire or within 3 inches (76 mm) of the recessed luminaire's enclosure, wiring compartment, ballast, transformer, LED driver or power supply except where such luminaire is identified for contact with insulation, Type IC. [410.116(B)]~~

SECTION E4005

TRACK LIGHTING

~~E4005.1Installation.~~

~~Lighting track shall be permanently installed and permanently connected to a branch circuit having a rating not more than that of the track. [410.151(A) and (B)]~~

~~E4005.2Fittings.~~

~~Fittings identified for use on lighting track shall be designed specifically for the track on which they are to be installed. Fittings shall be securely fastened to the track, shall maintain polarization and connection to the equipment grounding conductor, and shall be designed to be suspended directly from the track. Only lighting track fittings shall be installed on lighting track. Lighting track fittings shall not be equipped with general purpose receptacles. [410.151(A) and (B)]~~

~~E4005.3~~Connected load.

The connected load on lighting track shall not exceed the rating of the track. ~~[410.151(B)]~~

~~E4005.4~~Prohibited locations.

Lighting track shall not be installed in the following locations:

- ~~26. 1. Where likely to be subjected to physical damage.~~
- ~~27. 2. In wet or damp locations.~~
- ~~28. 3. Where subject to corrosive vapors.~~
- ~~29. 4. In storage battery rooms.~~
- ~~30. 5. In hazardous (classified) locations.~~
- ~~31. 6. Where concealed.~~
- ~~32. 7. Where extended through walls or partitions.~~
- ~~33. 8. Less than 5 feet (1524 mm) above the finished floor except where protected from physical damage or the track operates at less than 30 volts rms open-circuit voltage.~~
- ~~34. 9. Where prohibited by Section E4003.11. [410.151(C)]~~

~~E4005.5~~Fastening.

Lighting track shall be securely mounted so that each fastening will be suitable for supporting the maximum weight of luminaires that can be installed. Except where identified for supports at greater intervals, a single section 4 feet (1219 mm) or shorter in length shall have two supports and, where installed in a continuous row, each individual section of not more than 4 feet (1219 mm) in length shall have one additional support. ~~(410.154)~~

~~E4005.6~~Grounding.

Lighting track shall be grounded in accordance with Chapter 39, and the track sections shall be securely coupled to maintain continuity of the circuitry, polarization and grounding throughout. ~~[410.155(B)]~~

CHAPTER 41 APPLIANCE INSTALLATION

RESERVED

~~SECTION~~E4101

~~GENERAL~~

E4101.1Scope.

This section covers installation requirements for appliances and fixed heating equipment. (422.1 and 424.1)

E4101.2 Installation.

Appliances and equipment shall be installed in accordance with the manufacturer's installation instructions. Electrically heated appliances and equipment shall be installed with the required clearances to combustible materials. [110.3(B) and 422.17]

E4101.3 Flexible cords.

Cord and plug-connected appliances shall use cords suitable for the environment and physical conditions likely to be encountered. Flexible cords shall be used only where the appliance is listed to be connected with a flexible cord. The cord shall be identified as suitable in the installation instructions of the appliance manufacturer. Receptacles for cord and plug-connected appliances shall be accessible and shall be located to avoid physical damage to the flexible cord. Except for a listed appliance marked to indicate that it is protected by a system of double insulation, the flexible cord supplying an appliance shall terminate in a grounding-type attachment plug. A receptacle for a cord and plug-connected range hood shall be supplied by an individual branch circuit. Specific appliances have additional requirements as specified in Table E4101.3 (see Section E3909). [422.16(B)(1), (B)(2)]

TABLE E4101.3

FLEXIBLE CORD LENGTH

APPLIANCE	MINIMUM CORD LENGTH (inches)	MAXIMUM CORD LENGTH (inches)
Electrically operated in-sink waste disposal	18	36
Built-in dishwasher	36	48
Trash compactor	36	48
Range hoods	18	36

For SI: 1 inch = 25.4 mm.

E4101.4 Overcurrent protection.

Each appliance shall be protected against overcurrent in accordance with the rating of the appliance and its listing. [110.3(B), 422.11(A)]

E4101.4.1 Single nonmotor-operated appliance.

The overcurrent protection for a branch circuit that supplies a single nonmotor-operated appliance shall not exceed that marked on the appliance. Where the overcurrent protection rating is not marked and the appliance is rated at over 13.3 amperes, the overcurrent protection shall not exceed 150 percent of the appliance rated current. Where 150 percent of the appliance rating does not correspond to a standard overcurrent device ampere rating, the next higher standard rating shall be permitted. Where the overcurrent protection rating is not marked and the appliance is rated at 13.3 amperes or less, the overcurrent protection shall not exceed 20 amperes. [422.11(E)]

E4101.5 Disconnecting means:

Each appliance shall be provided with a means to disconnect all ungrounded supply conductors. For fixed electric space heating equipment, means shall be provided to disconnect the heater and any motor controller(s) and supplementary overcurrent-protective devices. Switches and circuit breakers used as a disconnecting means shall be of the indicating type. Disconnecting means shall be as set forth in Table E4101.5. (422.30, 422.35, and 424.19)

TABLE E4101.5

DISCONNECTING MEANS [422.31(A), (B), and (C); 422.34; 422.35; 424.19; 424.20; and 440.14]

DESCRIPTION	ALLOWED DISCONNECTING MEANS
Permanently connected appliance rated at not over 300 volt-amperes or $\frac{1}{8}$ horsepower.	Branch-circuit overcurrent device.
Permanently connected appliances rated in excess of 300 volt-amperes.	Branch-circuit breaker or switch located within sight of appliance or such devices in any location that are capable of being locked in the open position. The provision for locking or adding a lock to the disconnecting means shall be installed on or at the switch or circuit breaker used as the disconnecting means and shall remain in place with or without the lock installed.
Motor-operated appliances rated over $\frac{1}{8}$ horsepower.	For permanently connected motor-operated appliances with motors rated over $\frac{1}{8}$ horsepower, the branch circuit switch or circuit breaker shall be permitted to serve as the disconnecting means where the switch or circuit breaker is within sight from the appliance. Where the branch circuit switch is not located within sight from the appliance, the disconnecting means shall be one of the following types: a listed motor-circuit switch rated in horsepower, a listed molded case circuit breaker, a listed molded case switch, a listed manual motor controller additionally marked "Suitable as Motor Disconnect" where installed

between the final motor branch-circuit short-circuit protective device and the motor. For stationary motors rated at 2 hp or less and 300 volts or less, the disconnecting means shall be permitted to be one of the following devices:

1. ~~1.~~ A general-use switch having an ampere rating not less than twice the full-load current rating of the motor.
2. ~~2.~~ On AC circuits, a general-use snap switch suitable only for use on AC, not general-use AC—DC snap switches, where the motor full-load current rating is not more than 80 percent of the ampere rating of the switch.
3. ~~3.~~ A listed manual motor controller having a horsepower rating not less than the rating of the motor and marked "Suitable as Motor Disconnect".

The disconnecting means for motor circuits rated 600 volts, nominal, or less shall have an ampere rating not less than 115 percent of the full-load current rating of the motor except that a listed unfused motor-circuit switch having a horsepower rating not less than the motor horsepower shall be permitted to have an ampere rating less than 115 percent of the full-load current rating of the motor. The disconnecting means shall be installed within sight of the appliance.

Exception: A unit switch with a marked-off position that is a part of an appliance and disconnects all ungrounded conductors shall be permitted as the disconnecting means and the switch or circuit breaker serving as the other disconnecting means shall be permitted to be out of sight from the appliance.

Appliances listed for cord and plug connection.	A separable connector or attachment plug and receptacle provided with access.

Permanently installed heating equipment with motors rated at not over $\frac{3}{8}$ horsepower with supplementary overcurrent protection.	Disconnect, on the supply side of fuses, in sight from the supplementary overcurrent device, and in sight of the heating equipment or, in any location, if capable of being locked in the open position.

Heating equipment containing motors rated over $\frac{3}{8}$ horsepower with	Disconnect permitted to serve as required disconnect for both the heating equipment and the controller where, on the supply side of fuses, and in sight from the supplementary overcurrent devices, if the

supplementary overcurrent protection.	disconnecting means is also in sight from the controller, or is capable of being locked off and simultaneously disconnects the heater, motor controller(s) and supplementary overcurrent protective devices from all ungrounded conductors. The provision for locking or adding a lock to the disconnecting means shall be installed on or at the switch or circuit breaker used as the disconnecting means and shall remain in place with or without the lock installed. The disconnecting means shall have an ampere rating not less than 125 percent of the total load of the motors and the heaters.
Heating equipment containing no motor rated over $\frac{1}{8}$ horsepower without supplementary overcurrent protection.	Branch-circuit switch or circuit breaker where within sight from the heating equipment or capable of being locked off and simultaneously disconnects the heater, motor controller(s) and supplementary overcurrent protective devices from all ungrounded conductors. The provision for locking or adding a lock to the disconnecting means shall be installed on or at the switch or circuit breaker used as the disconnecting means and shall remain in place with or without the lock installed. The disconnecting means shall have an ampere rating not less than 125 percent of the total load of the motors and the heaters.
Heating equipment containing motors rated over $\frac{1}{8}$ horsepower without supplementary overcurrent protection.	Disconnecting means in sight from motor controller or as provided for heating equipment with motor rated over $\frac{1}{8}$ horsepower with supplementary overcurrent protection and simultaneously disconnects the heater, motor controller(s) and supplementary overcurrent protective devices from all ungrounded conductors. The provision for locking or adding a lock to the disconnecting means shall be installed on or at the switch or circuit breaker used as the disconnecting means and shall remain in place with or without the lock installed. The disconnecting means shall have an ampere rating not less than 125 percent of the total load of the motors and the heaters.
Air-conditioning condensing units and heat pump units.	A readily accessible disconnect <i>within sight</i> from unit as the only allowable means. ⁹
Appliances and fixed heating equipment with unit switches having a marked OFF position.	Unit switch where an additional individual switch or circuit breaker serves as a redundant disconnecting means.
Thermostatically controlled fixed heating equipment.	Thermostats with a marked OFF position that directly open all ungrounded conductors, which when manually placed in the OFF position are designed so that the circuit cannot be energized

automatically and that are located *within sight* of the equipment controlled.

For SI: 1 horsepower = 0.746 kW.

4. ~~a. The disconnecting means shall be permitted to be installed on or within the unit. It shall not be located on panels designed to allow access to the unit or located so as to obscure the air-conditioning equipment nameplate(s).~~

~~E4101.6 Support of ceiling-suspended paddle fans.~~

~~Ceiling-suspended fans (paddle) shall be supported independently of an outlet box or by a listed outlet box or outlet box system identified for the use and installed in accordance with Section E3905.8. (422.18)~~

~~E4101.7 Snow-melting and deicing equipment protection.~~

~~Outdoor receptacles that are not readily accessible and are supplied from a dedicated branch circuit for electric snow-melting or deicing equipment shall be permitted to be installed without ground-fault circuit-interrupter protection for personnel. However, ground-fault protection of equipment shall be provided for fixed outdoor electric deicing and snow-melting equipment. [210.8(A)(3) Exception, 426.28]~~

CHAPTER 42 SWIMMING POOLS [ELECTRICAL PROVISIONS]

RESERVED

~~SECTION E4201~~

~~GENERAL~~

~~E4201.1 Scope.~~

~~The provisions of this chapter shall apply to the construction and installation of electric wiring and equipment associated with all swimming pools, wading pools, decorative pools, fountains, hot tubs and spas, and hydromassage bathtubs, whether permanently installed or storable, and shall apply to metallic auxiliary equipment, such as pumps, filters and similar equipment. Sections E4202 through E4206 provide general rules for permanent pools, spas and hot tubs. Section E4207 provides specific rules for storable pools and storable/portable spas and hot tubs. Section E4208 provides specific rules for spas and hot tubs. Section E4209 provides specific rules for hydromassage bathtubs. (680.1)~~

~~E4201.2 Definitions.~~

~~(680.2)~~

~~CORD AND PLUG CONNECTED LIGHTING ASSEMBLY.~~ A lighting assembly consisting of a cord and plug-connected transformer and a luminaire intended for installation in the wall of a spa, hot tub, or storable pool.

~~DRY NICHE LUMINAIRE.~~ A luminaire intended for installation in the floor or wall of a pool, spa or fountain in a niche that is sealed against the entry of water.

~~FORMING SHELL.~~ A structure designed to support a wet-niche luminaire assembly and intended for mounting in a pool or fountain structure.

~~FOUNTAIN.~~ Fountains, ornamental pools, display pools, and reflection pools. The definition does not include drinking fountains.

~~HYDROMASSAGE BATHTUB.~~ A permanently installed bathtub equipped with a recirculating piping system, pump, and associated equipment. It is designed so it can accept, circulate and discharge water upon each use.

~~LOW VOLTAGE CONTACT LIMIT.~~ A voltage not exceeding the following values:

- ~~1. 1.15 volts (RMS) for sinusoidal AC~~
- ~~2. 2.21.2 volts peak for nonsinusoidal AC~~
- ~~3. 3.30 volts for continuous DC~~
- ~~4. 4.12.4 volts peak for DC that is interrupted at a rate of 10 to 200 Hz~~

~~MAXIMUM WATER LEVEL.~~ The highest level that water can reach before it spills out.

~~NO NICHE LUMINAIRE.~~ A luminaire intended for installation above or below the water without a niche.

~~PACKAGED SPA OR HOT TUB EQUIPMENT ASSEMBLY.~~ A factory-fabricated unit consisting of water-circulating, heating and control equipment mounted on a common base, intended to operate a spa or hot tub. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.

~~PERMANENTLY INSTALLED SWIMMING, WADING, IMMERSION AND THERAPEUTIC POOLS.~~ Those that are constructed in the ground or partially in the ground, and all others capable of holding water with a depth greater than 42 inches (1067 mm), and all pools installed inside of a building, regardless of water depth, whether or not served by electrical circuits of any nature.

~~POOL.~~ Manufactured or field-constructed equipment designed to contain water on a permanent or semipermanent basis and used for swimming, wading, immersion, or therapeutic purposes.

~~POOL COVER, ELECTRICALLY OPERATED.~~ Motor-driven equipment designed to cover and uncover the water surface of a pool by means of a flexible sheet or rigid frame.

SELF-CONTAINED SPA OR HOT TUB. A factory fabricated unit consisting of a spa or hot tub vessel with all water-circulating, heating and control equipment integral to the unit. Equipment may include pumps, air blowers, heaters, luminaires, controls and sanitizer generators.

SPA OR HOT TUB. A hydromassage pool, or tub for recreational or therapeutic use, not located in health care facilities, designed for immersion of users, and usually having a filter, heater, and motor-driven blower. They are installed indoors or outdoors, on the ground or supporting structure, or in the ground or supporting structure. Generally, a spa or hot tub is not designed or intended to have its contents drained or discharged after each use.

STORABLE SWIMMING, WADING OR IMMERSION POOLS; OR STORABLE/PORTABLE SPAS AND HOT TUBS. Those that are constructed on or above the ground and are capable of holding water with a maximum depth of 42 inches (1067 mm), or a pool with nonmetallic, molded polymeric walls or inflatable fabric walls regardless of dimension

THROUGH WALL LIGHTING ASSEMBLY. A lighting assembly intended for installation above grade, on or through the wall of a pool, consisting of two interconnected groups of components separated by the pool wall.

WET-NICHE LUMINAIRE. A luminaire intended for installation in a forming shell mounted in a pool or fountain structure where the luminaire will be completely surrounded by water.

SECTION E4202

WIRING METHODS FOR POOLS, SPAS, HOT TUBS AND HYDROMASSAGE BATHTUBS

E4202.1 General:

Wiring methods used in conjunction with permanently installed swimming pools, spas, hot tubs or hydromassage bathtubs shall be installed in accordance with Table E4202.1 and Chapter 38 except as otherwise stated in this section. Storable swimming pools shall comply with Section E4207. [680.7; 680.21(A); 680.23(B) and (F); 680.25(A); 680.42; 680.43; and 680.70]

TABLE E4202.1

ALLOWABLE APPLICATIONS FOR WIRING METHODS^{a, b, c, d, e, f, g, h, k}

WIRING LOCATION OR PURPOSE (Application allowed where marked with an "A")	AC, FMC, NM, SR, SE	EMT	ENT	IMCⁱ, RNCⁱ, RMC^h	LFMC	LFNMC	UF	MCⁱ	FLEXCORD
Panelboard(s) that supply pool equipment: from service equipment to panelboard	A ^{b, e} SR not permitted	A ^e	A ^b	A	—	A	A ^e	A ^e	—

Wet-niche and no-niche luminaires: from branch circuit OCPD to deck or junction box	AC ^b only	A ^e	A ^b	A	—	A	—	A ^b	—
Wet-niche and no-niche luminaires: from deck or junction box to forming shell	—	—	—	A ^d	—	A	—	—	A ⁵
Dry niche: from branch circuit OCPD to luminaires	AC ^b only	A ^e	A ^b	A	—	A	—	A ^b	—
Pool-associated motors: from branch circuit OCPD to motor	A ^b	A ^e	A ^b	A	A ^e	A ^e	A ^b	A	A ⁵
Packaged or self-contained outdoor spas and hot tubs with underwater luminaire: from branch circuit OCPD to spa or hot tub	AC ^b only	A ^e	A ^b	A	A ^f	A ^f	—	A ^b	A ⁵
Packaged or self-contained outdoor spas and hot tubs without underwater luminaire: from branch circuit OCPD to spa or hot tub	A ^b	A ^e	A ^b	A	A ^f	A ^f	A ^b	A	A ⁵
Indoor spas and hot tubs, hydromassage bathtubs, and other pool, spa or hot tub associated equipment: from branch circuit OCPD to equipment	A ^b	A ^e	A ^b	A	A	A	A	A	A ⁵
Connection at pool lighting transformers or power supplies	AC ^b only	A ^e	A ^b	A	A ^{1,f}	A ^f	—	A ^b	—

For SI: 1 foot = 304.8 mm.

5. — a. For all wiring methods, see Section E4205 for equipment grounding conductor requirements.

6. — b. Limited to use within buildings.

- ~~7. c. Limited to use on or within buildings.~~
- ~~8. d. Metal conduit shall be constructed of brass or other approved corrosion-resistant metal.~~
- ~~9. e. Limited to where necessary to employ flexible connections at or adjacent to a pool motor.~~
- ~~10. f. Sections installed external to spa or hot tub enclosure limited to individual lengths not to exceed 6 feet. Length not limited inside spa or hot tub enclosure.~~
- ~~11. g. Flexible cord shall be installed in accordance with Section E4202.2.~~
- ~~12. h. Nonmetallic conduit shall be rigid polyvinyl chloride conduit Type PVC or reinforced thermosetting resin conduit Type RTRC.~~
- ~~13. i. Aluminum conduits shall not be permitted in the pool area where subject to corrosion.~~
- ~~14. j. Where installed as direct burial cable or in wet locations, Type MC cable shall be listed and identified for the location.~~
- ~~15. k. See Section E4202.3 for listed, double-insulated pool pump motors.~~
- ~~16. l. Limited to use in individual lengths not to exceed 6 feet. The total length of all individual runs of LFMC shall not exceed 10 feet.~~

~~E4202.2 Flexible cords.~~

~~Flexible cords used in conjunction with a pool, spa, hot tub or hydromassage bathtub shall be installed in accordance with the following:~~

- ~~17. 1. For other than underwater luminaires, fixed or stationary equipment shall be permitted to be connected with a flexible cord to facilitate removal or disconnection for maintenance or repair. For other than storable pools, the flexible cord shall not exceed 3 feet (914 mm) in length. Cords that supply swimming pool equipment shall have a copper equipment grounding conductor not smaller than 12 AWG and shall terminate in a grounding-type attachment plug. [680.7(A), (B), and (C); 680.21(A)(5)]~~
- ~~18. 2. Other than listed low-voltage lighting systems not requiring grounding, wet-niche luminaires that are supplied by a flexible cord or cable shall have all exposed noncurrent-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord or cable. Such grounding conductor shall be connected to a grounding terminal in the supply junction box, transformer enclosure, or other enclosure and shall be not smaller than the supply conductors and not smaller than 16 AWG. [680.23(B)(3)]~~

~~19. 3. A listed packaged spa or hot tub installed outdoors that is GFCI-protected shall be permitted to be cord-and-plug-connected provided that such cord does not exceed 15 feet (4572 mm) in length. [680.42(A)(2)]~~

~~20. 4. A listed packaged spa or hot tub rated at 20 amperes or less and installed indoors shall be permitted to be cord-and-plug-connected to facilitate maintenance and repair. (680.43 Exception No. 1)~~

~~21. 5. For other than underwater and storable pool lighting luminaire, the requirements of Item 1 shall apply to any cord-equipped luminaire that is located within 16 feet (4877 mm) radially from any point on the water surface. [680.22(B)(5)]~~

~~E4202.3 Double insulated pool pumps.~~

~~A listed cord and plug-connected pool pump incorporating an approved system of double insulation that provides a means for grounding only the internal and nonaccessible, noncurrent-carrying metal parts of the pump shall be connected to any wiring method recognized in Chapter 38 that is suitable for the location. Where the bonding grid is connected to the equipment grounding conductor of the motor circuit in accordance with Section E4204.2, Item 6.1, the branch circuit wiring shall comply with Sections E4202.1 and E4205.5. [680.21(B)]~~

SECTION E4203

EQUIPMENT LOCATION AND CLEARANCES

~~E4203.1 Receptacle outlets.~~

~~Receptacles outlets shall be installed and located in accordance with Sections E4203.1.1 through E4203.1.5. Distances shall be measured as the shortest path that an appliance supply cord connected to the receptacle would follow without penetrating a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier. [680.22(A)(5)]~~

~~E4203.1.1 Location.~~

~~Receptacles that provide power for water-pump motors or other loads directly related to the circulation and sanitation system shall be permitted to be located between 6 feet and 10 feet (1829 mm and 3048 mm) from the inside walls of pools and outdoor spas and hot tubs, where the receptacle is single and of the grounding type and protected by ground-fault circuit interrupters.~~

~~Other receptacles on the property shall be located not less than 6 feet (1829 mm) from the inside walls of pools and outdoor spas and hot tubs. [680.22(A)(2) and (A)(3)]~~

~~E4203.1.2 Where required.~~

~~At least one 125-volt, 15- or 20-ampere receptacle supplied by a general-purpose branch circuit shall be located a minimum of 6 feet (1829 mm) from and not more than 20 feet (6096 mm) from the inside wall~~

of pools and outdoor spas and hot tubs. This receptacle shall be located not more than 6 feet, 6 inches (1981 mm) above the floor, platform or grade level serving the pool, spa or hot tub. [680.22(A)(1)]

~~E4203.1.3GFCI protection.~~

All 15- and 20-ampere, single-phase, 125-volt receptacles located within 20 feet (6096 mm) of the inside walls of pools and outdoor spas and hot tubs shall be protected by a ground-fault circuit interrupter. Outlets supplying pool pump motors supplied from branch circuits rated at 120 volts through 240 volts, single-phase, whether by receptacle or direct connection, shall be provided with ground-fault circuit-interrupter protection for personnel. [680.21(C) and 680.22(A)(4)]

~~E4203.1.4Indoor locations.~~

Receptacles shall be located not less than 6 feet (1829 mm) from the inside walls of indoor spas and hot tubs. A minimum of one 125-volt receptacle shall be located between 6 feet (1829 mm) and 10 feet (3048 mm) from the inside walls of indoor spas or hot tubs. [680.43(A) and 680.43(A)(1)]

~~E4203.1.5Indoor GFCI protection.~~

All 125-volt receptacles rated 30 amperes or less and located within 10 feet (3048 mm) of the inside walls of spas and hot tubs installed indoors, shall be protected by ground-fault circuit interrupters. [680.43(A)(2)]

~~E4203.2Switching devices.~~

Switching devices shall be located not less than 5 feet (1524 mm) horizontally from the inside walls of pools, spas and hot tubs except where separated from the pool, spa or hot tub by a solid fence, wall, or other permanent barrier or the switches are listed for use within 5 feet (1524 mm). Switching devices located in a room or area containing a hydromassage bathtub shall be located in accordance with the general requirements of this code. [680.22(C); 680.43(C); and 680.72]

~~E4203.3Disconnecting means.~~

One or more means to simultaneously disconnect all ungrounded conductors for all utilization equipment, other than lighting, shall be provided. Each of such means shall be readily accessible and within sight from the equipment it serves and shall be located at least 5 feet (1524 mm) horizontally from the inside walls of a pool, spa, or hot tub unless separated from the open water by a permanently installed barrier that provides a 5-foot (1524 mm) or greater reach path. This horizontal distance shall be measured from the water's edge along the shortest path required to reach the disconnect. (680.12)

~~E4203.4Luminaires and ceiling fans.~~

Lighting outlets, luminaires, and ceiling-suspended paddle fans shall be installed and located in accordance with Sections E4203.4.1 through E4203.4.6. [680.22(B)]

~~E4203.4.1Outdoor location.~~

~~In outdoor pool, outdoor spas and outdoor hot tubs areas, luminaires, lighting outlets, and ceiling-suspended paddle fans shall not be installed over the pool or over the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool except where no part of the luminaire or ceiling-suspended paddle fan is less than 12 feet (3658 mm) above the maximum water level. [680.22(B)(1)]~~

~~E4203.4.2Indoor locations.~~

~~In indoor pool areas, the limitations of Section E4203.4.1 shall apply except where the luminaires, lighting outlets and ceiling-suspended paddle fans comply with all of the following conditions:~~

~~22. 1.The luminaires are of a totally enclosed type;~~

~~23. 2.Ceiling-suspended paddle fans are identified for use beneath ceiling structures such as porches and patios.~~

~~24. 3.A ground-fault circuit interrupter is installed in the branch circuit supplying the luminaires or ceiling-suspended paddle fans; and~~

~~25. 4.The distance from the bottom of the luminaire or ceiling-suspended paddle fan to the maximum water level is not less than 7 feet, 6 inches (2286 mm). [680.22(B)(2)]~~

~~E4203.4.3Low-voltage luminaires.~~

~~Listed low-voltage luminaires not requiring grounding, not exceeding the low-voltage contact limit, and supplied by listed transformers or power supplies that comply with Section E4206.1 shall be permitted to be located less than 1.5 m (5 ft) from the inside walls of the pool. [680.22(B)(6)]~~

~~E4203.4.4Existing lighting outlets and luminaires.~~

~~Existing lighting outlets and luminaires that are located within 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor spas and hot tubs shall be permitted to be located not less than 5 feet (1524 mm) vertically above the maximum water level, provided that such luminaires and outlets are rigidly attached to the existing structure and are protected by a ground-fault circuit interrupter. [680.22(B)(3)]~~

~~E4203.4.5Indoor spas and hot tubs.~~

~~26. 1.Luminaires, lighting outlets, and ceiling-suspended paddle fans located over the spa or hot tub or within 5 feet (1524 mm) from the inside walls of the spa or hot tub shall be not less than 7 feet, 6 inches (2286 mm) above the maximum water level and shall be protected by a ground-fault circuit interrupter. [680.43(B)(1)(b)]~~

~~Luminaires, lighting outlets, and ceiling-suspended paddle fans that are located 12 feet (3658 mm) or more above the maximum water level shall not require ground-fault circuit interrupter protection. [680.43(B)(1)(a)]~~

~~27. 2. Luminaires protected by a ground-fault circuit interrupter and complying with Item 2.1 or 2.2 shall be permitted to be installed less than 7 feet, 6 inches (2286 mm) over a spa or hot tub.~~

~~1. 2.1. Recessed luminaires shall have a glass or plastic lens and nonmetallic or electrically isolated metal trim, and shall be suitable for use in damp locations.~~

~~2. 2.2. Surface-mounted luminaires shall have a glass or plastic globe and a nonmetallic body or a metallic body isolated from contact. Such luminaires shall be suitable for use in damp locations. [680.43(B)(1)(c)]~~

~~E4203.4.6 GFCI protection in adjacent areas.~~

~~Luminaires and outlets that are installed in the area extending between 5 feet (1524 mm) and 10 feet (3048 mm) from the inside walls of pools and outdoor spas and hot tubs shall be protected by ground-fault circuit interrupters except where such fixtures and outlets are installed not less than 5 feet (1524 mm) above the maximum water level and are rigidly attached to the structure. [680.22(B)(4)]~~

~~E4203.5 Other outlets.~~

~~Other outlets such as for remote control, signaling, fire alarm and communications shall be not less than 10 feet (3048 mm) from the inside walls of the pool. Measurements shall be determined in accordance with Section E4203.1. [680.22(D)]~~

~~E4203.6 Overhead conductor clearances.~~

~~Except where installed with the clearances specified in Table E4203.6, the following parts of pools and outdoor spas and hot tubs shall not be placed under existing service drop conductors, overhead service conductor, or any other open overhead wiring; nor shall such wiring be installed above the following:~~

~~28. 1. Pools and the areas extending not less than 10 feet, (3048 mm) horizontally from the inside of the walls of the pool.~~

~~29. 2. Diving structures and the areas extending not less than 10 feet (3048 mm) horizontally from the outer edge of such structures.~~

~~30. 3. Observation stands, towers, and platforms and the areas extending not less than 10 feet (3048 mm) horizontally from the outer edge of such structures.~~

~~Overhead conductors of network-powered broadband communications systems shall comply with the provisions in Table E4203.6 for conductors operating at 0 to 750 volts to ground.~~

~~Utility-owned, -operated and -maintained communications conductors, community antenna system coaxial cables and the supporting messengers shall be permitted at a height of not less than 10 feet (3048 mm) above swimming and wading pools, diving structures, and observation stands, towers, and platforms. [680.8(A), (B), and (C)]~~

TABLE E4203.6 [Table 680.8(A)]

OVERHEAD CONDUCTOR CLEARANCES

	~~INSULATED SUPPLY OR SERVICE DROP CABLES, 0-750 VOLTS TO GROUND, SUPPORTED ON AND CABLED TOGETHER WITH AN EFFECTIVELY GROUNDED BARE MESSENGER OR EFFECTIVELY GROUNDED NEUTRAL CONDUCTOR (feet)~~	~~ALL OTHER SUPPLY OR SERVICE DROP CONDUCTORS (feet)~~	
		Voltage to ground	
		0-15 kV	Greater than 15 to 50 kV
A. Clearance in any direction to the water level, edge of water surface, base of diving platform, or permanently anchored raft	22.5	25	27
B. Clearance in any direction to the diving platform	14.5	17	18

For SI: 1 foot = 304.8 mm.

E4203.7 Underground wiring.

Underground wiring shall not be installed under or within the area extending 5 feet (1524 mm) horizontally from the inside walls of pools and outdoor hot tubs and spas except where the wiring is installed to supply pool, spa or hot tub equipment or where space limitations prevent wiring from being routed 5 feet (1524 mm) or more horizontally from the inside walls. Where installed within 5 feet (1524 mm) of the inside walls, the wiring method shall be a complete raceway system of rigid metal conduit, intermediate metal conduit or a nonmetallic raceway system. Metal conduit shall be corrosion resistant and suitable for the location. The minimum cover depth shall be in accordance with Table E4203.7. (680.10)

TABLE E4203.7 (680.10)

MINIMUM BURIAL DEPTHS

~~WIRING METHOD~~	~~UNDERGROUND WIRING (inches)~~

Rigid metal conduit	6
Intermediate metal conduit	6
Nonmetallic raceways listed for direct burial and under concrete exterior slab not less than 4 inches in thickness and extending not less than 6 inches (162 mm) beyond the underground installation	6
Nonmetallic raceways listed for direct burial without concrete encasement	18
Other approved raceways ^a	18

For SI: 1 inch = 25.4 mm.

- ~~31. a. Raceways approved for burial only where concrete encased shall require a concrete envelope not less than 2 inches in thickness.~~

~~SECTION E4204~~

~~BONDING~~

~~E4204.1 Performance.~~

~~The equipotential bonding required by this section shall be installed to reduce voltage gradients in the prescribed areas of permanently installed swimming pools and spas and hot tubs other than the storable/portable type.~~

~~E4204.2 Bonded parts.~~

~~The parts of pools, spas, and hot tubs specified in Items 1 through 7 shall be bonded together using insulated, covered or bare solid copper conductors not smaller than 8 AWG or using rigid metal conduit of brass or other identified corrosion-resistant metal. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool, spa, or hot tub area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes. Connections shall be made by exothermic welding, by listed pressure connectors or clamps that are labeled as being suitable for the purpose and that are made of stainless steel, brass, copper or copper alloy, machine screw-type fasteners that engage not less than two threads or are secured with a nut, thread-forming machine screws that engage not less than two threads, or terminal bars. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall not be used to connect bonding conductors or connection devices: [680.26(B)]~~

- ~~32. 1. Conductive pool shells. Bonding to conductive pool shells shall be provided as specified in Item 1.1 or 1.2. Poured concrete, pneumatically applied or sprayed concrete, and concrete block with painted or plastered coatings shall be considered to~~

be conductive materials because of their water permeability and porosity. Vinyl liners and fiberglass composite shells shall be considered to be nonconductive materials.

~~1.—1.1.Structural reinforcing steel. Unencapsulated structural reinforcing steel shall be bonded together by steel tie wires or the equivalent. Where structural reinforcing steel is encapsulated in a nonconductive compound, a copper conductor grid shall be installed in accordance with Item 1.2.~~

~~2.—1.2.Copper conductor grid. A copper conductor grid shall be provided and shall comply with Items 1.2.1 through 1.2.4:~~

~~1.—1.2.1.It shall be constructed of minimum 8 AWG bare solid copper conductors bonded to each other at all points of crossing.~~

~~2.—1.2.2.It shall conform to the contour of the pool.~~

~~3.—1.2.3.It shall be arranged in a 12-inch (305 mm) by 12-inch (305 mm) network of conductors in a uniformly spaced perpendicular grid pattern with a tolerance of 4 inches (102 mm).~~

~~4.—1.2.4.It shall be secured within or under the pool not more than 6 inches (152 mm) from the outer contour of the pool shell. [680.26(B)(1)]~~

~~33. 2.Perimeter surfaces. The perimeter surface shall extend for 3 feet (914 mm) horizontally beyond the inside walls of the pool and shall include unpaved surfaces, poured concrete surfaces and other types of paving. Perimeter surfaces that extend less than 3 feet (914 mm) beyond the inside wall of the pool and that are separated from the pool by a permanent wall or building 5 feet (1524 mm) or more in height shall require equipotential bonding on the pool side of the permanent wall or building. Bonding to perimeter surfaces shall be provided as specified in Item 2.1 or 2.2 and shall be attached to the pool, spa, or hot tub reinforcing steel or copper conductor grid at a minimum of four points uniformly spaced around the perimeter of the pool, spa, or hot tub. For nonconductive pool shells, bonding at four points shall not be required.~~

Exceptions:

~~1.—1.Equipotential bonding of perimeter surfaces shall not be required for spas and hot tubs where all of the following conditions apply:~~

~~1.—1.1.The spa or hot tub is listed as a self-contained spa for above-ground use.~~

~~2.—1.2.The spa or hot tub is not identified as suitable only for indoor use.~~

~~3.—1.3.The installation is in accordance with the manufacturer's instructions and is located on or above grade.~~

- ~~4. 1.4. The top rim of the spa or hot tub is not less than 28 in. (711 mm) above all perimeter surfaces that are within 30 in. (762 mm), measured horizontally from the spa or hot tub. The height of nonconductive external steps for entry to or exit from the self-contained spa is not used to reduce or increase this rim height measurement.~~
- ~~2. 2. The equipotential bonding requirements for perimeter surfaces shall not apply to a listed self-contained spa or hot tub located indoors and installed above a finished floor.~~
- ~~3. 2.1. Structural reinforcing steel. Structural reinforcing steel shall be bonded in accordance with Item 1.1.~~
- ~~4. 2.2. Alternate means. Where structural reinforcing steel is not available or is encapsulated in a nonconductive compound, a copper conductor(s) shall be used in accordance with Items 2.2.1 through 2.2.5:~~
 - ~~1. 2.2.1. At least one minimum 8 AWG bare solid copper conductor shall be provided.~~
 - ~~2. 2.2.2. The conductors shall follow the contour of the perimeter surface.~~
 - ~~3. 2.2.3. Splices shall be listed.~~
 - ~~4. 2.2.4. The required conductor shall be 18 to 24 inches (457 to 610 mm) from the inside walls of the pool.~~
 - ~~5. 2.2.5. The required conductor shall be secured within or under the perimeter surface 4 to 6 inches (102 mm to 152 mm) below the subgrade. [680.26(B)(2)]~~
- ~~34. 3. Metallic components. All metallic parts of the pool structure, including reinforcing metal not addressed in Item 1.1, shall be bonded. Where reinforcing steel is encapsulated with a nonconductive compound, the reinforcing steel shall not be required to be bonded. [680.26(B)(3)]~~
- ~~35. 4. Underwater lighting. All metal forming shells and mounting brackets of no-niche luminaires shall be bonded. [680.26(B)(4)]~~

Exception: Listed low-voltage lighting systems with nonmetallic forming shells shall not require bonding. [680.26(B)(4) Exception]

- ~~36. 5. Metal fittings. All metal fittings within or attached to the pool structure shall be bonded. Isolated parts that are not over 4 inches (102 mm) in any dimension and do not penetrate into the pool structure more than 1 inch (25.4 mm) shall not require bonding. [680.26(B)(5)]~~

~~37. 6. Electrical equipment. Metal parts of electrical equipment associated with the pool water circulating system, including pump motors and metal parts of equipment associated with pool covers, including electric motors, shall be bonded. [680.26(B)(6)]~~

Exception: Metal parts of listed equipment incorporating an approved system of double insulation shall not be bonded. [680.26(B)(6) Exception]

~~1. 6.1. Double insulated water pump motors. Where a double insulated water pump motor is installed under the provisions of this item, a solid 8 AWG copper conductor of sufficient length to make a bonding connection to a replacement motor shall be extended from the bonding grid to an accessible point in the vicinity of the pool pump motor. Where there is no connection between the swimming pool bonding grid and the equipment grounding system for the premises, this bonding conductor shall be connected to the equipment grounding conductor of the motor circuit. [680.26(B)(6)(a)]~~

~~2. 6.2. Pool water heaters. For pool water heaters rated at more than 50 amperes and having specific instructions regarding bonding and grounding, only those parts designated to be bonded shall be bonded and only those parts designated to be grounded shall be grounded. [680.26(B)(6)(b)]~~

~~38. 7. All fixed metal parts including, but not limited to, metal sheathed cables and raceways, metal piping, metal awnings, metal fences and metal door and window frames. [680.26(B)(7)]~~

Exceptions:

~~1. 1. Those separated from the pool by a permanent barrier that prevents contact by a person shall not be required to be bonded. [680.26(B)(7) Exception No. 1]~~

~~2. 2. Those greater than 5 feet (1524 mm) horizontally from the inside walls of the pool shall not be required to be bonded. [680.26(B)(7) Exception No. 2]~~

~~3. 3. Those greater than 12 feet (3658 mm) measured vertically above the maximum water level of the pool, or as measured vertically above any observation stands, towers, or platforms, or any diving structures, shall not be required to be bonded. [680.26(B)(7) Exception No. 3]~~

~~E4204.3 Pool water.~~

~~Where none of the bonded parts is in direct connection with the pool water, the pool water shall be in direct contact with an approved corrosion-resistant conductive surface that exposes not less than 9 in.² (5800 mm²) of surface area to the pool water at all times. The conductive surface shall be located where it is not exposed to physical damage or dislodgement during usual pool activities, and it shall be bonded in accordance with Section E4204.2.~~

~~E4204.4 Bonding of outdoor hot tubs and spas.~~

~~Outdoor hot tubs and spas shall comply with the bonding requirements of Sections E4204.1 through E4204.3. Bonding by metal-to-metal mounting on a common frame or base shall be permitted. The metal bands or hoops used to secure wooden staves shall not be required to be bonded as required in Section E4204.2. [680.42 and 680.42(B)]~~

~~E4204.5 Bonding of indoor hot tubs and spas.~~

~~The following parts of indoor hot tubs and spas shall be bonded together:~~

~~39. 1. All metal fittings within or attached to the hot tub or spa structure. [680.43(D)(1)]~~

~~40. 2. Metal parts of electrical equipment associated with the hot tub or spa water circulating system, including pump motors unless part of a listed self-contained spa or hot tub. [680.43(D)(2)]~~

~~41. 3. Metal raceway and metal piping that are within 5 feet (1524 mm) of the inside walls of the hot tub or spa and that are not separated from the spa or hot tub by a permanent barrier. [680.43(D)(3)]~~

~~42. 4. All metal surfaces that are within 5 feet (1524 mm) of the inside walls of the hot tub or spa and that are not separated from the hot tub or spa area by a permanent barrier. [680.43(D)(4)]~~

Exception: ~~Small conductive surfaces not likely to become energized, such as air and water jets and drain fittings, where not connected to metallic piping, towel bars, mirror frames, and similar nonelectrical equipment, shall not be required to be bonded. [680.43(D)(4) Exception]~~

~~43. 5. Electrical devices and controls that are not associated with the hot tubs or spas and that are located less than 5 feet (1524 mm) from such units. [680.43(D)(5)]~~

~~E4204.5.1 Methods.~~

~~All metal parts associated with the hot tub or spa shall be bonded by any of the following methods:~~

~~44. 1. The interconnection of threaded metal piping and fittings. [680.43(E)(1)]~~

~~45. 2. Metal-to-metal mounting on a common frame or base. [680.43(E)(2)]~~

~~46. 3. The provision of an insulated, covered or bare solid copper bonding jumper not smaller than 8 AWG. It shall not be the intent to require that the 8 AWG or larger solid copper bonding conductor be extended or attached to any remote panelboard, service equipment, or any electrode, but only that it shall be employed to eliminate voltage gradients in the hot tub or spa area as prescribed. [680.43(E)(3)]~~

~~E4204.5.2 Connections.~~

~~Connections to bonded parts shall be made in accordance with Section E3406.13.1.~~

SECTION E4205

GROUNDING

E4205.1 Equipment to be grounded.

The following equipment shall be grounded:

- ~~47. 1. Through-wall lighting assemblies and underwater luminaires other than those low-voltage lighting products listed for the application without a grounding conductor.~~
- ~~48. 2. All electrical equipment located within 5 feet (1524 mm) of the inside wall of the pool, spa or hot tub.~~
- ~~49. 3. All electrical equipment associated with the recirculating system of the pool, spa or hot tub.~~
- ~~50. 4. Junction boxes.~~
- ~~51. 5. Transformer and power supply enclosures.~~
- ~~52. 6. Ground-fault circuit interrupters.~~
- ~~53. 7. Panelboards that are not part of the service equipment and that supply any electrical equipment associated with the pool, spa or hot tub. (680.7)~~

E4205.2 Luminaires and related equipment.

~~Other than listed low-voltage luminaires not requiring grounding, all through-wall lighting assemblies, wet-niche, dry-niche, or no-niche luminaires shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table E3908.12 but not smaller than 12 AWG. The equipment grounding conductor between the wiring chamber of the secondary winding of a transformer and a junction box shall be sized in accordance with the overcurrent device in such circuit. The junction box, transformer enclosure, or other enclosure in the supply circuit to a wet-niche or no-niche luminaire and the field-wiring chamber of a dry-niche luminaire shall be grounded to the equipment grounding terminal of the panelboard. The equipment grounding terminal shall be directly connected to the panelboard enclosure. The equipment grounding conductor shall be installed without joint or splice. [680.23(F)(2) and 680.23(F)(2) Exception]~~

Exceptions:

- ~~54. 1. Where more than one underwater luminaire is supplied by the same branch circuit, the equipment grounding conductor, installed between the junction boxes, transformer enclosures, or other enclosures in the supply circuit to wet-niche luminaires, or between the field-wiring compartments of dry-niche luminaires, shall be permitted to be terminated on grounding terminals. [680.23(F)(2)(a)]~~

~~55. 2. Where an underwater luminaire is supplied from a transformer, ground fault circuit interrupter, clock-operated switch, or a manual snap switch that is located between the panelboard and a junction box connected to the conduit that extends directly to the underwater luminaire, the equipment grounding conductor shall be permitted to terminate on grounding terminals on the transformer, ground fault circuit interrupter, clock-operated switch enclosure, or an outlet box used to enclose a snap switch.~~
~~{680.23(F)(2)(b)}~~

~~E4205.3 Nonmetallic conduit.~~

~~Where a nonmetallic conduit is installed between a forming shell and a junction box, transformer enclosure, or other enclosure, a 8 AWG insulated copper bonding jumper shall be installed in this conduit except where a listed low-voltage lighting system not requiring grounding is used. The bonding jumper shall be terminated in the forming shell, junction box or transformer enclosure, or ground-fault circuit interrupter enclosure. The termination of the 8 AWG bonding jumper in the forming shell shall be covered with, or encapsulated in, a listed potting compound to protect such connection from the possible deteriorating effect of pool water.~~ {680.23(B)(2)(b)}

~~E4205.4 Flexible cords.~~

~~Other than listed low-voltage lighting systems not requiring grounding, wet-niche luminaires that are supplied by a flexible cord or cable shall have all exposed noncurrent-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of the cord or cable. This grounding conductor shall be connected to a grounding terminal in the supply junction box, transformer enclosure, or other enclosure. The grounding conductor shall not be smaller than the supply conductors and not smaller than 16 AWG.~~ {680.23(B)(3)}

~~E4205.5 Motors.~~

~~Pool-associated motors shall be connected to an insulated copper equipment grounding conductor sized in accordance with Table E3908.12, but not smaller than 12 AWG. Where the branch circuit supplying the motor is installed in the interior of a one-family dwelling or in the interior of accessory buildings associated with a one-family dwelling, using a cable wiring method permitted by Table E4202.1, an uninsulated equipment grounding conductor shall be permitted provided that it is enclosed within the outer sheath of the cable assembly.~~ {680.21(A)(1) and (A)(4)}

~~E4205.6 Feeders.~~

~~An equipment grounding conductor shall be installed with the feeder conductors between the grounding terminal of the pool equipment panelboard and the grounding terminal of the applicable service equipment. The equipment grounding conductor shall be insulated, shall be sized in accordance with Table E3908.12, and shall be not smaller than 12 AWG.~~

~~E4205.6.1 Separate buildings.~~

~~A feeder to a separate building or structure shall be permitted to supply swimming pool equipment branch circuits, or feeders supplying swimming pool equipment branch circuits, provided that the grounding arrangements in the separate building meet the requirements of Section E3607.3. The feeder equipment grounding conductor shall be an insulated conductor. (680.25(B)(2))~~

~~E4205.7 Cord-connected equipment.~~

~~Where fixed or stationary equipment is connected with a flexible cord to facilitate removal or disconnection for maintenance, repair, or storage, as provided in Section E4202.2, the equipment grounding conductors shall be connected to a fixed metal part of the assembly. The removable part shall be mounted on or bonded to the fixed metal part. (680.7(C))~~

~~E4205.8 Other equipment.~~

~~Other electrical equipment shall be grounded in accordance with Section E3908. (Article 250, Parts V, VI, and VII; and 680.6)~~

SECTION E4206

EQUIPMENT INSTALLATION

~~E4206.1 Transformers and power supplies.~~

~~Transformers and power supplies used for the supply of underwater luminaires, together with the transformer or power supply enclosure, shall be listed for swimming pool and spa use. The transformer or power supply shall incorporate either a transformer of the isolated winding type with an ungrounded secondary that has a grounded metal barrier between the primary and secondary windings, or a transformer that incorporates an approved system of double insulation between the primary and secondary windings. (680.23(A)(2))~~

~~E4206.2 Ground-fault circuit interrupters.~~

~~Ground-fault circuit interrupters shall be self-contained units, circuit-breaker types, receptacle types or other approved types. (680.5)~~

~~E4206.3 Wiring on load side of ground-fault circuit interrupters and transformers.~~

~~For other than grounding conductors, conductors installed on the load side of a ground-fault circuit interrupter or transformer used to comply with the provisions of Section E4206.4, shall not occupy raceways, boxes, or enclosures containing other conductors except where the other conductors are protected by ground-fault circuit interrupters or are grounding conductors. Supply conductors to a feed-through type ground-fault circuit interrupter shall be permitted in the same enclosure. Ground-fault circuit interrupters shall be permitted in a panelboard that contains circuits protected by other than ground-fault circuit interrupters. (680.23(F)(3))~~

~~E4206.4 Underwater luminaires.~~

The design of an underwater luminaire supplied from a branch circuit either directly or by way of a transformer or power supply meeting the requirements of Section E4206.1, shall be such that, where the fixture is properly installed without a ground-fault circuit interrupter, there is no shock hazard with any likely combination of fault conditions during normal use (not relamping). In addition, a ground-fault circuit interrupter shall be installed in the branch circuit supplying luminaires operating at more than the low-voltage contact limit, such that there is no shock hazard during relamping. The installation of the ground-fault circuit interrupter shall be such that there is no shock hazard with any likely fault-condition combination that involves a person in a conductive path from any ungrounded part of the branch circuit or the luminaire to ground. Compliance with this requirement shall be obtained by the use of a listed underwater luminaire and by installation of a listed groundfault circuit interrupter in the branch circuit or a listed transformer or power supply for luminaires operating at more than the low-voltage contact limit. Luminaires that depend on submersion for safe operation shall be inherently protected against the hazards of overheating when not submerged. [680.23(A)(1), (A)(3), (A)(7) and (A)(8)]

~~E4206.4.1 Maximum voltage.~~

~~Luminaires shall not be installed for operation on supply circuits over 150 volts between conductors. [680.23(A)(4)]~~

~~E4206.4.2 Luminaire location.~~

~~Luminaires mounted in walls shall be installed with the top of the fixture lens not less than 18 inches (457 mm) below the normal water level of the pool, except where the luminaire is listed and identified for use at a depth of not less than 4 inches (102 mm) below the normal water level of the pool. A luminaire facing upward shall have the lens adequately guarded to prevent contact by any person or shall be listed for use without a guard. [680.23(A)(5) and (A)(6)]~~

~~E4206.5 Wet-niche luminaires.~~

~~Forming shells shall be installed for the mounting of all wet-niche underwater luminaires and shall be equipped with provisions for conduit entries. Conduit shall extend from the forming shell to a suitable junction box or other enclosure located as provided in Section E4206.9. Metal parts of the luminaire and forming shell in contact with the pool water shall be of brass or other approved corrosion-resistant metal. [680.23(B)(1)]~~

~~The end of flexible-cord jackets and flexible-cord conductor terminations within a luminaire shall be covered with, or encapsulated in, a suitable potting compound to prevent the entry of water into the luminaire through the cord or its conductors. If present, the grounding connection within a luminaire shall be similarly treated to protect such connection from the deteriorating effect of pool water in the event of water entry into the luminaire. [680.23(B)(4)]~~

~~Luminaires shall be bonded to and secured to the forming shell by a positive locking device that ensures a low-resistance contact and requires a tool to remove the luminaire from the forming shell. [680.23(B)(5)]~~

~~E4206.5.1 Servicing.~~

~~All wet-niche luminaires shall be removable from the water for inspection, relamping, or other maintenance. The forming shell location and length of cord in the forming shell shall permit personnel to place the removed luminaire on the deck or other dry location for such maintenance. The luminaire maintenance location shall be accessible without entering or going into the pool water. [680.23(B)(6)]~~

~~E4206.6 Dry-niche luminaires.~~

~~Dry-niche luminaires shall have provisions for drainage of water. Other than listed low-voltage luminaires not requiring grounding, a dry-niche luminaire shall have means for accommodating one equipment grounding conductor for each conduit entry. Junction boxes shall not be required but, if used, shall not be required to be elevated or located as specified in Section E4206.9 if the luminaire is specifically identified for the purpose. [680.23(C)(1) and (C)(2)]~~

~~E4206.7 No-niche luminaires.~~

~~No-niche luminaires shall be listed for the purpose and shall be installed in accordance with the requirements of Section E4206.5. Where connection to a forming shell is specified, the connection shall be to the mounting bracket. [680.23(D)]~~

~~E4206.8 Through-wall lighting assembly.~~

~~A through-wall lighting assembly shall be equipped with a threaded entry or hub, or a nonmetallic hub, for the purpose of accommodating the termination of the supply conduit. A through-wall lighting assembly shall meet the construction requirements of Section E4205.4 and be installed in accordance with the requirements of Section E4206.5. Where connection to a forming shell is specified, the connection shall be to the conduit termination point. [680.23(E)]~~

~~E4206.9 Junction boxes and enclosures for transformers or ground-fault circuit interrupters.~~

~~Junction boxes for underwater luminaires and enclosures for transformers and ground-fault circuit interrupters that supply underwater luminaires shall comply with the following: [680.24(A)]~~

~~E4206.9.1 Junction boxes.~~

~~A junction box connected to a conduit that extends directly to a forming shell or mounting bracket of a no-niche luminaire shall be:~~

~~56. 1. Listed as a swimming pool junction box; [680.24(A)(1)]~~

~~57. 2. Equipped with threaded entries or hubs or a nonmetallic hub; [680.24(A)(1)(1)]~~

~~58. 3. Constructed of copper, brass, suitable plastic, or other approved corrosion-resistant material; [680.24(A)(1)(2)]~~

~~59. 4. Provided with electrical continuity between every connected metal conduit and the grounding terminals by means of copper, brass, or other approved corrosion-resistant metal that is integral with the box; and [680.24(A)(1)(3)]~~

~~60. 5. Located not less than 4 inches (102 mm), measured from the inside of the bottom of the box, above the ground level, or pool deck, or not less than 8 inches (203 mm) above the maximum pool water level, whichever provides the greatest elevation, and shall be located not less than 4 feet (1219 mm) from the inside wall of the pool, unless separated from the pool by a solid fence, wall or other permanent barrier. Where used on a lighting system operating at the low-voltage contact limit or less, a flush deck box shall be permitted provided that an approved potting compound is used to fill the box to prevent the entrance of moisture; and the flush deck box is located not less than 4 feet (1219 mm) from the inside wall of the pool. [680.24(A)(2)]~~

~~E4206.9.2 Other enclosures.~~

~~An enclosure for a transformer, ground-fault circuit interrupter or a similar device connected to a conduit that extends directly to a forming shell or mounting bracket of a no-niche luminaire shall be:~~

~~61. 1. Listed and labeled for the purpose, comprised of copper, brass, suitable plastic, or other approved corrosion-resistant material; [680.24(B)(1)]~~

~~62. 2. Equipped with threaded entries or hubs or a nonmetallic hub; [680.24(B)(2)]~~

~~63. 3. Provided with an approved seal, such as duct seal at the conduit connection, that prevents circulation of air between the conduit and the enclosures; [680.24(B)(3)]~~

~~64. 4. Provided with electrical continuity between every connected metal conduit and the grounding terminals by means of copper, brass or other approved corrosion-resistant metal that is integral with the enclosures; and [680.24(B)(4)]~~

~~65. 5. Located not less than 4 inches (102 mm), measured from the inside bottom of the enclosure, above the ground level or pool deck, or not less than 8 inches (203 mm) above the maximum pool water level, whichever provides the greater elevation, and shall be located not less than 4 feet (1219 mm) from the inside wall of the pool, except where separated from the pool by a solid fence, wall or other permanent barrier. [680.24(B)(2)]~~

~~E4206.9.3 Protection of junction boxes and enclosures.~~

Junction boxes and enclosures mounted above the grade of the finished walkway around the pool shall not be located in the walkway unless afforded additional protection, such as by location under diving boards or adjacent to fixed structures. [680.24(C)]

E4206.9.4 Grounding terminals.

Junction boxes, transformer and power supply enclosures, and ground fault circuit interrupter enclosures connected to a conduit that extends directly to a forming shell or mounting bracket of a niche luminaire shall be provided with grounding terminals in a quantity not less than the number of conduit entries plus one. [680.24(D)]

E4206.9.5 Strain relief.

The termination of a flexible cord of an underwater luminaire within a junction box, transformer or power supply enclosure, ground fault circuit interrupter, or other enclosure shall be provided with a strain relief. [680.24(E)]

E4206.10 Underwater audio equipment.

Underwater audio equipment shall be identified for the purpose. [680.27(A)]

E4206.10.1 Speakers.

Each speaker shall be mounted in an approved metal forming shell, the front of which is enclosed by a captive metal screen, or equivalent, that is bonded to and secured to the forming shell by a positive locking device that ensures a low-resistance contact and requires a tool to open for installation or servicing of the speaker. The forming shell shall be installed in a recess in the wall or floor of the pool. [680.27(A)(1)]

E4206.10.2 Wiring methods.

Rigid metal conduit of brass or other identified corrosion-resistant metal, rigid polyvinyl chloride conduit, rigid thermosetting resin conduit or liquid tight flexible nonmetallic conduit (LFNC-B) shall extend from the forming shell to a suitable junction box or other enclosure as provided in Section E4206.9. Where rigid nonmetallic conduit or liquid-tight flexible nonmetallic conduit is used, an 8 AWG solid or stranded insulated copper bonding jumper shall be installed in this conduit with provisions for terminating in the forming shell and the junction box. The termination of the 8 AWG bonding jumper in the forming shell shall be covered with, or encapsulated in, a suitable potting compound to protect such connection from the possible deteriorating effect of pool water. [680.27(A)(2)]

E4206.10.3 Forming shell and metal screen.

The forming shell and metal screen shall be of brass or other approved corrosion-resistant metal. Forming shells shall include provisions for terminating an 8 AWG copper conductor. [680.27(A)(3)]

E4206.11 Electrically operated pool covers.

The electric motors, controllers, and wiring for pool covers shall be located not less than 5 feet (1524 mm) from the inside wall of the pool except where separated from the pool by a wall, cover, or other permanent barrier. Electric motors installed below grade level shall be of the totally enclosed type. The electric motor and controller shall be connected to a branch circuit protected by a ground-fault circuit-interrupter. The device that controls the operation of the motor for an electrically-operated pool cover shall be located so that the operator has full view of the pool. [680.27(B)(1) and (B)(2)]

~~E4206.12 Electric pool water heaters.~~

Electric pool water heaters shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch-circuit conductors and the rating or setting of overcurrent protective devices shall be not less than 125 percent of the total nameplate load rating. (680.9)

~~E4206.13 Pool area heating.~~

The provisions of Sections E4206.13.1 through E4206.13.3 shall apply to all pool deck areas, including a covered pool, where electrically-operated comfort heating units are installed within 20 feet (6096 mm) of the inside wall of the pool. [680.27(C)]

~~E4206.13.1 Unit heaters.~~

Unit heaters shall be rigidly mounted to the structure and shall be of the totally enclosed or guarded types. Unit heaters shall not be mounted over the pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of a pool. [680.27(C)(1)]

~~E4206.13.2 Permanently wired radiant heaters.~~

Electric radiant heaters shall be suitably guarded and securely fastened to their mounting devices. Heaters shall not be installed over a pool or within the area extending 5 feet (1524 mm) horizontally from the inside walls of the pool and shall be mounted not less than 12 feet (3658 mm) vertically above the pool deck. [680.27(C)(2)]

~~E4206.13.3 Radiant heating cables prohibited.~~

Radiant heating cables embedded in or below the deck shall be prohibited. [680.27(C)(3)]

~~SECTION 4207~~

~~STORABLE SWIMMING POOLS, STORABLE SPAS, AND STORABLE HOT TUBS~~

~~E4207.1 Pumps.~~

A cord and plug-connected pool filter pump for use with storable pools shall incorporate an approved system of double insulation or its equivalent and shall be provided with means for grounding only the internal and nonaccessible noncurrent-carrying metal parts of the appliance.

The means for grounding shall be an equipment grounding conductor run with the power supply conductors in a flexible cord that is properly terminated in a grounding-type attachment plug having a fixed grounding contact. Cord and plug-connected pool filter pumps shall be provided with a ground-fault circuit interrupter that is an integral part of the attachment plug or located in the power supply cord within 12 inches (305 mm) of the attachment plug.

(680.31)

E4207.2 Ground-fault circuit interrupters required.

Electrical equipment, including power supply cords, used with storable pools shall be protected by ground-fault circuit interrupters. 125-volt, 15- and 20-ampere receptacles located within 20 feet (6096 mm) of the inside walls of a storable pool, storable spa, or storable hot tub shall be protected by a ground-fault circuit interrupter. In determining these dimensions, the distance to be measured shall be the shortest path that the supply cord of an appliance connected to the receptacle would follow without passing through a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier. (680.32)

E4207.3 Luminaires.

Luminaires for storable pools, storable spas, and storable hot tubs shall not have exposed metal parts and shall be listed for the purpose as an assembly. In addition, luminaires for storable pools shall comply with the requirements of Section E4207.3.1 or E4207.3.2. (680.33)

E4207.3.1 Within the low-voltage contact limit.

A luminaire installed in or on the wall of a storable pool shall be part of a cord and plug-connected lighting assembly. The assembly shall:

- 66. 1. Have a luminaire lamp that is suitable for the use at the supplied voltage;
- 67. 2. Have an impact-resistant polymeric lens, luminaire body, and transformer enclosure;
- 68. 3. Have a transformer meeting the requirements of Section E4206.1 with a primary rating not over 150 volts; and
- 69. 4. Have no exposed metal parts. [680.33(A)]

E4207.3.2 Over the low-voltage contact limit but not over 150 volts.

A lighting assembly without a transformer or power supply, and with the luminaire lamp(s) operating at over the low-voltage contact limit, but not over 150 volts, shall be permitted to be cord and plug-connected where the assembly is listed as an assembly for the purpose and complies with all of the following:

- 70. 1. It has an impact-resistant polymeric lens and luminaire body.

~~71. 2.A ground-fault circuit interrupter with open neutral conductor protection is provided as an integral part of the assembly.~~

~~72. 3.The luminaire lamp is permanently connected to the ground-fault circuit interrupter with open-neutral protection.~~

~~73. 4.It complies with the requirements of Section E4206.4.~~

~~74. 5.It has no exposed metal parts. [680.33(B)]~~

~~E4207.4Receptacle locations.~~

~~Receptacles shall be located not less than 6 feet (1829 mm) from the inside walls of a storable pool, storable spa or storable hot tub. In determining these dimensions, the distance to be measured shall be the shortest path that the supply cord of an appliance connected to the receptacle would follow without passing through a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier. (680.34)~~

~~E4207.5Clearances.~~

~~Overhead conductor installations shall comply with Section E4203.6 and underground conductor installations shall comply with Section E4203.7.~~

~~E4207.6Disconnecting means.~~

~~Disconnecting means for storable pools and storable/portable spas and hot tubs shall comply with Section E4203.3.~~

~~E4207.7Ground-fault circuit interrupters.~~

~~Ground-fault circuit interrupters shall comply with Section E4206.2.~~

~~E4207.8Grounding of equipment.~~

~~Equipment shall be grounded as required by Section E4205.1.~~

~~E4207.9Pool water heaters.~~

~~Electric pool water heaters shall comply with Section E4206.12.~~

SECTION~~E4208~~

SPAS AND HOT TUBS

~~E4208.1Ground-fault circuit interrupters.~~

~~The outlet(s) that supplies a self-contained spa or hot tub, or a packaged spa or hot tub equipment assembly, or a field-assembled spa or hot tub with a heater load of 50 amperes or less, shall be protected by a ground-fault circuit interrupter. (680.44)~~

~~A listed self-contained unit or listed packaged equipment assembly marked to indicate that integral ground-fault circuit interrupter protection is provided for all electrical parts within the unit or assembly, including pumps, air blowers, heaters, lights, controls, sanitizer generators and wiring, shall not require that the outlet supply be protected by a ground fault circuit interrupter. [680.44(A)]~~

~~E4208.2 Electric water heaters.~~

~~Electric spa and hot tub water heaters shall be listed and shall have the heating elements subdivided into loads not exceeding 48 amperes and protected at not more than 60 amperes. The ampacity of the branch-circuit conductors, and the rating or setting of overcurrent protective devices, shall be not less than 125 percent of the total nameplate load rating. (680.9)~~

~~E4208.3 Underwater audio equipment.~~

~~Underwater audio equipment used with spas and hot tubs shall comply with the provisions of Section E4206.10. [680.43(G)]~~

~~E4208.4 Emergency switch for spas and hot tubs.~~

~~A clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provides power to the recirculation system and jet system shall be installed at a point that is readily accessible to the users, adjacent to and within sight of the spa or hot tub and not less than 5 feet (1524 mm) away from the spa or hot tub. This requirement shall not apply to single-family dwellings. (680.41)~~

SECTION 4209

HYDROMASSAGE BATHTUBS

~~E4209.1 Ground fault circuit interrupters.~~

~~Hydromassage bathtubs and their associated electrical components shall be supplied by an individual branch circuit(s) and protected by a readily accessible ground fault circuit interrupter. All 125-volt, single-phase receptacles not exceeding 30 amperes and located within 6 feet (1829 mm) measured horizontally of the inside walls of a hydromassage tub shall be protected by a ground-fault circuit interrupter(s). (680.71)~~

~~E4209.2 Other electric equipment.~~

~~Luminaires, switches, receptacles, and other electrical equipment located in the same room, and not directly associated with a hydromassage bathtub, shall be installed in accordance with the requirements of this code relative to the installation of electrical equipment in bathrooms. (680.72)~~

~~E4209.3 Accessibility.~~

~~Hydromassage bathtub electrical equipment shall be accessible without damaging the building structure or building finish. Where the hydromassage bathtub is cord- and plug-connected with the supply~~

receptacle accessible only through a service access opening, the receptacle shall be installed so that its face is within direct view and not more than 12 inches (305 mm) from the plane of the opening. (680.73)

~~E4209.4~~Bonding.

Both metal piping systems and grounded metal parts in contact with the circulating water shall be bonded together using an insulated, covered or bare solid copper bonding jumper not smaller than 8 AWG. The bonding jumper shall be connected to the terminal on the circulating pump motor that is intended for this purpose. The bonding jumper shall not be required to be connected to a double insulated circulating pump motor. The 8 AWG or larger solid copper bonding jumper shall be required for equipotential bonding in the area of the hydromassage bathtub and shall not be required to be extended or attached to any remote panelboard, service equipment, or any electrode. Where a double-insulated circulating pump motor is used, the 8 AWG or larger solid copper bonding jumper shall be long enough to terminate on a replacement nondouble-insulated pump motor and shall be terminated to the equipment grounding conductor of the branch circuit for the motor. (680.74)

CHAPTER 43

CLASS 2 REMOTE-CONTROL, SIGNALING AND POWER-LIMITED CIRCUITS

RESERVED

~~SECTION E4301~~

~~GENERAL~~

~~E4301.1~~Scope.

This chapter contains requirements for power supplies and wiring methods associated with Class 2 remote control, signaling, and power limited circuits that are not an integral part of a device or appliance. Other classes of remote control, signaling and power limited conductors shall comply with Article 725 of NFPA 70. (725.1)

~~E4301.2~~Definitions.

CLASS 2 CIRCUIT. That portion of the wiring system between the load side of a Class 2 power source and the connected equipment. Due to its power limitations, a Class 2 circuit considers safety from a fire initiation standpoint and provides acceptable protection from electric shock. (725.2)

REMOTE CONTROL CIRCUIT. Any electrical circuit that controls any other circuit through a relay or an equivalent device. (Article 100)

SIGNALING CIRCUIT. Any electrical circuit that energizes signaling equipment. (Article 100)

~~SECTION E4302~~

~~POWER SOURCES~~

~~E4302.1~~Power sources for Class 2 circuits.

The power source for a Class 2 circuit shall be one of the following:

- ~~1. 1. A listed Class 2 transformer.~~
- ~~2. 2. A listed Class 2 power supply.~~
- ~~3. 3. Other listed equipment marked to identify the Class 2 power source.~~
- ~~4. 4. Listed information technology (computer) equipment limited power circuits.~~
- ~~5. 5. A dry-cell battery provided that the voltage is 30 volts or less and the capacity is equal to or less than that available from series connected No. 6 carbon zinc cells. [725.121(A)]~~

~~E4302.2~~Interconnection of power sources.

A Class 2 power source shall not have its output connections paralleled or otherwise interconnected with another Class 2 power source except where listed for such interconnection. [725.121(B)]

~~SECTION~~E4303

~~WIRING METHODS~~

~~E4303.1~~Wiring methods on supply side of Class 2 power source.

Conductors and equipment on the supply side of the power source shall be installed in accordance with the appropriate requirements of Chapters 34 through 41. Transformers or other devices supplied from electric light or power circuits shall be protected by an over-current device rated at not over 20 amperes. The input leads of a transformer or other power source supplying Class 2 circuits shall be permitted to be smaller than 14 AWG, if not over 12 inches (305 mm) long and if the conductor insulation is rated at not less than 600 volts. In no case shall such leads be smaller than 18 AWG. (725.127 and 725.127 Exception)

~~E4303.2~~Wiring methods and materials on load side of the Class 2 power source.

Class 2 cables installed as wiring within buildings shall be listed as being resistant to the spread of fire and listed as meeting the criteria specified in Sections E4303.2.1 through E4303.2.3. Cables shall be marked in accordance with Section E4303.2.4. Cable substitutions as described in Table E4303.2 and wiring methods covered in Chapter 38 shall also be permitted. (725.130 (B); 725.135 (A), (C), (G) and (M); 725.154; Table 725.154; Figure 725.154 (A); and 725.179)

TABLE E4303.2

CABLE USES AND PERMITTED SUBSTITUTIONS [Figure 725.154(A)]

CABLE	USE	PERMITTED SUBSTITUTIONS^a

TYPE

CL2P	Class 2 Plenum Cable	CMP, CL3P
CL2R	Class 2 Plenum Cable	CMP, CL3P, CL2P, CMR, CL3R
CL2	Class 2 Cable	CMP, CL3P, CL2P, CMR, CL3R, CL2R CMG, CM, CL3
CL2X	Class 2 Cable, Limited Use	CMP, CL3P, CL2P, CMR, CL3R, CL2R, CMG, CM, CL3, CL2, CMX, CL3X

6. ~~a. For identification of cables other than Class 2 cables, see NFPA 70.~~

E4303.2.1Type CL2P cables.

~~Cables installed in ducts, plenums and other spaces used to convey environmental air shall be Type CL2P cables listed as being suitable for the use and listed as having adequate fire-resistant and low smoke-producing characteristics. [725.179(A)]~~

E4303.2.2Type CL2 cables.

~~Cables for general-purpose use, shall be listed as being resistant to the spread of fire and listed for the use. [725.179 (C)]~~

E4303.2.3Type CL2X cables.

~~Type CL2X limited-use cable shall be listed as being suitable for use in dwellings and for the use and in raceways and shall also be listed as being flame retardant. Cables with a diameter of less than $\frac{1}{4}$ inch (6.4 mm) shall be permitted to be installed without a raceway. [725.179 (D)]~~

E4303.2.4Type CL2R cables.

~~Cables installed in a vertical run in a shaft or installed from floor to floor shall be listed as suitable for use in a vertical run in a shaft or from floor to floor and shall also be listed as having fire-resistant characteristics capable of preventing fire from being conveyed from floor to floor. [725.179(B)]~~

~~**Exception:** CL2X and CL3X cables with a diameter of less than $\frac{1}{4}$ inch (6.4 mm) and CL2 and CL3 cables shall be permitted in risers in one- and two-family dwelling units. [725.154 (G)]~~

E4303.2.5Marking.

~~Cables shall be marked in accordance with Table E4303.2.5. Voltage ratings shall not be marked on cables.~~

~~Table E4303.2.5 [Table 725.179(K)]~~

CABLE MARKING

CABLE MARKING	TYPE
CL2P	Class 2 plenum cable
CL2R	Class 2 riser cable
CL2	Class 2 cable
CL2X	Class 2 cable, limited use

~~SECTION~~E4304

INSTALLATION REQUIREMENTS

E4304.1~~Separation from other conductors.~~

~~In cables, compartments, enclosures, outlet boxes, device boxes, and raceways, conductors of Class 2 circuits shall not be placed in any cable, compartment, enclosure, outlet box, device box, raceway, or similar fitting with conductors of electric light, power, Class 1 and nonpower limited fire alarm circuits. (725.136)~~

Exceptions:

- ~~7.—1. Where the conductors of the electric light, power, Class 1 and nonpower limited fire alarm circuits are separated by a barrier from the Class 2 circuits. In enclosures, Class 2 circuits shall be permitted to be installed in a raceway within the enclosure to separate them from Class 1, electric light, power and nonpower limited fire alarm circuits. [725.136(B)]~~
- ~~8.—2. Class 2 conductors in compartments, enclosures, device boxes, outlet boxes and similar fittings where electric light, power, Class 1 or nonpower limited fire alarm circuit conductors are introduced solely to connect to the equipment connected to the Class 2 circuits. The electric light, power, Class 1 and nonpower limited fire alarm circuit conductors shall be routed to maintain a minimum of $\frac{3}{4}$ inch (6.4 mm) separation from the conductors and cables of the Class 2 circuits; or the electric light power, Class 1 and nonpower limited fire alarm circuit conductors operate at 150 volts or less to ground and the Class 2 circuits are installed using Types CL3, CL3R, or CL3P or permitted substitute cables, and provided that these Class 3 cable conductors extending beyond their jacket are separated by a minimum of $\frac{3}{4}$ inch (6.4 mm) or by a nonconductive sleeve or nonconductive barrier from all other conductors. [725.136(D)]~~

E4304.2~~Other applications.~~

Conductors of Class 2 circuits shall be separated by not less than 2 inches (51 mm) from conductors of any electric light, power, Class 1 or nonpowerlimited fire alarm circuits except where one of the following conditions is met:

- ~~9. 1. All of the electric light, power, Class 1 and nonpowerlimited fire alarm circuit conductors are in raceways or in metal-sheathed, metal-clad, nonmetallic-sheathed or Type UF cables.~~
- ~~10. 2. All of the Class 2 circuit conductors are in raceways or in metal-sheathed, metal-clad, nonmetallic-sheathed or Type UF cables. [725.136(I)]~~

~~E4304.3 Class 2 circuits with communications circuits.~~

~~Where Class 2 circuit conductors are in the same cable as communications circuits, the Class 2 circuits shall be classified as communications circuits and shall meet the requirements of Article 800 of NFPA 70. The cables shall be listed as communications cables or multipurpose cables.~~

~~Cables constructed of individually listed Class 2 and communications cables under a common jacket shall be permitted to be classified as communications cables. The fire resistance rating of the composite cable shall be determined by the performance of the composite cable. [725.139(D)]~~

~~E4304.4 Class 2 cables with other circuit cables.~~

~~Jacketed cables of Class 2 circuits shall be permitted in the same enclosure or raceway with jacketed cables of any of the following:~~

- ~~11. 1. Power limited fire alarm systems in compliance with Article 760 of NFPA 70.~~
- ~~12. 2. Nonconductive and conductive optical fiber cables in compliance with Article 770 of NFPA 70.~~
- ~~13. 3. Communications circuits in compliance with Article 800 of NFPA 70.~~
- ~~14. 4. Community antenna television and radio distribution systems in compliance with Article 820 of NFPA 70.~~
- ~~15. 5. Low-power, network-powered broadband communications in compliance with Article 830 of NFPA 70. [725.139(E)]~~

~~E4304.5 Installation of conductors and cables.~~

~~Cables and conductors installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that they will not be damaged by normal building use. Such cables shall be supported by straps, staples, hangers, cable ties or similar fittings designed so as to not damage the cable. Nonmetallic cable ties and other nonmetallic accessories used to secure and support cables located in stud cavity and joist space plenums shall be listed as having low smoke and heat release properties. The installation shall comply with Table E3802.1 regarding cables run parallel with~~

framing members and furring strips. The installation of wires and cables shall not prevent access to equipment nor prevent removal of panels, including suspended ceiling panels. Raceways shall not be used as a means of support for Class 2 circuit conductors, except where the supporting raceway contains conductors supplying power to the functionally associated equipment controlled by the Class 2 conductors. [300.22 (C) (1) and 725.24]

Comments: Mr. Grace summarizes his proposal and the need to insulate. Mr. Ainsley questions about data to support the need for ductwork insulation and opposes this for rise in housing cost reasons. Ms. Eggerton speaks in favor of the need to insulate to prevent water accumulation in ducts. Several others support that they have witnessed damage due to water accumulation in uninsulated ducts. Mr. Grace requested that this proposal be withdrawn after doing additional research on the proposal at the national level.

Results: Withdrawn

RE403.3.5 Delete ‘building cavities shall not be used as ducts or plenums’

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Proponent summarizes.

Results: Consensus for Approval

RE503.1.1.1 Replacement fenestration with new fenestration product

Proponents: Energy Subworkgroup; Eric Lacey (eric@reca-codes.com)

Comments: Mr. Lacey summarizes.

Results: Carryover to Final Phase to discuss with other existing building language

RTE3401.1 Delete NEC language from VRC and instead reference the NEC

Proponents: Bryan Holland (Bryan.Holland@NEMA.org)

Comments: None

Results: Non-Consensus

RTE3902.16(1) Arc-fault circuit interrupter protection requirement

Proponents: Haywood Kines (hkines@pwcgov.org)

Comments: Mr. Clark speaks in opposition to this due to cost and insufficient data verifying their effectiveness. Some speak to the statistics that require AFCI in homes as a life-saving equipment. Mr. Ainsley spoke to nuisance tripping that occurs as a worry for requiring these in single-family homes. Mr. Haywood spoke to improvements in AFCI technology that have greatly reduced costs and risks associated with AFCI. Mr. Clark requests additional data for direct evidence to the life-saving factor of these devices. Mr. Iverson speaks in favor of instituting this protection in homes doesn’t have direct life-saving aspects.

Results: Non-Consensus

RTE3902.16(2) Arc-fault circuit interrupter protection requirement

Proponents: Allen Turner (allen.turner@jamescitycountyva.gov)

RTE3902.16(1)-18

VRC: E3902.16

Proponents: Haywood Kines (hkines@pwcgov.org)

2015 Virginia Residential Code

E3902.16 Arc-fault ~~circuit-interrupter protection~~ : ~~of bedroom outlets.~~ Branch circuits that supply 120-volt, single phase, 15-ampere and 20-ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, and similar rooms or areas shall be protected by any of the following: [210.12 (A)]

~~Branch circuits that supply 120-volt, single phase, 15-ampere and 20-ampere outlets installed in bedrooms shall be protected by any of the following:~~

1.

-

1. ~~1.~~ A listed combination-type arc-fault circuit interrupter installed to provide protection of the entire branch circuit.
2. ~~2.~~ A listed branch/feeder-type AFCI installed at the origin of the branch-circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit. The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.
3. ~~3.~~ A listed supplemental arc protection circuit breaker installed at the origin of the branch circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit where all of the following conditions are met:
 - ~~3.1.~~ The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.
 - ~~3.2.~~ The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.
 - ~~3.3.~~ The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit.
4. ~~4.~~ A listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet on the branch circuit in combination with a listed branch-circuit overcurrent protective device where all of the following conditions are met:
 - ~~4.1.~~ The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.
 - ~~4.2.~~ The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.
 - ~~4.3.~~ The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit.
 - ~~4.4.~~ The combination of the branch-circuit overcurrent device and outlet branch-circuit AFCI shall be identified as meeting the requirements for a system combination-type AFCI and shall be listed as such.
5. ~~5.~~ Where metal outlet boxes and junction boxes and RMC, IMC, EMT, Type MC or steel-armored Type AC cables meeting the requirements of Section E3908.8, metal wireways or metal auxiliary gutters are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit.
6. ~~6.~~ Where a listed metal or nonmetallic conduit or tubing or Type MC cable is encased in not less than 2 inches (50.8 mm) of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit.

Exception: AFCI protection is not required for an individual branch circuit supplying only a fire alarm system where the branch circuit is wired with metal outlet and junction boxes and RMC, IMC, EMT or steel-sheathed armored cable Type AC, or Type MC meeting the requirements of Section E3908.8.

Reason Statement: This type of protection has been in the code since the 1999 NEC and the 2000 IRC code, it has been used in all Dwelling units constructed under the VCC code such as Apartments and Condo's without state amendments and without any issues or problems. The Arc-fault protection adds additional protection for all dwelling units to prevent fires from low current arching, prevent lose of life, and property damage.

Cost Impact Statement: The code change proposal will increase the cost of construction

This change will add some minimum cost to construction based on the product changes and availability for new methods to comply with code such as AFCI devices and the use of NM Cable methods. The additional level of safety provided to prevent fires and personnel injuries adds value to our homes.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 3 - Proposed Reason: Final WG recommendation NC 8/21.

Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RTE3902.16(1)-18

Public Comment by Kevin Arnold

Aug 13, 2019 15:33 UTC

Eaton fully supports proposal RTE3902.16-18 for restoring Arc-Fault Circuit-Interrupter (AFCI) protection to the VRC as required in the 2017 NEC® and 2018 IRC® without amendments. Any amendments that diminish the level of safety brought by the 2017 NEC® are strongly discouraged. This proposal would remove such amendments that decrease the level of protection afforded as a minimum by the 2017 NEC®. Since the adoption and expansion of AFCI protection in the NEC®, the US Fire Administration and the Federal Emergency Management Agency (FEMA) has recorded a 22% reduction in residential electrical fires along with a significant reduction to residential electrical fire damage and fire fatalities. We strongly encourage the BHCD to approve the proposal RTE3902.16-18 for the residential electrical safety for the people of the Commonwealth of Virginia.

Attachments: <https://va.cdpass.com/proposal/178/discuss/31/file/download/88/US%20Fire%20Administration%20-%202014-2016%20Residential%20Building%20Electrical%20Fires.pdf>

Public Comment by Brett Brenner

Aug 12, 2019 16:25 UTC

The Electrical Safety Foundation International supports proposal RTE3902.16-18 expanding arc-fault circuit interrupter protection (AFCI).

AFCIs have been a part of the National Electrical Code (NEC) since 1999. In the current edition of the NEC, AFCI protection is required in all 120-volt, single-phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, and similar rooms or areas.

According to the National Fire Protection Association, between 2012 and 2016, 10% of all home fires were caused by electrical distribution and lighting equipment. During the same time period, electrical distribution and lighting equipment accounted for 19% of all civilian fire deaths, 10% of all civilian fire injuries, and 20% of all direct fire property damage. AFCIs provide fire prevention. Rather than detecting fires, they prevent the source of electrical fires. The Consumer Product Safety Commission estimates that AFCI technology can prevent 50% of residential wiring fires.

Reducing electrical fires and preventing fire related injuries, fatalities, and property loss is an important responsibility for the regulatory community. By increase AFCI protection in homes, Virginia can meet National Electrical Code requirements and protect its residents at home.

Public Comment by Bryan Holland

Jun 26, 2019 15:53 UTC

The National Electrical Manufacturers Association (NEMA) fully supports proposal RTE3902.16-18 related to AFCI protection of branch circuits for dwellings under the scope of the VRC. We strongly urge the BHCD to approve the proposal and believe this action will enhance public health, safety, and the welfare of the citizens and visitors in the Commonwealth of Virginia.

Smoke alarms and fire extinguishers are examples of emergency equipment used in homes to take action when a fire occurs. However, an AFCI is a product that is designed to detect arcing faults in a circuit and turn off the electrical system before it becomes an ignition source. Conventional overcurrent protective devices cannot detect these hazardous arcing currents that have the potential to initiate fires. Electrical fires take many lives, damage or destroy significant amounts of property, and often occur in areas of the home that are hidden from view or early detection.

Electric arcing creates intense heating that can ignite surrounding material, such as wood framing or insulation. The temperature of these arcs can exceed 10,000 °F. An AFCI device uses advanced electronic technology to monitor the circuit for the presence of these "hazardous" arcing conditions. A hazardous arc occurs for many reasons including damage to conductor insulation from nails, screws, sharp points, or even furniture placed on top of an appliance or lamp cord. When arcing occurs, the AFCI analyzes the characteristics of the event and determines if it is a normal or hazardous arc. AFCI manufacturers test for the hundreds of possible operating conditions and then program their devices to respond only to the hazardous arcing conditions. AFCI technology can be incorporated into circuit breakers, receptacles, appliances and appliance cords.

Research in the arc fault area began in the early 1990s when the U.S. Consumer Product Safety Commission (CPSC) identified a concern with the residential fires of electrical origin. A large number of these fires were determined to be in the branch-circuit premise wiring. It was these early studies that led to the first proposals requiring AFCIs, which were made during the development of the 1999 NEC. NEC Code-Making Panel 2 (CMP-2) reviewed many proposals and heard numerous presentations on the new technology. After much data analysis and

discussion, CMP-2 concluded that AFCI protection should initially be required for branch circuits that supply receptacle outlets in bedrooms.

Subsequent editions of the NEC further expanded the requirements to now include all 120-volt, single-phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas, and similar rooms or areas. This same rule can be found in Section E3902.16 of the 2018 IRC and what is being proposed by RTE3902.16-18.

The most current edition of the NEC (2017 edition) also requires AFCI protection in dormitory units, guest rooms, guest suites, where branch circuits are extended or modified, and for the replacement of certain receptacles in a dwelling or dormitory unit. Additional protection against arcing faults can be found in Sections 406.4(D), 382.6, 440.64, 550.25, 690.4, 691.10, and 712.57.

Reducing fires of electrical origin and saving lives is an important responsibility of the entire construction and regulatory community. Applying technology to improve the electrical safety of the home is a wise investment for both the homeowner and the community at large. Through extensive product testing and the proper application of the NEC requirements, AFCIs will provide superior protection against arcing faults and is the advanced technology to reduce electrical fires.

Residential Building Electrical Fires (2014-2016)

These topical reports are designed to explore facets of the U.S. fire problem as depicted through data collected in the U.S. Fire Administration's National Fire Incident Reporting System. Each topical report briefly addresses the nature of the specific fire or fire-related topic, highlights important findings from the data, and may suggest other resources to consider for further information. Also included are recent examples of fire incidents that demonstrate some of the issues addressed in the report or that put the report topic in context.

Findings

- ❖ From 2014 to 2016, an estimated 24,000 residential building electrical fires were reported to United States fire departments each year. These fires caused an estimated 310 deaths, 850 injuries and \$871 million in property loss.
- ❖ Residential building electrical fires resulted in over twice the dollar loss per fire than residential building nonelectrical fires did.
- ❖ Residential building electrical fires occurred most often in one- and two-family dwellings (83 percent).
- ❖ Residential building electrical fires occurred most often in the winter month of January (12 percent).
- ❖ In only 17 percent of residential building electrical fires, the fire spread was limited to the object where the fire started.
- ❖ Residential building electrical fires most often started in bedrooms (15 percent) and attics or vacant crawl spaces (13 percent).
- ❖ The leading specific items most often first ignited in residential building electrical fires were electrical wire, cable insulation (31 percent) and structural member or framing (18 percent).
- ❖ The leading specific factors contributing to the ignition of residential building electrical fires were other electrical failure, malfunction (43 percent), unspecified short-circuit arc (23 percent), and short-circuit arc from defective, worn insulation (11 percent).
- ❖ Smoke alarms were present in 51 percent and automatic extinguishing systems (AESS) were present in 3 percent of electrical fires that occurred in occupied residential buildings.

Electricity is a basic part of life in the U.S. It provides the energy for most powered items in a home, from lights to heating systems to televisions. Today it is hard to imagine a home without electricity. It is a part of our homes and our activities that most of us take for granted. Yet, using electricity can have dangerous consequences.

Electrical fires occur frequently throughout the U.S., causing injury, claiming lives, and resulting in large losses of property.¹ From 2014 to 2016, an estimated 24,000 residential building electrical fires were reported by U.S. fire departments annually.^{2,3} These fires caused an estimated 310 deaths, 850 injuries and \$871 million in property loss.^{4,5} Residential building electrical fires continued to be a part of the residential fire problem and accounted for 6 percent of all residential building fires.⁶ The term "electrical fires" is defined as those fires that include electrical distribution, wiring, transformers, meter boxes, power switching gear, outlets, cords, plugs, surge protectors, electric fences, lighting fixtures, and electrical arcing as the source of heat.⁷

This topical report addresses the characteristics of electrical fires in residential buildings as reported to the National Fire Incident Reporting System (NFIRS) from 2014 to 2016, the most recent data available at the time of the analysis.⁸ The NFIRS data are used for the analyses presented throughout the report. For the purpose of the report, the terms "residential fires," "electrical fires," and "nonelectrical fires" are synonymous with "residential building fires,"



National Fire Data Center
16825 S. Seton Ave.
Emmitsburg, MD 21727
<https://www.usfa.fema.gov/data/statistics/>

“residential building electrical fires” and “residential building nonelectrical fires” respectively. “Electrical fires” is used throughout the body of this report; the findings, tables, charts, headings and endnotes reflect the full category, “residential building electrical fires.”

The residential building electrical fire problem

Although electrical fires declined by 22 percent from 2007 to 2016,⁹ electrical malfunction was one of the top four leading causes of residential fires during each of these ten years. It has also been a leading cause of residential fire deaths, injuries and dollar loss during this time frame.¹⁰ Electrical fires involve the flow of electric current or static electricity¹¹ and are caused by electrical system failures, appliance defects, incorrectly installed wiring, misuse and poor maintenance of electrical appliances, and overloaded circuits and extension cords.¹² These electrical fires can be unique. For example, electrical fires that start in walls can smolder for some time and cause smoke not to be seen immediately and detection to be delayed. By the time smoke is seen and fire is detected, the flames may have already spread behind and within walls.¹³ As a result, electrical fires have the potential to spread farther and cause more damage and injuries. In addition, electrical fires can be particularly problematic to extinguish. Since they involve electricity, and water conducts electricity, using water to put out the fire can cause electrocution unless power is reliably disconnected.

Over the last 35 years, homes have been dramatically transformed by electrical devices. Today's electrical demands can overburden the electrical system in a home,¹⁴ putting it at a higher risk of an electrical fire. This may be particularly true for homes more than 40 years old that have older wiring, electrical systems, and devices. There is also the likelihood that older homes may not comply with more modern electric code requirements, which puts them at an elevated risk of hazardous conditions that could lead to an electrical fire.¹⁵ Eventually, given enough time, any home can be at risk of an electrical fire as wire insulation ages, connections loosen, receptacles and switches come loose or wear out, and oil and dirt cause electrical components to overheat.¹⁶

Type of fire

Building fires are divided into two classes of severity in the NFIRS: “confined fires” and “nonconfined fires.” Confined building fires are small fire incidents that are limited in extent to specific types of equipment or objects, staying within pots, fireplaces or certain other noncombustible containers.¹⁷ Confined fires rarely result in serious injury or large content loss and are expected to have no significant accompanying property loss due to flame damage.¹⁸ Nonconfined fires extend beyond certain types of equipment or objects. They are generally larger fires resulting in more serious injury and larger losses of property and content.

Of the two classes of severity, nonconfined fires accounted for almost all of the electrical fires (Table 1). Because there were so few confined electrical fires, the subsequent analyses in this report include all electrical fires and do not distinguish between confined and nonconfined fires.

Table 1. Residential building electrical fires by type of incident (2014-2016)

Incident type	Percent
Nonconfined fires	99.7
Confined fires	0.3
Trash or rubbish, contained	0.2
Incinerator overload or malfunction, fire confined	0.1
Total	100.0

Source: NFIRS 5.0.

Loss measures

Table 2 presents losses of reported electrical and nonelectrical fires, averaged over the three-year period of 2014 to 2016.¹⁹ Electrical fires resulted in a higher number of injuries per thousand fires than nonelectrical fires (Table 2). In addition, electrical fires resulted in almost twice as many fatalities per thousand fires and over twice as much dollar loss per fire than nonelectrical fires. This may ultimately be due to challenges in the detection and location of some electrical fires that can be hidden inside walls.

Table 2. Loss measures for residential building electrical and nonelectrical fires (three-year average, 2014-2016)

Measure	Residential building electrical fires	Residential building nonelectrical fires
Average loss:		
Fatalities/1,000 fires	6.3	3.4
Injuries/1,000 fires	26.6	22.8
Dollar loss/fire	\$27,500	\$12,510

Source: NFIRS 5.0.

Notes: 1. Average loss for fatalities and injuries is computed per 1,000 fires. Average dollar loss is computed **per fire** and is rounded to the nearest \$10.

2. The 2014 and 2015 dollar-loss values were adjusted to 2016 dollars.

3. The "Residential building nonelectrical fires" category does not include fires of unknown cause.

Property use

Residential buildings are divided into three major property use categories: one- and two-family residential buildings, multifamily residential buildings, and other residential buildings. One- and two-family residential buildings include detached single-family residences, manufactured homes, mobile homes not in transit, and duplexes. Multifamily residential buildings include apartments, condominiums and town houses. Other residential buildings include all other types of residences, such as hotels or motels, long-term care facilities, dormitories and sorority or fraternity housing.

One- and two-family dwellings accounted for 83 percent of residential building electrical fires reported to NFIRS (Table 3). By comparison, one- and two-family residential buildings accounted for 60 percent of nonelectrical fires, more in line with the occurrence of one- and two-family residential building fires overall (64 percent).²⁰ Multifamily residential buildings accounted for only 12 percent of electrical fires while they accounted for 33 percent of nonelectrical fires. Finally, all other residential buildings accounted for 6 percent of electrical fires while they accounted for 7 percent of nonelectrical fires.²¹ One explanation for the lower percentage of electrical fires in multifamily and other dwellings may be that more stringent building and fire codes requiring regular fire and safety inspections (which include the inspection of wiring and electrical components) are often imposed on these types of residential buildings. In addition, multifamily dwellings and other residential buildings may more often be professionally maintained.

Table 3. Residential building electrical and nonelectrical fires by property use (2014-2016)

Property use	Percent of residential building electrical fires	Percent of residential building nonelectrical fires
One- and two-family	82.9	60.0
Multifamily	11.7	32.7
Other	5.5	7.4
Total	100.0	100.0

Source: NFIRS 5.0.

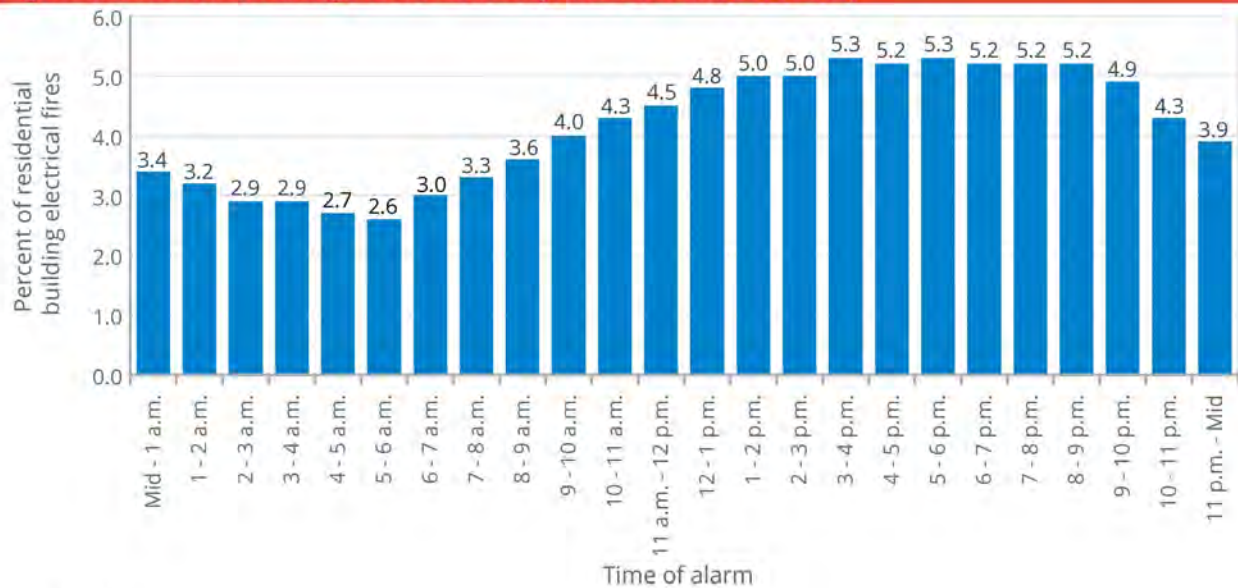
Notes: 1. Total percentages of residential building electrical fires and residential building nonelectrical fires do not add up to 100 percent due to rounding.

2. The "Percent of residential building nonelectrical fires" category does not include fires of unknown cause.

When residential building electrical fires occur

As shown in Figure 1, electrical fires occurred most frequently in the late afternoon to early evening hours.²² They gradually declined throughout the late evening and early morning hours reaching the lowest point from 5 to 6 a.m. Beginning at 6 a.m., fire incidence started to increase until the peak hours were reached.

Figure 1. Residential building electrical fires by time of alarm (2014-2016)



Source: NFIRS 5.0.

Note: Total does not add up to 100 percent due to rounding.

Figure 2 illustrates that electrical fire incidence was highest during the winter month of January at 12 percent. This is not surprising, as cooler weather in this month and surrounding months typically results in more indoor activities that lead to an increase in lighting, heating and appliance use. In addition, during the winter months, cold temperatures and heaters may lead to dry air with low humidity,²³ which could result in wood studs and framing drying out and being somewhat more easily ignited by an arcing current or electrical overheating. The lowest incidence of electrical fires occurred in September at 6 percent.

Figure 2. Residential building electrical fires by month (2014-2016)

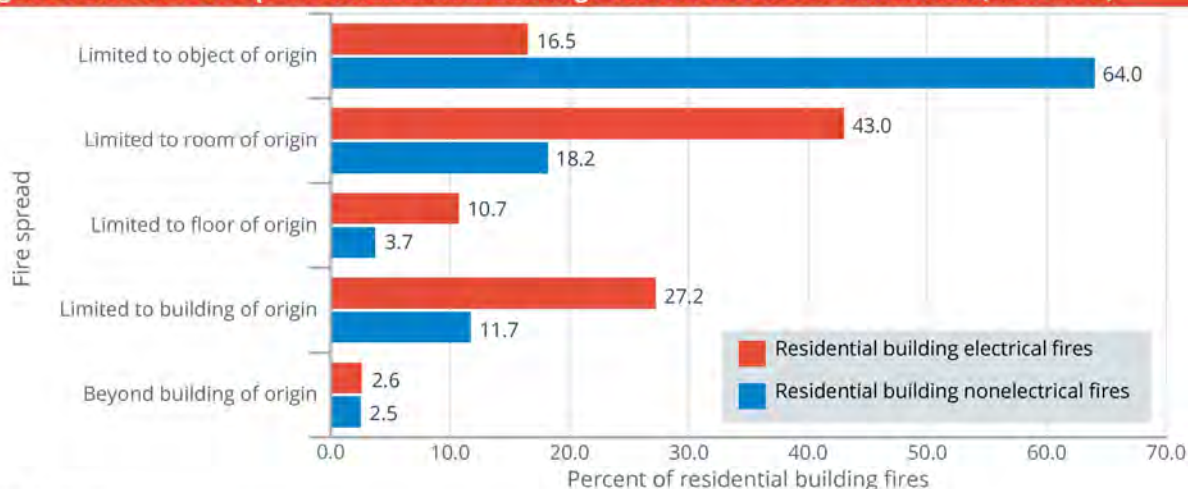


Source: NFIRS 5.0.

Note: Total does not add up to 100 percent due to rounding.

Fire spread in residential building electrical fires

While 64 percent of nonelectrical fires were limited to the object of origin, only 17 percent of electrical fires were limited to the object of origin (Figure 3). Of the remaining electrical fires that spread beyond the object of origin, 43 percent were limited to the room of origin, 11 percent were limited to the floor of origin, and 27 percent were limited to the building of origin. An additional 3 percent of electrical fires spread beyond the building of origin.²⁴ The larger fire spread may be partly due to challenges in the detection of some electrical fires (i.e., fires within walls) as previously discussed.

Figure 3. Extent of fire spread in residential building electrical and nonelectrical fires (2014-2016)

Source: NFIRS 5.0.

Notes: 1. Total percent of residential building nonelectrical fires does not add up to 100 percent due to rounding.

2. The "Residential building nonelectrical fires" category does not include fires of unknown cause.

Where residential building electrical fires start (area of fire origin)

Five areas in the home — bedrooms (15 percent); attics or vacant crawl spaces (13 percent); walls or concealed wall spaces (9 percent); cooking areas and kitchens (7 percent); and common rooms or lounge areas (7 percent) — accounted for 51 percent of electrical fires (Table 4).

Table 4. Leading areas of fire origin in residential building electrical fires (2014-2016)

Area of origin	Percent of residential building electrical fires (unknowns apportioned)
Bedrooms	15.4
Attic: vacant, crawl space above top story	13.0
Wall assembly, concealed wall space	8.7
Cooking area, kitchen	7.4
Common room, den, family room, living room, lounge	6.7

Source: NFIRS 5.0.

How residential building electrical fires start (heat source)

The "heat from powered equipment" category accounted for the majority (88 percent) of electrical fires (Table 5). Within this category, electrical arcing accounted for 74 percent; heat from other powered equipment accounted for 7 percent; radiated or conducted heat from operating equipment accounted for 5 percent; and sparks, embers or flames from operating equipment accounted for 2 percent of these electrical fires. The "hot or smoldering object" category accounted for an additional 6 percent of electrical fires, while the heat source for the remaining 6 percent of electrical fires fell into other categories.

Table 5. Sources of heat in residential building electrical fires by major category (2014-2016)

Heat source category	Percent of residential building electrical fires (unknowns apportioned)
Heat from powered equipment	87.8
Hot or smoldering object	6.3
All other heat source categories	5.8
Total	100.0

Source: NFIRS 5.0.

Note: Total does not add up to 100 percent due to rounding.

What ignites first in residential building electrical fires

Electrical wire, cable insulation (31 percent) and structural member or framing (18 percent) were the specific items most often first ignited in electrical fires (Table 6). Although less prominent, thermal, acoustical insulation (7 percent); exterior sidewall covering, surface, finish (6 percent); interior wall covering (6 percent); and other structural component or finish (5 percent) were also leading items first ignited.

Table 6. Leading specific items first ignited in residential building electrical fires (2014-2016)

Item first ignited	Percent of residential building electrical fires (unknowns apportioned)
Electrical wire, cable insulation	30.9
Structural member or framing	17.8
Thermal, acoustical insulation within wall, partition, or floor/ceiling	7.2
Exterior sidewall covering, surface, finish	6.2
Interior wall covering	5.5
Other structural component or finish	4.7

Source: NFIRS 5.0.

Factors contributing to ignition in residential building electrical fires

Table 7 shows the categories of factors contributing to ignition in electrical fires. As expected, the leading category by far was "electrical failure, malfunction" (88 percent). In this category, other electrical failure, malfunction (43 percent); unspecified short-circuit arc (23 percent); and short-circuit arc from defective, worn insulation (11 percent) were the specific factors that accounted for 77 percent of electrical fires. The "misuse of material or product" (6 percent) and "mechanical failure, malfunction" (5 percent) categories combined were a contributing factor in 11 percent of electrical fires.

Table 7. Factors contributing to ignition of residential building electrical fires by major category (where factors contributing to ignition were specified, 2014-2016)

Factors contributing to ignition category	Percent of residential building electrical fires
Electrical failure, malfunction	87.8
Misuse of material or product	5.5
Mechanical failure, malfunction	5.1
Operational deficiency	4.0
Design, manufacture, installation deficiency	1.2
Natural condition	1.1
Other factors contributing to ignition	1.0
Fire spread or control	0.2

Source: NFIRS 5.0.

Notes: 1. Only includes incidents where factors that contributed to the ignition of the fire were specified. At least one factor contributing to the ignition was specified in 80 percent of reported residential building electrical fires.

2. Multiple factors contributing to fire ignition may be noted for each incident; total will exceed 100 percent.

Equipment involved in ignition in residential building electrical fires

Three specific types of equipment played a leading role in the ignition of half of all residential electrical fires. These leading types of equipment involved in ignition, as shown in Table 8, were other electrical wiring (31 percent), outlets and receptacles (12 percent), and electrical branch circuits (8 percent).²⁵ Of interest, extension cords (5 percent), panel (fuse) boards (4 percent), and other lamps and lighting (4 percent) were also leading types of equipment involved in ignition.

Table 8. Leading specific type of equipment involved in ignition of residential building electrical fires (2014-2016)

Equipment involved in ignition	Percent of residential building electrical fires
Electrical wiring, other	30.5
Outlet, receptacle	12.0
Electrical branch circuit	7.6

Source: NFIRS 5.0.

Alerting/Suppression systems in residential building electrical fires

Fire fatalities and injuries have declined over the last 35 years, partly due to new technologies to detect and extinguish fires. Smoke alarms are present in most homes. In addition, the use of residential sprinklers is widely supported by the fire service and is gaining support within residential communities.

Smoke alarm data presented in Tables 9 and 10 are the raw counts from the NFIRS dataset and are not scaled to national estimates of smoke alarms in residential buildings where electrical fires occurred. In addition, the NFIRS does not allow for the determination of the type of smoke alarm (i.e., photoelectric or ionization) or the location of the smoke alarm with respect to the area of fire origin. The data presented in Table 11 are also the raw counts from the NFIRS dataset and are not scaled to national estimates of AESs in residential buildings where electrical fires occurred.

Smoke alarms in residential building electrical fires

Smoke alarms were reported as present in 50 percent of residences where electrical fires occurred. In 25 percent of electrical fires, no smoke alarms were present. In another 25 percent of these fires, firefighters were unable to determine if a smoke alarm was present (Table 9).

Table 9. NFIRS smoke alarm presence in residential building electrical fires (2014-2016)

Presence of smoke alarms	Count	Percent
Present	21,080	49.7
None present	10,782	25.4
Undetermined	10,505	24.7
Null/Blank	87	0.2
Total incidents	42,454	100.0

Source: NFIRS 5.0.

While 7 percent of electrical fires occurred in residential buildings that are **not** currently or routinely occupied, these buildings — which are under construction, undergoing major renovations, vacant and the like — are unlikely to have alerting and suppression systems that are in place and, if in place, that are operational. In fact, only 15 percent of all electrical fires in unoccupied residential buildings were reported as having smoke alarms that operated. In addition, AESs were reported as present in only 2 percent of electrical fires in residential buildings that were not routinely occupied. As a result, the detailed analyses in the following sections focus on electrical fires in occupied residential buildings only.²⁶

Smoke alarms in occupied residential building electrical fires

Smoke alarms were reported as present in 51 percent of electrical fires in occupied residential buildings. In 24 percent of electrical fires in occupied residential buildings, there were no smoke alarms present. Lastly, in 25 percent of electrical fires in occupied residential buildings, firefighters were unable to determine if a smoke alarm was present (Table 10).

When smoke alarms were present (51 percent) and the alarm's operational status was considered, the percentage of smoke alarms reported as present consisted of:

- Present and operated — 26 percent.
- Present but did not operate — 17 percent (fire too small, 11 percent; alarm failed to operate, 7 percent).²⁷
- Present but operational status unknown — 8 percent.

When the subset of incidents where smoke alarms were reported as present was analyzed separately as a whole, smoke alarms were reported to have operated in 51 percent of the incidents and failed to operate in 13 percent. In 21 percent of the subset, the fire was too small to activate the alarm. The operational status of the alarm was undetermined in an additional 16 percent of these incidents.²⁸

Table 10. NFIRS smoke alarm data for occupied residential building electrical fires (2014-2016)

Presence of smoke alarms	Smoke alarm operational status	Smoke alarm effectiveness	Count	Percent
Present	Fire too small to activate smoke alarm		4,182	10.6
	Smoke alarm operated	Smoke alarm alerted occupants, occupants responded	7,232	18.3
		Smoke alarm alerted occupants, occupants failed to respond	258	0.7
		No occupants	1,407	3.6
		Smoke alarm failed to alert occupants	319	0.8
		Undetermined	987	2.5
	Smoke alarm failed to operate		2,644	6.7
	Undetermined		3,161	8.0
None present		9,576	24.3	
Undetermined		9,683	24.5	
Total incidents			39,449	100.0

Source: NFIRS 5.0.

Note: The data presented in this table are raw data counts from the NFIRS dataset summed (not averaged) from 2014 to 2016. They do not represent national estimates of smoke alarms in electrical fires in occupied residential buildings. They are presented for informational purposes.

If a fire occurs, properly installed and maintained smoke alarms provide an early warning signal to everyone in a home. Smoke alarms help save lives and property. The U.S. Fire Administration (USFA) continues to partner with other government agencies and fire service organizations to improve and develop new smoke alarm technologies. More information on smoke alarm technologies, performance, disposal and storage, training bulletins, and public education and outreach materials can be found at https://www.usfa.fema.gov/prevention/technology/smoke_fire_alarms.html. Additionally, the USFA's position statement on smoke alarms is available at https://www.usfa.fema.gov/about/smoke_alarms_position.html.

Automatic extinguishing systems in residential building electrical fires

Overall, full or partial AESs — mainly sprinklers — were present in just 3 percent of occupied residential buildings where electrical fires occurred (Table 11). Residential sprinkler systems help to reduce the risk of deaths and injuries, homeowner insurance premiums, and uninsured property losses. Despite these advantages, many homes do not have AESs, although they are often found in hotels and businesses. Sprinklers are required by code in hotels and many multifamily residences. There are major movements in the U.S. fire service to require sprinklers in all new homes. At present, however, they are largely absent in residences nationwide.²⁹

Table 11. NFIRS automatic extinguishing system data for occupied residential building electrical fires (2014-2016)

Presence of automatic extinguishing systems	Count	Percent
AES present	1,011	2.6
Partial system present	41	0.1
AES not present	36,357	92.2
Unknown	2,040	5.2
Total incidents	39,449	100.0

Source: NFIRS 5.0.

Notes: 1. The data presented in this table are raw data counts from the NFIRS dataset summed (not averaged) from 2014 to 2016. They do not represent national estimates of AESs in electrical fires in occupied residential buildings. They are presented for informational purposes.

2. Total does not add up to 100 percent due to rounding.

USFA and fire service officials across the nation are working to promote and advance residential fire sprinklers. More information on costs and benefits, performance, training bulletins, and public education and outreach materials regarding residential sprinklers is available at http://www.usfa.fema.gov/prevention/technology/home_fire_sprinklers.html. Additionally, the USFA's position statement on residential sprinklers is available at https://www.usfa.fema.gov/about/sprinklers_position.html.

Examples

The following are recent examples of electrical fires reported by the media:

- August 2018: An overheated electrical cord caused a fire in a bedroom of an apartment in Holyoke, Massachusetts. A neighbor in the apartment downstairs smelled smoke and called 911 around 6 p.m. Upon arrival, firefighters found heavy smoke and a small fire in the third-floor apartment bedroom, but were able to extinguish the fire quickly. No one was injured.³⁰
- July 2018: Several residents of an apartment building in Austin, Minnesota, were displaced after an electrical fire damaged two units. Upon arrival to the early evening fire, firefighters extinguished the blaze, which appeared to have started as an electrical fire in the ceiling of the building's laundry room. Further investigation revealed that a resident felt warmth coming from the floor of her apartment and smelled burning over two hours prior to the emergency call. The resident then went to the laundry room beneath her apartment, but said the smell stopped. She later noticed the smell again and saw smoke, prompting her to make an emergency call. While no injuries were reported, the fire caused an estimated \$10,000 in damage to the building and \$2,500 in damage to contents.³¹
- April 2018: A fault in a duplex electrical receptacle caused a late-night fire at a group home in Severn, Maryland, which killed three people. Upon arrival, it took firefighters more than an hour to put out the blaze in the single-family dwelling. Two of the victims killed were male residents of the home, while the third victim was a female worker in the home. Investigators determined that the faulty receptacle was located in a rear bedroom of the home. All of the victims, however, were found at the front of the house. Investigators believe the worker was trying to save one of the residents as both were found dead inside the same room in the house. Paramedics tried to save the other resident when they found him inside the home, but were unsuccessful and declared him dead at the scene. The Office of the Chief Medical Examiner in Baltimore determined that the two victims who were found together both died of smoke inhalation and burns. The third victim died of smoke inhalation. The home was completely destroyed.³²

Electrical fire safety

To help keep your home fire safe, make sure all electrical work in your home is done by a qualified electrician and follow these electrical safety tips:

- Appliances:
 - ▶ Always plug major appliances, such as refrigerators, stoves, washers and dryers, directly into a wall outlet.
 - ▶ Never use an extension cord with a major appliance — it can easily overheat and start a fire.
 - ▶ Always plug small appliances directly into a wall outlet.
 - ▶ Unplug small appliances when you are not using them.
 - ▶ Keep lamps, light fixtures and light bulbs away from anything that can burn.
 - ▶ Use light bulbs that match the recommended wattage on the lamp or fixture.
 - ▶ Check electrical cords on appliances often. Replace cracked, damaged and loose electrical cords. Do not try to repair them.
- Outlets:
 - ▶ Do not overload wall outlets.
 - ▶ Insert plugs fully into sockets.
 - ▶ Never force a three-prong cord into a two-slot outlet.
 - ▶ Install tamper-resistant electrical outlets if you have young children.

- Extension cords, power strips and surge protectors:
 - ▶ Replace worn, old or damaged extension cords right away.
 - ▶ Use extension cords for temporary purposes only.
 - ▶ Avoid putting cords where they can be damaged or pinched, like under a carpet or rug.
 - ▶ Do not overload power strips.
 - ▶ Use power strips that have internal overload protection.

For additional electrical home fire prevention tips and information, please visit the USFA's electrical fire safety outreach materials webpage at <https://www.usfa.fema.gov/prevention/outreach/electrical.html>.

You can also find information on home electrical safety and work place electrical safety, as well as resources to educate communities, at the Electrical Safety Foundation International, www.esfi.org.

NFIRS data specifications for residential building electrical fires

Data for this report were extracted from the NFIRS annual Public Data Release files for 2014, 2015 and 2016. Only version 5.0 data was extracted.

Residential building electrical fires were defined using the following criteria:

- Aid Types 3 (mutual aid given) and 4 (automatic aid given) were excluded to avoid counting a single incident more than once.
- Incident Types 111 to 123 (excludes Incident Type 112):

Incident Type	Description
111	Building fire
113	Cooking fire, confined to container
114	Chimney or flue fire, confined to chimney or flue
115	Incinerator overload or malfunction, fire confined
116	Fuel burner/boiler malfunction, fire confined
117	Commercial compactor fire, confined to rubbish
118	Trash or rubbish fire, contained
120	Fire in mobile property used as a fixed structure, other
121	Fire in mobile home used as fixed residence
122	Fire in motor home, camper, recreational vehicle
123	Fire in portable building, fixed location

Note: Incident Types 113 to 118 do not specify if the structure is a building.

- Property Use Series 400, which consists of the following:

Property Use	Description
400	Residential, other
419	One- or two-family dwelling, detached, manufactured home, mobile home not in transit, duplex
429	Multifamily dwelling
439	Boarding/Rooming house, residential hotels
449	Hotel/Motel, commercial
459	Residential board and care
460	Dormitory-type residence, other
462	Sorority house, fraternity house
464	Barracks, dormitory

❶ Structure Type:

- ▶ For Incident Types 113 to 118:
 - 1—Enclosed building, or
 - 2—Fixed portable or mobile structure, or
 - Structure Type not specified (null entry).
- ▶ For Incident Types 111 and 120 to 123:
 - 1—Enclosed building, or
 - 2—Fixed portable or mobile structure.

- ❷ The USFA Structure Fire Cause Methodology was used to determine residential building electrical malfunction fire incidents (i.e., cause code = '06').³³

The analyses contained in this report reflect the current methodologies used by the USFA. The USFA is committed to providing the best and most current information on the U.S. fire problem and continually examines its data and methodology to fulfill this goal. Because of this commitment, data collection strategies and methodological changes are possible and do occur. As a result, analyses and estimates of the fire problem may change slightly over time. Previous analyses and estimates on specific issues (or similar issues) may have used different methodologies or data definitions and may not be directly comparable to the current ones.

Information regarding the USFA's national estimates for residential building fires, as well as the data sources used to derive the estimates, can be found in the document "Data Sources and National Estimates Methodology Overview for the U.S. Fire Administration's Topical Fire Report Series (Volume 19)," https://www.usfa.fema.gov/downloads/pdf/statistics/data_sources_and_national_estimates_methodology_vol19.pdf. This document also addresses the specific NFIRS data elements analyzed in the topical reports, as well as "unknown" data entries and missing data.

To request additional information, visit <https://www.usfa.fema.gov/contact.html>. [Provide feedback on this report.](#)

Notes:

¹"Residential Building Electrical Fires (2009-2011)," Topical Fire Report Series, USFA, March 2014, Volume 14, Issue 13, <https://www.usfa.fema.gov/downloads/pdf/statistics/v14i13.pdf>.

²The term "residential buildings" includes what are commonly referred to as "homes," whether they are one- or two-family dwellings or multifamily buildings. It also includes manufactured housing, hotels and motels, residential hotels, dormitories, assisted living facilities, and halfway houses — residences for formerly institutionalized individuals (patients with mental disabilities, drug addictions, or those formerly incarcerated) that are designed to facilitate their readjustment to private life. The term "residential buildings" does not include institutions such as prisons, nursing homes, juvenile care facilities, or hospitals, even though people may reside in these facilities for short or long periods of time.

³In NFIRS Version 5.0, a structure is a constructed item of which a building is one type. In previous versions of the NFIRS, the term "residential structure" commonly referred to buildings where people live. To coincide with this concept, the definition of a residential structure fire for the NFIRS 5.0 includes only those fires where the NFIRS 5.0 Structure Type is 1 or 2 (enclosed building and fixed portable or mobile structure) with a residential property use. Such structures are referred to as "residential buildings" to distinguish these buildings from other structures on residential properties that may include fences, sheds and other uninhabitable structures. In addition, confined fire incidents that have a residential property use but do not have a structure type specified are presumed to occur in buildings. Nonconfined fire incidents that have a residential property use without a structure type specified are considered to be invalid incidents (Structure Type is a required field) and are not included.

⁴National estimates are based on 2014 to 2016 native Version 5.0 data from the NFIRS, residential structure fire loss estimates from the National Fire Protection Association's (NFPA) annual surveys of fire loss, and the USFA's residential building fire loss estimates: https://www.usfa.fema.gov/downloads/pdf/statistics/res_bldg_fire_estimates.pdf. Further information on the USFA's residential building fire loss estimates can be found in the "National Estimates Methodology for Building Fires and Losses," August 2012, https://www.usfa.fema.gov/downloads/pdf/statistics/national_estimate_methodology.pdf. For information on the NFPA's survey methodology, see the NFPA's report "Fire Loss in the United States During 2016," September 2017, <https://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/fires-in-the-us/overall-fire-problem/fire-loss-in-the-united-states>. In this topical report, fires are rounded to the nearest 100, deaths to the nearest five, injuries to the nearest 25, and dollar loss to the nearest million. In this report, deaths and injuries refer to civilian casualties only and do not include firefighters who die or are injured as a result of a fire.

⁵The USFA Structure Fire Cause Methodology was used to identify fires for which the cause was electrical in nature. The cause methodology and definitions can be found in the document "National Fire Incident Reporting System Version 5.0 Fire Data Analysis Guidelines and Issues," July 2011, https://www.usfa.fema.gov/downloads/pdf/nfirs/nfirs_data_analysis_guidelines_issues.pdf.

⁶2014-2016 NFIRS data.

⁷The term “electrical fires” is an abbreviated form of the original term “electrical malfunction fires” as defined by USFA’s Structure Fire Cause Methodology.

⁸Fire department participation in the NFIRS is voluntary; however, some states do require their departments to participate in the state system. Additionally, if a fire department is a recipient of a Fire Act Grant, participation is required. From 2014 to 2016, 68 percent of the NFPA’s annual average estimated 1,328,500 fires to which fire departments responded were captured in the NFIRS. Thus, the NFIRS is not representative of all fire incidents in the U.S. and is not a “complete” census of fire incidents. Although the NFIRS does not represent 100 percent of the incidents reported to fire departments each year, the enormous dataset exhibits stability from one year to the next without radical changes. Results based on the full dataset are generally similar to those based on part of the data.

⁹“Residential Building Electrical Malfunction Fire Trends (2007-2016),” Fire Estimate Summary, USFA, May 2018, https://www.usfa.fema.gov/downloads/pdf/statistics/res_bldg_fire_estimates.pdf.

¹⁰“Residential Building Fire Causes (2007-2016),” “Residential Building Fire Death Causes (2007-2016),” “Residential Building Fire Injury Causes (2007-2016),” and “Residential Building Fire Dollar-Loss Causes (2007-2016),” Fire Estimate Summary, USFA, May 2018, https://www.usfa.fema.gov/downloads/pdf/statistics/res_bldg_fire_estimates.pdf.

¹¹Vytėnė Babrauskas. (2008). “Research on electrical fires: The state of the art.” Fire Safety Science 9: 3-18. doi:10.3801/IAFSS.FSS.9-3, <http://www.iafss.org/publications/fss/9/3#> (accessed Sept. 12, 2018).

¹²“Common causes of home electrical fires,” WireChief Electric LTD, Feb. 4, 2011, <http://www.vancouverelectricianblog.com/common-home-electrical-fires/> (accessed Sept. 12, 2018).

¹³Mike Holmes, “Dangers of electrical fires: Ditch DIY when fixing faulty wiring,” Postmedia News, Aug. 7, 2012, <http://www.canada.com/news/Dangers+electrical+fires/7051750/story.html> (accessed Sept. 12, 2018).

¹⁴“Know the dangers in your older home,” Electrical Safety Foundation International, 2015, <https://www.esfi.org/resource/know-the-dangers-in-your-older-home-217> (accessed Sept. 12, 2018).

¹⁵“Residential electrical system aging research project,” The Code Authority, Underwriters Laboratories, Issue 2, 2008, https://www.ul.com/wp-content/uploads/2014/04/ul_ResidentialElectricalSystemResearch.pdf (accessed Sept. 12, 2018).

¹⁶Mike Holmes, “Dangers of electrical fires: Ditch DIY when fixing faulty wiring,” Postmedia News, Aug. 7, 2012, <http://www.canada.com/news/Dangers+electrical+fires/7051750/story.html> (accessed Sept. 12, 2018).

¹⁷In the NFIRS, confined fires are defined by Incident Type Codes 113 to 118.

¹⁸The NFIRS distinguishes between “content” and “property” loss. Content loss includes losses to the contents of a structure due to damage by fire, smoke, water and overhaul. Property loss includes losses to the structure itself or to the property itself. Total loss is the sum of the content loss and the property loss. For confined fires, the expectation is that the fire did not spread beyond the container (or rubbish for Incident Type code 118), and hence, there was no property damage (damage to the structure itself) from the flames. However, there could be property damage as a result of smoke, water and overhaul.

¹⁹The average fire death and fire injury loss rates computed from the national estimates do not agree with average fire death and fire injury loss rates computed from NFIRS data alone. The fire death rate computed from national estimates is $(1,000 \times (310/24,000)) = 12.9$ deaths per 1,000 residential building electrical fires, and the fire injury rate is $(1,000 \times (850/24,000)) = 35.4$ injuries per 1,000 residential building electrical fires.

²⁰2014-2016 NFIRS data.

²¹Total percentage of residential building electrical fires does not add up to 100 percent due to rounding.

²²For the purposes of this report, the time of the fire alarm is used as an approximation for the general time at which the fire started. However, in the NFIRS, it is the time at which the fire was reported to the fire department.

²³“Effects of low humidity on health,” Mercola, <https://articles.mercola.com/sites/articles/archive/2014/01/13/low-humidity-health-effects.aspx> (accessed Sept. 13, 2018).

²⁴Total percentage of residential building electrical fires does not add up to 100 percent due to rounding.

²⁵The three leading specific types of equipment involved in ignition do not add up to 50 percent due to rounding.

²⁶The term “occupied” implies that the building is operational or in normal use. This includes residences that are unoccupied for a brief period of time such as when household members are away at work, school or on vacation.

²⁷Total percentage of smoke alarms that were present but did not operate does not equal 17 percent due to rounding.

²⁸Total does not add up to 100 percent due to rounding.

²⁹U.S. Department of Housing and Urban Development and U.S. Census Bureau, American Housing Survey for the United States: 2011, September 2013, “Health and Safety Characteristics-All Occupied Units (National),” Table S-01-AO, <https://www.census.gov/content/dam/Census/programs-surveys/ahs/data/2011/h150-11.pdf> (accessed Sept. 17, 2018).

³⁰Jeanette DeForge, “Holyoke Fire in Apartment Building Caused by Electrical Issue,” [www.masslive.com, Aug. 6, 2018, https://www.masslive.com/news/index.ssf/2018/08/holyoke_fire_in_apartment_buil.html](http://www.masslive.com/news/index.ssf/2018/08/holyoke_fire_in_apartment_buil.html) (accessed Sept. 17, 2018).

³¹Mike Stoll, “Apartment Building Damaged in Electrical Fire; Resident Said Floor Felt Warm on Her Feet,” www.austindailyherald.com, July 17, 2018, <https://www.austindailyherald.com/2018/07/apartment-building-damaged-in-electrical-fire-resident-said-floor-felt-warm-on-her-feet/> (accessed Sept. 17, 2018).

³²Phil Davis and Chase Cook, “Fault in Electrical Outlet Caused Fatal Fire at Arundel Lodge Home,” www.capitalgazette.com, May 8, 2018, http://www.capitalgazette.com/news/for_the_record/ac-cn-arundel-lodge-update-20180508-story.html (accessed Sept. 17, 2018).

³³See endnote 5.

Comments: Mr. Grace summarizes his proposal and the need to insulate. Mr. Ainsley questions about data to support the need for ductwork insulation and opposes this for rise in housing cost reasons. Ms. Eggerton speaks in favor of the need to insulate to prevent water accumulation in ducts. Several others support that they have witnessed damage due to water accumulation in uninsulated ducts. Mr. Grace requested that this proposal be withdrawn after doing additional research on the proposal at the national level.

Results: Withdrawn

RE403.3.5 Delete ‘building cavities shall not be used as ducts or plenums’

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Proponent summarizes.

Results: Consensus for Approval

RE503.1.1.1 Replacement fenestration with new fenestration product

Proponents: Energy Subworkgroup; Eric Lacey (eric@reca-codes.com)

Comments: Mr. Lacey summarizes.

Results: Carryover to Final Phase to discuss with other existing building language

RTE3401.1 Delete NEC language from VRC and instead reference the NEC

Proponents: Bryan Holland (Bryan.Holland@NEMA.org)

Comments: None

Results: Non-Consensus

RTE3902.16(1) Arc-fault circuit interrupter protection requirement

Proponents: Haywood Kines (hkines@pwcgov.org)

Comments: Mr. Clark speaks in opposition to this due to cost and insufficient data verifying their effectiveness. Some speak to the statistics that require AFCI in homes as a life-saving equipment. Mr. Ainsley spoke to nuisance tripping that occurs as a worry for requiring these in single-family homes. Mr. Haywood spoke to improvements in AFCI technology that have greatly reduced costs and risks associated with AFCI. Mr. Clark requests additional data for direct evidence to the life-saving factor of these devices. Mr. Iverson speaks in favor of instituting this protection in homes doesn’t have direct life-saving aspects.

Results: Non-Consensus

RTE3902.16(2) Arc-fault circuit interrupter protection requirement

Proponents: Allen Turner (allen.turner@jamescitycountyva.gov)

Comments: Proponent summarizes. This is an alternative to the other AFCI proposal, to garner consensus by adding an exemption for GFCI protected circuits in bathrooms, garages, kitchens, etc. Mr. Clark disapproves due to cost and insufficient data verifying their effectiveness.

Results: Non-Consensus

RTP2717.3 Dishwashing machine pan requirement

Proponents: MATTHEW GUNN

Comments: Ms. Davis summarizes in absence of the proponent. Mr. Clark speaks in opposition and several others also oppose.

Results: Consensus for Disapproval

TP1303.1 Adds CSA B805/ICC standard

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarizes that this is simply an alternative compliance path for rainwater harvesting.

Results: Consensus for Approval

Workgroup 4

Virginia Construction Code

TP202 Adds service sink definition

Proponents: Lee Craft, VPMIA (lee.craft@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarizes. Mr. Payne recommends striking the word “utility” from the new definition.

Results: Consensus for Approval as Amended (striking the word “utility”)

T2701.1.1 Feeder equipment grounding conductor

Proponents: James Erler (jim@erlerdesign.com); John Lane (redcloudjl@aol.com); Neil Harrington, Smith Mountain Lake Marine Volunteer Fire Rescue (neil.r.harrington@gmail.com)

Comments: Mr. Harrington speaks to what prompted this proposal. Mr. Erler summarized his proposal. Mr. Kines and several others spoke in opposition of this proposal and recommended taking this through the national process and suggested that the 2020 NEC adequately addresses the issue and a possible solution would be to bring in the 2020 NEC requirements. Mr. Witt recommended carrying this over and bring in subject matter experts to address this issue. Mr. Erler suggested that the national recommendations in the 2020 NEC would not resolve the issue in Smith Mountain Lake. Mr. Kines defended the NFPA process. Delegate Byron asked about

RTE3902.16(2)-18

IRC@: E3902.16

Proponents: Allen Turner (allen.turner@jamescitycountyva.gov)

2018 International Residential Code

E3902.16 Arc-fault ~~circuit-interrupter~~ protection of ~~bedroom~~ outlets. Branch circuits that supply 120-volt, single-phase, 15- and 20-ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry areas and similar rooms or areas shall be protected by any of the following: [210.12(A)]

1. A listed combination-type arc-fault circuit-interrupter, installed to provide protection of the entire branch circuit. [210.12(A)(1)]
2. A listed branch/feeder-type AFCI installed at the origin of the branch-circuit in combination with a listed outlet branch-circuit-type arc-fault circuit-interrupter installed at the first outlet box on the branch circuit. The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit. [210.12(A)(2)]
3. A listed supplemental arc-protection circuit breaker installed at the origin of the branch circuit in combination with a listed outlet branch-circuit-type arc-fault circuit-interrupter installed at the first outlet box on the branch circuit where all of the following conditions are met:
 - 3.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit-interrupter.
 - 3.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.
 - 3.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit. [210.12(A)(3)]
4. A listed outlet branch-circuit-type arc-fault circuit-interrupter installed at the first outlet on the branch circuit in combination with a listed branch-circuit overcurrent protective device where all of the following conditions are met:
 - 4.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit-interrupter.
 - 4.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.
 - 4.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit.
 - 4.4. The combination of the branch-circuit overcurrent device and outlet branch-circuit AFCI shall be identified as meeting the requirements for a system combination-type AFCI and shall be listed as such. [210.12(A)(4)]
5. Where metal outlet boxes and junction boxes and RMC, IMC, EMT, Type MC or steel-armored Type AC cables meeting the requirements of Section E3908.8, metal wireways or metal auxiliary gutters are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit. [210.12(A)(5)]
6. Where a listed metal or nonmetallic conduit or tubing or Type MC cable is encased in not less than 2 inches (50.8 mm) of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit-type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit. [210.12(A)(6)]

Exceptions: **1.** AFCI protection is not required for an individual branch circuit supplying only a fire alarm system where the branch circuit is wired with metal outlet and junction boxes and RMC, IMC, EMT or steel-sheathed armored cable Type AC or Type MC meeting the requirements of Section E3908.8.

2. AFCI protection is not required where GFCI protection is required in accordance with E3902 and NEC 210.8(A)

Reason Statement: This new Exception # 2 recognizes the need to protect VA citizens from electrical arcing faults resulting in fires while at the same time provides an incremental approach by eliminating certain areas from the AFCI requirements. Areas that would be exempt from

AFCI protection include Laundry area receptacles, Garage receptacles, Bathroom receptacles, Wet Bar area receptacles, Unfinished basement receptacles, Kitchen receptacles as well as Outdoor and Crawlspace receptacles. This new Exception also provides relief from having to provide a more expensive "Dual Purpose" AFCI/GFCI breaker for these areas of the home. A typical 2000 sq. foot home would typically only require 2 or 3 more AFCI breakers(at 37.00 each) than the current code requires under this new Exception.

Cost Impact Statement: The code change proposal will increase the cost of construction

The increased cost of 2-3 AFCI breakers at 37.00ea. is a small price to pay for protecting our citizens from electrical fires that start in branch circuit wiring and devices. These devices have proven their effectiveness via studies by the National Fire Protection Association, National Electrical Manufactures Association and many other reputable organizations.

Workgroup Recommendation

Workgroup 3 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 3 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for RTE3902.16(2)-18

This proposal doesn't have any public comments.

Proposal # 182

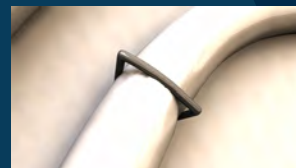
RTE3902.16(2)-18

ARC-FAULT CIRCUIT INTERRUPTERS (AFCIs)

PREVENT ELECTRICAL FIRES

What is an Arc-Fault?

An arc-fault is a dangerous electrical problem **caused by damaged, overheated, or stressed electrical wiring or devices**. Arc-faults can occur when older wires become frayed or cracked, when a nail or screw damages a wire behind a wall, or when outlets or circuits are compromised.



Why do I need Arc-Fault Protection?

The National Fire Protection Association reported **47,700 home fires** involved some type of electrical failure or malfunction in 2011. The Consumer Product Safety Commission estimates **more than 50% of electrical fires that occur every year can be prevented by Arc-Fault Circuit Interrupters (AFCIs)**.

Arc-Fault Circuit Interrupters are available as:

Branch/Feeder AFCI Breaker

- First generation AFCI breaker protection. AFCI protection originally required by the 1999 NEC
- Moderate fire prevention
- Trips when a parallel arc between hot and neutral conductors is detected

Combination Type AFCI Breaker

- Branch/Feeder AFCI breakers were phased out as of January 2008 and replaced with Combination Type AFCIs
- Enhanced fire protection
- Provides the **same protection as Branch/Feeder AFCIs and detects lower level series arcing** in both branch circuits and power cords

AFCI Receptacle

- Provides protection from arc-faults beyond branch circuit wiring extending to appliances and cords plugged into the receptacle
- Enhanced Fire Protection
- Protects all downstream wire and appliances from both parallel and series arcs, and also protects from series arcs upstream in the wiring between the source of the circuit and the first outlet on the circuit.



Parallel Arc:

Arc between **hot and neutral conductor** or between the **hot and ground conductor**



Series Arc:

Arc along the **same conductor** or at **connections**



AFCI breakers and receptacles should be tested **monthly**.



All electrical systems should have an electrical inspection if the home is older than **40 years** or has had a major addition, renovation, or large appliance added.



AFCIs should be installed by a **qualified electrician**.

Comments: Mr. Grace summarizes his proposal and the need to insulate. Mr. Ainsley questions about data to support the need for ductwork insulation and opposes this for rise in housing cost reasons. Ms. Eggerton speaks in favor of the need to insulate to prevent water accumulation in ducts. Several others support that they have witnessed damage due to water accumulation in uninsulated ducts. Mr. Grace requested that this proposal be withdrawn after doing additional research on the proposal at the national level.

Results: Withdrawn

RE403.3.5 Delete ‘building cavities shall not be used as ducts or plenums’

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Proponent summarizes.

Results: Consensus for Approval

RE503.1.1.1 Replacement fenestration with new fenestration product

Proponents: Energy Subworkgroup; Eric Lacey (eric@reca-codes.com)

Comments: Mr. Lacey summarizes.

Results: Carryover to Final Phase to discuss with other existing building language

RTE3401.1 Delete NEC language from VRC and instead reference the NEC

Proponents: Bryan Holland (Bryan.Holland@NEMA.org)

Comments: None

Results: Non-Consensus

RTE3902.16(1) Arc-fault circuit interrupter protection requirement

Proponents: Haywood Kines (hkines@pwcgov.org)

Comments: Mr. Clark speaks in opposition to this due to cost and insufficient data verifying their effectiveness. Some speak to the statistics that require AFCI in homes as a life-saving equipment. Mr. Ainsley spoke to nuisance tripping that occurs as a worry for requiring these in single-family homes. Mr. Haywood spoke to improvements in AFCI technology that have greatly reduced costs and risks associated with AFCI. Mr. Clark requests additional data for direct evidence to the life-saving factor of these devices. Mr. Iverson speaks in favor of instituting this protection in homes doesn’t have direct life-saving aspects.

Results: Non-Consensus

RTE3902.16(2) Arc-fault circuit interrupter protection requirement

Proponents: Allen Turner (allen.turner@jamescitycountyva.gov)

Comments: Proponent summarizes. This is an alternative to the other AFCI proposal, to garner consensus by adding an exemption for GFCI protected circuits in bathrooms, garages, kitchens, etc. Mr. Clark disapproves due to cost and insufficient data verifying their effectiveness.

Results: Non-Consensus

RTP2717.3 Dishwashing machine pan requirement

Proponents: MATTHEW GUNN

Comments: Ms. Davis summarizes in absence of the proponent. Mr. Clark speaks in opposition and several others also oppose.

Results: Consensus for Disapproval

TP1303.1 Adds CSA B805/ICC standard

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarizes that this is simply an alternative compliance path for rainwater harvesting.

Results: Consensus for Approval

Workgroup 4

Virginia Construction Code

TP202 Adds service sink definition

Proponents: Lee Craft, VPMIA (lee.craft@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarizes. Mr. Payne recommends striking the word “utility” from the new definition.

Results: Consensus for Approval as Amended (striking the word “utility”)

T2701.1.1 Feeder equipment grounding conductor

Proponents: James Erler (jim@erlerdesign.com); John Lane (redcloudjl@aol.com); Neil Harrington, Smith Mountain Lake Marine Volunteer Fire Rescue (neil.r.harrington@gmail.com)

Comments: Mr. Harrington speaks to what prompted this proposal. Mr. Erler summarized his proposal. Mr. Kines and several others spoke in opposition of this proposal and recommended taking this through the national process and suggested that the 2020 NEC adequately addresses the issue and a possible solution would be to bring in the 2020 NEC requirements. Mr. Witt recommended carrying this over and bring in subject matter experts to address this issue. Mr. Erler suggested that the national recommendations in the 2020 NEC would not resolve the issue in Smith Mountain Lake. Mr. Kines defended the NFPA process. Delegate Byron asked about

TP608.13.6-18

VPC: 608.13.6

Proponents: Paul Hickman (paul.hickman@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

608.13.6 Atmospheric-type vacuum breakers. Pipeapplied atmospheric-type vacuum breakers shall conform to ASSE 1001 or CSA B64.1.1. Hose-connection vacuum breakers shall conform to ASME A112.21.3, ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA B64.2, CSA B64.2.1, CSA B64.2.1.1, CSA B64.2.2 or CSA B64.7. These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height. Water control fittings or devices, such as, shut off valves or spray valves shall not be installed downstream, in a manner that places the backflow device under continuous pressure.

Reason Statement: This is what we are trying to avoid. This installation places the Plumbing Fixture's built-in ASSE 1001 Atmospheric-type Vacuum Breaker under "Continuous Pressure". Which is not consistent with 608.13.6 which states "... These devices [ASSE 1001] shall operate under normal atmospheric pressure..." The proposed addition to Section 608.13.6 will make an extremely common violation more clear.



Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
No cost impact

Resiliency Impact Statement: This proposal will increase Resiliency
Will increase the resiliency of the Built-in ASSE 1001 Atmospheric Vacuum Breaker, by allowing it to operate under atmospheric pressure as designed.

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 4 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

**Public Comments for
TP608.13.6-18**

This proposal doesn't have any public comments.

Proposal # 152

TP608.13.6-18

Mr. Craft suggested 410.3 is first before you substitute.

Ms. Wynn stated that “notwithstanding” is saying the opposite.

Ms. Davis pointed out that they need to work on language.

TABLED

TP423.1

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: Pedicure baths and footbaths have become increasingly more popular. The code has not yet recognized the danger to the water supply these units pose. This change will address that by requiring backflow prevention for these unit. This change does not specify the specific type of backflow device, it simply requires that one be provided per Section 608.

Comments:

Mr. Grace gave an overview of proposal

Ms. Davis questioned if this was taken to national level.

Mr. Grace stated that it was not taken to the national level but was hoping it will.

CONSENSUS APPROVED

TP605.2.1

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: This language is not necessary in the code and not verifiable from an enforcement stance. This language is contained in the NSF 372 Standard and verified during the testing process to meet the standard.

Comments:

Mr. Grace gave an overview of proposal.

CONSENSUS APPROVED

TP608.13.6

Proponents: Paul Hickman (paul.hickman@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Reason Statement: This is what we are trying to avoid. This installation places the Plumbing Fixture’s built-in ASSE 1001 Atmospheric-type Vacuum Breaker under “Continuous Pressure”. Which is not consistent with 608.13.6 which states “... These devices [ASSE 1001] shall operate under normal atmospheric pressure...” The proposed addition to Section 608.13.6 will make an extremely common violation more clear.

Comments:

Mr. Hickman gave an overview of proposal

Mr. Beahm mentioned that he doesn't think it's a construction code, it's a maintenance code.

Mr. Grace pointed out that there is a section in chapter 3 that doesn't belong in chapter 3 that requires annual inspection of back flow preventative devices that we address now or address when we do our annual inspections that will still need to be addressed.

Mr. Beahm stated that it's not an approved device already, it's prohibited already by the code. The enforcement is a different situation.

Ms. Davis pointed out that the intent of this is to clarify that it is prohibited.

Mr. Witt stated that there is confusion with the language and it's beginning to sound like maintenance instead of construction.

Mr. Beahm pointed out that the issue is after the fact. It's whose putting it on the device. He believes the code already addresses it, it's just adding language. He opposes it. This is not a permanent construction item it's an after.

Mr. Craft mentioned that if you saw this in normal inspection you would fail it.

Mr. Hickman responded that is correct.

There was committee consensus to this.

NONCONSENSUS**TP608.16.7**

Proponents: Paul Hickman (paul.hickman@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Reason Statement: This is what we are trying to avoid. This installation places the Plumbing Fixture's built-in ASSE 1001 Atmospheric-type Vacuum Breaker under "Continuous Pressure". Which is not consistent with 608.13.6 which states "...These devices [ASSE 1001] shall operate under normal atmospheric pressure..." The proposed addition to Section 608.16.7 will make an extremely common violation more clear.

TP608.16.7-18

VPC: 608.16.7

Proponents: Paul Hickman (paul.hickman@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

2015 Virginia Plumbing Code

608.16.7 Chemical dispensers. Where chemical dispensers connect to the potable water distribution system, the water supply system shall be protected against backflow in accordance with Section 608.13.1, 608.13.2, 608.13.5, 608.13.6, 608.13.8 or 608.13.9. Chemical Dispensers shall not be connected to plumbing fixtures or hose connection outlets.

Reason Statement: This is what we are trying to avoid. This installation places the Plumbing Fixture's built-in ASSE 1001 Atmospheric-type Vacuum Breaker under "Continuous Pressure". Which is not consistent with 608.13.6 which states "... These devices [ASSE 1001] shall operate under normal atmospheric pressure..." The proposed addition to Section 608.16.7 will make an extremely common violation more clear.





Cost Impact Statement: The code change proposal will increase the cost of construction
Depending on the design of the Chemical Dispenser, an additional Backflow Preventer may be needed.

Resiliency Impact Statement: This proposal will increase Resiliency
Will increase the resiliency of the Built-In ASSE 1001 Atmospheric Vacuum Breaker by allowing it to work, as designed, under atmospheric conditions.

Workgroup Recommendation

Workgroup 4 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 4 - Proposed Reason:



Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for TP608.16.7-18

This proposal doesn't have any public comments.

Proposal # 153

TP608.16.7-18

Comments:

Mr. Hickman gave an overview of proposal

Mr. Beahm mentioned that he doesn't think it's a construction code, it's a maintenance code.

Mr. Grace pointed out that there is a section in chapter 3 that doesn't belong in chapter 3 that requires annual inspection of back flow preventative devices that we address now or address when we do our annual inspections that will still need to be addressed.

Mr. Beahm stated that it's not an approved device already, it's prohibited already by the code. The enforcement is a different situation.

Ms. Davis pointed out that the intent of this is to clarify that it is prohibited.

Mr. Witt stated that there is confusion with the language and it's beginning to sound like maintenance instead of construction.

Mr. Beahm pointed out that the issue is after the fact. It's whose putting it on the device. He believes the code already addresses it, it's just adding language. He opposes it. This is not a permanent construction item it's an after.

Mr. Craft mentioned that if you saw this in normal inspection you would fail it.

Mr. Hickman responded that is correct.

There was committee consensus to this.

NONCONSENSUS**TP608.16.7**

Proponents: Paul Hickman (paul.hickman@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Reason Statement: This is what we are trying to avoid. This installation places the Plumbing Fixture's built-in ASSE 1001 Atmospheric-type Vacuum Breaker under "Continuous Pressure". Which is not consistent with 608.13.6 which states "...These devices [ASSE 1001] shall operate under normal atmospheric pressure..." The proposed addition to Section 608.16.7 will make an extremely common violation more clear.

Comments:

Mr. Hickman gave an overview of proposal

Mr. Beahm stated that he raised opposition to the chemical dispenser as it being indicated on that particular item, it's a maintenance item it's not intended to be a permanent fixture. He can site code that states it's not allowed.

NONCONSENSUS**TP705.11.2**

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: The addition of this exception into the code has caused a direct conflict between what the code allows and what many pipe manufacturers require. We currently have two sections in the Virginia Plumbing Code to address conflicts, 112.3.1 and 301.7 (the Virginia Residential Code has only one, 112.3.1). Both of these sections require that the most restrictive provision apply. In the case of primer use on PVC pipe and fittings, the most restrictive is the use of primer on the joints. I have been unable to locate a piping manufacturer's *installation instructions* that does not require the use of primer on a PVC joint.

Comments:

Mr. Grace gave an overview of proposal

CONSENSUS APPROVED**TP717**

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: To date there has been limited to no code reference for all the technologies currently available to the reline piping systems. Many localities across the state, and country, are accepting it as an alternate material and method with no code guidance. This proposal is not an endorsement of any particular method or process. It does not promote or require relining. It simply provides installation and acceptance criteria when the application is encountered. This language will provide consistent application for all materials and technologies for the industry, including the code official and installers alike. Pipe relining technology has been successfully used for many years. It began with larger utility piping systems and has progressed into smaller piping systems that are privately owned and fall within the purview of the plumbing code. The process reduces the impact of open trench excavation's and thereby reduces repair cost according to industry data.

Comments:

This proposal goes with RTP3011 and was discussed during that proposal.

CONSENSUS APPROVED

PM604.3.1.1-18

VMNC: 604.3.1.1

Proponents: Haywood Kines (hkines@pwcgov.org)

2015 Virginia Maintenance Code

604.3.1.1 Electrical equipment. Electrical distribution equipment, motor circuits, power equipment, transformers, wire, cable, flexible cords, wiring devices, ground fault circuit interrupters, surge protectors, molded case circuit breakers, low-voltage fuses, luminaires, ballasts, motors, and electronic control, signaling, and communication equipment that have been exposed to water shall be replaced in accordance with the provisions of the VCC.

Exception: The following equipment shall be allowed to be repaired or reused where an inspection report from the equipment manufacturer, an approved representative of the equipment manufacturer, ~~a third party licensed or certified electrician~~, or an electrical engineer indicates that the exposed equipment has not sustained damage that requires replacement:

1. Enclosed switches, rated 600 volts or less;
2. Busway, rated 600 volts or less;
3. Panelboards, rated 600 volts or less;
4. Switchboards, rated 600 volts or less;
5. Fire pump controllers, rated 600 volts or less;
6. Manual and magnetic motor controllers;
7. Motor control centers;
8. Alternating current high-voltage circuit breakers;
9. Low-voltage power circuit breakers;
10. Protective relays, meters and current transformers;
11. Low- and medium-voltage switchgear;
12. Liquid-filled transformers;
13. Cast-resin transformers;
14. Wire or cable that is suitable for wet locations and whose ends have not been exposed to water;
15. Wire or cable, not containing fillers, that is suitable for wet locations and whose ends have not been exposed to water;
16. Luminaires that are listed as submersible;
17. Motors; or
18. Electronic control, signaling and communication equipment.

Reason Statement: The protective components are critical to the electrical systems to maintain safe operation of all electrical equipment. Their ability to protect the electrical system is adversely affected by exposure to water and to the minerals, contaminants that may be present in the water. Equipment such as Molded case circuit breakers, switches, Busway, signaling and communication systems can be subject to corrosion and damaged from exposure to these conditions.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This proposal is intended to maintain the same level of safety for the electrical systems in our existing homes and commercial buildings after a fire, floods, etc. has occurred.

Resiliency Impact Statement: This proposal will increase Resiliency. This will increase the level of safety in all of our residential and commercial buildings that have subjected to flooding or equipment subjected to water from fighting fires.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 2 - Proposed Reason: Mr. Beahm and Mr. Pharr raised several points and are in opposition. Mr. Miliken is in support.

Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM604.3.1.1-18

This proposal doesn't have any public comments.

Proposal # 203

PM604.3.1.1-18

Reason Statement: Add to 2018 Virginia Maintenance Code, to start 2021. Older buildings often develop concerns. Code officials lack resources to inspect most. Private inspections often when building sold, financed, or new insurance. Rental residences focus on life safety of people (families, maybe self-escape challenged) with little control over conditions. Buildings over 50 years old starts with those built before statewide building codes based on modern national codes. Requiring again inspect every 40 years helps record later conditions. Inspector need quickly report serious hazards to AHJ, which may get copy of report if ask.

Comments:

Mr. Mr. Millikens gave an overview of proposal

Mr. Pharr pointed out that the code of VA wouldn't allow this to be done 36-105.1.1, authorizes localities to adopt a real inspections program only after meeting a number of criteria and making a number of specific findings and they have to designate specific real inspection districts. It's a statutory obstacle to do this.

CONSENSUS FOR DISAPPROVAL

PM603.7

Proponents: Teresa Gerber, Chesterfield County (gerbert@chesterfield.gov); Ronald Clements Jr. (clementsro@chesterfield.gov)

Reason Statement: This adds the ability to address fuel oil and propane tanks, including the delivery system from the tank to the equipment or appliance.

Comments:

Ms. Gerber gave an overview of proposal

Mr. O'Connor pointed out that these issues are cover largely in the Fire Code NFPA 58.

NONCONSENSUS

PM604.3.1.1

Proponents: Haywood Kines (hkines@pwcgov.org)

Reason Statement: The protective components are critical to the electrical systems to maintain safe operation of all electrical equipment. Their ability to protect the electrical system is adversely affected by exposure to water and to the minerals, contaminants that may be present in the water. Equipment such as molded case circuit breakers, switches, Busway, signaling and communication systems can be subject to corrosion and damaged from exposure to these conditions.

Comments:

Mr. Kines gave an overview of proposal

Ms. Davis pointed out that this was just added during the last cycle.

Mr. Pharr stated that he is opposed to deletion in the prohibiting the licensure or certified electrician to make the determination or make the appropriate contacts to find out what they need to.

Mr. Catlett pointed out that the best way to handle this is to put it under the 3rd party inspection requirement because it's mandated by the code to have those.

Mr. Beahm questioned what the 3rd party is in this proposal.

NONCONSENSUS

PM702.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: This section has a reference to the IFC that is vague and incorrect in Virginia, and reads like a new construction provision or retrofit provision. This proposal corrects the section so it is a maintenance provision.

Comments:

Mr. Clements gave an overview of proposal

Mr. Milliken pointed out this is changing the intent of the inspection.

The violation is of the maintenance code.

CARRYOVER TO AUGUST

VIRGINIA STATEWIDE FIRE PREVENTION CODE

FP105

Proponents: Joe Boisseau

Reason Statement: This is a holdover from the BOCA and is now 25 years or more old. Does this still apply with several new versions of the ICC and moving into 2018 codes?

Comments:

No one to speak on it

CONSENSUS FOR DISAPPROVAL

FP202(1)

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Reason Statement: The definition of corrosive is a complicated criterion that is often difficult to confirm during field inspections or document review. This proposal does not change or remove the current definition but rather adds physical property criteria as defined by the United States Environmental Protection Agency in 40 CFR 261.22 (<https://www.govinfo.gov/content/pkg/CFR-2018-title40-vol28/pdf/CFR-2018-title40-vol28-sec261-22.pdf>). Using this physical characteristic point of reference will enhance building owner/operators as well as code enforcers understanding of this definition and help to focus compliance questions on the hazards rather than a complicated definition.

Comments:

Mr. Milliken gave an overview of proposal

CONSENSUS APPROVED WITH AMENDMENTS

- Add “or” , reads: “ or a substance”
- Correlate the definition corrosive with the construction code

FP202 (2)

Proponents: Charles Walker, TNT Fireworks

PM603.7-18

VMNC: 603.7 (New)

Proponents: Teresa Gerber, Chesterfield County (gerbert@chesterfield.gov); Ronald Clements Jr (clementsro@chesterfield.gov)

2015 Virginia Maintenance Code

Add new text as follows:

603.7 Fuel Tanks and Systems

Fuel gas or combustible or flammable liquid containers, tanks, and piping systems shall be *maintained* in compliance with the code under which they were installed, kept in safe working condition, and capable of performing the intended function; or, removed or abandoned in accordance with the Virginia Statewide Fire Prevention Code.

Reason Statement: This adds the ability to address fuel oil and propane tanks, including the delivery system from the tank to the equipment or appliance.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This does not affect the cost of construction, only the ability to enforce the maintenance of the entire system.

Workgroup Recommendation

Workgroup 2 - Proposed Workgroup Recommendation: Non-Consensus

Workgroup 2 - Proposed Reason: Ms. Gerber provided an overview of proposal.

Mr. O'Connor has an issue with this addition because it causes unintended consequences, for example, who is going to maintain compliance.

Mr. Gordon has an issue with this addition because it's already addressed in the fire code. He stated that someone could contact the Fire Marshalls office if they have a tank maintenance issue.

Mr. Witt stated that the fire codes doesn't reference single family dwellings and suggested that maybe the proponent can work with individuals that have concerns with the language about who is responsible and clean up the language to cite the person that is in responsible charge, be it the homeowner or whoever is responsible for building.

Ms. Hale disagrees with the comment about single family homes being referenced in the fire codes.

Mr. Clements pointed out that the maintenance code states that the owner is responsible for maintaining the entire building and every system in it. He's not sure what unintended consequences would arise.

7/24/19- No changes since last meeting. Mr. O'Connor brought forward propane association comments in "strong" opposition.

Workgroup Recommendation

- ☐ Consensus Approval
- ☐ Consensus Disapproval
- ☐ Carry Over to Next Meeting
- ☐ Carry over to Final
- ☐ Non-Consensus
- ☐ None

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for PM603.7-18

Public Comment by Richard Potts

Jul 25, 2019 15:09 UTC

Mike O'Connor

From: Dennis Cruise <propanetrainingservices@gmail.com>
Sent: Tuesday, July 23, 2019 7:42 PM
To: mike@vpcma.com
Subject: Proposed code change

Mr. O'Connor,

I have reviewed the proposed addition of section 603.7 from the prospective of the propane industry in Virginia and have several concerns.

Propane containers that are both temporarily or permanently out of service are already addressed in Chapter 61 of the Statewide Fire Prevention Code.

Propane systems are already regulated by NFPA 58 as referenced in the Virginia Statewide Fire Prevention Code and the Virginia Fuel Gas Code.

Lastly I have concerns placing propane systems or containers into the same code as flammable / combustible liquids as this code was is written. Liquid fuels are regulated by entirely different sections of both NFPA and the Statewide Fire Prevention Code as they are completely different products. Even the EPA regulates propane differently e.g. propane tanks may be abandoned in place. Unlike other petroleum products, the EPA does not consider propane to be a groundwater contaminant.

Introducing additional code(s) for something already addressed elsewhere will surely create conflict and unintended consequences.

If you have any questions please do not hesitate to contact me.

Regards,

Dennis

Dennis L. Cruise
Propane Training Services LLC
Phone 434-841-1636
Fax 888-235-3472
propanetrainingservices@gmail.com



Proposal # 99

PM603.7-18

Reason Statement: Add to 2018 Virginia Maintenance Code, to start 2021. Older buildings often develop concerns. Code officials lack resources to inspect most. Private inspections often when building sold, financed, or new insurance. Rental residences focus on life safety of people (families, maybe self-escape challenged) with little control over conditions. Buildings over 50 years old starts with those built before statewide building codes based on modern national codes. Requiring again inspect every 40 years helps record later conditions. Inspector need quickly report serious hazards to AHJ, which may get copy of report if ask.

Comments:

Mr. Mr. Millikens gave an overview of proposal

Mr. Pharr pointed out that the code of VA wouldn't allow this to be done 36-105.1.1, authorizes localities to adopt a real inspections program only after meeting a number of criteria and making a number of specific findings and they have to designate specific real inspection districts. It's a statutory obstacle to do this.

CONSENSUS FOR DISAPPROVAL

PM603.7

Proponents: Teresa Gerber, Chesterfield County (gerbert@chesterfield.gov); Ronald Clements Jr. (clementsro@chesterfield.gov)

Reason Statement: This adds the ability to address fuel oil and propane tanks, including the delivery system from the tank to the equipment or appliance.

Comments:

Ms. Gerber gave an overview of proposal

Mr. O'Connor pointed out that these issues are cover largely in the Fire Code NFPA 58.

NONCONSENSUS

PM604.3.1.1

Proponents: Haywood Kines (hkines@pwcgov.org)

Reason Statement: The protective components are critical to the electrical systems to maintain safe operation of all electrical equipment. Their ability to protect the electrical system is adversely affected by exposure to water and to the minerals, contaminants that may be present in the water. Equipment such as molded case circuit breakers, switches, Busway, signaling and communication systems can be subject to corrosion and damaged from exposure to these conditions.

Comments:

Mr. Kines gave an overview of proposal

Ms. Davis pointed out that this was just added during the last cycle.

Mr. Pharr stated that he is opposed to deletion in the prohibiting the licensure or certified electrician to make the determination or make the appropriate contacts to find out what they need to.

Mr. Catlett pointed out that the best way to handle this is to put it under the 3rd party inspection requirement because it's mandated by the code to have those.

Mr. Beahm questioned what the 3rd party is in this proposal.

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
Base Document for the 2018 Virginia Industrialized Building Safety Regulations

Summary – This document is compiled by staff of the State Building Codes Office (SBCO) of the Division of Building and Fire Regulation. Its purpose is to make those changes necessary to the 2015 IBSR to utilize the 2018 editions of the International Codes and to review the existing IBSR for any changes necessary to comport with state law. Other substantive changes to the IBSR by interest groups or by SBCO staff are handled through proposals submitted through the department's electronic code change system (cdpVA). Once the base document is approved by the Board of Housing and Community Development, any code change proposals which are approved by the Board of Housing and Community Development prior to the development of proposed regulations will be combined with the base document and brought back to the Board of Housing and Community Development as a separate "proposed regulations" document for review.

13VAC5-91-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise.

"Administrator" means the Director of DHCD or his designee.

"Approved" as applied to a material, device, method of construction, registered building, or as otherwise used in this chapter means approved by the administrator.

"Building official" means the officer or other designated authority charged with the administration and enforcement of the USBC, or duly authorized representative.

"Compliance assurance agency" means an architect or professional engineer registered in Virginia, or an organization, determined by DHCD to be specially qualified by reason of facilities, personnel, experience, and demonstrated reliability, to investigate, test and evaluate industrialized buildings; to list such buildings complying with standards at least equal to this chapter; to provide adequate follow-up services at the point of manufacture to ensure that production units are in full compliance; and to provide a label as evidence of compliance.

"DHCD" means the Virginia Department of Housing and Community Development. "ICC" means the International Code Council, Inc.

"Industrialized building" means a combination of one or more sections or modules, subject to state regulations and including the necessary electrical, plumbing, heating, ventilating, and other service systems, manufactured off-site and transported to the point of use for installation or erection, with or without other specified components, to comprise a finished building. Manufactured homes defined in § 36-85.3 of the Code of Virginia and certified under the provisions of the National Manufactured Housing Construction and Safety Standards Act (42 USC § 5401 et seq.) shall not be considered industrialized buildings for the purpose of this law.

"Label," "certification label," or "compliance assurance agency certification label" means the label required by 13VAC5-91-210.

"Model" means a specific design of an industrialized building designated by the producer of the building including production buildings with variations and options that do not affect compliance with the standards governing structural, plumbing, mechanical, or electrical systems or any other items governed by this chapter.

"Registered" means an industrialized building which displays a registration seal issued by DHCD in accordance with this chapter.

"Seal," "registration seal," or "Virginia registration seal" means the seal required by 13VAC5- 91-260.

"SBCO" means the State Building Codes Office within DHCD.

"State Review Board" means the Virginia State Building Code Technical Review Board as established by § 36-108

of the Code of Virginia.

"This law" means the Virginia Industrialized Building Safety Law as embraced in Chapter 4 (§ 36-70 et seq.) of Title 36 of the Code of Virginia.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63).

13VAC5-91-20. Application and Compliance.

A. In accordance with § 36-81 of the Code of Virginia, registered industrialized buildings shall be acceptable in all localities as meeting the requirements of the Industrialized Building Safety Law (Chapter 4 (§ 36-70 et seq.) of Title 36 of the Code of Virginia), which shall supersede the building codes and regulations of the counties, municipalities and state agencies. Local requirements affecting industrialized buildings, including zoning, utility connections, preparation of the site and maintenance of the unit shall remain in full force and effect. All building officials are authorized to and shall enforce the provisions of the Industrialized Building Safety Law (Chapter 4 (§ 36-70 et seq.) of Title 36 of the Code of Virginia) and this chapter.

B. In accordance with § 36-78 of the Code of Virginia, no person, firm or corporation shall offer for sale or rental, or sell or rent, any industrialized building subject to any provisions of this chapter unless it conforms with the applicable provisions of this chapter.

Further, any industrialized building constructed before January 1, 1972, shall remain subject to the ordinances, laws or regulations in effect at the time such industrialized building was constructed. Additionally, as a requirement of this chapter, any industrialized building bearing the label of a compliance assurance agency shall remain subject to the provisions of this chapter that were effective when such building was constructed, regardless of whether the building has been relocated.

C. In accordance with § 36-99 of the Code of Virginia and in accordance with the USBC, the installation or erection of industrialized buildings and alterations, additions, or repairs to industrialized buildings are regulated by the USBC and not this chapter. The USBC provides for administrative requirements for permits, inspections, and certificates of occupancy for such work.

D. Off-site manufactured intermodal freight containers, moving containers, and storage containers placed on site temporarily or permanently for use as a storage container are not subject to this chapter.

13VAC5-91-30. Purpose.

The purpose of this chapter is to ensure safety to life, health, and property through compliance with uniform statewide construction standards for industrialized buildings.

13VAC5-91-40. Inspection and Enforcement by Administrator.

A. The SBCO is designated as the administrator's representative for the enforcement of this chapter and shall act as the building official for registered industrialized buildings. It shall have authority to make inspections during reasonable hours at the manufacturing facilities and at building sites where industrialized buildings are being installed. The SBCO shall have authority to issue inspection reports for correction of violations caused by the manufacturer and to take such other actions as are required to enforce this chapter.

B. The SBCO will maintain a list of approved compliance assurance agencies. Each manufacturer producing registered industrialized buildings will contract with one or more compliance assurance agencies for required evaluation, monitoring and inspection services. The contract will delineate the services to be provided by the compliance assurance agency. The compliance assurance agency will notify the SBCO within 30 days of signing a new contract or terminating an existing contract with any manufacturer.

13VAC5-91-50. Right of Entry and Examination by Administrator.

In accordance with § 36-82 of the Code of Virginia, the administrator shall have the right, at all reasonable hours, to enter into any industrialized building upon permission of any person who has authority or shares the use, access, or control over the building, or upon request from local officials having jurisdiction, for examination as to compliance with this chapter.

13VAC5-91-60. Notice of Violation from Administrator.

In accordance with § 36-82 of the Code of Virginia, whenever the administrator shall find any violation of this chapter, he shall order the person responsible therefor to bring the building into compliance within a reasonable time, to be fixed in the order. In addition, as a requirement of this chapter, the administrator may request assistance from the building official for enforcement of this section. Any order issued by the administrator pursuant to this section shall contain a statement explaining the right of appeal of the order.

13VAC5-91-70. Appeals.

Any person aggrieved by DHCD's application of this chapter shall be heard by the State Review Board established by § 36-108 of the Code of Virginia. Such appeal shall be submitted within 21 calendar days of receipt of DHCD's decision. A copy of the decision of DHCD to be appealed shall be submitted with the application for appeal. Failure to submit an application for appeal within the time limit established by this section shall constitute acceptance of DHCD's decision.

13VAC5-91-80. Limitation of Manufacturer's Liability.

The manufacturer of a registered industrialized building shall not be required to remedy violations caused by on-site work by others not under his control or violations involving components and materials furnished by others and not included with the registered industrialized building.

13VAC5-91-90. Penalty for Violation.

In accordance with § 36-83 of the Code of Virginia, any person, firm or corporation violating any provisions of this chapter shall be considered guilty of a Class 1 misdemeanor and, upon conviction, shall be fined not more than \$1,000.

13VAC5-91-100. Duties and Responsibilities of Building Officials in the Installation or Erection of a Registered Industrialized Building.

A. All building officials are authorized by § 36-81 of the Code of Virginia to enforce the provisions of this chapter and shall be responsible for and authorized to do the following:

1. Verify through inspection that the registered industrialized building displays the required state registration seal and the proper label of the compliance assurance agency.
2. Verify through inspection that the registered industrialized building has not been damaged in transit to a degree that would render it unsafe. If the building has been damaged, then the building official is authorized to require tests for tightness of plumbing systems and gas piping and an operational test to ensure that all luminaries and receptacles are operable.
3. If warranted due to the nature of any violations discovered, the building official shall be permitted to require the correction of any violations of this chapter before occupancy of the registered industrialized building is permitted.
4. Notify the SBCO of any apparent violations of this chapter.

B. In accordance with § 36-99 of the Code of Virginia and the USBC, all site work associated with the installation or erection of an industrialized building is subject to the USBC. In addition, under the USBC, all administrative requirements for permits, inspections, and certificates of occupancy are also applicable.

13VAC5-91-115. Change of Occupancy Classification.

When the occupancy classification of a registered industrialized building is proposed to be changed, a compliance assurance agency shall inspect the building, including any disassembly necessary, to determine whether compliance may be achieved for a change of occupancy classification in accordance with this chapter. If factory plans are available, then disassembly is not required to the extent that the factory plans can be reasonably verified to reflect the actual construction. Once any necessary work is completed, the compliance assurance agency shall prepare a report documenting the method utilized for the change of occupancy and any alterations to the building to achieve compliance. When the report is complete, the compliance assurance agency shall (i) mark the building with

a new compliance assurance agency label in accordance with 13VAC5-91-210, which replaces the existing label; (ii) place a new manufacturer's data plate on the building in accordance with 13VAC5-91-245, which replaces the existing manufacturer's data plate and reflects the new occupancy classification; and (iii) forward a copy of the report and new data plate to the SBCO.

13VAC5-91-120. Unregistered Industrialized Buildings.

The building official shall determine whether any unregistered industrialized building complies with this chapter and shall require any noncomplying unregistered building to be brought into compliance with this chapter. The building official shall enforce all applicable requirements of this chapter including those relating to the sale, rental and disposition of noncomplying buildings. The building official may require submission of full plans and specifications for each building. Concealed parts of the building may be exposed to the extent necessary to permit inspection to determine compliance with the applicable requirements.

The building official may also accept reports of inspections and tests from individuals or agencies deemed acceptable to the building official.

13VAC5-91-125. Registration of Unregistered Industrialized Buildings.

An existing unregistered industrialized building may be registered in accordance with one of the following:

1. Where an unregistered building was constructed under an industrialized building program of another state and approved under such program, a compliance assurance agency shall prepare a report based on review of the plans and specifications and inspection of the building to determine whether there is compliance with the construction requirements of this chapter that were in effect on the date of manufacture of the building. If compliance is determined, the compliance assurance agency shall (i) mark the building with a compliance assurance agency label in accordance with 13VAC5-91-210, (ii) place a new manufacturer's data plate on the building in accordance with 13VAC5-91-245, (iii) mark the building with a registration seal in accordance with 13VAC5-91-260 , and (iv) forward a copy of the report and new data plate to the SBCO.
2. Where an unregistered building was not approved under an industrialized building program of another state and the date of manufacture can be verified, the compliance assurance agency shall inspect the building, including any disassembly necessary, to determine whether there is compliance with the construction requirements of this chapter that were in effect on the date of manufacture of the building. When factory plans are available, disassembly is not required to the extent that the factory plans can be verified to reflect the actual construction of the building. When compliance with the construction requirements of this chapter that were in effect on the date of manufacture of the building is achieved, the compliance assurance agency shall prepare a report documenting compliance, outlining any changes made to the building, and certifying the building in accordance with clauses (i) through (iv) of subdivision 1 of this section.
3. When the date of manufacture of the existing unregistered building cannot be verified, the building shall be evaluated for compliance with the codes and standards specified in 13VAC5-91-160. The compliance assurance agency shall inspect the building, including any disassembly necessary, to determine whether there is compliance with these construction requirements. If compliance is achieved, the compliance assurance agency shall prepare a report documenting compliance, outlining any changes made to the building, and certifying the building in accordance with clauses (i) through (iv) of subdivision 1 of this section.

13VAC5-91-140. Report to the SBCO.

If the building is moved from the jurisdiction before the violations have been corrected, the building official shall make a prompt report of the circumstances to the SBCO. The report shall include all of the following:

1. A list of the uncorrected violations.
2. All information contained on the label pertinent to the identification of the building, the manufacturer and the compliance assurance agency.
3. The number of the Virginia registration seal.

4. The new destination of the building, if known.

5. The party responsible for moving the building.

13VAC5-91-150. When Modification May Be Granted.

The administrator shall have the power upon request in specific cases to authorize modification of this chapter so as to permit certain specified alternatives where the objectives of this law can still be fulfilled. Such request shall be in writing and shall be accompanied by the plans, specifications and other information necessary for an adequate evaluation of the modification requested.

13VAC5-91-160. Use of Model Codes and Standards.

A. Industrialized buildings entering the production assembly line after the effective date of the ~~2015~~ 2018 edition of this chapter shall comply with all applicable requirements of the codes and standards listed in subsection B of this section except that the following codes and standards may be used for industrialized buildings entering the assembly line during a one- year period after the effective date of the ~~2015~~ 2018 edition of this chapter:

1. ICC International Building Code - ~~2012~~ 2015 Edition
2. ICC International Plumbing Code - ~~2012~~ 2015 Edition
3. ICC International Mechanical Code - ~~2012~~ 2015 Edition
4. National Fire Protection Association Standard Number 70 (National Electrical Code) - ~~2011~~ 2014 Edition
5. ICC International Fuel Gas Code - ~~2012~~ 2015 Edition
6. ICC International Energy Conservation Code - ~~2012~~ 2015 Edition
7. ICC International Residential Code - ~~2012~~ 2015 Edition

B. The following documents are adopted and incorporated by reference to be an enforceable part of this chapter:

1. ICC International Building Code - ~~2015~~ 2018 Edition
2. ICC International Plumbing Code - ~~2015~~ 2018 Edition
3. ICC International Mechanical Code - ~~2015~~ 2018 Edition
4. National Electrical Code - ~~2014~~ 2017 Edition
5. ICC International Fuel Gas Code - ~~2015~~ 2018 Edition
6. ICC International Energy Conservation Code - ~~2015~~ 2018 Edition
7. ICC International Residential Code - ~~2015~~ 2018 Edition

Note: As the ~~2015~~ 2018 editions of the International Codes are incorporated by reference as the construction standards for use with these regulations, this chapter is also referred to as the ~~2015~~ 2018 edition of the Virginia Industrialized Building Safety Regulations or the ~~2015~~ 2018 edition of this chapter.

The codes and standards referenced above may be procured from:

International Code Council, Inc.
500 New Jersey Avenue, NW, 6th Floor
Washington, DC 20001-2070

13VAC5-91-170. Amendments to Codes and Standards.

A. All requirements of the referenced model codes and standards that relate to fees, permits, certificates of use and occupancy, approval of plans and specifications, and other procedural, administrative and enforcement matters are deleted and replaced by the procedural, administrative and enforcement provisions of this chapter.

B. The referenced codes and standards are amended as set forth in the USBC.

13VAC5-91-180. Compliance Assurance Agencies.

A. Application shall be made to the SBCO for acceptance as a compliance assurance agency. Application shall be made under oath and shall be accompanied by information and evidence that is adequate for the SBCO to determine whether the applicant is specially qualified by reason of facilities, personnel, experience, and demonstrated reliability to investigate, test, and evaluate industrialized buildings for compliance with this chapter and to provide adequate follow-up and compliance assurance services at the point of manufacture.

B. Following a determination by the SBCO that an application is complete, the information contained in the application and any other information deemed necessary by the SBCO will be reviewed for approval or disapproval. If the application is approved, the applicant will be notified with an approval letter. If the application is disapproved, the applicant will be notified in writing of the reasons for the disapproval. The applicant may then resubmit the application within 30 days of the receipt of the notification of disapproval for reconsideration of approval.

C. The SBCO may suspend or revoke the approval of a compliance assurance agency upon a determination that (i) approval was based upon fraudulent or inaccurate information, (ii) a change in facts or circumstances renders the agency incapable of meeting its duties and responsibilities as a compliance assurance agency in a satisfactory manner, or (iii) the agency failed to discharge its duties and responsibilities as a compliance assurance agency in a satisfactory manner. In such cases, the SBCO will issue a suspension or revocation notice to the agency outlining the reasons for the actions and the terms, if any, for reinstatement.

13VAC5-91-190. Freedom from Conflict of Interest.

A compliance assurance agency shall not be affiliated with, nor influenced or controlled by, producers, suppliers or vendors of products in any manner which might affect its capacity to render reports of findings objectively and without bias. A compliance assurance agency is judged to be free of such affiliation, influence and control if it complies with all of the following conditions:

1. The agency has no managerial affiliation with producers, suppliers or vendors and is not engaged in the sale or promotion of any product or material.
2. The results of the agency's work accrue no financial benefits to the agency through stock ownership of, or other similar affiliation to, any producer, supplier or vendor of the product involved.
3. The agency's directors and other management personnel in their job capacities receive no stock option or other financial benefit from any producer, supplier or vendor of the product involved.
4. The agency has sufficient interest or activity that the loss or award of a specific contract to determine compliance of a producer's, supplier's or vendor's product with this chapter would not be a determining factor in its financial well-being.
5. The employment security status of the agency's personnel is free of influence or control by producers, suppliers or vendors.

13VAC5-91-200. Information Required by the Administrator.

All of the following information and criteria will be considered by the administrator in designating approval of compliance assurance agencies:

1. Names of officers and location of offices.
2. Specification and description of services proposed to be furnished under this chapter.
3. Description of qualifications of personnel and their responsibilities, including an assurance that

personnel involved in system analysis, design and plans review, and compliance assurance inspections and their supervisors comply with the requirements of the American Society for Testing and Material (ASTM) Standard Number E541-10 - Standard Specification for Agencies Engaged in System Analysis and Compliance Assurance for Manufactured Building or shall obtain ICC or DHCD certifications in the appropriate subject area within 18 months of employment and maintain such certifications in an active status.

4. Summary of experience within the organization.
5. General description of procedures and facilities to be used in proposed services, including evaluation of the model, factory follow-up, quality assurance, labeling of production buildings, and specific information to be furnished on or with labels.
6. Procedures to deal with any defective buildings resulting from oversight.
7. Acceptance of these services by independent accrediting organizations.
8. Proof of independence and absence of conflict of interest.

The ASTM Standard Number E541-10 may be procured from:

American Society for Testing and Materials
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

13VAC5-91-210. Compliance Assurance Agency Certification Label.

A. Registered industrialized buildings shall be marked with certification labels supplied by the compliance assurance agency that includes the name and address of the compliance assurance agency and the numbers of the certification labels. The labels shall be applied to registered industrialized buildings intended for sale or use in Virginia and shall be applied prior to the shipment of the building from the place of manufacture. The labels shall be applied by the compliance assurance agency or by the manufacturer when so authorized by the compliance assurance agency.

B. Registered industrialized buildings shall bear one certification label on each manufactured section or module, or as an alternative, the certification label for each manufactured section or module may be placed in one location in the completed building.

13VAC5-91-220. Mounting of Compliance Assurance Agency Certification Label.

To the extent practicable, the certification label shall be installed so that it cannot be removed without destroying it. The label shall be applied in the vicinity of the electrical distribution panel or in another location that is readily accessible for inspection and shall be installed near the registration seal.

13VAC5-91-240. Control of Compliance Assurance Agency Certification Label.

The labels shall be under direct control of the compliance assurance agency and shall be applied to buildings that comply fully with this chapter. The labels shall be applied by the compliance assurance agency or by the manufacturer when authorized to do so by the compliance assurance agency. The manufacturer shall place its order for labels with the compliance assurance agency. The manufacturer is not permitted to acquire labels from any other source. Each compliance assurance agency shall keep a list of the serial numbers of labels issued to each manufacturer's plant in such manner that a copy of the record can be submitted to the administrator upon request.

13VAC5-91-245. Manufacturer's Data Plate.

A. All of the following information shall be placed on a permanent manufacturer's data plate in the vicinity of the electrical distribution panel or in some other location that is readily accessible for inspection. The compliance assurance agency shall approve the form and location of the data plate and shall ensure that the data plate is complete:

1. Manufacturer's name and address.

2. Compliance assurance agency certification number.
3. Serial number of each module of the building.
4. Serial number of the Virginia registration seal.
5. Date of manufacture of the building.
6. List of codes and standards under which the building was evaluated and constructed and the type of construction and occupancy classification under those codes and standards.
7. Design live roof load, design floor live load, design wind speed, and design ground snow load.
8. Thermal resistance ("R") values.
9. Special conditions or limitations concerning the use of the building under the codes and standards applicable to the building; however, a list of such conditions or limitations that are furnished separately with the building shall satisfy this requirement.
10. Special instructions for handling, installation and erection of the building; however, a list of such instructions that are furnished separately with the building shall satisfy this requirement.
11. Designation of electrical service ratings, directions for water and drain connections and, where applicable, identification of permissible type of gas for appliances.
12. Name of manufacturer and model designation of major factory installed appliances.

B. The manufacturer shall maintain copies of the data plate and reports of inspection, tests and any corrective action taken for a minimum period of 10 years from the date of manufacture of the building.

13VAC5-91-250. Industrialized Buildings Eligible for Registration.

Any industrialized building must meet all of the following requirements to be registered and eligible for a Virginia registration seal:

1. The design of the building has been found by a compliance assurance agency to be in full compliance with this chapter. Approved designs shall be evidenced by the stamp and date of approval on each design sheet by the compliance assurance agency.
2. The compliance assurance agency has conducted any necessary testing and evaluation of the building and its component parts.
3. The compliance assurance agency has provided the required inspections and other quality assurance follow-up services at the point of manufacture to assure the building complies with this chapter.
4. The building contains the appropriate evidence of such compliance through a label permanently affixed by the compliance assurance agency.

13VAC5-91-260. Registration Seal for Industrialized Buildings.

A. Registered industrialized buildings shall be marked with approved registration seals issued by the SBCO. The seals shall be applied to a registered industrialized building intended for sale or use in Virginia prior to the shipment of the building from the place of manufacture. The seals shall be applied by the compliance assurance agency or by the manufacturer when authorized to do so by the compliance assurance agency.

B. Registered industrialized buildings shall bear one registration seal on each manufactured section or module, or, as an alternative, the registration seal for each manufactured section or module may be placed in one location in the completed building.

C. Approved registration seals shall be purchased by the compliance assurance agency from the SBCO in advance of use. The fee for each registration seal shall be \$75. Fees shall be submitted by checks made payable to

"Treasurer of Virginia" or shall be submitted by electronic means. Payment for the seals must be received by the SBCO before the seals can be sent to the user. The compliance assurance agency shall maintain permanent records of seals purchased, including a record of any manufacturers receiving such seals.

D. To the extent practicable, the registration seal shall be installed so that it cannot be removed without destroying it. The seal shall be applied in the vicinity of the electrical distribution panel or in another location that is readily accessible for inspection and shall be installed near the certification label.

E. In accordance with § 36-85.1 of the Code of Virginia, any person or corporation having paid the fee for an approved registration seal that it will not use may, unless and except as otherwise specifically provided, within one year from the date of the payment of any such fee, apply to the administrator for a refund, in whole or in part, of the fee paid; provided that no payment shall be recovered unless the approved registration seal is returned unused and in good condition to the administrator. Additionally, as a requirement of this chapter, an administrative and processing fee of 25% of the amount of the refund due shall be deducted from the refund; however, such deduction shall not exceed \$250.

13VAC5-91-270. Manufacturer's Installation Instructions and Responsibilities of Installers.

A. The manufacturer of each industrialized building shall provide specifications or instructions, or both, with each building for handling, installing, or erecting the building. Such instructions may be included as part of the label from the compliance assurance agency or may be furnished separately by the manufacturer of the building. The manufacturer shall not be required to provide the foundation and anchoring equipment for the industrialized building.

B. Persons or firms installing or erecting registered industrialized buildings shall install or erect the building in accordance with the manufacturer's instructions.

C. Where the installation or erection of an industrialized building utilizes components that are to be concealed, the installer shall notify and obtain approval from the building official prior to concealment of such components unless the building official has agreed to an alternative method of verification.

Note: The Virginia Department of Professional and Occupational Regulation's Board for Contractors requires licenses for certain activities related to the industrialized building industry. For more information, contact the Board for Contractors at 9960 Mayland Drive, Suite 400, Richmond, VA 23233; (804) 367-8511.

Documents Incorporated by Reference (13VAC5-91)

International Code Council, 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001- 2070
(<http://shop.iccsafe.org/codes.html>):

ICC International Plumbing Code -- ~~2012~~ 2015 and ~~2015~~ 2018 Editions

ICC International Mechanical Code -- ~~2012~~ 2015 and ~~2015~~ 2018 Editions

ICC International Building Code -- ~~2012~~ 2015 and ~~2015~~ 2018 Editions

ICC International Residential Code -- ~~2012~~ 2015 and ~~2015~~ 2018 Editions

ICC International Fuel Gas Code -- ~~2012~~ 2015 and ~~2015~~ 2018 Editions

ICC International Energy Conservation Code -- ~~2012~~ 2015 and ~~2015~~ 2018 Editions

NFPA 70, National Electrical Code -- ~~2011~~ 2014 and ~~2014~~ 2018 Editions, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471 (<http://www.nfpa.org/>)

ASTM Standard Number E54110 -- Standard Specification for Agencies Engaged in System Analysis and Compliance Assurance for Manufactured Building, American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 (<http://www.astm.org/>)

IB20-18

VRGC: 13VAC5-91-20, 13VAC5-91-150

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

2015 Virginia Building and Fire Code Related Regulations

Revise as follows:

13VAC5-91-20 Application and compliance.

A. In accordance with 36-81 of the Code of Virginia, registered industrialized buildings shall be acceptable in all localities as meeting the requirements of the Industrialized Building Safety Law [Chapter 4 (36-70 et seq.) of Title 36 of the Code of Virginia], which shall supersede the building codes and regulations of the counties, municipalities and state agencies. Local requirements affecting industrialized buildings, including zoning, utility connections, preparation of the site and maintenance of the unit shall remain in full force and effect. All building officials are authorized to and shall enforce the provisions of the Industrialized Building Safety Law [Chapter 4 (36-70 et seq.) of Title 36 of the Code of Virginia] and this chapter.

B. In accordance with 36-78 of the Code of Virginia, no person, firm or corporation shall offer for sale or rental, or sell or rent, any industrialized building subject to any provisions of this chapter unless it conforms with the applicable provisions of this chapter.

Further, any industrialized building constructed before January 1, 1972, shall remain subject to the ordinances, laws or regulations in effect at the time such industrialized building was constructed. Additionally, as a requirement of this chapter, any industrialized building bearing the label of a compliance assurance agency shall remain subject to the provisions of this chapter that were effective when such building was constructed, regardless of whether the building has been relocated.

C. In accordance with 36-99 of the Code of Virginia and in accordance with the USBC, the installation or erection of industrialized buildings and alterations, additions, or repairs to industrialized buildings are regulated by the USBC and not this chapter. The USBC provides for administrative requirements for permits, inspections, and certificates of occupancy for such work.

D. The use of off-site manufactured intermodal freight containers, moving containers or storage containers as building modules or components of an industrialized building must be approved by the administrator in accordance with 13VAC5-91-150.

In reviewing the use of intermodal freight containers as structural building components, the administrator will accept evaluation reports from accredited third-party evaluation services.

E. Off-site manufactured intermodal freight containers, moving containers and storage containers placed on site temporarily or permanently for use as a storage container are not subject to this chapter.

13VAC5-91-150 When modification may be granted. The administrator shall have the power upon request in specific cases to authorize modification of this chapter so as to permit certain specified alternatives where the objectives of this law can still be fulfilled. Such request shall be in writing and shall be accompanied by the plans, specifications and other information necessary for an adequate evaluation of the modification requested. In reviewing the use of alternative methods or materials, the administrator may consider evaluation reports from accredited third-party evaluation services.

Reason Statement: Ensure that a path exists for approval of intermodal freight containers as building components in industrialized buildings.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. This change is administrative in nature and will not increase or decrease construction costs.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This change is administrative in nature and does not impact resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Reason: Ensure that a path exists for approval of intermodal freight containers as building components in industrialized buildings.

Comments:

Ms. Davis provided an overview of proposal.

Mr. Grumbine questioned if it states what an accredited 3rd party service evaluation is.

Ms. Davis explained that ICCS, NTS or ones that have testing laboratories where they visit sites and against the certain evaluation criteria. Whoever is able to provide accreditation against their criteria.

Ms. Davis questioned if a definition is needed for “accredited 3rd party evaluation service”.

7/24/19- No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for IB20-18

This proposal doesn't have any public comments.

Proposal # 70

IB20-18

IB260-18

VRGC: , (New), 13VAC5-91-260

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

2015 Virginia Building and Fire Code Related Regulations

Revise as follows:

13VAC 5-91-10. Definitions.

"**Industrialized building**" means a combination of one or more closed panels, sections or modules, subject to state regulations and including the necessary electrical, plumbing, heating, ventilating, and other service systems, manufactured off-site and transported to the point of use for installation or erection, with or without other specified components, to comprise a finished building. Manufactured homes defined in 36-85.3 of the Code of Virginia and certified under the provisions of the National Manufactured Housing Construction and Safety Standards Act (42 USC 5401 et seq.) shall not be considered industrialized buildings for the purpose of this law.

Add new text as follows:

"Closed panel construction" means a method of construction utilizing individual wall, roof or floor components (panels) manufactured off-site for installation or assembly at the construction site, where a portion of the component cannot be inspected at the building site without disassembly or damage to the component.

Revise as follows:

13VAC5-91-260 Registration seal for industrialized buildings.

A. Registered industrialized buildings shall be marked with approved registration seals issued by the SBCO. The seals shall be applied to a registered industrialized building intended for sale or use in Virginia prior to the shipment of the building from the place of manufacture. The seals shall be applied by the compliance assurance agency or by the manufacturer when authorized to do so by the compliance assurance agency.

B. Registered industrialized buildings shall bear one registration seal on each manufactured section or module, or, as an alternative, the registration seal for each manufactured section or module may be placed in one location in the completed building.

C. Closed panel construction shall require one (1) registration seal for every six-hundred (600) square feet, or part thereof, of floor area.

D. Approved registration seals shall be purchased by the compliance assurance agency from the SBCO in advance of use. The fee for each registration seal shall be \$75. Fees shall be submitted by checks made payable to "Treasurer of Virginia" or shall be submitted by electronic means. Payment for the seals must be received by the SBCO before the seals can be sent to the user. The compliance assurance agency shall maintain permanent records of seals purchased, including a record of any manufacturers receiving such seals.

~~D. E.~~ To the extent practicable, the registration seal shall be installed so that it cannot be removed without destroying it. The seal shall be applied in the vicinity of the electrical distribution panel or in another location that is readily accessible for inspection and shall be installed near the certification label.

~~E. F.~~ In accordance with 36-85.1 of the Code of Virginia, any person or corporation having paid the fee for an approved registration seal that it will not use may, unless and except as otherwise specifically provided, within one year from the date of the payment of any such fee, apply to the administrator for a refund, in whole or in part, of the fee paid; provided that no payment shall be recovered unless the approved registration seal is returned unused and in good condition to the administrator. Additionally, as a requirement of this chapter, an administrative and processing fee of 25% of the amount of the refund due shall be deducted from the refund; however, such deduction shall not exceed \$250.

Reason Statement: To ensure that panelized construction is not excluded from the regulations and allow for reasonable application of registration seal fees.

Cost Impact Statement: The code change proposal will decrease the cost of construction
For panelized construction, this change will allow one registration seal to be purchased per 600 sf of floor area instead of one seal for each panel, resulting in a decrease in seal fees for most panelized buildings.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This change is administrative in nature and will not impact resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Ms. Davis provided an overview of proposal.
Mr. Payne questioned if there is a reason to use “finished floor area” instead of just “floor area”.

Mr. Reynolds suggested deleting the word “finished”.

Ms. Davis informed attendees that DHCD is considering proposing an increase in the cost of industrialized building seals (section D). Will bring back as a separate change at a later date.

Consensus for Approval with Amendments

Amendments

- Strike the word “finished”
-

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for IB260-18

This proposal doesn't have any public comments.

Proposal # 68

IB260-18

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
Base Document for the 2018 Virginia Amusement Device Regulations

Summary – This document is compiled by staff of the State Building Codes Office of the Division of Building and Fire Regulation. The staff document is intended to serve as the basis for the publishing of proposed regulations for the 2018 VADR. It is not intended to create substantive changes to the regulations. Standards that are referenced are updated to the newest edition and editorial corrections are made where existing errors have been identified. Once the base document is approved by the Board of Housing and Community Development, if any code change proposals are considered and approved by the Board of Housing and Community Development to also go into the proposed regulations for the 2018 VADR, those proposals would be correlated with this base document and brought back to the Board of Housing and Community Development as a separate “proposed regulations” document for review.

Part I General Provisions

13VAC5-31-10. Purpose.

- A. The purpose of this chapter is to establish standards for the regulation, design, construction, maintenance, operation, and inspection of amusement devices.
- B. The provisions of the USBC, including but not limited to all administrative procedures shall apply in the administration and enforcement of this chapter and to amusement devices to the extent such provisions are not superseded by the provisions of this chapter.

13VAC5-31-20. Definitions.

- A. The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Amusement device" means (i) a device or structure open to the public by which persons are conveyed or moved in an unusual manner for diversion, but excluding snow tubing parks and rides, ski terrain parks, ski slopes, and ski trails, and (ii) passenger tramways. For the purpose of this definition, the phrase "open to the public" means that the public has full access to a device or structure at an event, irrespective of whether a fee is charged. The use of devices or structures at private events is not considered to be open to the public.

"Bungee cord" means the elastic rope to which the jumper is attached which lengthens and shortens to produce a bouncing action.

"Carabineer" means a shaped metal device with a gate used to connect sections of a bungee cord, jump rigging, equipment, or safety gear.

"Certificate of inspection" means the certificate or sticker for amusement devices distributed by DHCD.

"DHCD" means the Virginia Department of Housing and Community Development.

"Gravity ride" means a ride that is installed on an inclined surface, which depends on gravity for its operation to convey a passenger from the top of the incline to the bottom, and which conveys a passenger in or on a carrier tube, bag, bathing suit, or clothes.

"Ground operator" means a person who assists the jump master to prepare a jumper for jumping.

"Harness" means an assembly to be worn by a bungee jumper to be attached to a bungee cord. It is designed to prevent the wearer from becoming detached from the bungee system.

"Jump master" means a person who has responsibility for the bungee jumper and who takes the jumper through the final stages to the actual jump.

"Jump zone" means the space bounded by the maximum designed movements of the bungee jumper.

"Jumper" means the person who departs from a height attached to a bungee system.

"Landing area" means the surface area of ground or water directly under the jump zone, the area where the lowering device moves the bungee jumper to be landed away from the jump space and the area covered by the movement of the lowering device.

"Local building department" means the agency or agencies of the governing body of any city, county or town in this Commonwealth charged with the enforcement of the USBC.

"Operating manual" means the document that contains the procedures and forms for the operation of bungee jumping equipment and activity at a site.

"Passenger tramway" means a device used to transport passengers uphill, and suspended in the air by the use of steel cables, chains or belts, or ropes, and usually supported by trestles or towers with one or more spans.

"Platform" means the equipment attached to the structure from which the bungee jumper departs.

"Private inspector" means a person performing inspections who is independent of the company, individual or organization owning, operating or having any vested interest in an amusement device being inspected.

"Small mechanical ride" means an amusement device, other than an inflatable amusement device, where (i) the assembly time for the device is two hours or less, (ii) the revolutions per minute of any rotation of the components of the device is not greater than seven, (iii) the device has a footprint of less than 500 square feet, and (iv) the device does not invert a patron or lift a patron more than three feet in the air, measured from the ground to the bottom of the patron's feet when the device is operating.

"Ultimate tensile strength" means the greatest amount of load applied to a bungee cord prior to failure.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63).

B. Words and terms used in this chapter which are defined in the USBC shall have the meaning ascribed to them in that regulation unless the context clearly indicates otherwise.

C. Words and terms used in this chapter which are defined in the standards incorporated by reference in this chapter shall have the meaning ascribed to them in those standards unless the context clearly indicates otherwise.

13VAC5-31-30. Devices Covered and Exempt.

A. The following devices, identified by name or description, when open to the public shall be considered amusement devices subject to this chapter. The list is intended only to clarify questionable devices, while the definition of an "amusement device" in 13VAC5-31-20 is generally used to determine the applicability of this chapter.

1. Inflatable amusement devices; and
2. Zip lines.

B. The following equipment or devices shall not be considered amusement devices subject to this chapter:

1. Nonmechanized playground or recreational equipment such as swing sets, sliding boards, climbing bars, jungle gyms, skateboard ramps and similar equipment where no admission fee is charged for its use or for admittance to areas where the equipment is located;
2. Coin-operated rides designed to accommodate three or less passengers;
3. Water slides or similar equipment used in community association, community club or community organization swimming pools;
4. Mechanical bulls or similar devices;

5. Devices known as mall trains, shopping mall trains, or electric trackless trains for malls; and

6. Devices known as water walking balls, euro bubbles, or similar devices.

13VAC5-31-40. Incorporated Standards.

A. The following standards are hereby incorporated by reference for use as part of this chapter:

1. American National Standards Institute (ANSI) Standard ~~No. B77.1-2011~~ B77.1-2017 for the regulation of passenger tramways; and
2. American Society for Testing and Materials (ASTM) Standard Nos. F747-15, ~~F770-15~~ F770-18, ~~F1159-15~~ F1159-16, ~~F1193-16~~ F1193-18, F1957-99 (2011 2017), ~~F2007-12~~ F2007-18, ~~F2137-16~~ F2137-18, ~~F2291-15~~ F2291-18, ~~F2374-10~~ F2374-17, F2375- 09 (2017), ~~F2376-13~~ F2376-17a, F2460-11, ~~F2959-16~~ F2959-18, and ~~F2974-15~~ F2974-19 for the regulation of amusement devices.

The standards referenced above may be procured from:

ANSI
25 W 43rd Street
New York, NY 10036

ASTM
100 Barr Harbor Dr.
West Conshohocken, PA 19428- 2959

B. The provisions of this chapter govern where they are in conflict with any provisions of the standards incorporated by reference in this chapter.

C. The following requirements supplement the provisions of the ASTM standards incorporated by reference in this chapter:

1. The operator of an amusement device shall be at least 16 years of age, except when the person is under the supervision of a parent or guardian and engaged in activities determined not to be hazardous by the Commissioner of the Virginia Department of Labor and Industry;
2. The amusement device shall be attended by an operator at all times during operation except that (i) one operator is permitted to operate two or more amusement devices provided they are within the sight of the operator and operated by a common control panel or station and (ii) one operator is permitted to operate two small mechanical rides with separate controls provided the distance between controls is no more than 35 feet and the controls are equipped with a positive pressure switch; and
3. The operator of an amusement device shall not be (i) under the influence of any drugs which may affect the operator's judgment or ability to assure the safety of the public or (ii) under the influence of alcohol.

D. Where an amusement device was manufactured under previous editions of the standards incorporated by reference in this chapter, the previous editions shall apply to the extent that they are different from the current standards.

13VAC5-31-50. Certification of Amusement Device Inspectors.

Any person, including local building department personnel, inspecting an amusement device relative to a certificate of inspection shall possess certification as an amusement device inspector in accordance with the Virginia Certification Standards (13VAC5-21).

Note: Continuing education and periodic training requirements for DHCD certifications are set out in the Virginia Certification Standards (13VAC5-21).

13VAC5-31-60. Appeals.

Appeals from the local building department concerning the application of this chapter shall be made to the local board of building code appeals established by the USBC. Application for appeal shall be filed with the local building department within 14 calendar days after receipt of the decision of the local building department. The board of appeals shall hear the appeal within seven calendar days after the application for appeal is filed. After

final determination by the board, any person who was a party to the appeal may appeal to the State Building Code Technical Review Board, established under § 36-108 of the Code of Virginia, within 14 calendar days of receipt of the decision to be appealed. Such appeal shall be in accordance with the procedures established in the USBC, under the authority granted by § 36-98.3 of the Code of Virginia where the provisions of Chapter 6 (§ 36-97 et seq.) of Title 36 of the Code of Virginia and the USBC apply to amusement devices.

NOTE: Because of the short time frames normally associated with amusement device operations, DHCD staff will be available to assist in finding a timely resolution to disagreements between owners or operators and the local building department upon request by either party.

Part II. Enforcement, Permits and Certificates of Inspection

13VAC5-31-75. Local Building Department.

A. In accordance with §§ 36-98.3 and 36-105 of the Code of Virginia, the local building department shall be responsible for the enforcement of this chapter and may charge fees for such enforcement activity. The total amount charged for any one permit to operate an amusement device or devices or the renewal of such permit shall not exceed the following, except that when a private inspector is used by the owner or operator of the device, the fees shall be reduced by 75%:

1. \$35 for each small mechanical ride or inflatable amusement device covered by the permit;
2. \$55 for each circular ride or flat-ride less than 20 feet in height covered by the permit;
3. \$75 for each spectacular ride covered by the permit that cannot be inspected as a circular ride or flat-ride in subdivision 2 of this subsection due to complexity or height;
4. \$200 for each coaster covered by the permit that exceeds 30 feet in height; and
5. The local building department may charge an additional fee for permits and inspections of generators and associated wiring for amusement device events. Generators subject to these fees are those used exclusively with amusement devices and that are inspected by the local building department. The fee per event shall not exceed \$165 and shall not exceed the actual cost to perform the inspection or inspections.

Exception: Small portable generators serving only cord and plug connected equipment loads are not subject to the fee.

Notwithstanding the fee limitations established in this section, the local building department shall be permitted to increase the fees up to 50% when requested to perform weekend or after-hour inspections.

B. Notwithstanding the provisions of subsection A of this section, when an amusement device is constructed in whole or in part at a site for permanent operation at that site and is not intended to be disassembled and moved to another site, then the local building department may utilize permit and inspection fees established pursuant to the USBC to defray the cost of enforcement. This authorization does not apply to an amusement device that is only being reassembled, undergoing a major modification at a site or being moved to a site for operation.

C. A permit application shall be made to the local building department at least five days before the date in which the applicant intends to operate an amusement device. The application shall include the name of the owner, operator or other person assuming responsibility for the device, a general description of the device including any serial or identification numbers available, the location of the property on which the device will be operated, and the length of time of operation. The permit application shall indicate whether a private inspector will be used. If a private inspector is not used, the applicant shall give reasonable notice when an inspection is sought and may stipulate the day such inspection is requested provided it is during the normal operating hours of the local building department. In addition to the information required on the permit application, the applicant shall provide proof of liability insurance of an amount not less than \$1 million per occurrence or proof of equivalent financial responsibility. The local building department shall be notified of any change in the liability insurance or financial responsibility during the period covered by the permit.

D. Notwithstanding the provisions of subsection C of this section, a permit application is not required for a small mechanical ride or an inflatable amusement device that has a certificate of inspection issued by any local building

department in this Commonwealth either a six- month period for small mechanical rides or within a one-year period for inflatable amusement devices prior to the dates the small mechanical ride or inflatable amusement device is to be used, regardless of whether the device has been disassembled and moved to a new site. In such cases, the local building department shall be notified at least three days prior to the operation of the small mechanical ride or the inflatable amusement device and the information required on a permit application as listed in subsection C of this section shall be provided to the local building department. In addition, and notwithstanding the provisions of subsection A of this section, the local building department shall be permitted to charge a \$50 inspection fee per event to the person notifying the local building department of an event where an inflatable amusement device is operating if the local building department chooses to inspect any or all of the inflatable amusement devices operating at that event. An inspection report shall be provided to the person notifying the local building department of the event if such an inspection is conducted.

E. Local building department personnel shall examine the permit application within five days and issue the permit if all requirements are met. A certificate of inspection for each amusement device shall be issued when the device has been found to comply with this chapter by a private inspector or by an inspector from the local building department. It shall be the responsibility of the local building department to verify that the private inspector possesses a valid certificate of competence as an amusement device inspector from the Virginia Board of Housing and Community Development. In addition, local building department personnel shall be responsible for assuring that the certificate of inspection is posted or affixed on or in the vicinity of the device in a location visible to the public. Local building department personnel shall post or affix such certificates or permit the certificates to be posted or affixed by the private inspector. Permits shall indicate the length of time the device or devices will be operated at the site, clearly identify the device or devices to which it applies and the date of expiration of the permit. Permits shall not be valid for longer than one year, except that permits for small mechanical rides shall not be valid for longer than six months.

F. In addition to obtaining a certificate of inspection in conjunction with a permit application for amusement devices permanently fixed to a site, a new certificate of inspection shall also be obtained prior to the operation of an amusement device following a major modification, prior to each seasonal operation of a device, at least once during the operating season and prior to resuming the operation of a device following an order from a local building department to cease operation. This requirement shall not apply to small mechanical rides meeting the conditions outlined in subsection D of this section.

G. For amusement devices manufactured prior to 1978, the owner or operator shall have the information required by 10.1 through 10.6 of ASTM F1193 available at the time of inspection. In addition, the operator of any amusement device shall be responsible for obtaining all manufacturer's notifications, service bulletins and safety alerts issued pursuant to ASTM F770 and the operator shall comply with all recommendations and requirements set out in those documents. A copy of all such documents shall be made available during an inspection.

H. In the enforcement of this chapter, local building department personnel shall have authority to conduct inspections at any time an amusement device would normally be open for operation or at any other time if permission is granted by the owner or operator, to issue an order to temporarily cease operation of an amusement device upon the determination that the device may be unsafe or may otherwise endanger the public and to accept and approve or deny requests for modifications of the rules of this chapter in accordance with the modification provisions of the USBC.

I. In accordance with subdivision 7 of § 36-137 of the Code of Virginia, the local building department shall collect a 2.0% levy of fees charged for permits under this chapter and transmit it quarterly to DHCD to support training programs of the Virginia Building Code Academy. Localities that maintain individual or regional training academies accredited by DHCD shall retain such levy.

J. In accordance with § 36-98.3 of the Code of Virginia and 13VAC5-31-10 B, the procedures for violations of this chapter shall be as prescribed in the USBC.

K. In accordance with § 36-98.1 of the Code of Virginia, the Virginia Department of General Services (DGS) shall function as the local building department for the application of this chapter to amusement devices located on state-owned property. In accordance with §§ 36-98.2 and 36-114 of the Code of Virginia, appeals of the application of this chapter by the DGS shall be made directly to the State Building Code Technical Review Board. Further, as a condition of this chapter, such appeals shall be filed within 14 calendar days after receipt of the decision of DGS.

13VAC5-31-85. Accidents Involving Serious Injury or Death.

A. If an accident involving the serious injury or death of a patron occurs, the operation of an amusement device shall cease and the local building department and DHCD shall be notified as soon as practicable, but in no case later than during the next working day. The operation of the device shall not resume until inspected by a private inspector or an inspector from the local building department, except where the owner or operator determines the cause was not related to malfunction or improper operation of the amusement device.

B. The owner or operator shall conduct an investigation of the accident including, at a minimum, an examination of the accident scene and interviews of any witnesses or persons involved in the accident. An accident investigation report shall be compiled which, at a minimum, shall contain a summary of the investigation and a description of the device involved, including its serial number and date of manufacture, if available. The report shall be submitted to the local building department within 24 hours of the accident except that if the local building department is closed during that period, then the report shall be submitted with four hours of the reopening of the department.

C. Local building department personnel are authorized to investigate the accident and to issue an order to cease operation when warranted and to specify the conditions under which the device may resume operation. The amusement device shall be inspected prior to resuming operation either by an inspector from the local building department or by a private inspector and found to comply with this chapter.

Part III. Gravity Rides

13VAC5-31-180. General Requirements.

A. The provisions of this part are specific to gravity rides and are in addition to other applicable provisions of this chapter.

B. A ride using carriers shall be designed and constructed to retain the passengers in or on a carrier during the operation of the ride and retain the carrier on or within the track, slide, or chute system during the operation of the ride.

C. A ride that conveys passengers not in or on a carrier shall be designed and constructed to retain the passengers within the chute or slide during the ride.

D. At each loading or unloading area, a hard surface which is other than earth and which is reasonably level shall be provided. The surface shall be large enough to accommodate the intended quantity of passengers. Where loading or unloading platforms are elevated more than 30 inches from the adjacent areas, guard rails conforming to the USBC shall be provided.

E. Passengers shall not have to step up or down more than 12 inches from the loading or unloading surface to enter or exit the ride.

F. The frequency of departure of carriers or riders from the loading areas shall be controlled by a ride operator. The minimum distance between departures shall be determined by the designer of the specific ride.

G. When a passenger has control of the speed or course of the carrier, the passenger shall have a clear sight distance along the course of the ride long enough to allow the passenger to avoid a collision with another person or carrier.

H. The unloading area of the ride shall be designed and constructed to bring riders and carriers to a safe stop without any action by the rider.

I. There shall be attendants at the loading and unloading area when the ride is in use. However, where the physical structure of the ride is such that it is not capable of accommodating an attendant at both the loading and unloading area and the entire ride is visible and under the supervision of a single attendant, attendants at both the loading and unloading areas shall not be required.

J. If the entire course of the ride is not visible to the operator, additional persons with communications equipment shall be provided or approved visual surveillance equipment shall be installed along the course of the ride which is not visible to the operator.

K. Any moving or hot parts that may be injurious to the ride operator or the public shall be effectively guarded to prevent contact.

L. Fencing or adequate clearance shall be provided that will prevent the riders from contact with persons or nearby objects.

Part IV. Concession Go-Karts

13VAC5-31-190. General Requirements.

In addition to other applicable requirements of this chapter, concession go-karts shall be operated, maintained and inspected in accordance with ASTM F2007.

Part V. Inflatable Amusement Devices

13VAC5-31-200. General Requirements.

In addition to other applicable requirements of this chapter, inflatable amusement devices shall be operated, maintained and inspected in accordance with ASTM F2374.

Part VI. Artificial Climbing Walls

13VAC5-31-210. General Requirements.

In addition to other applicable requirements of this chapter, artificial climbing walls shall be operated, maintained and inspected in accordance with ASTM F1193.

Notwithstanding any requirements of this chapter to the contrary, an artificial climbing wall may be moved, setup and operated without obtaining a permit provided the wall has a certificate of inspection issued by a local building department in this Commonwealth within the prior 90 days and the expiration date of the wire ropes used with the device does not expire within that 90-day period.

Part VII. Bumper Boats

13VAC5-31-215. General Requirements.

In addition to other applicable requirements of this chapter, bumper boats shall be operated, maintained and inspected in accordance with ASTM F2460.

Part VIII. Zip Lines

13VAC5-31-217. General Requirements.

In addition to other applicable requirements of this chapter, zip lines shall be operated, maintained, and inspected in accordance with ASTM F2959.

Part IX. Bungee Jumping

13VAC5-31-220. General Requirements.

A. The provisions of this part are specific to bungee jumping and are in addition to other applicable provisions of this chapter.

B. Bungee jumping operations that are open to the public shall be permitted from structures designed for use as part of the bungee jumping operation. Bungee jumping from other types of structures, cranes or derricks is not permitted for public participation.

C. Bungee jumping activities that involve double jumping, sandbagging, catapulting or stunt jumping shall not be permitted to be open for public participation.

13VAC5-31-230. Bungee Cords.

A. Bungee cords shall be tested by an approved testing agency or by an engineer licensed in Virginia. The following criteria shall be met:

1. Each lot of bungee cords shall have a minimum of 10%, but not less than one of the cords tested to determine the lowest ultimate tensile strength of the cords tested. A load versus elongation curve based on the test result shall be provided with each lot of bungee cords; and
2. The manufacturer shall specify the maximum number of jumps for which each cord or cord type is designed and the criteria for use of the cord.

B. Bungee cords shall be retired when the cords (i) exhibit deterioration or damage; (ii) do not react according to specifications; or (iii) have reached the maximum usage expressed in number of jumps as specified by the manufacturer. Bungee cords retired from use shall be destroyed immediately by cutting the cord into five-foot lengths.

13VAC5-31-240. Jump Hardware.

Jump harnesses shall be either full body-designed, which includes a waist harness worn in conjunction with a chest harness, or ankle-designed with a link to a waist harness. All jump harnesses, carabineers, cables and other hardware shall be designed and manufactured for the purpose or designed or analyzed by an engineer licensed in Virginia and shall be used and maintained in accordance with the manufacturer's or engineer's instructions.

13VAC5-31-250. Structure Requirements.

Structures constructed on site for bungee jumping activities shall be designed by an engineer licensed in Virginia. Structures manufactured for bungee jumping activities shall be analyzed by an engineer licensed in Virginia and assembled and supported in accordance with the manufacturer's instructions.

13VAC5-31-260. Operational and Site Requirements.

A. Operators shall follow the criteria provided by the manufacturer for the use of bungee cords. A record of the number of jumps with each cord shall be maintained. All cords shall be inspected daily for wear, slippage, or other abnormalities unless the manufacturer specifies more frequent inspections.

B. The jump master or site manager shall be responsible for determining the appropriate use of all bungee cords in relation to the weight of the jumper and height of the platform. Bungee cords shall be attached to the structure at all times when in the connection area.

C. All harnesses shall be inspected prior to harnessing a jumper and shall be removed from service when they exhibit signs of excessive wear or damage. All carabineers shall be inspected daily and shall be removed from service when they exhibit signs of excessive wear or damage or fail to function as designed. The anchors shall be inspected daily and shall be replaced if showing signs of excessive wear.

D. A secondary retrieval system shall be provided in all operations. A locking mechanism on the line shall be used to stop and hold the jumper in place after being pulled back to the jump platform in a retrieval system. A dead man's switch or locking mechanism that will stop the lowering action shall be used in a friction lowering system.

E. The jump zone, preparation area and landing/recovery area shall be identified and maintained during bungee jumping activities. The landing/recovery area shall be accessible to emergency vehicles. Communication shall be maintained between all personnel involved with the jump.

F. An air bag, a minimum of 10 feet by 10 feet, shall be used. The air bag shall be rated for the maximum free fall height possible from the platform during operation. The air bag shall be located immediately below the jump space. The landing area shall be free of spectators and debris at all times and shall be free of any equipment or personnel when a jumper is being prepared on the jump platform and until the bungee cord is at its static extended state. A place to sit and recover shall be provided adjacent to, but outside, the landing area where the jumper shall be allowed to recover.

G. Where the jump space or landing area, or both, is over sea, lake, river, or harbor waters, the following shall apply:

1. The landing water area shall be at least nine feet deep and a minimum of 10 feet by 10 feet or have a minimum of 15 feet in diameter if circular;
2. The jump space and landing area shall be free of other vessels, floating and submerged objects and buoys. A sign of approved size that reads "Bungee Jumping! Keep Clear" shall be fixed to buoys on four sides of the landing area;
3. The landing vessel shall be readily available for the duration of the landing procedures;
4. The landing vessel shall have a landing pad size of at least five feet by five feet within and lower than the sides of the vessel;
5. A landing vessel shall be available that can be maneuvered in the range of water conditions expected and will enable staff to pick up a jumper; and
6. One person may operate the landing vessel where the vessel is positioned without the use of power. A separate person shall operate the vessel where power is required to maneuver into or hold the landing position.

H. Where the landing area is part of a swimming pool or the landing area is specifically constructed for bungee jumping, the following shall apply:

1. Rescue equipment shall be available, such as a life ring or safety pole;
2. The jump space and landing area shall be fenced to exclude the public; and
3. Only the operators of the bungee jump and jumper shall be within the jump zone and landing areas.

I. Storage shall be provided to protect equipment from physical, chemical and ultra-violet radiation damage. The storage shall be provided for any current, replacement and emergency equipment and organized for ready access and shall be secure against unauthorized entry.

13VAC5-31-270. Management and Personnel Responsibilities.

A. All bungee jumping activities shall have a minimum of one site manager, one jump master and one ground operator to be present at all times during operation of the bungee jump.

B. The site manager is responsible for the following:

1. Controlling the entire operation;
2. Site equipment and procedures;
3. Determining whether it is safe to jump;
4. Selection of, and any training of personnel;
5. Emergency procedures; and
6. Maintaining records.

C. A jump master shall be located at each jump platform and shall have thorough knowledge of, and is responsible for, the following:

1. Overseeing the processing of jumpers, selection of the bungee cord, adjustment of the rigging, final check of jumper's preparation, and countdown for and observation of the jump;

2. Verifying that the cord is attached to the structure at all times when the jumper is in the jump area;
3. Rescue and emergency procedures; and
4. Ensuring that the number of jumps undertaken in a given period of time will allow all personnel to safely carry out their responsibilities.

D. The ground operator shall have knowledge of all equipment used and of jump procedures and shall have the following responsibilities:

1. Ensuring that the jumper is qualified to jump;
2. Assisting the jump master to prepare the jumper and attach the jumper to the harness and rigging;
3. Assisting the jumper to the recovery area; and
4. Maintaining a clear view of the landing area.

E. Each site shall have an operating manual that shall include the following:

1. Site plan, job descriptions (including procedures), inspections and maintenance requirements of equipment including rigging, hardware, bungee cords, harnesses, and lifelines; and
2. An emergency rescue plan.

F. The daily operating procedures shall be conducted in accordance with ASTM F770.

G. The qualification and preparation of jumpers shall include obtaining any pertinent medical information, jumper weight and a briefing of jumping procedures and safety instructions.

Part X. Accessibility Requirements for Amusement Devices

13VAC5-31-280. Scope.

This part shall apply to newly designed and constructed amusement devices for permanent installation and does not apply to amusement devices regularly assembled or disassembled. This part also does not apply to mobile, portable, or temporary amusement devices set up for short periods of time such as at traveling carnivals, state and county fairs, and festivals. For the purposes of this part, newly designed and constructed amusement devices are those that are new upon first use by patrons and the first permanent installation of the ride and would not include a ride that was moved within a park or to another park after several seasons of use.

13VAC5-31-290. Requirements.

Amusement devices subject to this part shall comply with applicable requirements of 36 CFR Part 1191—Americans With Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines (69 FR 44151-44455 (July 23, 2004)).

Documents Incorporated by Reference (13VAC5-31)

ANSI ~~B77.1-2011~~ B77.1-2017, Passenger Ropeways – Aerial Tramways, Aerial Lifts, Surface Lifts, Tows and Conveyors – Safety Requirements Standard, American National Standards Institute (ANSI), 25 West 43rd Street, 4th Floor, New York, NY 10036 (<http://www.ansi.org/>)

American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959; (<http://www.astm.org/>):

ASTM F747-15, Standard Terminology Relating to Amusement Rides and Devices

ASTM ~~F770-15~~ F770-18, Standard Practice for Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices

ASTM ~~F1159-15b~~ F1159-16, Standard Practice for Design of Amusement Rides and Devices that are Outside the Purview of Other F24 Design Standards

ASTM ~~F1193-16~~ F1193-18a, Standard Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices

ASTM F1957-99 (~~2011~~ 2017), Standard Test Method for Composite Foam Hardness-Durometer Hardness

ASTM ~~F2007-12~~ F2007-18, Standard Practice for Classification, Design, Manufacture, and Operation of Concession Go-Karts and Facilities

ASTM ~~F2137-16~~ F2137-18, Standard Practice for Measuring the Dynamic Characteristics of Amusement Rides and Devices

ASTM ~~F2291-15~~ F2291-18, Standard Practice for Design of Amusement Rides and Devices

ASTM ~~F2374-10~~ F2374-17, Standard Practice for Design, Manufacture, Operation, and Maintenance of Inflatable Amusement Devices

ASTM F2375-09 (2017), Standard Practice for Design, Manufacture, Installation and Testing of Climbing Nets and Netting/Mesh used in Amusement Rides, Devices, Play Areas and Attractions

ASTM ~~F2376-13~~ F2376-17a, Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems

ASTM F2460-11, Standard Practice for Special Requirements for Bumper Boats

ASTM ~~F2959-16~~ F2959-18, Standard Practice for Aerial Adventure Courses

ASTM ~~F2974-15~~ F2874-19, Standard Guide for Auditing Amusement Rides and Devices

AD30-18

VRGC: , Part XI (New)

Proponents: ADTAC Committee

2015 Virginia Building and Fire Code Related Regulations

A. The following words and terms when used in this chapter shall have the following meanings unless the context clearly

"Amusement device" means (i) a device or structure open to the public by which persons are conveyed or moved in an un

"Bungee cord" means the elastic rope to which the jumper is attached which lengthens and shortens to produce a bounci

"Carabineer" means a shaped metal device with a gate used to connect sections of a bungee cord, jump rigging, equipme

"Certificate of inspection" means the certificate or sticker for amusement devices distributed by DHCD.

"DHCD" means the Virginia Department of Housing and Community Development.

"Gravity ride" means a ride that is installed on an inclined surface, which depends on gravity for its operation to convey a

"Ground operator" means a person who assists the jump master to prepare a jumper for jumping.

"Harness" means an assembly to be worn by a bungee jumper to be attached to a bungee cord. It is designed to prevent

"Institutional trampoline" means a trampoline intended for use in a commercial or institutional facility.

"Jump master" means a person who has responsibility for the bungee jumper and who takes the jumper through the final

"Jump zone" means the space bounded by the maximum designed movements of the bungee jumper.

"Jumper" means the person who departs from a height attached to a bungee system.

"Landing area" means the surface area of ground or water directly under the jump zone, the area where the lowering devi

"Local building department" means the agency or agencies of the governing body of any city, county or town in this Comn

"Operating manual" means the document that contains the procedures and forms for the operation of bungee jumping eq

"Passenger tramway" means a device used to transport passengers uphill, and suspended in the air by the use of steel c

"Platform" means the equipment attached to the structure from which the bungee jumper departs.

"Private inspector" means a person performing inspections who is independent of the company, individual or organization

"Small mechanical ride" means an amusement device, other than an inflatable amusement device, where (i) the assembl

"Trampoline court" means a defined area comprising one or more institutional trampolines or a series of institutional tramp

"Ultimate tensile strength" means the greatest amount of load applied to a bungee cord prior to failure.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63).

B. Words and terms used in this chapter which are defined in the USBC shall have the meaning ascribed to them in that r

C. Words and terms used in this chapter which are defined in the standards incorporated by reference in this chapter sha

A. The following devices, identified by name or description, when open to the public shall be considered amusement devi

1. Inflatable amusement devices;~~and~~
2. Zip lines.
3. Trampoline courts.

B. The following equipment or devices shall not be considered amusement devices subject to this chapter:

1. Nonmechanized playground or recreational equipment such as swing sets, sliding boards, climbing bars, jungle gyms,
2. Coin-operated rides designed to accommodate three or less passengers;
3. Water slides or similar equipment used in community association, community club or community organization swimmir
4. Mechanical bulls or similar devices;
5. Devices known as mall trains, shopping mall trains, or electric trackless trains for malls; and

6. Devices known as water walking balls, euro bubbles, or similar devices.

A. The following standards are hereby incorporated by reference for use as part of this chapter:

1. American National Standards Institute (ANSI) Standard No. B77.1-2011 for the regulation of passenger tramways; and
2. American Society for Testing and Materials (ASTM) Standard Nos. F747-15, F770-15, F1159-15b, F1193- 16, F1957-15

The standards referenced above may be procured from:

ANSI25 W 43rd StreetNew York, NY 10036	ASTM100 Barr Harbor Dr.West Conshohocken, PA 19428-2959

B. The provisions of this chapter govern where they are in conflict with any provisions of the standards incorporated by reference.

C. The following requirements supplement the provisions of the ASTM standards incorporated by reference in this chapter:

1. The operator of an amusement device shall be at least 16 years of age, except when the person is under the supervision of a licensed operator.
2. The amusement device shall be attended by an operator at all times during operation except that (i) one operator is permitted to operate a device if the device is designed to be operated by one person.
3. The operator of an amusement device shall not be (i) under the influence of any drugs which may affect the operator's ability to operate the device safely.

D. Where an amusement device was manufactured under previous editions of the standards incorporated by reference in this chapter:

A. In accordance with 36-98.3 and 36-105 of the Code of Virginia, the local building department shall be responsible for the fee for the permit:

1. \$35 for each small mechanical ride or inflatable amusement device covered by the permit;
2. \$55 for each circular ride, institutional trampoline, or flat-ride less than 20 feet in height covered by the permit;
3. \$75 for each spectacular ride covered by the permit that cannot be inspected as a circular ride or flat-ride in subdivision 1;
4. \$200 for each coaster covered by the permit that exceeds 30 feet in height; and
5. The local building department may charge an additional fee for permits and inspections of generators and associated equipment.

Exception: Small portable generators serving only cord and plug connected equipment loads are not subject to the fee. Notwithstanding the above, the local building department shall be permitted to increase the fees up to 50% when requested in writing.

B. Notwithstanding the provisions of subsection A of this section, when an amusement device is constructed in whole or in part on a lot, the local building department shall be permitted to increase the fees up to 50% when requested in writing.

C. A permit application shall be made to the local building department at least five days before the date in which the applicant desires to operate the device.

D. Notwithstanding the provisions of subsection C of this section, a permit application is not required for a small mechanical ride or inflatable amusement device.

E. Local building department personnel shall examine the permit application within five days and issue the permit if all requirements are met.

F. In addition to obtaining a certificate of inspection in conjunction with a permit application for amusement devices, the applicant shall obtain a permit from the local building department.

G. For amusement devices manufactured prior to 1978, the owner or operator shall have the information required by 10.1-10.2 of the Code of Virginia.

H. In the enforcement of this chapter, local building department personnel shall have authority to conduct inspections at any time.

I. In accordance with subdivision 7 of 36-137 of the Code of Virginia, the local building department shall collect a 2.0% levy on the fee for the permit.

J. In accordance with 36-98.3 of the Code of Virginia and 13VAC5-31-10 B, the procedures for violations of this chapter shall be the same as for violations of the Code of Virginia.

K. In accordance with 36-98.1 of the Code of Virginia, the Virginia Department of General Services (DGS) shall function as the agent for the local building department.

Add new text as follows:

Part XI Trampoline Courts

13VAC5-31-300. General requirements.

In addition to other applicable requirements of this chapter, trampoline courts shall be operated, maintained and inspected in accordance with ASTM F2970.

Reason Statement: During the 2019 legislative session Senator Adam Ebbin submitted Senate bill SB1229, which directed the BHCD to consider regulating trampoline courts under the Virginia Amusement Device Regulations. The bill did not make it to the Governor's desk but his bill did raise the issue and initiate a conversation about the safety of commercial trampoline courts. Senator Ebbin submitted the bill in response to what he learned of the risks and injuries associated with trampoline courts based on a severe injury suffered by one of his constituents. The amusement device regulations do not currently have specific provisions to address trampoline courts. ASTM has developed and published the standard F2970 – 17: Standard Practice for Design, Manufacture, Installation, Operation, Maintenance, Inspection and Major Modification of Trampoline Courts. The F2970-17 standard is referenced in this code change and it is part of the amusement device package of standards bundled by ASTM. Trampoline court injuries are becoming more prevalent and the focus of recent national news stories. It is time for inclusion of trampoline courts into the amusement device regulations. The proposed definitions of "Institutional trampoline" and "Trampoline court" are from the ASTM F2970-17 standard.

Cost Impact Statement: The code change proposal will increase the cost of construction. A permit fee is allowed for initial construction of an amusement device. Whether or not this code change will effect the initial permit fee for construction of a trampoline court will vary depending on the fee structure of the locality. There is a requirement for an annual amusement device operation permit, which is \$55 per ride.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for AD30-18

This proposal doesn't have any public comments.

Proposal # 118

AD30-18

AD40-18

VRGC:

Proponents: ADTAC Committee

2015 Virginia Building and Fire Code Related Regulations

A. The following standards are hereby incorporated by reference for use as part of this chapter:

The standards referenced above may be procured from:

ANSI25 W 43rd StreetNew York, NY 10036	ASTM100 Barr Harbor Dr.West Conshohocken, PA 19428-2959

1. American National Standards Institute (ANSI) Standard No. B77.1-2011 for the regulation of passenger tramways; and
2. American Society for Testing and Materials (ASTM) Standard Nos. F747-15, F770-15, F1159-15b, F1193- 16, F1957-99 (2011), F2007-12, F2137-16, F2291-15, F2374-10, F2375-09, F2376-13, F2460-11, F2461-18, F2959-16, and F2974-15 for the regulation of amusement devices.

~~The standards referenced above may be procured from:~~

~~ANSI25 W 43rd StreetNew York, NY 10036~~	~~ASTM100 Barr Harbor Dr.West Conshohocken, PA 19428-2959~~

- B. The provisions of this chapter govern where they are in conflict with any provisions of the standards incorporated by reference in this chapter.
- C. The following requirements supplement the provisions of the ASTM standards incorporated by reference in this chapter:
1. The operator of an amusement device shall be at least 16 years of age, except when the person is under the supervision of a parent or guardian and engaged in activities determined not to be hazardous by the Commissioner of the Virginia Department of Labor and Industry;
 2. The amusement device shall be attended by an operator at all times during operation except that (i) one operator is permitted to operate two or more amusement devices provided they are within the sight of the operator and operated by a common control panel or station and (ii) one operator is permitted to operate two small mechanical rides with separate controls provided the distance between controls is no more than 35 feet and the controls are equipped with a positive pressure switch; and
 3. The operator of an amusement device shall not be (i) under the influence of any drugs which may affect the operator's judgment or ability to assure the safety of the public or (ii) under the influence of alcohol.
- D. Where an amusement device was manufactured under previous editions of the standards incorporated by reference in this chapter, the previous editions shall apply to the extent that they are different from the current standards.

Reason Statement: ASTM F2461 covers the manufacture, construction, operations and maintenance of aquatic play equipment and provides safety performance standards for various types of public aquatic play components and aquatic play composite structures. The Amusement Device Technical Advisory Committee, at their April 26th meeting, recommended that the ASTM F2461 standard be incorporated in the VADR.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
No change in cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency

No impact on resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for AD40-18

This proposal doesn't have any public comments.

Proposal # 187

AD40-18

AD75-18

VRGC:

Proponents: ADTAC Committee (dhcdadtac@gmail.com); Michael Redifer (redifermd@nnva.gov)

2015 Virginia Building and Fire Code Related Regulations

13VAC5-31-75.D Local building department.

- A.** In accordance with § 36-98.3 and § 36-105 of the Code of Virginia, the local building department shall be responsible for the enforcement of this chapter and may charge fees for such enforcement activity. The total amount charged for any one permit to operate an amusement device or devices or the renewal of such permit shall not exceed the following, except that when a private inspector is used, the fees shall be reduced by 75%:

Exception: Small portable generators serving only cord and plug connected equipment loads are not subject to the fee.

Notwithstanding the above, the local building department shall be permitted to increase the fees up to 50% when requested to perform weekend or after-hour inspections.

1. \$35 for each small mechanical ride or inflatable amusement device covered by the permit;
 2. \$55 for each circular ride or flat-ride less than 20 feet in height covered by the permit;
 3. \$75 for each spectacular ride covered by the permit that cannot be inspected as a circular ride or flat-ride in subdivision 2 of this subsection due to complexity or height;
 4. \$200 for each coaster covered by the permit that exceeds 30 feet in height; and
 5. The local building department may charge an additional fee for permits and inspections of generators and associated wiring for amusement device events. Generators subject to these fees are those used exclusively with amusement devices and that are inspected by the local building department. The fee per event shall not exceed \$165 and shall not exceed the actual cost to perform the inspection or inspections.
- B.** Notwithstanding the provisions of subsection A of this section, when an amusement device is constructed in whole or in part at a site for permanent operation at that site and is not intended to be disassembled and moved to another site, then the local building department may utilize permit and inspection fees established pursuant to the USBC to defray the cost of enforcement. This authorization does not apply to an amusement device that is only being reassembled, undergoing a major modification at a site or being moved to a site for operation.
- C.** A permit application shall be made to the local building department at least five days before the date in which the applicant intends to operate an amusement device. The application shall include the name of the owner, operator or other person assuming responsibility for the device, a general description of the device including any serial or identification numbers available, the location of the property on which the device will be operated, and the length of time of operation. The permit application shall indicate whether a private inspector will be used. If a private inspector is not used, the applicant shall give reasonable notice when an inspection is sought and may stipulate the day such inspection is requested provided it is during the normal operating hours of the local building department. In addition to the information required on the permit application, the applicant shall provide proof of liability insurance of an amount not less than \$1 million per occurrence or proof of equivalent financial responsibility. The local building department shall be notified of any change in the liability insurance or financial responsibility during the period covered by the permit.
- D.** Notwithstanding the provisions of subsection C of this section, a permit application is not required for a small mechanical ride or an inflatable amusement device that has a certificate of inspection issued by any local building department in this Commonwealth either a six-month period for small mechanical rides or within a one-year period for inflatable amusement devices prior to the dates the small mechanical ride or inflatable amusement device is to be used, regardless of whether the device has been disassembled and moved to a new site. In such cases, the

local building department shall be notified ~~at least three days prior to the operation of the small mechanical ride or the inflatable amusement device and the~~ and provided with the information required on a permit application as listed in subsection C of this section at least three days prior to operation ~~shall be provided to the local building department~~. In addition, and notwithstanding the provisions of subsection A of this section, the local building department shall be permitted to charge a \$50 inspection fee per event to the person notifying the local building department of an event where an inflatable amusement device is operating, if the local building department chooses to inspect any or all of the inflatable amusement devices operating at that event. An inspection report shall be provided to the person notifying the local building department of the event if such an inspection is conducted.

- E. Local building department personnel shall examine the permit application within five days and issue the permit if all requirements are met. A certificate of inspection for each amusement device shall be issued when the device has been found to comply with this chapter by a private inspector or by an inspector from the local building department. It shall be the responsibility of the local building department to verify that the private inspector possesses a valid certificate of competence as an amusement device inspector from the Virginia Board of Housing and Community Development. In addition, local building department personnel shall be responsible for assuring that the certificate of inspection is posted or affixed on or in the vicinity of the device in a location visible to the public. Local building department personnel shall post or affix such certificates or permit the certificates to be posted or affixed by the private inspector. Permits shall indicate the length of time the device or devices will be operated at the site, clearly identify the device or devices to which it applies and the date of expiration of the permit. Permits shall not be valid for longer than one year, except that permits for small mechanical rides shall not be valid for longer than six months.
- F. In addition to obtaining a certificate of inspection in conjunction with a permit application for amusement devices permanently fixed to a site, a new certificate of inspection shall also be obtained prior to the operation of an amusement device following a major modification, prior to each seasonal operation of a device, at least once during the operating season and prior to resuming the operation of a device following an order from a local building department to cease operation. This requirement shall not apply to small mechanical rides meeting the conditions outlined in subsection D of this section.
- G. For amusement devices manufactured prior to 1978, the owner or operator shall have the information required by 10.1 through 10.6 of ASTM F1193 available at the time of inspection. In addition, the operator of any amusement device shall be responsible for obtaining all manufacturer's notifications, service bulletins and safety alerts issued pursuant to ASTM F770 and the operator shall comply with all recommendations and requirements set out in those documents. A copy of all such documents shall be made available during an inspection.
- H. In the enforcement of this chapter, local building department personnel shall have authority to conduct inspections at any time an amusement device would normally be open for operation or at any other time if permission is granted by the owner or operator, to issue an order to temporarily cease operation of an amusement device upon the determination that the device may be unsafe or may otherwise endanger the public and to accept and approve or deny requests for modifications of the rules of this chapter in accordance with the modification provisions of the USBC.
- I. In accordance with subdivision 7 of § 36-137 of the Code of Virginia, the local building department shall collect a 2.0% levy of fees charged for permits under this chapter and transmit it quarterly to DHCD to support training programs of the Virginia Building Code Academy. Localities that maintain individual or regional training academies accredited by DHCD shall retain such levy.
- J. In accordance with § 36-98.3 of the Code of Virginia and 13VAC5-31-10 B, the procedures for violations of this chapter shall be as prescribed in the USBC.
- K. In accordance with § 36-98.1 of the Code of Virginia, the Virginia Department of General Services (DGS) shall function as the local building department for the application of this chapter to amusement devices located on state-owned property. In accordance with § 36-98.2 and § 36-114 of the Code of Virginia, appeals of the application of this chapter by the DGS shall be made directly to the State Building Code Technical Review Board. Further, as a condition of this chapter, such appeals shall be filed within 14 calendar days after receipt of the decision of DGS.

Reason Statement: Generally, this involves editing to clarify requirements but also it establishes the submission of location, operator, event duration, device details and proof of insurance three-day in advance of operation. As currently written, the operator is required to notify the local building department at least three days prior to operation but places no such advance submission of the details and insurance which must be provided but can be before or after the fact.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction. The information is currently required. Time of submission will not impact cost.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency. The information is currently required to be submitted. Doing so prior to operation will have no impact.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: No opposition.

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for AD75-18

This proposal doesn't have any public comments.

Proposal # 104

AD75-18

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
Base Document for the 2018 Virginia Manufactured Home Safety Regulations

13VAC5-95-10. Definitions.

A. The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Administrator" means the Director of DHCD or his designee.

"DHCD" means the Virginia Department of Housing and Community Development.

"Dealer" means any person engaged in the sale, lease, or distribution of manufactured homes primarily to persons who in good faith purchase or lease a manufactured home for purposes other than resale.

"Defect" means a failure to comply with an applicable federal manufactured home construction and safety standard that renders the manufactured home or any part of the home unfit for the ordinary use of which it was intended, but does not result in an imminent risk of death or severe personal injury to occupants of the affected home.

"Distributor" means any person engaged in the sale and distribution of manufactured homes for resale.

"Federal Act" means the National Manufactured Housing Construction and Safety Standards Act of 1974, as amended (42 USC § 5401 et seq.).

"Federal installation standards" means the federal Model Manufactured Home Installation Standards (24 CFR Part 3285).

"Federal regulations" means the federal Manufactured Home Procedural and Enforcement Regulations (24 CFR Part 3282).

"HUD" means the United States Department of Housing and Urban Development.

"Imminent safety hazard" means a hazard that presents an imminent and unreasonable risk of death or severe personal injury that may or may not be related to failure to comply with an applicable federal manufactured home construction or safety standard.

"Installation" means completion of work to include, but not be limited to, stabilizing, supporting, anchoring, and closing-up a manufactured home and joining sections of a multi- section manufactured home, when any such work is governed by the federal installation standards.

"Installer" means the person or entity who is retained to engage in or who engages in the business of directing, supervising, controlling, or correcting the initial installation of a manufactured home.

"Label," "certification label," or "HUD label" means the certification label prescribed by the federal standards.

"Local building official" means the officer or other designated authority charged with the administration and enforcement of USBC, or duly authorized representative.

"Manufactured home" means a structure subject to federal regulation, which is transportable in one or more sections; is eight body feet or more in width and 40 body feet or more in length in the traveling mode, or is 320 or more square feet when erected on site; is built on a permanent chassis; is designed to be used as a single-family dwelling, with or without a permanent foundation, when connected to the required utilities; and includes the plumbing, heating, air conditioning, and electrical systems contained in the structure.

"Manufacturer" means any person engaged in manufacturing or assembling manufactured homes, including any person engaged in importing manufactured homes.

"Noncompliance" means a failure of a manufactured home to comply with a federal manufactured home

construction or safety standard that does not constitute a defect, serious defect, or imminent safety hazard.

"Purchaser" means the first person purchasing a manufactured home in good faith for purposes other than resale.

"Secretary" means the Secretary of HUD.

"Serious defect" means any failure to comply with an applicable federal manufactured home construction and safety standard that renders the manufactured home or any part thereof not fit for the ordinary use for which it was intended and which results in an unreasonable risk of injury or death to occupants of the affected manufactured home.

"Standards" or "federal standards" means the federal Manufactured Home Construction and Safety Standards (24 CFR Part 3280) adopted by HUD, in accordance with authority in the Federal Act. The standards were enacted December 18, 1975, and amended May 11, 1976, to become effective June 15, 1976.

"State administrative agency" or "SAA" means DHCD which is responsible for the administration and enforcement of Chapter 4.1 (§ 36-85.2 et seq.) of Title 36 of the Code of Virginia throughout Virginia and of the plan authorized by § 36-85.5 of the Code of Virginia.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63).

B. Terms defined within the federal regulations and federal standards shall have the same meanings in this chapter.

13VAC5-95-20. Application and Enforcement.

A. This chapter shall apply to manufactured homes as defined in 13VAC5-95-10 and as set out in this section.

B. Enforcement of this chapter shall be in accordance with the federal regulations.

C. Manufactured homes produced on or after June 15, 1976, shall conform to all the requirements of the federal standards, as amended.

D. DHCD is delegated all lawful authority for the enforcement of the federal standards pertaining to manufactured homes by the administrator according to § 36-85.5 of the Code of Virginia. The Division of Building and Fire Regulation of DHCD is designated as a state administrative agency in the HUD enforcement program, and shall act as an agent of HUD. The administrator is authorized to perform the activities required of an SAA by the HUD enforcement plan including, but not limited to, investigation, citation of violations, handling of complaints, conducting hearings, supervising remedial actions, monitoring, making such reports as may be required, and seeking enforcement of the civil and criminal penalties established by § 36-85.12 of the Code of Virginia.

E. In accordance with § 36-85.11 of the Code of Virginia, all local building officials are authorized to and shall enforce the provisions of this chapter within the limits of their jurisdiction and shall be responsible for the following:

1. Verify through inspection that a manufactured home displays the required HUD label and data plate;
2. Determine whether the manufactured home has been damaged during transit. If the manufactured home has been damaged, then the local building official is authorized to require tests, in accordance with the federal standards, for tightness of plumbing systems and gas piping and an operational test to ensure that all luminaries and receptacles are operable. If a manufactured home has sustained damage to the structural components, the local building official shall require the appropriate design approval primary inspection agency approval on any repairs or designs;
3. Prevent the use of a manufactured home that in the opinion of the local building official contains a serious defect or imminent safety hazard, and notify the administrator immediately;
4. Notify the administrator of any apparent violations of this chapter, to include defects and noncompliance that occurred during the manufacturing process and any alterations that occurred during installation; and
5. Verify through inspection that the installation is in accordance with the federal installation standards. Where the local building official finds that the installation of the manufactured home is not in accordance with the federal installation standards, the local building official shall order the home to be brought into

compliance within a reasonable time. If the order is not complied with, then the local building official shall notify the administrator.

F. In accordance with § 36-85.11 of the Code of Virginia, site preparation, utility connection, and skirting installation for manufactured homes shall meet the requirements of the USBC. In addition, as a requirement of this chapter and the USBC, administrative provisions of the USBC, such as requirements for permits, inspections, and certificates of occupancy, and the specific requirements of § 425 of Part I of the USBC (13VAC5-63-220 L through 13VAC5-63-220 Q), shall also be applicable.

13VAC5-95-30. Effect of Label.

In accordance with § 36-85.11 of the Code of Virginia, manufactured homes displaying the certification label as prescribed in the federal standards shall be accepted in all localities as meeting the requirements of the Manufactured Housing Construction and Safety Standards Law (Chapter 4.1 (§ 36-85.2 et seq.) of Title 36 of the Code of Virginia), which shall supersede the building codes of the counties, municipalities, and state agencies.

13VAC5-95-50. Alterations.

A. No distributor, installer, or dealer shall perform or cause to be performed any alteration affecting one or more requirements set forth in the federal standards unless the alteration is included in the manufacturer's design approval primary inspection agency's approved design and installation instructions.

B. In accordance with § 36-99 of the Code of Virginia and the USBC, alterations, additions, and repairs associated with existing manufactured homes are subject to applicable provisions of the USBC and not this chapter.

13VAC5-95-60. Installations.

Distributors, installers, or dealers setting up a manufactured home shall perform such installation in accordance with the manufacturer's installation instructions.

13VAC5-95-80. Lot Inspections.

At any time during regular business hours when a manufactured home is located on a dealer's or distributor's lot and offered for sale, the administrator shall have authority to inspect such home for transit damages, seal tampering, violations of the federal regulations and federal standards, and the dealer's or distributor's compliance with applicable state and federal law and regulation. The administrator shall give written notice to the dealer or distributor when any home inspected does not comply with the federal regulations and federal standards or this chapter.

13VAC5-95-90. Consumer Complaints.

A. The administrator shall receive all consumer complaints on manufactured homes reported to DHCD by owners, dealers, distributors, local building officials, and other state or federal agencies. The administrator may request all consumer complaints to be submitted by letter or on a form supplied by DHCD or in another format acceptable by the administrator.

B. The administrator may conduct, or cause to be conducted, an on-site inspection of a manufactured home at the request of the owner reporting a complaint with the home or under the following conditions with the permission of the owner of the home:

1. The dealer, distributor, or manufacturer requests an on-site inspection;
2. The reported complaint indicates extensive and serious noncompliances;
3. Consumer complaints lead the administrator to suspect that a class of homes may be similarly affected;
or
4. Review of manufacturer's records, corrective action, and consumer complaint records leads the administrator to suspect secondary or associated noncompliances may also exist in a class of homes.

C. When conducting an on-site inspection of a home involving a consumer complaint, the administrator may request the dealer, distributor, and manufacturer of the home to have a representative present to coordinate the inspection and investigation of the consumer complaint.

D. After reviewing the complaint report or the on-site inspection of the home involved, the administrator shall, where possible, indicate the cause of any nonconformance and, where possible, indicate the responsibility of the manufacturer, dealer, distributor, or owner for the noncompliance and any corrective action necessary.

E. The administrator shall notify the manufacturer of the home in writing of any consumer complaint concerning that home reported to the administrator. The administrator shall refer any such reported complaint to HUD, to the SAA in the state where the manufacturer is located, and, as necessary, to the inspection agency involved with certifying the home.

F. The administrator shall assist the owner, dealer, distributor, installer, and manufacturer in resolving consumer complaints.

G. The administrator shall monitor the manufacturer's performance to assure compliance with Subpart I (24 CFR 3282.401 et seq.) of the federal regulations for consumer complaint handling and shall take such actions as are necessary to ensure compliance of all involved parties with applicable state and federal regulation.

13VAC5-95-100. Violation; Penalty.

In accordance with § 36-85.12 of the Code of Virginia, it shall be unlawful for any person, firm, or corporation to violate any provisions of Chapter 4.1 (§ 36-85.2 et seq.) of Title 36 of the Code of Virginia, this chapter, or the Federal Act and regulations. Any person, firm, or corporation violating any provision of said laws, rules, and regulations, or any final order issued thereunder, shall be liable for a civil penalty not to exceed \$1,000 for each violation. Each violation shall constitute a separate violation with respect to each manufactured home or with respect to each failure or refusal to allow or to perform an act required by the legislation or regulations. The maximum civil penalty may not exceed \$1 million for any related series of violations occurring within one year from the date of the first violation.

An individual or a director, officer, or agent of a corporation who knowingly and willfully violates Section 610 (42 USC § 5409) of the Federal Act in a manner that threatens the health or safety of any purchaser shall be deemed guilty of a Class 1 misdemeanor and upon conviction fined not more than \$1,000 or imprisoned not more than one year, or both.

Forms (13VAC5-95)

[DHCD Manufactured Home Consumer Complaint Form \(eff. 6/12\)](#)

MH10-18

VRGC:

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

2015 Virginia Building and Fire Code Related Regulations

New/revised Definition's

- _ A. The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Administrator" means the Director of DHCD or his designee.

"Certificate of installation" means the certificate provided by a Virginia Department of Professional and Occupational Regulation (DPOR) licensed installer, under the Virginia Manufactured Home Safety Regulations, indicating that a manufactured home has been installed in compliance with the federal installation standards.

"DHCD" means the Virginia Department of Housing and Community Development.

"Dealer" means any person engaged in the sale, lease, or distribution of manufactured homes primarily to persons who in good faith purchase or lease a manufactured home for purposes other than resale.

"Defect" means a failure to comply with an applicable federal manufactured home construction and safety standard that renders the manufactured home or any part of the home unfit for the ordinary use of which it was intended, but does not result in an imminent risk of death or severe personal injury to occupants of the affected home.

"Distributor" means any person engaged in the sale and distribution of manufactured homes for resale.

"Federal Act" means the National Manufactured Housing Construction and Safety Standards Act of 1974, as amended (42 USC 5401 et seq.)

"Federal installation standards" means the federal Model Manufactured Home Installation Standards (24 CFR Part 3285).

"Federal regulations" means the federal Manufactured Home Procedural and Enforcement Regulations (24 CFR Part 3282).

"HUD" means the United States Department of Housing and Urban Development.

"Imminent safety hazard" means a hazard that presents an imminent and unreasonable risk of death or severe personal injury that may or may not be related to failure to comply with an applicable federal manufactured home construction or safety standard.

"Installation" means completion of work to include, but not be limited to, stabilizing, supporting, anchoring, and

~~closing up~~

closing up a manufactured home and joining sections of a multi-section manufactured home, when any such work is governed by the federal installation standards.

"Installer" means the person or entity, licensed through the Virginia Department of Professional and Occupational Regulation, with the Manufactured Home Contractor (MHC) license designation, who is retained to engage in or who engages in the business of directing, supervising, controlling, or correcting the

~~initial~~

installation of a manufactured home.

"Label," "certification label," or "HUD label" means the certification label prescribed by the federal standards.

"Local building official" means the officer or other designated authority charged with the administration and enforcement of USBC, or duly authorized representative.

"Manufactured home" means a structure subject to federal regulation, which is transportable in one or more sections; is eight body feet or more in width and 40 body feet or more in length in the traveling mode, or is 320 or more square feet when erected on site; is built on a permanent chassis; is designed to be used as a single-family dwelling, with or without a permanent foundation, when connected to the required utilities; and includes the plumbing, heating, air conditioning, and electrical systems contained in the structure.

"Manufacturer" means any person engaged in manufacturing or assembling manufactured homes, including any person engaged in importing manufactured homes.

"Noncompliance" means a failure of a manufactured home to comply with a federal manufactured home construction or safety standard that does not constitute a defect, serious defect, or imminent safety hazard.

"Purchaser" means the first person purchasing a manufactured home in good faith for purposes other than resale.

"Secretary" means the Secretary of HUD.

"Serious defect" means any failure to comply with an applicable federal manufactured home construction and safety standard that renders the manufactured home or any part thereof not fit for the ordinary use for which it was intended and which results in an unreasonable risk of injury or death to occupants of the affected manufactured home.

"Standards" or "federal standards" means the federal Manufactured Home Construction and Safety Standards (24 CFR Part 3280) adopted by HUD, in accordance with authority in the Federal Act. The standards were enacted December 18, 1975, and amended May 11, 1976, to become effective June 15, 1976.

"State administrative agency" or "SAA" means DHCD which is responsible for the administration and enforcement of Chapter 4.1 (36-85.2 et seq.) of Title 36 of the Code of Virginia throughout Virginia and of the plan authorized by 36-85.5 of the Code of Virginia.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63).

-

B. Terms defined within the federal regulations and federal standards shall have the same meanings in this chapter.

Reason Statement: This will ensure the installation is in compliance with the federal installation standards.

Cost Impact Statement:
None

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
None

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Consensus for Approval with Amendments
Amendments:

- Spell out or define all acronyms (DPOR, MHC)

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for MH10-18

This proposal doesn't have any public comments.

Proposal # 80

MH10-18

MH60-18

VRGC: 13VAC5-95-60

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

2015 Virginia Building and Fire Code Related Regulations

13VAC5-95-60 Installations. ~~Distributors, installers, or dealers~~ Installers setting up a manufactured home shall perform such installation in accordance with the manufacturer's installation instructions and shall provide a copy of the certificate of installation to the homeowner and when requested, to the local building official, prior to issuance of the certificate of occupancy.

Reason Statement: This will ensure the installation is in compliance with federal installation standards.

Cost Impact Statement:

None

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency

None

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason: Ms. Davis provided an overview of proposal.

Mr. Witt has an issue because it will hold up occupancy waiting on paperwork. He suggested to provide a copy to owner and maintain a copy, to eliminate waiting to get into a home.

Mr. Brown pointed out that that specialty licensed manufactured home installers must be used for all installations according to HUD regulations. This change would make sure an appropriate person was identified up front to eliminate issues with improper installations.

Mr. Witt is comfortable with installer instead of building officials, building officials do not want that responsibility of certificate.

Mr. Beahm pointed out that it's a destroyable document and will become a nuisance.

Mr. Brown suggested adding "and" so someone gets a copy and it's not mandated. This is to protect the home owners that are doing it on their own.

Mr. Beahm suggested dealer's office of who sold the home is where it should be kept.

Mr. Brown suggested amending to require an installer to provide a copy of the certificate to the owner prior to issuance of a CO and to the building official when requested. This would give localities the option of requiring prior to CO but require the owner is getting it at minimum.

7/24/19- No opposition.

Board Decision

Board Decision:

Board Reason: N/A

Board Decisions

- ☐ Approved
- ☐ Approved with Modifications
- ☐ Carryover
- ☐ Disapproved
- ☐ None

Public Comments for MH60-18

This proposal doesn't have any public comments.

Proposal # 81

MH60-18

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
Base Document for the 2018 Virginia Certification Standards

Summary – This document is compiled by staff of the State Building Codes Office of the Division of Building and Fire Regulation. The staff document is intended to serve as the basis for the publishing of proposed regulations for the 2018 VCS. It is not intended to create substantive changes to the regulations. Standards that are referenced are updated to the newest edition and editorial corrections are made where existing errors have been identified. Once the base document is approved by the Board of Housing and Community Development, if any code change proposals are considered and approved by the Board of Housing and Community Development to also go into the proposed regulations for the 2018 VSC, those proposals would be correlated with this base document and brought back to the Board of Housing and Community Development as a separate “proposed regulations” document for review.

13VAC5-21-10. Definitions.

A. The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Applicant" means a person seeking a certificate.

"BCAAC" means the Building Code Academy Advisory Committee appointed pursuant to subdivision 7 of § 36-137 of the Code of Virginia.

"BHCD" means the Virginia Board of Housing and Community Development.

"Certificate" means a certificate of competence issued pursuant to subdivision 6 of § 36-137 of the Code of Virginia concerning the content, application, and intent of specified subject areas of the building and fire prevention regulations promulgated by the BHCD and issued to present or prospective personnel of local governments and to any other persons seeking to become qualified to perform inspections pursuant to Chapter 6 (§ 36-97 et seq.) of Title 36 of the Code of Virginia, Chapter 9 (§ 27-94 et seq.) of Title 27 of the Code of Virginia, and any regulations adopted thereunder, who have completed training programs or in other ways demonstrated adequate knowledge.

"Certificate holder" means a person to whom a certificate has been issued.

"Code academy" means the Virginia Building Code Academy established under subdivision 14 of § 36-139 of the Code of Virginia or individual or regional training academies accredited by the department pursuant to subdivision 7 of § 36-137 of the Code of Virginia.

"Department" means the Virginia Department of Housing and Community Development.

"Nongovernmental employee" means any person not employed by a locality collecting and transmitting the fee levy to the department in accordance with subdivision 7 of § 36-137 of the Code of Virginia.

"SFPC" means the Virginia Statewide Fire Prevention Code (13VAC5-51).

"State Review Board" means the Virginia State Building Code Technical Review Board established under § 36-108 of the Code of Virginia.

"USBC" means the Virginia Uniform Statewide Building Code (13VAC5-63). "VADR" means the Virginia Amusement Device Regulations (13VAC5-31).

B. Words and terms used in this chapter that are defined in the USBC, VADR, or SFPC and that are not defined in this chapter shall have the meaning ascribed to them in those regulations unless the context clearly indicates otherwise.

13VAC5-21-20. Purpose.

The purpose of this chapter is to establish standards for applicants for a certificate and standards to be used by the department in the evaluation and determination of a person's eligibility for the issuance of certificates.

13VAC5-21-31. Qualification and Examination Requirements.

A. An applicant for a certificate in categories associated with the USBC or the SFPC shall provide a written or electronic endorsement from the code official or the code official's supervisor in the locality in which they are employed certifying that the applicant complies with the qualification section in the USBC or the SFPC for each type of certificate sought. When the applicant for a certificate in categories associated with the USBC or the SFPC is a nongovernmental employee, the applicant shall provide written or electronic documentation that the applicant complies with the qualification section in the USBC or the SFPC as it would relate to the applicant's job responsibilities for each type of certificate sought.

B. An applicant for a certificate in categories associated with the VADR shall provide a written endorsement from the applicant's supervisor or a person having a similar relationship to the applicant certifying that the applicant is generally qualified to conduct activities related to the VADR.

C. Applicants for all certificates shall provide proof of successful completion of approved examinations for each certificate sought based on current certification examination requirements. Applications submitted with passing grades on approved examinations older than six years from the date of passing will be denied except where the applicant can demonstrate the maintenance of a current certification issued by the approved testing agency. The department may consider related certifications maintained by the certifying entity. The department shall maintain a list of approved testing agencies and examinations that meet nationally accepted standards for each certificate offered. For information on approved testing agencies and examinations contact the department's Training and Certification Office, 600 East Main Street, Suite 300, Richmond, VA 23219, telephone (804) 371-7180.

13VAC5-21-41. Certification Categories and Training Requirements.

A. The department maintains a list of all certificates offered and the list sets out the required training necessary to attend and complete to obtain a certificate. Alternatives to the training requirements set out in 13VAC5-21-45 shall be considered for all certificates offered except that no alternative shall be accepted for the code academy core module.

B. Applicants for certificates shall attend and complete the code academy core module. After the completion of the core module, applicants are required to attend and complete the code academy training as set out in a list maintained by the department, except as provided for in 13VAC5-21-45. All required training must be completed within no more than six years prior to the date the application is submitted and the requirements for training are based on those in effect at the time of application.

13VAC5-21-45. Alternatives to Training Requirements.

Upon written request, alternative training or a combination of training, education or experience to satisfy the training requirements of 13VAC5-21-41 may be approved, provided that such alternatives or combinations are determined to be equivalent to that required.

However, as provided in 13VAC5-21-41, no substitutions shall be approved for the code academy core module. The types of combinations of education and experience may include military training, college classes, technical schools or long-term work experiences, except that long-term work experiences shall not be approved as the sole substitute to satisfy the training requirements. BCAAC may be consulted with in any such consideration.

13VAC5-21-51. Issuance and Maintenance of Certificates.

A. Certificates will be issued when an applicant has complied with the current applicable requirements of this chapter. Certificate holders will be classified as active, inactive, or lapsed. An active certificate holder is a person who is certified and who has attended all periodic training courses designated by the department and complied with all continuing education requirements subsequent to becoming certified. An inactive certificate holder is a person who is certified and has either attended the periodic training courses designated by the department or met the continuing education requirements, but not both. An inactive certificate holder may request reinstatement as an active certificate holder after completing makeup training courses authorized by the department. A lapsed certificate holder is a person who is certified but has not attended all periodic training courses designated by the department and who has not complied with all continuing education requirements. A lapsed certificate holder may request reinstatement as an active certificate holder after completing makeup training courses or examinations, or both, as authorized by the department. Provisional certificates may also be issued in accordance with subsection C of this section. Requirements for periodic training courses and continuing education requirements are set out in

subsection D of this section.

B. All certificates issued since June 1978 are considered to be valid unless revoked or suspended, except that provisional certificates shall remain valid as set out under subsection C of this section.

C. A provisional certificate may be issued to (i) a person who has been directed by the department to obtain a certificate; (ii) an applicant requesting a certificate under the alternative training provisions of 13VAC5-21-45; (iii) an applicant when the required training has not been provided or offered; (iv) an inactive or lapsed certificate holder when the issuance of a provisional certificate is determined to be warranted by the department; or (v) a person who, due to extenuating and warranting circumstances either on behalf of the code academy or beyond the person's control, has not fully complied with the eligibility requirements of training and competency established herein.

Such a provisional certificate may be issued when the applicant or person has (i) provided the written endorsement or documentation required by 13VAC5-21-31, (ii) satisfactorily completed the code academy core module, and (iii) completed any training through the code academy or through other providers determined to warrant the issuance of the provisional certificate.

The provisional certificate is valid for a period of one year after the date of issuance and shall only be issued once to any individual, except that a provisional certificate shall remain valid when the required training has not been provided or offered.

D. All certificate holders shall attend periodic maintenance training as designated by the department and shall attend 16 hours of continuing education every two years as approved by the department. If a certificate holder possesses more than one certificate, the 16 hours shall satisfy the continuing education requirement for all certificates.

13VAC5-21-61. Sanctions.

When the BHCD determines a certificate holder has failed to (i) comply with an order issued by the State Review Board, (ii) meet the required training or testing requirements, or (iii) attend periodic maintenance training or continuing education, or both, a warning letter may be issued to the certificate holder or a certificate may be revoked or suspended by the BHCD. In such cases, a noncompliance notice shall be issued to the certificate holder and notification shall be provided to the locality or company employing the certificate holder.

Exceptions to the issuance of a noncompliance notice for failing to comply with the continuing education requirements may be considered where there is a separation from employment by medical or military leave for 12 consecutive months or more during the continuing education period. A record of any action taken pursuant to this section shall be permanently retained in the training record of the certificate holder.

13VAC5-21-70. Appeal.

Decisions of the BHCD regarding an applicant for a certificate or a certificate holder shall be final unless appealed.

Actions under this regulation are governed by the Virginia Administrative Process Act (§ 2.2- 4000 et seq. of the Code of Virginia) and are subject to judicial review in accordance with that law.

CS41-18

VRGC: 13VAC5-21-41., 13VAC5-21-45.

Proponents: Building Code Academy Advisory Committee (BCAAC)

2015 Virginia Building and Fire Code Related Regulations

13VAC5-21-41. Certification categories and training requirements.

- A. The department maintains a list of all certificates offered and the list sets out the ~~required~~ training required to be completed ~~necessary to attend and complete to obtain a~~ each certificate. Alternatives to the training requirements set out in 13VAC5-21-45 shall be considered for all certificates offered except that no alternative shall be accepted for the code academy core module.
- B. Applicants for certificates shall attend and complete the code academy core module. After the completion of the core module, applicants are required to attend and complete the code academy training as set out in a list maintained by the department, except as provided for in 13VAC5-21-45. All required training must be completed within no more than six years prior to the date the application is submitted and the requirements for training are based on those in effect at the time of application.

13VAC5-21-45. Alternatives to examination and training requirements.

- A. An applicant for a certificate with the written endorsement or documentation required by 13VAC5-21-31 may submit a written request to the department to approve an equivalent examination by a testing agency not on the list of approved testing agencies to satisfy the examination requirements of 13VAC5-21-31. BCAAC may be consulted with in any such consideration.
- B. Upon written request, alternative training or a combination of training, education or experience to satisfy the training requirements of 13VAC5-21-41 may be approved, provided that such alternatives or combinations are determined to be equivalent to that required. However, as provided in 13VAC5-21-41, no substitutions shall be approved for the code academy core module. The types of combinations of education and experience may include military training, college classes, technical schools or long-term work experiences, except that long-term work experiences shall not be approved as the sole substitute to satisfy the training requirements. BCAAC may be consulted ~~with~~ in any such consideration.

Reason Statement: This proposal is editorial in nature and not intended to change any requirements.

Cost Impact Statement: The code change proposal will not increase or decrease the cost of construction
This code change will not increase or decrease the cost of construction.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency
This proposal will neither increase or decrease resiliency.

Workgroup Recommendation

Workgroup 1 - Proposed Workgroup Recommendation: Consensus Approval

Workgroup 1 - Proposed Reason:

Board Decision

Board Decision: None

Board Reason: N/A

Board Decisions

- ☐ *Approved*
- ☐ *Approved with Modifications*
- ☐ *Carryover*
- ☐ *Disapproved*
- ☐ *None*

Public Comments for CS41-18

This proposal doesn't have any public comments.

Proposal # 267

CS41-18

DRAFT SUMMARY
DHCD COMBINED WORKGROUP (WG 1, 2, 3 AND 4) MEETING
2018 Code Change Cycle

August 21, 2019 at 9:30 a.m.
VIRGINIA HOUSING CENTER
4224 Cox Road
Glen Allen, VA

Workgroup 3

Virginia Construction Code

RB310.11 Requiring sprinkler coverage in residential construction

Proponent: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Clark speaks in opposition for homebuilders association. Currently, anyone can choose to install sprinklers if they want to. Proposal adds to cost of housing.

Results: Non-Consensus

RB311.3.2 Increase to 8 ¼ in. the floor elevation height for exterior doors

Proponent: Andrew Clark (aclark@hbav.com)

Comments: Rest on reason statement.

Results: Consensus Approval

RB332 Add Appendix Q: Tiny Houses

Proponent: Thom Stanton, Residential Uses Subworkgroup

Comments: Rest on reason statement

Results: Consensus Approval

BAQ104.1.2 Edit the IRC Appendix Q to include provisions from the 2021 Appendix Q

Proponent: Residential Uses Subworkgroup

Comments: Ms. Davis summarizes that this brings in 2021 language to Appendix Q for Tiny Homes

Results: Consensus Approval

RB401.3 Reduce to 1% the grade for impervious surfaces near building foundations

Proponents: Andrew Clark (aclark@hbav.com)

Comments: Proponent summarizes their proposal.

Results: Consensus Approval

RE401.2 Updates reference for REScheck to 2018 and removed the NOTE related to the REScheck modification.

Proponents: Energy Subworkgroup; Eric Lacey (eric@reca-codes.com)

Comments: Ms. Davis summarizes the proposal.

Results: Consensus Approval

RE401.3 Adds a mandatory certificate for building efficiency information

Proponents: Energy Subworkgroup; Eric Lacey (eric@reca-codes.com)

Comments: None

Results: Consensus Approval

RE402.1.2 Improves energy savings by increasing R-values

Proponents: Energy Subworkgroup; Eric Lacey (eric@reca-codes.com)

Comments: Proponent summarizes and explains that this proposal was not included in the consensus items brought forth by the energy subworkgroup. However, there is an agreement by HBAV and energy advocates to convene meetings for continued discussion during the final phase.

Results: Carryover to Final Phase.

RE402.4.1.2 Blower door air testing increase to 3 air changes

Proponents: Eric Lacey (eric@reca-codes.com)

Comments: Ms. Davis summarizes and brings in some last-minute amendments from the energy Subworkgroup to include raising the number of air changes from 3 to 5 and adding language to allow testing to be conducted by a Virginia licensed HVAC contractor, a Virginia licensed Home Inspector, a Virginia licensed design professional, a certified BPI Envelope Professional, or a certified HERS rater, or a certified Duct and Envelope Tightness rater as long as they are trained on the testing equipment. Mr. Lacey summarizes some changes and Mr. Clark speaks in support of this item.

Results: Consensus for Approval as Amended

RE403.3.1 Duct insulation in attics and other portions of the building

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov); Energy Subworkgroup

Comments: Mr. Grace summarizes his proposal and the need to insulate. Mr. Ainsley questions about data to support the need for ductwork insulation and opposes this for rise in housing cost reasons. Ms. Eggerton speaks in favor of the need to insulate to prevent water accumulation in ducts. Several others support that they have witnessed damage due to water accumulation in uninsulated ducts. Mr. Grace requested that this proposal be withdrawn after doing additional research on the proposal at the national level.

Results: Withdrawn

RE403.3.5 Delete ‘building cavities shall not be used as ducts or plenums’

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Proponent summarizes.

Results: Consensus for Approval

RE503.1.1.1 Replacement fenestration with new fenestration product

Proponents: Energy Subworkgroup; Eric Lacey (eric@reca-codes.com)

Comments: Mr. Lacey summarizes.

Results: Carryover to Final Phase to discuss with other existing building language

RTE3401.1 Delete NEC language from VRC and instead reference the NEC

Proponents: Bryan Holland (Bryan.Holland@NEMA.org)

Comments: None

Results: Non-Consensus

RTE3902.16(1) Arc-fault circuit interrupter protection requirement

Proponents: Haywood Kines (hkines@pwcgov.org)

Comments: Mr. Clark speaks in opposition to this due to cost and insufficient data verifying their effectiveness. Some speak to the statistics that require AFCI in homes as a life-saving equipment. Mr. Ainsley spoke to nuisance tripping that occurs as a worry for requiring these in single-family homes. Mr. Haywood spoke to improvements in AFCI technology that have greatly reduced costs and risks associated with AFCI. Mr. Clark requests additional data for direct evidence to the life-saving factor of these devices. Mr. Iverson speaks in favor of instituting this protection in homes doesn’t have direct life-saving aspects.

Results: Non-Consensus

RTE3902.16(2) Arc-fault circuit interrupter protection requirement

Proponents: Allen Turner (allen.turner@jamescitycountyva.gov)

Comments: Proponent summarizes. This is an alternative to the other AFCI proposal, to garner consensus by adding an exemption for GFCI protected circuits in bathrooms, garages, kitchens, etc. Mr. Clark disapproves due to cost and insufficient data verifying their effectiveness.

Results: Non-Consensus

RTP2717.3 Dishwashing machine pan requirement

Proponents: MATTHEW GUNN

Comments: Ms. Davis summarizes in absence of the proponent. Mr. Clark speaks in opposition and several others also oppose.

Results: Consensus for Disapproval

TP1303.1 Adds CSA B805/ICC standard

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarizes that this is simply an alternative compliance path for rainwater harvesting.

Results: Consensus for Approval

Workgroup 4

Virginia Construction Code

TP202 Adds service sink definition

Proponents: Lee Craft, VPMIA (lee.craft@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarizes. Mr. Payne recommends striking the word “utility” from the new definition.

Results: Consensus for Approval as Amended (striking the word “utility”)

T2701.1.1 Feeder equipment grounding conductor

Proponents: James Erler (jim@erlerdesign.com); John Lane (redcloudjl@aol.com); Neil Harrington, Smith Mountain Lake Marine Volunteer Fire Rescue (neil.r.harrington@gmail.com)

Comments: Mr. Harrington speaks to what prompted this proposal. Mr. Erler summarized his proposal. Mr. Kines and several others spoke in opposition of this proposal and recommended taking this through the national process and suggested that the 2020 NEC adequately addresses the issue and a possible solution would be to bring in the 2020 NEC requirements. Mr. Witt recommended carrying this over and bring in subject matter experts to address this issue. Mr. Erler suggested that the national recommendations in the 2020 NEC would not resolve the issue in Smith Mountain Lake. Mr. Kines defended the NFPA process. Delegate Byron asked about

the order of the process and supported the proposal. Consensus from proponents to carryover in order to convene a subworkgroup in the final phase to study the issue.

Results: Carryover to Final Phase

TM505.6 Other than Group R (hoods for domestic cooking appliances)

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

Comments: Proponent summarizes that current code language mandates a domestic hood. He is attempting to clarify that it is optional.

Results: Consensus for Approval

TM510.7.1.1 Shaft penetrations that penetrate fire-resistance-rated shafts

Proponents: Richard Grace, VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarizes that the intent of this proposal is to clarify that firestop systems cannot take the place of required fire dampers.

Results: Consensus for Approval.

TP403.1 Increase number of required water closets in passenger terminals and transportation facilities

Proponents: Cornelia Weiss (koislmeier@yahoo.com)

Comments: Ms. Weiss summarized her proposal. Mr. Payne spoke to the requirements imposed by the language and suggested edits, including consideration of increasing the required number of lavatories as well. A comment was made that this change could affect other transportation facilities and should be vetted at the national level. Mr. Moldovan suggested some changes as well. Some commenters offered to work with the proponent to clean up the proposal to address some of the concerns that had been raised. Mr. Witt recommended carryover to continue edits.

Results: Carryover to Final Phase

TP410.4 Substitution (drinking fountains and water dispensers)

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov)

Comments: Proponent summarized the proposal and the changes made since last time it was discussed. Mr. Clements suggested a change to the language to further clarify the requirement for two fountains, one high and one low. Ms. Eggerton suggested removing “notwithstanding” and that it may be beneficial to carry over this proposal to find language that isn’t confusing. Mr. Grace suggests an edit from the 2021 IPC “Where more than two drinking fountains are required... water dispensers shall be permitted to be substituted for not more than half...” The group agreed to use the 2021 IPC language.

Results: Consensus for Approval as Amended

Workgroup 1

Virginia Construction Code

A108.3 Applicant information, processing with online option

Proponents: Allison Cook (ICC@Allison-Cook.com)

Comments: Ms. Cook summarized her proposal. Mr. Witt supports giving all options available to the customer. Mr. Clark spoke to the reliability or lack thereof to online submittals. Mr. Pharr spoke to the broadband issues in the commonwealth and argued for having online submittals as an option. Ms. Eggerton supported the proposal as an option, even the preferred option. Mr. Lederman (VDEQ) spoke to this being an issue for them as well.

Results: Non-Consensus

A113.8 Final inspection requiring energizing the structure

Proponents: Haywood Kines

Comments: Proponent summarizes his proposal. Mr. Witt gave some history on when power companies could be limited in their ability to support this. Mr. Cornwall asked how alternative power sources would be applicable to this change. Ms. Cook asked if this was a problem that has occurred where building offices were required to conduct final inspections on unpowered structures. Mr. Clements spoke in opposition. A comment was made that the existing provision in the USBC was added to allow a building official to require power when it was appropriate and mandating it for all final inspections would require it even when it is not feasible or appropriate. Mr. Redifer opposed this on the grounds that building offices should have the option to make the decision.

Results: Non-Consensus

A115.2(3) Notice of violation to those other than the permit holder for related work

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Proponent summarizes proposal.

Results: Consensus Approval

A115.2(2) Notice of violation to those other than the permit holder for related work

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Proponent summarizes proposal.

Results: Withdrawn

A118.1 Creates a VCC section for unsafe buildings

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Proponent asks for proposals to be carried over.

Results: Carryover to Final Phase

A119.6 Meetings and postponements by electronic means

Proponents: David Beahm (dbeahm@warrencountyva.net); VBCOA Admin Committee

Comments: Proponent summarized his proposal. Remove comma before “if requested”.

Results: Consensus Approval

Virginia Maintenance Code

PM103.2.3 Responsibility for maintenance to tenants and owners of leased buildings

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

Comments: Rests on reason statement. Mr. Pharr defends proposal that this does not supersede or interfere with the Landlord Tenant Act. Mr. Payne spoke to TRB cases about this topic. Mr. Clark spoke to General Assembly implications of this proposal. Theresa asked how they were supposed to get ahold of the owner of a property to determine if it's a failure of the owner or the tenant. Mr. Clements states that the language of this change gives the building official the ability to request information pursuant to a deficiency. Ms. Hale asked about the scope of this change and Mr. Witt clarified for her. Mr. Pharr suggested that he could remove reference to the Residential Landlord Tenant Act and preserve the second part in 103.2.3.1. Ms. Davis summarized to this point. Mr. Witt requested to make 103.2.3 to a Note and reference the Code of Virginia.

“Note: Where an owner states that a tenant is responsible for performing any of the owner’s duties under this code, the code official may request information needed to verify the owner’s statement, as allowed by Section 55-1-1209A.5 of the Code of Virginia.”

Results: Consensus Approval as Amended

PM104.5.3.2 Record of inspection should carry name and certifications of elevator mechanic

Proponents: DHCD Staff

Comments: Ms. Davis summarizes the proposal as a correlation change in the VMC to duplicate the change made in the VCC for elevator inspections.

Results: Consensus Approval

PM105.2 Adds ‘tenant’ to those who can be named by code official for violations

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

Comments: Mr. Pharr summarizes his proposal and references his prior statements related to the Tenant Landlord Act.

Results: Consensus Approval

PM105.4 Adds 'tenant' to owner or other person responsible for Notice of violations

Proponents: W Shaun Pharr (spharr@aoba-metro.org)

Comments: Rest on reason statement and references his prior statements related to the Tenant Landlord Act.

Results: Consensus Approval

PM106 Simply language of unsafe structure

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Mr. Clements speaks to the need for more time for his proposal and requests to carry over to continue discussions.

Results: Carryover to Final Phase.

Virginia Certification Standards

CS41 Editorial change for certification requirements

Proponents: Building Code Academy Advisory Committee (BCAAC)

Comments: No comments.

Results: Consensus Approval.

Workgroup 2

Virginia Construction Code

B108.1 Emergency supplemental hardware per SB1755

Proponents: DHCD Staff on behalf of the following stakeholders represented at the School Safety Subworkgroup: Virginia Building & Code Officials Association; Virginia Department of Education; Augusta County Public Schools; American Institute of Architects (AIA) Virginia; Virginia Tech

Comments: Ms. Davis recaps both of the two proposals brought forth from Senate Bill 1755 and the review of the use of barricade devices and locks during active shooter and emergency situations. She explained that the two proposals were the same except this proposal put the clarifying language in the body of the code and the alternate proposal puts the language in an appendix that would make it optional for jurisdictions to choose to use them. The concern with

the appendix is that one school district would be able to use an approved device as outlined in the appendix and the school in the next county would receive a notice of violation for using the exact same device. She opened the floor for other committee members to discuss relevant proposals. Ms. Frye stated that she has concerns that the proposal as written does not prohibit barricade devices from being installed on doors with required panic hardware. Mr. Witt stated that there had been four meetings with over twenty hours of discussion. He saw no benefit in rehashing the arguments at this meeting and suggested that both simply be moved forward as non consensus.

Results: Non-Consensus

BO108.1 Appendix O option per SB1755

Proponents: Linda Hale on behalf of VFPA and Steven Sites, Acting State Fire Marshal

Comments: See above. Ms. Davis asked Ms. Hale if the language in the appendix was identical to the other proposal. Ms. Hale stated that it was identical as she simply used the copy and paste to submit her proposal and that it was her intent that it be exactly the same. Mr. Milliken recommends moving the changes in VSFPC section 1010.1.9.3 to 1031. Mr. Payne indicated VA AIA would support the appendix option as well.

Results: Non-Consensus

B202(3) 'Permit holder' definition

Proponents: Michael Redifer (redifermd@nnva.gov)

Comments: Stand on the reason statement. Mr. Witt asked what we would gain from this definition. Ms. Cook clarified how this would help. Mr. Pharr spoke in support. Mr. Beahm indicated how holder could be a distinct term.

Results: Carryover to Final Phase

B307.1(1) Eliminate Permissible fireworks MAQ tables

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Dean spoke to both his proposals and asked for withdraw on this item and carryover on the next.

Results: Carryover to Final Phase

B307.1(2) Eliminate Consumer fireworks in the MAQ tables

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Mr. Dean spoke to both his proposals. Ms. Davis asked if it was his intent to allow the doubling of quantities in a sprinklered building for consumer fireworks as that is what this proposal would do. Mr. Dean asked to withdraw this proposal and would focus on the Permissible proposal for the final phase.

Results: Withdrawn

B310.1 Residential Group R (Residential use subworkgroup)**Proponents:** Residential Use Subworkgroup

Comments: Ms. Davis summarized how multiple residential uses were consolidated to this proposal and how it may have caused unintended consequences with the new definition of R-1 as it might be interpreted to include vacation rentals. Mr. Brown summarized some of the good work accomplished by this language. Mr. Willham asked a question about transient occupancy and comparing this to IRC language. Mr. Milliken suggests that any change to hospice be reflected in the VSFPC for drills. Mr. Brown indicated this was already done. Ms. Cook asked about transient language in R-uses impacting multi-unit apartments being utilized by AirBNB. Mr. Clements spoke to the work accomplished by the group and that “primarily transient” was the best defining term for limiting the scope of these use groups. Mr. Gerber asked how occupant load definition could be enforced. Mr. Willham recommends adding “more than one dwelling unit” to “ten or more occupants” to further clarify.

Results: Carryover to Final Phase**B310.3(1) Residential Group R-1 for transient occupants****Proponents:** Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

Comments: This proposal should be correlated with B310.1.

Results: Carryover to Final Phase**B310.3(2) Residential Group R-1 for transient occupants****Proponents:** Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

Comments: This proposal should be correlated with B310.1.

Results: Carryover to Final Phase**B310.8.2 Accessory dwelling unit****Proponents:** Residential Use Subworkgroup

Comments: Ms. Davis summarized that the request to visit ADU originated in Northern VA due to the lack of affordable living arrangements. Mr. Clark supports this. Mr. Moldovan speaks to the difficulty in enforcing the provision that the structure must be owner occupied. Mr. Kines indicates that he thinks this is a way to circumvent the requirements of a duplex. Ms. Cook reiterated the need and support for this in northern Virginia. Mr. Moldovan asked how “owner occupied” would impact the building official and he does not want to bring forth a proposal with unenforceable language.

Results: Carryover to Final Phase**B428 Higher education laboratories**

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

Comments: Mr. Payne defers to Mr. Milliken. Mr. Milliken summarized the proposal and its recent edits.

Results: Consensus Approval with Amendments

B901.5.1 Statement of compliance

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Comments: Mr. Milliken gives a brief summary and indicates that after conversation with other officials he recommends it move forward as non-consensus.

Results: Non-Consensus

B1010.1.9.3(2) Locks and latches

Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

Comments: Mr. Payne summarizes his proposal and notes little support, and he moves for it to be withdrawn.

Results: Withdrawn

Virginia Statewide Fire Prevention Code

FP103.2.1 (VFSB SFPC Edits)

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Comments: Mr. Witt provided background on the work of this committee. He and the VBCOA Fire Code Committee supports all of the Subworkgroup items submitted on behalf of the Fire Code Edit Committee.

Results: Consensus Approval

FP202(3) Restricted explosives manufacturing definition

Proponents: Glenn Dean (gad.pompier@gmail.com)

Comments: Added the word “is”, an editorial change.

Results: Consensus Approval

FP316.6 Storage underneath bridges and elevated roadways

Proponents: Gerry Maiatico (gmaiatico@warrencountyfire.com)

Comments: Ms. Davis summarizes his proposal. Ms. Hale summarizes the proposal’s intent from the perspective of Mr. Maiatico and specific issues he’s having within his jurisdiction. Ms.

Davis question the ability to regulate VDOT structures and the ability to already cite an unsafe condition.

Results: Consensus Approval

FP609.2 Appropriate ventilation for grease laden vapors

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Comments: Mr. Milliken summarizes his proposal and its applicability. Mr. Witt indicates the history of this code and why it is phrased the way that it is.

Results: Carryover to Final Phase

FP903.5.1 Certification of service personnel for automatic sprinkler systems

Proponents: Joe Boisseau

Comments: Ms. Davis summarized the proposal and Mr. Milliken indicated he had worked with Mr. Boisseau on this proposal.

Results: Consensus for Disapproval

FP907.9 Requiring installation of battery powered smoke alarms in rentals

Proponents: William Andrews (cyur2b@verizon.net)

Comments: None

Results: Consensus for Disapproval

FP1031.2.1 Security devices and egress locks

Proponents: Richard Witt (wittr@chesterfield.gov)

Comments: This is an effort to remove construction language that was missed during the last cycle.

Results: Non-Consensus

Virginia Existing Building Code

EB601.4(1) Eliminates a conflict in the VEBC and USBC for energy efficiency

Proponents: Eric Lacey (eric@reca-codes.com)

Comments: Parties agree to continue working on the proposal as part of the overall discussion on existing buildings.

Results: Carryover to Final Phase

EB601.4(2) Energy conservation, delete existing building CE and RE
Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

Comments: Proponent requests additional time to develop the proposal.

Results: Carry Over to Final Phase

EB601.1(2) Building elements and materials in alterations
Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Mr. Payne summarized his proposal. Ms. Cook indicated that this is not a technical change. Mr. Kines asked about historical structures and Mr. Witt responded that there's a separate section for that.

Results: Consensus Approval

EB904 Delete duplicated language in 904 which is already present in 906
Proponents: Kenney Payne, AIA-VA (kpayne@moseleyarchitects.com)

Comments: Mr. Payne summarizes his proposal.

Results: Consensus Approval

EB1101.18 Smoke and carbon monoxide alarms in old rental residences
Proponents: William Andrews (cyur2b@verizon.net)

Comments: Mr. Andrews stated that smoke and carbon monoxide alarms were included in the Landlord Tenant Act and he's trying to get this into the building codes as a requirement.

Results: Consensus Disapproval

Virginia Maintenance Code

PM302.5 Rodent harborage
Proponents: Gregory Revels (Greg.Revels@henrico.us)

Comments: Mr. Pharr summarized the proposal and indicated that he and Mr. Revels have agreed to a new definition of "Infestation" – *The presence of insects, rodents, vermin or other pests in sufficient number to adversely affect the structure or health, safety and welfare of the occupants.*

Results: Consensus Approval as Amended with new definition

PM602.4 Cooling supply codification of emergency regulation
Proponents: DHCD Staff

Comments: Ms. Davis summarized with the emergency regulations language brought in by order. This codifies the emergency regulations language instead of letting it expire. Mr. Clark supports this on behalf of homebuilders and carries in Delegate Clark's support.

Results: Consensus Approval

PM702.1 General (Means of egress) refer to SFPC and the applicable building code for maintenance.

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Comments: Mr. Clements summarizes his proposal and stated he's compromised with Mr. Milliken on this draft.

Results: Consensus for Approval

COMBINED WORKGROUPS 1, 2, 3, & 4 MEETING

LOCATION: VIRGINIA HOUSING CENTER - 4224 COX ROAD, GLEN ALLEN, VIRGINIA 23060

DATE: WEDNESDAY, August 20, 2019

Page 1

TIME: 9:00 A.M.

<u>NAME</u>	<u>REPRESENTING</u>	<u>EMAIL ADDRESS</u>
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Tom Coghill	James city county va. gov	

Sharon Stroble V.D.S.S. ✓ Sharon.stroble@dss.virginia.gov

COMBINED WORKGROUPS 1, 2, 3, & 4 MEETING

LOCATION: VIRGINIA HOUSING CENTER - 4224 COX ROAD, GLEN ALLEN, VIRGINIA 23060

DATE: WEDNESDAY, August 20, 2019

Page 2

TIME: 9:00 A.M.

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COMBINED WORKGROUPS 1, 2, 3, & 4 MEETING

LOCATION: VIRGINIA HOUSING CENTER - 4224 COX ROAD, GLEN ALLEN, VIRGINIA 23060

DATE: WEDNESDAY, August 20, 2019

Page 3

TIME: 9:00 A.M.

<u>NAME</u>	<u>REPRESENTING</u>	<u>EMAIL ADDRESS</u>
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Tempest Boone

Gregg Fields
Cornelia Weiss

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BILL ACETO
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Mark Dreyer, R.A.

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COMBINED WORKGROUP 1 & 2
July 24, 2019
VIRGINIA HOUSING CENTER

VIRGINIA CONSTRUCTION CODE

A105.2.1-18

Proponent: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: The ability to attract new technical assistance from the construction industry is becoming harder. We now have the High School Technical Training program in Virginia as well as numerous engineering, construction technology and architectural programs that are producing people with the core knowledge and skills necessary to begin a career in code enforcement. This proposal makes it clear that such education is equivalent to the 3 years of construction experience.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

A106.3.1-18

Proponent: DHCD Staff

Reason Statement: This proposal would allow the use of nationally recognized guidelines under the modification or alternative methods and materials Sections of Chapter 1. Guidelines such as CC G5-2019 "Guideline for the Safe Use of ISO Intermodal Shipping Containers Repurposed as Buildings and Building Components", could be useful tools in substantiating a modification an alternative method or material where the code is silent.

Comments:

Ms. Davis gave an overview of proposal

Mr. Grace pointed out that "guidelines" might not be an appropriate term.

Ms. Davis stated that ICC uses that word.

CONSENSUS APPROVED

A109.1.1-18

Proponent: Debra McMahon (debra.mcmahon@fairfaxcounty.gov)

Reason Statement: Under Section 108.3, the Building Official (BO) may accept applications electronically provided the required information is obtained. This needs to go a step further and propose an addition to Section 109 (Construction Documents) to cover electronic plan submissions.

Comments:

Mr. Grace spoke on Debra's behalf

Mr. Witt pointed out that this is not necessary a lot of localities are already doing this and it's meaningless.

Mr. Redifer stated that 108.3 already takes care of this, the construction documents are listed as part of the application

CONSENSUS FOR DISAPPROVAL

A110.5-18

Proponent: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Very few building officials still physically sign a permit. Most jurisdictions print out permits from computer systems and fulfill the signature requirement with a computer affixed electronic copy of the signature. All this requirement does is add one more thing that needs to be configured into the computer system. The signature provides no value.

Comments:

Mr. Clements provided an overview of proposal

CONSENSUS APPROVED

A113.7 (1)-18

Proponent: Michael Redifer (redifermd@nnva.gov)

Reason Statement: In support of uniformity for the most widely-used form of third party inspection. Elevator inspections are unique in that they involve the witnessing of tests which may only be performed by mechanics holding a valid DPOR certification.

Comments:

Mr. Redifer stated that he would like to withdraw this in favor of the commencement.

Mr. Redifer stated that he wants to expand the requirements because some jurisdictions requires a 3rd party inspections on installation and didn't want to limit that to the mechanic certification.

WITHDRAWN

A113.7(2)18

Proponent: Michael Redifer (redifermd@nnva.gov)

Reason Statement: In support of uniformity for the most widely-used form of third party inspection. Elevator inspections are somewhat unique in that they involve the witnessing of tests which may only be performed by mechanics holding a valid DPOR certification. This option is intended to expand and further clarify the original 113.7 proposal for inclusion of the elevator mechanic required certification for operation and testing.

CONSENSUS APPROVED

A113.8-18

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: 113.8- Current code requires a final inspection at completion of a building, not permitted work. Though the definition of building includes "parts thereof," the final inspection should be a requirement of completion of the work for which the permit was issued. Alterations to buildings do not necessitate a new CO or a final inspection to count as a CO. The final inspection should simply document the permitted work is code compliant and complete. Occupancy should drive a CO, which this change accomplishes by referencing to the CO section prior to occupancy or after a change of occupancy. Additionally if a new CO is needed, the final inspection ticket should not serve that purpose. Per Section 116 specific information must be printed on the CO and that information should be updated.

116.1- A certificate of occupancy should not be issued for completion of work; that is the purpose of the final inspection. The certificate of occupancy should be issued for "occupancy" or change of "occupancy." This code change corrects that current glitch with Section 116. Additionally, Section 116.1 does not require approval of the final inspection only completion. A failed inspection is a complete inspection, so this proposal corrects that as well and states that the final inspection must be approved as a condition of CO issuance. Current section 113.8 allows a final inspection ticket to count as the CO for a 100,000 s.f. addition to a school. Additions should require issuance of a new CO. The exceptions to issuance of a CO are retained for single family dwelling accessory structures and additions. There is no need for 5 days to issue a CO.

Comments:

Mr. Clements gave an overview of proposal

Mr. Milliken suggested deleting the word "after" after occupancy.

Mr. Beahm suggested adding "5 working days" back in.

CONSENSUS APPROVED WITH AMENDMENTS:

- **113.8 Prior to occupancy or change of a building or structure, a certificate of occupancy shall be issued in accordance with Section 116.**
- **116.1 Prior to occupancy or change of a building or structure, a certificate of occupancy shall be issued in accordance with Section. The building official shall, however, issue a certificate of occupancy within 5 working days...**

A115.2(1)

Proponent: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Regarding 115.2: Notices of violation should not be used as the first means of notifying individuals that their building or structure is unsafe. Clearly, the intent of the VCC is that a "different" means must be used when declaring something to be unsafe - thus the purpose of Section 118 and 118.4 specifically - where you issue a REPORT in lieu of just a NOTICE. The methods of issuing such notice have been reformatted for easier reading (lists should be considered when multiple methods and commas are used). The portion concerning "not the responsible party" has been relocated to follow immediately behind the notice issuance without being "separated" by the right to appeal. Thus, the entire provision flows better now.

115.3: The added language allows compliance with 115.2 *before* one can initiate legal proceedings. This avoids using a NOV as the notification of legal proceedings, or filing legal proceedings *during* the time period allowed under 115.2.

Comment:

Mr. Payne wanted to withdraw proposal. Thought he did it already

WITHDRAWN

A115.2(2)

Proponent: Michael Redifer (redifermd@nnva.gov)

Reason Statement: The revisions establish responsibility for work as being that of the permit holder in cases where permits are obtained. It relieves local building departments of the requirement to spend ever-decreasing resources on investigations which in some cases find the individuals who actually performed the work are well out of reach prior to any

violations being discovered. It supports long-standing public information efforts by the Department of Professional and Occupational Regulation which discourages the general public from obtaining permits on the advice of the contractors they hire. It also follows the General Assembly's assumption that the permit applicant is responsible for the work by requiring building officials, under threat of criminal conviction, to either verify the applicant is licensed to be responsible for the work or claim exemption for licensing while remaining responsible for the work.

Comments:

Mr. Redifer explained that this proposal failed to get approval from the administrative committee VBCOA because concerns it did not provide for the citing or holding responsible for someone other than the permit holder. Mr. Redifer re worded it and failed to carry it through the cycle.

Mr. Pharr the VA residential landlord tenant act and the Landlord tenant act both say that a lease can confer responsibility for tenants (NOV's), wants to make sure there is no conflict there.

CARRYOVER TO AUGUST

A118.1

Proponent: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: This section creates a second, VCC, version of "unsafe building or structure", which causes confusion with regards to unsafe building or structure in the VMC. This section also provides a group of provisions for vacating a VCC unsafe structure, though these structures have not received a certificate of occupancy. Any building, unsafe or not, that is occupied without a CO is in violation of VCC 116.1 and such unlawful occupancy can be addressed through issuing and NOV for the 116.1 violation. The Section 118 provisions for vacating the incomplete structure are not needed. This code change is an attempt to get rid of the third flavor of unsafe structures that is redundant and confusing so the VCC definition is proposed to be deleted since it is not necessary with the proposed format.

Section 118.1 establishes that a structure, which becomes a threat to public safety during construction, is a violation of the VCC. Proposed 118.1 sets the condition as a violation and does away with the need for another unsafe structure definition.

Section 118.2 addresses the emergency provision in existing section 118.7 and references the VMC provisions in VMC 106.9 so that the same provisions do not need to be copied into VCC section 118. Section 118.3 addresses the initial notification required with use of a correction notice. Section 118.4 addresses issuing an NOV and uses existing VCC Section 115 for that purpose.

Comments:

Mr. Clements gave an overview of proposal

Mr. Milliken suggested that we need to consider that VMC is not adopted everywhere so it needs to stand on its own and not reference back to VMC to take care of the issues. Then once the problem is determined then what? What do we do about the problem itself, what kind of actions can we take to mitigate those options.

Mr. Catlett pointed out that the property maintenance code is not enforced in the jurisdiction if it is referenced in the new construction code then it becomes a reference of the new construction code and becomes applicable.

Mr. Clements explained that having language consistent with another code, it's better to reference it than to have to maintain in two separate places.

Should be tweaked and it is a good proposal.

CARRYOVER TO AUGUST

A119.6

Proponent: David Beahm (dbeahm@warrencountyva.net); VBCOA Admin Committee

Reason Statement: In today's world the use of formal written communication through the postal service to the residence (address) is slow, unverifiable and unreliable at times. The use of electronic communication has taken place of this older method for almost all forms of notices. This change does not remove the option of using the postal service, but provides another means to notify the parties.

Comments:

Mr. Beahm gave overview of proposal

Mr. Pharr mentioned that a written notice should be able to be requested as well so it's the party and not the board calling the shots.

Mr. Beahm pointed out that there is not guarantee that they will receive it by mail either and have been contested in the past that they haven't receive it. An email or electronic means affirms receipt.

Mr. Catlett mentioned that the electronic option will get the appeal faster and can utilize return receipt. If we could come up with language that "unless the party request mail notification" that would be the concept.

Mr. Milliken pointed out that electronic means could be a robo call to a telephone message.

Ms. McGreal stated if someone request to have it mailed they should be able to do so. Some people don't read they're email.

CARRYOVER TO AUGUST

B202(2)

Proponent: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This definition was inadvertently deleted in the 2015 VCC and is still shown as being deleted in the 2018 USBC "Base Document." This change proposes to add it back as it read in the 2012 VCC.

Comments:

Mr. Payne gave an overview of proposal

Mr. Witt questioned where would there be an "or authority having jurisdiction" in the state of VA code.

A statement was made that this is an NFPA term and it was in the 2012.

Mr. Witt pointed out that the law says you have to have a building official or utilized someone's building official in the locality with the agreement...not sure why we would have that language at the end.

Mr. Catlett stated that the term is coined by the NFPA and we try to stay away from that language in the past because the building official is the authority having jurisdiction. He further pointed out that the each jurisdiction has to designate a building official.

Mr. Payne pointed out that it is already in the base document.

WITHDRAWN

B302.18

Proponents: Residential Use Subworkgroup (dhcdresidentialuse@gmail.com)

Reason Statement: This proposal is not intended to make any significant changes to the requirements or classifications of SRCFs, but to simplify application of the existing requirements (exceptions) by putting all use group classification requirements for SRCFs together in Chapter 4. This proposal is not completed, but is intended to give an idea of the 18 concept that is being utilized to complete this cleanup effort. The Residential Uses Subworkgroup plans to continue working on this proposal by identifying any other licensed facilities that may also need to be included in the new section and deleting any existing state amendments throughout VCC Chapter 3 that are covered in the new Section 432.

Comments:

Ms. Davis gave an overview of proposal and mentioned that this is the first time that this group has put together and the residential group was able to see and anticipated that it will be carried over but wanted to put it in the agenda. Wanted to list every state regulated care facility.

Mr. Milliken stated that he support the chapter 4 elements but does not agree with the 302.1 adding an item 11 SRCF is not a use group and can be confusing, feels it should be deleted and add back as a note.

Mr. Catlett pointed out the easiest way to do it was to take create own section in chapter 4.

Mr. Milliken pointed out that this is a classified list and will not be approved to adding new items.

Mr. Brown suggested taking out the #11 and just stating "State Regulated Care Facilities (see section 432)".

Mr. Beahm pointed out to add "or more" to 432.2.2 to 17 or more persons.

CARRYOVER TO AUGUST

B310.1

Proponent: Residential Use Subworkgroup

Reason Statement: This proposal is intended to clarify the residential use group classifications by deleting the laundry lists of examples under each group and simplifying the descriptions of each group based on the number of occupants, if the occupants are transient or not, and if the use includes sleeping and/or dwelling units.

Comments:

Greg Revels was not in attendance for explanation of proposal

B310.3 (1)

Proponent: Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

Reason Statement: There appears to be a gap in the code for hotels (transient) that provide dwelling units. As currently written, neither the R-1 nor the R-2 descriptions provide clear direction on the classification of hotels (transient) that provide dwelling units. The commentary clarifies that R-1 occupancies can contain either sleeping units, dwelling units, or both, but the code as written does not explicitly address transient residential occupancies that contain (more than two) dwelling units. The key characteristic of group R-1 occupancies is the transient nature of the occupants and not the absence of dwelling units. This proposal simply adds language for dwelling units that mirrors that used in the description of R-2 non-transient occupancies. With this clarification, the difference between R-1 and R-2 occupancies will be clearly defined to depend only on the transient or non-transient nature of the occupants, respectively.

Comments:

Mr. Willham gave an overview of proposal

Mr. Catlett mentioned that he doesn't think this is necessary because there is nothing prohibiting from having a dwelling unit in R1 already, it's just giving you the characteristic in the sleeping unit and hasn't been a conflict in the past.

Mr. Catlett and Mr. Witt pointed out that this marries the previous proposal and should be discussed with Greg Revels.

Ms. Davis pointed out that this was discussed on the national level because adding dwelling units an Air bnb could be considered a hotel and this could be a mess.

CARRYOVER TO AUGUST

B310.3(2)

Proponents: Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

Reason Statement:

There appears to be a gap in the code for hotels (transient) that provide dwelling units. As currently written, neither the R-1 nor the R-2 descriptions provide clear direction on the classification of hotels (transient) that provide dwelling units. The commentary clarifies that R-1 occupancies can contain either sleeping units, dwelling units, or both, but the code as written does not explicitly address transient residential occupancies that contain (more than two) dwelling units. The key characteristic of group R-1 occupancies is the transient nature of the occupants and not the absence of dwelling units. This proposal simply removes language regarding the type of units, which results in the wording used in pre-2006 code. With this clarification, the difference between R-1 and R-2 occupancies will be clearly defined to depend only on the transient or non-transient nature of the occupants, respectively.

Comments:

Ms. Davis pointed out that the concern is the confusing issues in licensed facilities by various state agencies being all over the place in the code, put them all in one place and try to clean up the general use in the code and then come back with a cleaned up versions. She also pointed out that Mr. Willhams changes are in relation to the definitions of R1 and wants to add more than one dwelling units or strike out "sleeping units" in the definition in R1.

Waiting for Greg Revels to discuss with previous proposal

CARRYOVER TO AUGUST

B310.8.2

Proponents: Residential Use Subworkgroup

Reason Statement: Provides an affordable housing option. Originally brought forward by Arlington County to allow part of existing dwelling units to be occupied by both transient lodgers or long-term renters that desire a degree of independence and privacy from an owner-occupied dwelling.

Comments:

Ms. Davis gave an overview of proposal

Mr. Hines questioned if anyone has discussed issues of ventilation systems, HVAC equipment, and electrical and dwelling unit single meters.

Mr. Davis pointed out by coming up with this definition it eliminates those requirement you will not have to have separate requirements for ventilation systems.

Mr. Catlett mentioned that in Northern VA there are zoning ordinances that would allowed this. The code does not prohibit multiple kitchens, bathrooms etc. The group had a problem with multiple units it's creating R2 and could not occur unless owner occupied.

Ms. Eggerton agrees with this because we allow it, and clarifies that you can do one additional unit and doesn't have to get into the details, feels this is a solution that is already happening.

Mr. Beahm pointed out that this is a zoning issue more than anything else and we can't fix that with the building code.

Mr. Payne suggested to move it to the subworkgroup or nonconsensus.

NONCONSENSUS

B408.2.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This section was renumbered from 429 in the 2015 VCC to 431 in the 2018 VCC Base Document. This proposal fixes the reference in 408.2.1.

Comments:

Mr. Payne gave an overview of proposal

Ms. Davis mentioned that is just an editorial change.

EDITORIAL CHANGE

B428

Proponent: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Regarding IBC edits: Rather than begin with the 2015 Virginia amendment and edit it to include relevant 2018 IBC provisions, this proposal starts with the 2018 IBC version and adds the relevant Virginia amendments. Deletions to the IBC and VCC floor construction and exceptions were done to avoid conflicting with the referenced tables.

Comments:

Ms. Davis pointed out that this is under construction and will be carried over

CARRY OVER TO AUGUST

B501.2

Proponent: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: As currently written, requiring such signage for existing buildings is a *retrofit* requirement that is not triggered by any work. Since this is the case, the reference to existing buildings should be in VEBC Chapter 11. The language is identical to that of the IFC, so, it should not be duplicated in either the VCC or VEBC and should have just a "pointer."

Comments:

Mr. Payne gave an overview of proposal and it was discussed at the last workgroup.

Mr. Witt questioned when this is applicable. Some work has to be done before it gets to the building code.

Mr. Payne responded that it's at any time and it's in the retrofit chapter. Does it need a path to get to it?

Ms. Davis pointed out that there is language already in the code.

Mr. Milliken supports what Mr. Payne is doing with this proposal. The application is up to how the jurisdiction wants to do it and he doesn't think that they should wait until the General Assembly to direct us to enforce an address posting requirement.

Mr. Witt disagreed with Mr. Milliken and mentioned that this is a fire official issue and not a building code because of emergency issue and fire response.

Mr. Catlett stated that this is a good place to address it in the existing building code because if they are coming in and don't have an address it's a minor cost to make a fix on and several provisions in the property maintenance code that say that you have the ability to back and require some to get an address on an existing property...it might slightly be considered a retrofit.

Mr. Tomberlin stated that it should be in the existing building code because if they are going out to make an inspection on site and there is no address you can go back and state that an address is needed so if a fire official needs to go out for an emergency there they will have an address.

Mr. Pharr agrees with Mr. Witt if it's in the existing building code it needs to be a triggering event.

Mr. Davis questioned if you only require a retrofit of an address when a permit is applied for. The maintenance code requires that addresses if they are provided or were required be maintained it does not require a retrofit to display an address sign if you never had one, this would. Then she also questioned is there even authority to require it retroactively without General Assembly actions is a question for attorney general's office if you're not seeking a permit.

Mr. Payne pointed out that even if a permit isn't required you still have to comply with the code, the code says in 501.2 that existing building has to have an address.

WITHDRAWN

B706.5 (option 1)

Proponent: Ronald Clements Jr, Chesterfield County (clementsro@chesterfield.gov)

Reason Statement: The fire wall horizontal termination provisions are set up with section 706.5 providing the termination methods for firewall terminations where the exterior walls on either side are at an angle of 180 degrees or greater and section 706.5.1 providing the termination methods for fire wall termination where the exterior walls on either side are at an angle less than 180. 706.5.1 is an additional requirement, when the angle is less than 180, to the base requirement in 706.5. This does not work in practice. If a fire wall terminates at the vertex of a 90 degree angle between the two exterior walls.

Section 706.5.2 addresses the firewall termination where the exterior walls on either side are at an angle less than 180 degrees. The first exception was removed because it makes no sense to allow this method when it would not be allowed if the buildings were separated by an inch. If two adjacent buildings are separated and joined by a fire wall and they have exterior walls that are exposed to each other at angles less than 180 degrees they should be treated as separate buildings for exposure purposes just as any two separate buildings would be treated. Current exception 1 gives you a less restrictive method when the building are touching; that makes no sense. The imaginary line exception is now a single requirement. The section was also cleaned up so it is clear how to apply the imaginary line.

Comments:

Mr. Clements gave an overview of proposal. He didn't want to get rid of a lot of the text but cdpVA wasn't cooperating. Mr. Clements submitted this at the national level there was no opposition and the committee had one amendment and turned it down...not sure why.

Option 5 is where the concern is.

Mr. Milliken stated that he needs more time to read through this.

CARRYOVER TO AUGUST

B706.5 (option 2)

Proponent: Ronald Clements Jr, Chesterfield County (clementsro@chesterfield.gov)

Reason Statement: The fire wall horizontal termination provisions are set up with section 706.5 providing the termination methods for firewall terminations where the exterior walls on either side are at an angle of 180 degrees or greater and section 706.5.1 providing the termination methods for fire wall termination where the exterior walls on either side are at an angle less than 180. 706.5.1 is an additional requirement, when the angle is less than 180, to the base requirement in 706.5. This does not work in practice.

Section 706.5.1 addresses the firewall termination where the exterior walls on either side are at an angle equal to or greater than 180 degrees. The requirement for the 18" extension was never in BOCA. The extension was brought into the draft of the IBC from ICBO. Since use of the extension is very rare the various complicated and inconsistent exceptions were provided.

Section 706.5.2 addresses the firewall termination where the exterior walls on either side are at an angle less than 180 degrees. The first exception was removed because it makes no sense to allow this method when it would not be allowed if the buildings were separated by an inch. If two adjacent buildings are separated and joined by a fire wall and they have exterior walls that are exposed to each other at angles less than 180 degrees they should be treated as separate buildings for exposure purposes just as any two separate buildings would be treated.

Comments:

Mr. Clements gave an overview of proposal. He copied out of the 99 BOCA. He prefers option 2 and didn't see any technical data to support the way we were doing it in BOCA was a problem and it makes it a whole lot simpler. If there is reluctance then option 1 clears that up.

Mr. Payne supports this option.

Ms. Kim opposes this because if it catches fire it will quickly spread, how do we address that concern?

It was pointed out that two building on the same lot are separated by 1/16th of an inch there is no requirement to protect the two either building wing wall or to protect the perpendicular walls, the code is already inconsistent and is already recognized that it isn't a big hazard.

Mr. Milliken stated that he needs more time to read through this.

CARRYOVER TO AUGUST**B901.5.1**

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Reason Statement: This new section is identical to language that has been in the International Fire Code for decades. It clarifies and emphasizes that an installing contractor shall furnish completion documentation prior to requesting final approval of fire protection systems. This section was removed from the Virginia Statewide Fire Prevention Code edit and is more appropriately located here in the VCC. These compliance documents are already required by many of the reference standards (NFPA 13, 20, 24, 72, etc.) however this section highlights and consolidates the requirement for code officials and installers.

Comments:

Mr. Milliken gave an overview of proposal.

Mr. Witt has issues with this. It inserts the fire official into the new construction process and it's an administrative provisions and it's not applicable you have to go back to Chapter 1 of the ICC, doesn't feel this is necessary.

Mr. Tomberlin pointed out you don't leave it up to the locality. Either you require it or you don't.

Mr. Catlett pointed out that it's already in the standard and already a requirement.

CARRYOVER TO AUGUST**B905.3.1**

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Reason Statement: This proposal incorporates the current language from the 2018 International Building Code to clarify that any buildings with four or more stories above or below grade plane require a standpipe system. All other exceptions remain unchanged from the current Virginia amendment. This clarification provides consistency for first responders as well as the construction industry to know when buildings are expected to be equipped with a standpipe system.

Comments:

Mr. Milliken gave an overview of proposal.

CONSENSUS APPROVED

B906.1

Proponents: Dwayne Garriss (Dwayne501@comcast.net)

Reason Statement: VA is in the severe minority of states which have added an exception for the removal of portable fire extinguishers in sprinkler buildings. The added language is the actual language from a nationally recognized and adopted consensus standard. A report of the U.S. Consumer Products Safety Commission published in 2009, only 5-10 percent of fires are reported to fire departments in the U.S. According to this 234 page report, people use portable extinguishers on 371,000 residential fires in the U.S. annually. In this same report, the agency stated that extinguishers were effective in 80 percent of the cases where they were used. Extinguishers are the appropriate tool and designed for use on incipient fires. Some of these fires are extinguished using fire extinguishers; others are being extinguished with makeshift means. Since people are, in fact, extinguishing small fires in their incipient stage on a very regular basis, the code should provide for the proper tools to do so - by maintaining the requirements for portable extinguishers. Providing portable fire extinguishers in facilities greatly enhances safety, including the safety of those who choose to extinguish a fire in its incipient phase; extinguishers should be available in all buildings. The entire report can be found at: <https://www.cpsc.gov/PageFiles/105297/UnreportedResidentialFires.pdf>

Comments:

Mr. Garriss gave an overview of proposal.

Mr. Catlett pointed out that they are not properly trained and cause further issues. We've address in the code because you have to put supervision on those. He does not want to see someone put out a fire with a fire extinguisher that isn't trained. He thinks that what we have in Virginia works and it goes along with the national codes. The people need to get out of the building and not stay to try and put a fire out.

Mr. Pharr mentioned that the data is not persuasive here. There are plenty of reason why we don't ask people to put themselves in danger to put out recipient fires. This is what insurance is for and would rather deal with an aftermath of a sprinkler system then a death of an individual. He would like this to be consensus for disapproval.

Mr. Maiatico mentioned that we teach individuals fight or flight and is personal preference to use fire extinguisher. He understands the value of having someone trained. It's not a mandated thing. The fire services stress the use and design of the fire extinguisher which is to extinguish an excipient fire before it develops. The fire services did not say don't use fire extinguishers, it's not an accurate statement. He is in support of this proposal.

Mr. Witt mentioned that he is in opposition of this. The cost is significant not in just installation but the maintenance of them. We professed for years to put sprinkler systems in so that will protect people and get people out of the buildings and thinks the board has seen this several codes cycles that it's not for Virginia.

Mr. Catlett pointed out that it's up to the jurisdiction to fight or flight. They want you to leave the building and not fight the fire.

NONCONSENSUS

B916.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Many localities do not have the funding to provide the communication equipment required to operate in building communication systems. In such localities installation of radiating cable that will not be used makes little sense. Additionally, even if equipment will be provide some time in the future it is not possible to design the system to operate properly without knowing the equipment specifications at the time of building design. Furthermore, the requirement for the locality to provide the equipment puts localities in a position of violating the code when funding is not allocated to purchase the equipment.

Comments:

Mr. Clements gave an overview of proposal.

Mr. Milliken pointed out that the locality doesn't know the building is coming and has concerns when that decision is made and stuck with. But to give an out to individuals ahead of time when the locality doesn't have funding doesn't make sense and this should be deleted all together.

Mr. Catlett mentioned that we have the ability to put a connection on which is very cheap and the cable is important to the equipment but not necessarily installed.

NONCONSENSUS

B1010.1.9.3(1)

Proponents: Natalia Larrimer

Reason Statement: In child care facilities the allowable ratio of staff to children in VA are 5 toddlers/adults, 8 2yo per adult and 10/3yo per adult. The ratios make it almost impossible for the teacher to act immediately if a child accidentally exists the facility. It is expected that the adult responsible will have all the children with him/her and keep them safe as s/he is trying to address the situation.

Comments:

This was discussed by the School Safety subworkgroup and was recommended to disapproval

CONSENSUS FOR DISAPPROVAL

B1010.1.9.3(2)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: All three hardware changes is to get the VCC to be the same as the IBC.

Comments:

Mr. Payne gave an overview of proposal.

We need to look at the language in chapter 4 (special locking arrangements) and 1010.1.9.7 #6 (clinical staff shall have keys, access to) and #7 (unlocking switch behind the nursing station, if you can't see the switch how are you going to unlock it) and the exception where it talks about the unlocking of the doors shall not apply occupied by persons because of clinical needs, what about dementia and safe and security measures.

CARRYOVER TO AUGUST

B1010.1.9.3(3)

Proponents: Keith Ruby (keith.ruby@fairfaxcounty.gov)

Reason Statement: This type of locking has been used for years at self-storage facilities but is not compliant with any of the locking provisions currently in the code. This code change would make the code more consistent with accepted industry practice.

Comments:

An overview was given about proposal.

Storage units are not occupied and no one is in there.

CONSENSUS FOR DISAPPROVAL**B1010.1.10**

Proponents: Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

Reason Statement: Section 1010.1.9.9 of the code recognizes that motion sensors are not reliable when it comes to life-safety since a wall mounted push-button release is required adjacent to the door for use when the motion detector fails to release the door. This is not functionally equivalent to the reliability of listed panic hardware and should not be allowed as a substitute.

Comments:

Mr. Willham gave an overview of proposal

CONSENSUS FOR APPROVAL**B1026.2**

Proponents: Jane Kim (jane.kim2@fairfaxcounty.gov)

Reason Statement: The change will clarify and ensure protection is provided for increased number of occupants in refuge compartment at each story served by horizontal exit. Current text of Section 1026.2 is unclear in addressing unprotected floor opening or unclosed exit access stairways and ramps communicating not more than two stories as permitted in Section 712.1.9 item 1 and 1019.3 item 1.

Comments:

Ms. Kim gave an overview of proposal

Mr. Milliken mentioned that the language is unclear, can interrupt as just the floor of the level you have the horizontal exits

Use the same terminology as Section 711 to be consistent.

CONSENSUS FOR APPROVAL WITH AMENDMENTS:

- Change term "opening in the floor assemblies" to horizontal assemblies" and clean up grammar of changes.

B1103.2.8

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This proposal is a "blend" of the 2018 IBC and 2015 VCC text. IBC has "or portions or areas" and "primarily" - both seem to be reasonable since there may be only a "portion" of a raised or lowered

area that must be addressed. The term "exclusively" is overly broad since such spaces may be used for other purposes.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

B3002.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This proposal tries to get the VCC closer to the IBC in language.

Comments:

Mr. Payne gave an overview of proposal.

CONSENSUS APPROVED

B3007.6

Proponents: Daniel Willham (Daniel.Willham@fairfaxcounty.gov)

Reason Statement: Section 3006.3 is deleted in the Virginia Construction Code. If the exception is to be available for use, it needs to reference a section that actually exists - the same section in the IBC.

Comments:

Mr. Willham gave an overview of proposal.

CONSENSUS APPROVED

B3113

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Virginia addresses "relocatable" buildings in the manufactured housing standards and regulations; thus, they should not be included in the "building" code. "Moved" buildings are addressed in the VNBC.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS TO DELETE

BU101

Proponents: John Catlett (catlettcodeconsulting@gmail.com)

Reason Statement:

These proposals bring in the code provisions approved by the IBC General Committee by a 13 to 1 vote for the main body of the 2021 ICC building code (not an appendix) and subsequent approvals by all other ICC Code Committees that had Group A and Group B code responsibilities related to Tall Wood buildings, also referred to as Mass Timber. Although there were intense efforts by industries that would potentially be negatively affected by approval of these proposals, Tall Wood building provisions gained approval at the ICC Public Comment Hearings held in Richmond during October of 2018 by nearly a unanimous floor vote. These proposals were approved through online voting in cdpAccess by a nearly the same margin.

Comments:

Mr. Catlett gave an overview of proposal. Wants to oppose as an appendix. Jurisdiction can choose to use it. It's a choice for the designer.

Mr. Witt suggested to get the 2021 language that was approved and insert that into the main body of the code.

CARRYOVER TO AUGUST**FP101**

Proponents: John Catlett (catlettcodeconsulting@gmail.com)

Reason Statement: This proposal brings in the companion code provisions that are required for the maintenance of tall wood buildings for continued protection from fire once constructed. A VCC proposal (BU101-18) has been submitted to create an appendix in the 2018 VCC with the 2021 Tall Wood building code package approved by the IBC General Committee by a 13 to 1 vote. It is to be included in the main body of the 2021 ICC building code (not an appendix). Subsequent approvals by all other ICC Code Committees that had Group A and Group B code responsibilities related to Tall Wood buildings, also referred to as Mass Timber. Although there were intense efforts by industries that would potentially be negatively affected by approval of these proposals, Tall Wood building provisions gained approval at the ICC Public Comment Hearings held in Richmond during October of 2018 by nearly a unanimous floor vote. These proposals were approved through online voting in cdpAccess by a nearly the same margin.

Comments:

Mr. Catlett gave an overview of proposal.

This will be carried over with previous proposal for further discussion before meeting.

CARRYOVER TO AUGUST**E402.4**

Proponents: Energy Subworkgroup; Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: This proposal improves the efficiency of commercial buildings by implementing a moderate improvement in fenestration SHGC that was adopted into the 2018 IECC and ASHRAE Standard 90.1-2016. Low SHGC fenestration is important for all buildings, but is particularly important for commercial buildings, which tend to have higher internal loads and higher cooling needs during the peak daylight hours.

Comments:

Mr. Lacey gave an overview of proposal

CONSENSUS APPROVED**E403.2.8**

Proponents: Richard Grace, VPMIA/VBCOA (richard.grace@fairfaxcounty.gov); Energy Subworkgroup

Reason Statement: Clarity note first - delete entire section and Table without substitution (cdpVA editor didn't appear to delete Table contents) this code section conflicts with the minimum life safety requirements outlined in the International Mechanical Code. The minimum exhaust flow rates provided in the IMC are there to capture and contain airborne grease particles produced by cooking operations from specific cooking appliances. These rates, along with many other

significant changes associated with hood design and performance, were incorporated into the IMC (starting with the 2003 IMC) and were the result of extensive testing by a specialized group of experts, many committee members of ASHRAE 154. This IECC section and Table provides for **maximum** exhaust flow rates. These rates are much less than those prescribed by the IMC for nonfactory- built hoods. Factory-built hoods are required to be tested to UL 710. In many cases, the IECC maximum rates are less than those prescribed by UL 710 as well. When the committee disapproved this change, they indicated that “the proposal needs better coordination with the International Mechanical Code. Instead of doing this, the public comment that Steve submitted provided less coordination. Another problem with this proposal was that Steve was attempting to align this requirement up with the language contained in AHSRAE 90.1-10 without bringing forth all other pertinent information contained in 90.1.

Comments:

Mr. Grace gave an overview of proposal

CONSENSUS APPROVED

RE401.2

Proponents: Energy Subworkgroup (dhcdenergy@gmail.com); Eric Lacey, Responsible Energy Codes Alliance (eric@recacodes.com)

Reason Statement: This proposal does two things: First, it updates the reference to U.S. DOE’s REScheck from the 2015 IECC to the 2018 IECC, consistent with the intent to base the Uniform Code on the 2018 IECC; Second, it eliminates a modification to the Uniform Code’s REScheck compliance option that will be unnecessary if Virginia adopts the 2018 IECC with no weakening amendments. When Virginia adopted the 2012 and 2015 editions of the IECC, several weakening amendments were incorporated which caused conflicts between the code and the U.S. Department of Energy’s free compliance software, REScheck. This software was developed to provide homebuilders with a very easy means of using the IECC’s trade-off capabilities, while still maintaining the overall efficiency of the code. It is specifically called out as a compliance option in many states.

Comments:

Mr. Lacey gave an overview of proposal

Ms. Eggerton expressed concerned about the workaround that was created because it hasn’t been updated to match whatever changes happen and Steve Churchin isn’t here to update that workaround. People will just want to use REScheck.

Mr. Milliken mentioned that the next couple of proposal the Energy group would like to discuss the financial impact in other jurisdictions.

Ms. Eggerton pointed out that this section doesn’t have a cost impact. Those that don’t use a computer software would not apply to this. The REScheck option is to be consistent with the 2018 code.

There will be another subworkgroup meeting to discuss

CARRYOVER TO AUGUST

RE401.3

Proponents: Energy Subworkgroup; Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: The purpose of this proposal is to restore the IECC's requirement that a certificate listing key building efficiency information be posted in a permanent location. This requirement has been in the IECC for several editions, and it provides useful information to current and future owners of residential buildings. The information included in the certificate is readily available at construction, and can be recorded on a certificate for no additional cost. In fact, compliance programs such as U.S. DOE's REScheck can automatically generate a certificate with much of this information already recorded. However, this type of information would be difficult or impossible to re-create several years into the building's useful life.

An overview of proposal

CONSENSUS APPROVED

RE402.1.2

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: The purpose of this proposal is to improve energy savings and increase homeowner comfort by adopting the ceiling and wall insulation requirements of the 2018 IECC. Improving ceiling insulation from R-38 to R-49 and wall insulation from R-15 or 13+1 to R-20 or 13+5 will make Virginia's energy code consistent with insulation requirements that have been part of the 2012, 2015, and 2018 IECC.

Discussed with RE401.2 to be carried over

CARRYOVER TO AUGUST

RE402.4.1.2

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: The purpose of this proposal is to restore the 2018 IECC requirement that all new homes be tested for air leakage with an air leakage rate no higher than 3 ACH50. This will also eliminate Virginia's "visual inspection" option, which is not a reliable or safe means of testing the air leakage or air quality of a building. The IECC has required each new home to be objectively tested for air leakage since the 2012 edition. A strong majority of states now require all new homes to be tested to a low level of air leakage, providing both long-term energy savings and an important safety disclosure for homeowners, for a relatively low cost.

Discussed with RE401.2 to be carried over

CARRYOVER TO AUGUST

RE403.3.1

Proponents: Richard Grace (richard.grace@fairfaxcounty.gov); Energy Subworkgroup

Reason Statement: "Supply and return ducts" excludes exhaust ducts. Exhaust ducts must be insulated as well when outside the thermal envelope.

Comments:

Mr. Grace gave an overview of proposal

CONSENSUS APPROVED

RE403.3.5

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: This is a code correlation issue. The problem is that IRC N1103.3.5 (IECC R303.3.5) prohibits all framing cavities from being used as air ducts or plenums in residential construction, but five chapters later in M1601.1.1 #7 the IRC permits cavities to be used as air plenums under five conditions. This is a direct conflict within the IRC. IECC C403.11.2 states that ductwork shall be constructed and erected in accordance with the IMC. So there is no conflict in commercial as the IMC has the same language as the IRC, permitting the use of framing cavities as air ducts or plenums per the same five conditions. So, three out of four code sections permit limited use of framing cavities as air plenums and one does not. This code change proposal eliminates the one out of four that is inconsistent so we can be consistent in Virginia.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

RE503.1.1.1

Proponents: Energy Subworkgroup; Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: This proposal improves efficiency by clarifying that replacement fenestration must meet the same level of efficiency as fenestration used in new construction. This code requirement has been in the IECC for over a decade, and for good reason – about 3/4 of all windows installed in buildings every year are replacement windows in existing buildings. This is a rare opportunity to impact the efficiency of existing buildings – which represent 98-99% of buildings in any given year – by a substantial amount. Code-compliant fenestration is widely available and clearly cost effective, and there is no reason why Virginia homeowners should not have all the benefits of efficient replacement windows and doors.

The 2018 IECC adds a new level of flexibility by allowing replacement fenestration U-factors and SHGCs to be area weighted averaged, permitting trade-offs among various fenestration types. We expect that this will provide more options for builders and homeowners to meet the code requirement.

Comments:

Ms. Davis questioned if this should be a part of the Existing Building Code section

Mr. Lacey pointed out that there is an Existing Building section in the ICC

This is already a level one so it has to comply anyways. It would not apply in replacing residential windows but doing something in a commercial building that would require a permit and your getting a permit for a residential building then it would apply.

CARRYOVER TO AUGUST

VIRGINIA EXISTING BUILDING CODE

EB302.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Section 302.1 is an IEBC retrofit requirement not related to any construction and should be deleted.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB303

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Section 303 is a combination of the 2012 fire escape provisions in prescriptive method section 405 and work area method 805.3.1.2.1. Combining the two methods created a conflict between 2015 sections 303.1.2 and 303.6. 303.1.2 prohibits use of window access and ladders and 303.6 allows their use in limited occupancies. The VBCOA

VEBC committee decided to go with the work area method so the last sentence of 303.1.2 is proposed for deletion and 303.6 was retained. In addition the provisions of section 303.1.3 and 303.1.4 are proposed to be incorporated into sections 303.1 and 303.1.2 eliminating the need for the two separate sections. Lastly the phrase "for existing buildings" is proposed for deletion as it is redundant since the scope of the VEBC is existing buildings.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB304.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: The provision of 304 (and 102.2.2 #5) is overly wordy. The provision provides the same requirement written two different ways depending on if the building is pre or post USBC. There is no need for the distinction since the requirement is the same. All replacement glass must meet current VCC material requirements regardless of when the building was constructed. A specific reference back to VCC Chapter 24 Glass and Glazing (or R308 for VRC dwellings) was added to clarify this is a material and quality requirement. The provision for replacement glass was in the retrofit chapter in the 2012 edition. A code change was submitted to move the provision to chapter 3 since the provision is not retrofit, that is the provision is not a requirement when no related construction is proposed. The requirement only applies when glass is being installed or replaced. The provision was copied into chapter 3 but it still remains in the retrofit chapter. The second part of the code change deletes it from the retrofit chapter as was intended in the 2015 cycle.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB304.3(2)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Since the VEBC itself does not "require" EEROs, references to the VCC and VRC (Virginia Residential Code) are necessary. Also, since the VEBC is an option for R-5 occupancies, such references to the VRC should be included. Those references came from the 2018 IEBC.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

EB307.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Under the 2012 VRC, reroofing was considered at least a Level 1 alteration (706.2), and as such, Section 707 Energy Conservation would also have applied to all alterations. When reroofing was moved to Chapter 3 of the 2015 VEBC, the connection to the way the existing building code dealt with energy conservation was lost. 2015 VEBC

601.4, Exception was originally intended to address reroofing as well as all alterations. But because reroofing was put in Chapter 3 and as such is not governed by Chapter 6, we need to recapture that original intent.

Comments:

Mr. Payne gave an overview of proposal

Mr. Mang pointed out that a low slope roof has to comply with the code is when thickness is added to it. The energy code needs to be in compliance with this proposal and requirements. The language is broad.

Mr. Witt mentioned that making the roof meet the new code goes against the principles existing building code in VA.

Mr. Payne pointed out that current code requires the means of energy and moving it here broke that code and VA intentions was always to have this exception apply even to roofing.

NONCONSENSUS

EB307.3.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Exceptions should allow something the code section does not permit. The exception to 307.3.1 is essentially an exception to an exception. The reformatting of the exception into section 307.3.1 does not change the requirement it just formats it properly.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB307.8(1)

Proponents: Justin Koscher, Polyisocyanurate Insulation Manufacturers Association (jkoscher@pima.org); Jeff mang (jeff.mang@hoganlovells.com); Eric Lacey (eric@reca-codes.com)

Reason Statement: This proposal clarifies that roof replacements must comply with the energy conservation requirements of the International Energy Conservation Code (IECC). This proposal incorporates the language of Section C503.3.1 of the IECC in order to provide users and code officials with specific information on the requirements for roof replacements. Chapter 5 of the IECC was developed to place the energy code requirements for existing buildings in one convenient location. Virginia adopted this IECC language as part of the 2015 code update process.

Comments:

Mr. Mang gave an overview of proposal

Mr. Payne pointed out that when repairing 49% of the roof to bring it up could come with cutting corners and perimeters. The definition of roof replacement can be repairs.

NONCONSENSUS

EB307.8(2)

Proponents: Justin Koscher, Polyisocyanurate Insulation Manufacturers Association (jkoscher@pima.org); Jeff mang (jeff.mang@hoganlovells.com); Eric Lacey (eric@reca-codes.com)

Reason Statement: This proposal clarifies that roof replacements must comply with the energy conservation requirements of Chapter 13 of the Virginia Construction Code (VCC). The current VCC adopts, with amendments, the International Energy Conservation Code (IECC). The VCC's adoption of the IECC includes adoption of Chapter 5, which describes the energy conservation requirements for building alterations such as roof alterations.

This proposal is necessary because the Virginia Existing Building Code (VEBC) regulates reroofing and roof repair under Section 307. The International Existing Building Code (IEBC) requirements for energy conservation were inadvertently lost when the requirements for reroofing and roof repair were moved to a separate section. This proposal corrects this oversight and clarifies the intent of the VEBC that roof replacements comply with the energy conservation requirements of the Chapter 13 of the VCC (i.e., the IECC as amended by the VCC).

This proposal goes with the previous one

NONCONSENSUS

EB402.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This should have been revised for the 2015 VEBC when at the national level, they changed from "aggregate area of the building" to "building area" when describing the levels of alterations. The revised text is consistent with that used in VEBC 601.2.2 and 601.2.3. Interestingly, the 2018 IEBC exceptions still use the "old" text.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

EB403.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Section 410.7 was the 2012 edition number. The correct number is now 404.3.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB404.4.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This is in the "Alterations" section, so references to change of occupancy and additions do not belong. Also, if an elevator or escalator is "added" to an addition, it would need to comply with the VCC anyway. If added as part of a change of occupancy, it is still the "alteration" itself (i.e., adding of walls, cabs, etc.) that would trigger the accessibility requirement, not the actual change of occupancy.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED**EB404.4.10**

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Both the 2018 IBC (Section 2902.1.2) and 2018 IPC (Section 403.1.2) added the new term "single user toilet facility and bathing room fixtures." This change maintains consistency between code books (VEBC and VCC). The intent of this proposal is to clarify the code and coordinate with the terminology in the IPC. Historically, this requirement originally said 'unisex' toilet rooms were permitted but was revised many cycles ago to use the term 'family or assisted use' for consistency. The IPC now requires all single-occupant toilet rooms to be gender neutral. It is arguable if a family or assisted use toilet room is for a single user or not. Family or assisted use toilet rooms can include a urinal and a toilet, or both adult and child fixtures. Most of the time, an accessible family or assisted use and accessible single user toilet rooms are technically exactly the same. The current language has caused questions about if this option in the code is only allowed where family assisted use toilet rooms are required in the IBC (Groups A and M), and/or allowed to meet the fixture counts.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED**EB501.1(1)**

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Scope: The language in the first sentence reflected the 2012 definition of "repair." When the definition of "repair" changed in 2015, this language should have been deleted. Chapters 7 (change of occupancy) and 8 (addition) have no bearing on repairs and should have only referenced Chapter 6 (alterations) which would have been consistent with the old 2012 VRC language that referenced just alterations - and not a change of occupancy or addition.

Exception: This chapter deals with "repairs" not "alterations;" so the alteration language is being proposed to be deleted. The deleted language remains for alterations under VEBC 601.1, Exception 4.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED**EB501.1(2)**

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: The exception to 501.1 allowing use of the code under which the building was constructed was copied from the same exception for alterations. After further review it has been determined that the exception is not needed for repair because the base requirement for repair allows for use of like materials. Section 302.2 allows use of like materials for repairs and there is no general requirement for repairs to comply with current code. Section 501.2 goes further and states performance requirements for repair work. The structural provisions are addressed in section 502.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB601.1(2)

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: The text proposed for deletion can be interpreted to prohibit use of the exception based on substantial structural alteration. This is not needed as the last sentence of the exception still requires new structural elements to meet the current VCC.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB601.2 (Option A)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Flash back to 2009 - the 2009 VCC 103.5, Item 2 said, "Parts of the building or structure not being reconstructed, altered or repaired shall not be required to comply with the requirements of this code applicable to newly constructed buildings or structures."

That all changed when Virginia went to the 2012 Virginia Rehabilitation Code and 2015 Virginia Existing Building Code - which requires work to be done OUTSIDE of those areas where work is intended through "supplemental requirements" (where the work area exceeds 50% of the floor area) and Level 3 alterations (when the work area exceeds 50% of the building area).

Comments:

Mr. Payne gave an overview of proposal

Mr. Clements mentioned that these are retrofit provisions and even if it's nonconsensus then it would still go in front of the board.

Prefers options B

WITHDRAWN

EB103.10 (Option B)

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: Flash back to 2009 - the 2009 VCC 103.5, Item 2 said, "Parts of the building or structure not being reconstructed, altered or repaired shall not be required to comply with the requirements of this code applicable to newly constructed buildings or structures."

That all changed when Virginia went to the 2012 Virginia Rehabilitation Code and 2015 Virginia Existing Building Code – which requires work to be done OUTSIDE of those areas where work is intended through "supplemental requirements" (where the work area exceeds 50% of the floor area) and Level 3 alterations (when the work area exceeds 50% of the building area) -

that might otherwise be considered RETROFIT requirements.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

EB601.2.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: The levels of alteration do not address removal of elements without replacement or installation of new elements other than equipment. Removal of materials, elements or fixtures has been added to level 1 and installation of new materials, elements or fixtures has been added to level 2.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

EB601.4

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: The purpose of this proposal is to clarify the applicability of the energy code requirements to existing buildings in the context of an alteration. This will eliminate a conflict between the Virginia Existing Building Code (VEBC) and the Virginia Uniform Code, simplifying compliance and enforcement. It will also reduce energy costs for building owners and improve energy efficiency and resiliency in existing buildings. This proposal makes two key changes. First, it eliminates a Virginia-specific exception to the energy conservation requirements of Chapter 13 of the Virginia Construction Code (VCC) for certain building envelope alterations. This exception can be misinterpreted to cover a broad range of alterations, and conflicts with the energy code's specific efficiency requirements for existing building alterations. Second, the proposal adds references to the IECC's provisions for existing residential (R503) and commercial (C503) building efficiency. It also clarifies that unaltered portions of the building need not comply with the current energy code requirements.

Comments:

Mr. Lacey gave an overview of proposal

Mr. Payne pointed out that he doesn't support the deletion in the exception.

Ms. Eggerton mentioned that the exception contradicts what the details and the other parts of the code. This code is confusing because it doesn't specify whether adding isolation means thickening the wall.

CARRYOVER TO AUGUST

EB603.4.3

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This proposal is similar to EB79-19 and EB112-19 submitted at ICC for the 2021 IEBC. They have not been approved; however, they seem like good code changes worth considering for the 2018 VEBC now. Rather than have a vague reference to "interior finish requirements" why not provide clarity by referencing the actual "Table" in the VCC that addresses the "requirements?" If it truly meant "ratings" (e.g., 1-hour or 2-hour ratings), the reference would have been to VCC Chapters 7 and/or 10. So, "fire performance" is the more appropriate term.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

EB603.5.2.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: Section 603.5.2.1 and section 603.5.2.2 both limit the requirement to sprinkler based on sprinkler supply pipe being already installed to the work area floor but both sections state it differently. Section 603.5.2.1 states it in a clearer manner so this proposal changes the exception in 603.5.2.2 to match the same language and makes the exception clearer with respect to exactly how it is to be applied. Section 603.5.2.1 is not proposed for any changes but is included to show the existing text used in the amendment to the 603.5.2.2 exception.

Comments:

Mr. Clements gave an overview of proposal

WITHDRAWN

EB603.5.4.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: This section has a confusing reference to the IFC chapter 11, which are retrofit requirements. The reference has been removed so the section is not consistent with section 603.5.2.2 for sprinkler coverage.

Comments:

Mr. Clements gave an overview of proposal

Proposal was withdrawn based on EB603.5.2.1

WITHDRAWN

EB603.6.3.4

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This proposal is similar to EB89-19 submitted at ICC for the 2021 IEBC. It has not been approved, but seemed to be a good code change worth including in the 2018 VEBC.

Comments:

Mr. Payne gave an overview of proposal

Proposal was withdrawn based on EB603.5.2.1

WITHDRAWN

EB802.2

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: A quick read of the existing language could be interpreted a couple of ways: (1) Only infilling or existing openings are allowed (such as for stairways and elevator shafts); or (2) You can infill such shafts and add a stairway, elevator, or any other nonoccupiable "appendage" to the existing building without contributing to the allowable SF per the VCC.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

EB904.10.1

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: In historic structures, unless the guard(s) itself is being altered, the existing guard(s) should be deemed acceptable. This approach is consistent with allowing other existing elements to remain as is and still be deemed acceptable: 904.3, 904.5, 904.9, and 904.10.2. As currently written, it may be interpreted that one can leave the guards "as is" as long as it involves a *repair*. How would this be interpreted if *alterations* were involved? Since there was no reference to 602.2, we must have meant to remove the existing guards and provide new guards that fully comply with the VCC. I do not believe this is the intent - especially given all of the other components that are allowed to remain - including means of egress, stairway railings, and guard openings.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

EB1401.6.3

Proponents: Kenney Payne (kpayne@moseleyarchitects.com)

Reason Statement: This proposal is similar to EB121-19 submitted at ICC for the 2021 IEBC. It has not been approved; however, it seemed like a good code change worth including in the 2018 VEBC now. Rather than use a footnote approach per EB121, this proposal just added the text to the end of the charging paragraph 1401.6.3. Of those building officials I have spoken with where this issue came up, they allowed interpolation.

Comments:

Mr. Payne gave an overview of proposal

CONSENSUS APPROVED

VIRGINIA MAINTENANCE CODE

PM106

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: The overall intent of this code change is to simplify the unsafe building provisions of the VMC and get rid of the two version of unsafe and unfit and combine them into one definition and process. Unsafe Structure and Structure Unfit for Human Occupancy definitions- The two definitions are a distinction without a difference. Both definitions are defining structures that are "determined by the code official to be dangerous to the Health, safety, and welfare of the occupants of the structure or the public" That is the base definition in both definitions. They are the same. Where they differ is in what constitutes the quoted phrase above in each definition. Why does it matter? Dangerous is dangerous. To correct this both definitions have been combined into the definition of "unsafe structure" and Structure Unfit for Human occupancy has been deleted. The new list in the unsafe structure definition is a combination of both lists from both definitions. With the deletion of the Unfit for Human Occupancy definition, the term has been deleted throughout the code sections.

Comments:

Mr. Clements gave an overview of proposal, received some comments that need to be worked on.

CARRYOVER TO AUGUST

PM106.3

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: These provisions grant authority to the code official to require any level of retrofit to a building that they deem to be dangerous. There is no statute addressing this concept in title 36. The retrofit provisions in chapter 11 of the VEBC are very specific and set out by the legislature. These VMC provisions are not maintenance provisions, they are code official determined retrofit provisions. The fact that 106.3 states "cause other than improper maintenance" as the bases of the code provision should alone be justification to delete this provision from the "Maintenance" code.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

PM302.5

Proponents: Gregory Revels (Greg.Revels@henrico.us)

Reason Statement: The proposed changes are recommended to bring the Virginia Maintenance Code in agreement with the Code of Virginia, Federal Housing standards and Virginia Department of Health regulations. Section 36-99(A) of the Code of Virginia specifically requires that the Virginia Uniform Statewide Building include provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation. Federal housing standards administered by the Department of Housing and Urban Development prohibit insect and rodent infestations in low- and moderate-income housing that is federally subsidized. The Virginia Department of Health further prohibits infestations in hotel and motel properties as a condition of issuing annual lodging permits. The proposed language extends protection from infestations to non-subsidized and short term rental properties on all other rental and long term housing occupancies. The last 2 sentences added at 302.5 are proposed to be consistent with 309.1.

Comments:

Mr. Revels left, this will be carried over.

CARRYOVER TO AUGUST

PM301.18

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: These are a few sections that reference the VCC, which should reference the VEBC with all work on existing buildings addressed in the VEBC. In 304.18 there is not need to reference a code.

Comments:

Mr. Clements gave an overview of proposal

CONSENSUS APPROVED

PM312

Proponents: Andrew Millikens (cyr2b@verizon.net)

Reason Statement: Add to 2018 Virginia Maintenance Code, to start 2021. Older buildings often develop concerns. Code officials lack resources to inspect most. Private inspections often when building sold, financed, or new insurance. Rental residences focus on life safety of people (families, maybe self-escape challenged) with little control over conditions. Buildings over 50 years old starts with those built before statewide building codes based on modern national codes. Requiring again inspect every 40 years helps record later conditions. Inspector need quickly report serious hazards to AHJ, which may get copy of report if ask.

Comments:

Mr. Mr. Millikens gave an overview of proposal

Mr. Pharr pointed out that the code of VA wouldn't allow this to be done 36-105.1.1, authorizes localities to adopt a real inspections program only after meeting a number of criteria and making a number of specific findings and they have to designate specific real inspection districts. It's a statutory obstacle to do this.

CONSENSUS FOR DISAPPROVAL

PM603.7

Proponents: Teresa Gerber, Chesterfield County (gerbert@chesterfield.gov); Ronald Clements Jr. (clementsro@chesterfield.gov)

Reason Statement: This adds the ability to address fuel oil and propane tanks, including the delivery system from the tank to the equipment or appliance.

Comments:

Ms. Gerber gave an overview of proposal

Mr. O'Connor pointed out that these issues are cover largely in the Fire Code NFPA 58.

NONCONSENSUS

PM604.3.1.1

Proponents: Haywood Kines (hkines@pwcgov.org)

Reason Statement: The protective components are critical to the electrical systems to maintain safe operation of all electrical equipment. Their ability to protect the electrical system is adversely affected by exposure to water and to the minerals, contaminants that may be present in the water. Equipment such as molded case circuit breakers, switches, Busway, signaling and communication systems can be subject to corrosion and damaged from exposure to these conditions.

Comments:

Mr. Kines gave an overview of proposal

Ms. Davis pointed out that this was just added during the last cycle.

Mr. Pharr stated that he is opposed to deletion in the prohibiting the licensure or certified electrician to make the determination or make the appropriate contacts to find out what they need to.

Mr. Catlett pointed out that the best way to handle this is to put it under the 3rd party inspection requirement because it's mandated by the code to have those.

Mr. Beahm questioned what the 3rd party is in this proposal.

NONCONSENSUS

PM702.1

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: This section has a reference to the IFC that is vague and incorrect in Virginia, and reads like a new construction provision or retrofit provision. This proposal corrects the section so it is a maintenance provision.

Comments:

Mr. Clements gave an overview of proposal

Mr. Milliken pointed out this is changing the intent of the inspection.

The violation is of the maintenance code.

CARRYOVER TO AUGUST

VIRGINIA STATEWIDE FIRE PREVENTION CODE

FP105

Proponents: Joe Boisseau

Reason Statement: This is a holdover from the BOCA and is now 25 years or more old. Does this still apply with several new versions of the ICC and moving into 2018 codes?

Comments:

No one to speak on it

CONSENSUS FOR DISAPPROVAL

FP202(1)

Proponents: Andrew Milliken (amilliken@staffordcountyva.gov)

Reason Statement: The definition of corrosive is a complicated criterion that is often difficult to confirm during field inspections or document review. This proposal does not change or remove the current definition but rather adds physical property criteria as defined by the United States Environmental Protection Agency in 40 CFR 261.22 (<https://www.govinfo.gov/content/pkg/CFR-2018-title40-vol28/pdf/CFR-2018-title40-vol28-sec261-22.pdf>). Using this physical characteristic point of reference will enhance building owner/operators as well as code enforcers understanding of this definition and help to focus compliance questions on the hazards rather than a complicated definition.

Comments:

Mr. Milliken gave an overview of proposal

CONSENSUS APPROVED WITH AMENDMENTS

- Add “or” , reads: “ or a substance”
- Correlate the definition corrosive with the construction code

FP202 (2)

Proponents: Charles Walker, TNT Fireworks

Reason Statement: VIRGINIA ACTS OF ASSEMBLY -- 2019 SESSION - SB 1625 was signed into law on March 21, 2019 with an effective date of 7/1/2019. It was an Act to amend and reenact § 27-95 of the Code of Virginia, relating to the Statewide Fire Prevention Code; definition of permissible fireworks. This proposed change is to update the definition of "Permissible Fireworks" in the SFPC to make it consistent with current Code of Virginia statutes.

Comments:

It's an act of the General Assembly

CONSENSUS APPROVED

FP605.13

Proponents: Andrew Millikens (cyur2b@verizon.net)

Reason Statement: For 2018 VSFPC, to begin 2021. Seek apply to electrical systems over 50 volts, type fire & shock risk; not low voltage typical of alarm, communication, etc.. A building might be much older, yet electrical system not over 50 years old, so phrase to focus on electrical system's age. Over 50 years includes aluminum wiring (1966 - '74), older systems increase risk from improper tampering, and deterioration of insulation, connections, components more complex than basic wiring. Inspection should include examining inside circuit panels, sample outlets & switches, grounding, etc... If grounding was not required when installed, opportunity to discuss. Not need break holes in walls nor elaborate testing.

Separate proposals for building maintenance and fire codes effort to get in both codes, yet if one fails, maybe other progress enough for support with changes.

Some insurance companies require various inspections before new policy. Many buyers want see inspection report before closing. Codes require maintenance, so this helps require inspect to learn if electrical system need maintenance. FEMA, NFPA, etc. data shows electrical problems high in causes of fires, fire fatalities at night; mostly in older residential buildings.

Comments:

The same thing as the fire inspection

CONSENSUS FOR DISAPPROVAL

FP903.5.1

Proponents: Joe Boisseau

Reason Statement: These code changes only clarify that those conducting inspection be certified by an approving agency. I have had the very issue come up a few times in my career. There are people doing inspection of systems because they are certified as a fire inspector or have been doing the work for a few years. They find issues that need correction and then tell the business to hire another company to fix it, costly the business more money.

Comments:

Mr. Pharr stated that he opposes it because it is vague and doesn't see how it's address the problem that's alleged in the reason statement.

Mr. Clements pointed out that this is a regulation of DPOR not building code. This is beyond inspection and is now maintenance.

Mr. Milliken pointed out that this is something that needs to be addressed.

CARRYOVER TO AUGUST

FP907.9

Proponents: Andrew Millikens (cyur2b@verizon.net)

Reason Statement: To comply with 2018 General Assembly bill HB 609 & SB 391. Here in fire code easy for officials and customers to reference. Intent to require smoke detectors in rental residences not yet so protected, plus carbon monoxide detectors where appropriate. Bills include "a reasonable accommodation must be made for persons who are deaf or hearing impaired, upon request" so also incorporates requiring such features as need.

Comments:

This is already in state law (tenant landlord law)

Mr. Pharr pointed out that it doesn't really precisely track the statutory language

CARRYOVER TO AUGUST/ BRING BACK WITH STATE LAW**FP907.10**

Proponents: Andrew Millikens (cyur2b@verizon.net)

Reason Statement: Help comply with Virginia code 35-99.5, from which most wording copied. Having here in fire code easier for fire official and customer to reference instead of searching to find elsewhere in state code.

Comments:

Mr. Mr. Millikens wants to withdraw

WITHDRAWN**FP1031.2.1**

Proponents: Richard Witt (wittr@chesterfield.gov)

Reason Statement: Security devices that affect the means of egress require a building permit per VUSBC Section 108.1 and approval by the Building Official, not the Fire Official. The Fire Official is required to notify the Building Official if such devices are discovered upon inspection.

Comments:

Mr. Witt has left, will carryover.

CARRYOVER TO AUGUST**VIRGINIA AMUSEMENT DEVICE REGULATIONS****AD30**

Proponents: ADTAC Committee

Reason Statement: During the 2019 legislative session Senator Adam Ebbin submitted Senate bill SB1229, which directed the BHCD to consider regulating trampoline courts under the Virginia Amusement Device Regulations. The bill did not make it to the Governor's desk but his bill did raise the issue and initiate a conversation about the safety of commercial trampoline courts. Senator Ebbin submitted the bill in response to what he learned of the risks and injuries associated with trampoline courts based on a severe injury suffered by one of his constituents. The amusement device regulations do not currently have specific provisions to address trampoline courts. ASTM has developed and published the standard F2970 – 17:

Standard Practice for Design, Manufacture, Installation, Operation, Maintenance, Inspection and Major Modification of Trampoline Courts. The F2970-17 standard is referenced in this code change and it is part of the amusement device package of standards bundled by ASTM. Trampoline court injuries are becoming more prevalent and the focus of recent national news stories. It is time for inclusion of trampoline courts into the amusement device regulations. The proposed definitions of "Institutional trampoline" and "Trampoline court" are from the ASTM F2970-17 standard.

Comments:

Mr. Gentilini gave an overview of proposal. This was brought forward by the General Assembly.

CONSENSUS APPROVED

AD40

Proponents: ADTAC Committee

Reason Statement: ASTM F2461 covers the manufacture, construction, operations and maintenance of aquatic play equipment and provides safety performance standards for various types of public aquatic play components and aquatic play composite structures. The Amusement Device Technical Advisory Committee, at their April 26th meeting, recommended that the ASTM F2461 standard be incorporated in the VADR.

Comments:

Mr. Gentilini gave an overview of proposal.

CONSENSUS APPROVED

AD75

Proponents: ADTAC Committee (dhcdadtac@gmail.com); Michael Redifer (redifermd@nnva.gov)

Reason Statement: Generally, this involves editing to clarify requirements but also it establishes the submission of location, operator, event duration, device details and proof of insurance three-day in advance of operation. As currently written, the operator is required to notify the local building department at least three days prior to operation but places no such advance submission of the details and insurance which must be provided but can be before or after the fact.

Comments:

Mr. Gentilini gave an overview of proposal.

CONSENSUS APPROVED

VIRGINIA INDUSTRIALIZED BUILDING CODE

IB20

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

Reason Statement: Ensure that a path exists for approval of intermodal freight containers as building components in industrialized buildings.

Comments:

Ms. Davis gave an overview of proposal

CONSENSUS APPROVED

VIRGINIA MANUFACTURED HOUSING SAFETY REGULATIONS

MH60

Proponents: DHCD Staff (sbco@dhcd.virginia.gov)

Reason Statement: This will ensure the installation is in compliance with federal installation standards.

Comments:

Ms. Davis gave an overview of proposal

CONSENSUS APPROVED

Workgroup Meeting 1 & 2
VHC at VHDA
4224 Cox Road, Glen Allen VA
July 24, 2019
SIGN IN SHEET

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Michelle Dayden-Mason DORR

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WORKGROUP 3 & 4
June 5, 2019
CHESTERFIELD COMMUNITY DEVELOPMENT BUILDING

VIRGINIA RESIDENTIAL CODE

RB403.1.6

Proponents: Larry Brock, Chesterfield County (brockl@chesterfield.gov)

Reason Statement: The IRC language did not require steel bolts, nor did it require embedment into concrete or masonry. This change uses the language out of IBC section 2308.3.1, which addresses requiring steel bolts to be embedded not just extended into concrete or masonry. This change makes the IRC section consistent with the IBC section addressing sill plate anchorage.

Comments:

Mr. Brock gave an overview of proposal

Mr. Beahm expressed concern with the use of bolt instead of anchorage

CONSENSUS APPROVED

RB408

Proponents: Ronald Clements Jr, VBCOA (clementsro@chesterfield.gov)

Reason Statement: Section R408 was the subject of numerous code changes which resulted in R408.1 and R408.2 being essentially the same code section. R408.1 provides for the 1/1500 vent area provision in the body of the code section and R408.2 provides it in an exception. R408.2 provides for the screening of the openings and R408.1 does not. The provisions in the two sections should be combined into one section. This change accomplishes that and better formats the section for the two methods of treating under-floor spaces: vented and vent less. The code change also addresses some confusion with regards to placement of the vents. R408.1 states to place the vents 3 feet from building corners. The exception to R408.2 allows the vents to be placed to provide cross ventilation, not 3 feet from each corner, when the vapor retarder is used, which was the intent per code change G107.99.

Comments:

No response, everyone approves proposal

CONSENSUS APPROVED

RE401.2

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: This proposal does two things: First, it updates the reference to U.S. DOE's REScheck from the 2015 IECC to the 2018 IECC, consistent with the intent to base the Uniform Code on the 2018 IECC; Second, it eliminates a modification to the Uniform Code's REScheck compliance option that will be unnecessary if Virginia adopts the 2018 IECC with no weakening amendments. When Virginia adopted the 2012 and 2015 editions of the IECC, several weakening amendments were incorporated which caused conflicts between the code and the U.S. Department of Energy's free compliance software, REScheck. This software was developed to provide homebuilders with a very easy means of using the IECC's trade-off capabilities, while still maintaining the overall efficiency of the code. It is specifically called out as a compliance option in many states.

Comments:

Ms. Wynn spoke on Mr. Lacey behalf and pointed out that she would like to table the energy proposals until after the July 18th subworkgroup meeting when they will have completed they're work.

TABLED

RE401.3

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: The purpose of this proposal is to restore the IECC's requirement that a certificate listing key building efficiency information be posted in a permanent location. This requirement has been in the IECC for several editions, and it provides useful information to current and future owners of residential buildings. The information included in the certificate is readily available at construction, and can be recorded on a certificate for no additional cost. In fact, compliance programs such as U.S. DOE's REScheck can automatically generate a certificate with much of this information already recorded. However, this type of information would be difficult or impossible to re-create several years into the building's useful life.

Comments:

Ms. Wynn spoke on Mr. Lacey behalf and pointed out that she would like to table the energy proposals until after the July 18th subworkgroup meeting when they will have completed they're work.

TABLED

RE402.1.2

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: The purpose of this proposal is to improve energy savings and increase homeowner comfort by adopting the ceiling and wall insulation requirements of the 2018 IECC. Improving ceiling insulation from R-38 to R-49 and wall insulation from R-15 or 13+1 to R-20 or 13+5 will make Virginia's energy code consistent with insulation requirements that have been part of the 2012, 2015, and 2018 IECC.

Comments:

Ms. Wynn spoke on Mr. Lacey behalf and pointed out that she would like to table the energy proposals until after the July 18th subworkgroup meeting when they will have completed they're work.

TABLED

RE402.4.1.2

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: The purpose of this proposal is to restore the 2018 IECC requirement that all new homes be tested for air leakage with an air leakage rate no higher than 3 ACH50. This will also eliminate Virginia's "visual inspection" option, which is not a reliable or safe means of testing the air leakage or air quality of a building.

Comments:

Ms. Wynn spoke on Mr. Lacey behalf and pointed out that she would like to table the energy proposals until after the July 18th subworkgroup meeting when they will have completed they're work.

TABLED

RE403.3.1

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: "Supply and return ducts" excludes exhaust ducts. Exhaust ducts must be insulated as well when outside the thermal envelope.

Comments:

Ms. Wynn spoke on Mr. Lacey behalf and pointed out that she would like to table the energy proposals until after the July 18th subworkgroup meeting when they will have completed they're work.

TABLED

RE403.3.5

Proponents: Ronald Clements Jr (clementsro@chesterfield.gov)

Reason Statement: This is a code correlation issue. The problem is that IRC N1103.3.5 (IECC R303.3.5) prohibits all framing cavities from being used as air ducts or plenums in residential construction, but five chapters later in M1601.1.1 #7 the IRC permits cavities to be used as air plenums under five conditions. This is a direct conflict within the IRC. IECC C403.11.2 states that ductwork shall be constructed and erected in accordance with the IMC. So there is no conflict in commercial as the IMC has the same language as the IRC, permitting the use of framing cavities as air ducts or plenums per the same five conditions. So, three out of four code sections permit limited use of framing cavities as air plenums and one does not. This code change proposal eliminates the one out of four that is inconsistent so we can be consistent in Virginia.

Comments:

Ms. Wynn spoke on Mr. Lacey behalf and pointed out that she would like to table the energy proposals until after the July 18th subworkgroup meeting when they will have completed they're work.

TABLED

RE503.1.1.1

Proponents: Eric Lacey, Responsible Energy Codes Alliance (eric@reca-codes.com)

Reason Statement: This proposal improves efficiency by clarifying that replacement fenestration must meet the same level of efficiency as fenestration used in new construction. This code requirement has been in the IECC for over a decade, and for good reason – about 3/4 of all windows installed in buildings every year are replacement windows in existing buildings. This is a rare opportunity to impact the efficiency of existing buildings – which represent 98-99% of buildings in any given year – by a substantial amount. Code-compliant fenestration is widely available and clearly cost effective, and there is no reason why Virginia homeowners should not have all the benefits of efficient replacement windows and doors.

Comments:

Ms. Wynn spoke on Mr. Lacey behalf and pointed out that she would like to table the energy proposals until after the July 18th subworkgroup meeting when they will have completed they're work.

TABLED

RTP3011

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: To date there has been limited to no code reference for all the technologies currently available to the reline piping systems. Many localities across the state, and country, are accepting it as an alternate material and method with no code guidance. This proposal is not an endorsement of any particular method or process. It does not promote or require relining. It simply provides installation and acceptance criteria when the application is

encountered. This language will provide consistent application for all materials and technologies for the industry, including the code official and installers alike. Pipe relining technology has been successfully used for many years. It began with larger utility piping systems and has progressed into smaller piping systems that are privately owned and fall within the purview of the plumbing code. The process reduces the impact of open trench excavation's and thereby reduces repair cost according to industry data.

Comments:

Mr. Grace gave an overview of proposal. It needed to be addressed because they had people that needed to install. It will show up in the 2021 code.

CONSENSUS APPROVED

RTE3902- Arc Fault Change

Proponents: Haywood Kines, hkines@pwcgov.org

Comments:

Mr. Kines gave an overview of proposal.

Mr. Kines pointed out that the product is 20 years old and the price is coming down drastically. It needs to be adopted now.

Will discuss at next workgroup meeting because it was not published in time.

TABLED

VIRGINIA MECHANICAL CODE

TM506.5.6

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: The biggest change here is the addition of UL 8782-17. UL 1978 does not contain all the requirements necessary for listing PCUs. UL 8782 contains both construction and performance requirements to address various issues not covered by UL 1978. The other proposed changes, more than anything else, are clarifiers.

Comments:

Mr. Grace gave an overview of proposal.

CONSENSUS APPROVED

VIRGINIA PLUMBING CODE

TP202- Definition for Servicing

Proponents: Lee Clark, lee.craft@fairfaxcounty.gov

Comments:

Mr. Craft gave an overview of proposal, get asked from contractors often about service sinks.

Mr. Beahm pointed out that he didn't believe a definition needed to be added. He's never heard of any complaints outside of Mr. Craft. He would discuss with Mr. Grace

Mr. Grace stated he did have a Consensus approved

Mr. Witt questioned if there was a definition for kitchen sink

Will discuss at next workgroup meeting

TABLED

TP-LC-1

Proponents: Jonathan Sargeant (jonathan.sargeant@omegaflex.com)

Reason Statement: To update the product standard for CSST to make it consistent with the installation requirements of the 2018 IRC and IFGC.

Comments:

Mr. Sargeant gave an overview of proposal

CONSENSUS APPROVED

TP410.4

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: This section is often times misinterpreted. It is believed where calculations indicate that two drinking fountains are required, half of that can be substituted with water dispensers. This is not so. The intent of Section 410 is to provide a drinking fountain specifically for people who use a wheel chair and another one specifically for standing persons. Neither of these can be substituted. Even where calculations conclude that only one drinking fountain is required, two must be provided per 410-3, and cannot be substituted. The additional language in this proposal is an attempt to clear this misunderstanding up.

Comments:

Mr. Grace gave an overview of proposal. However in situations that only have 3 drinking fountains this change will not recognize 3rd fountain.

Not everyone agreed on this language.

Mr. Craft suggested 410.3 is first before you substitute.

Ms. Wynn stated that “notwithstanding” is saying the opposite.

Ms. Davis pointed out that they need to work on language.

TABLED

TP423.1

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: Pedicure baths and footbaths have become increasingly more popular. The code has not yet recognized the danger to the water supply these units pose. This change will address that by requiring backflow prevention for these unit. This change does not specify the specific type of backflow device, it simply requires that one be provided per Section 608.

Comments:

Mr. Grace gave an overview of proposal

Ms. Davis questioned if this was taken to national level.

Mr. Grace stated that it was not taken to the national level but was hoping it will.

CONSENSUS APPROVED

TP605.2.1

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: This language is not necessary in the code and not verifiable from an enforcement stance. This language is contained in the NSF 372 Standard and verified during the testing process to meet the standard.

Comments:

Mr. Grace gave an overview of proposal.

CONSENSUS APPROVED

TP608.13

Proponents: Paul Hickman (paul.hickman@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Reason Statement: This is what we are trying to avoid. This installation places the Plumbing Fixture’s built-in ASSE 1001 Atmospheric-type Vacuum Breaker under “Continuous Pressure”. Which is not consistent with 608.13.6 which states “... These devices [ASSE 1001] shall operate under normal atmospheric pressure...” The proposed addition to Section 608.13.6 will make an extremely common violation more clear.

Comments:

Mr. Hickman gave an overview of proposal

Mr. Beahm mentioned that he doesn't think it's a construction code, it's a maintenance code.

Mr. Grace pointed out that there is a section in chapter 3 that doesn't belong in chapter 3 that requires annual inspection of back flow preventative devices that we address now or address when we do our annual inspections that will still need to be addressed.

Mr. Beahm stated that it's not an approved device already, it's prohibited already by the code. The enforcement is a different situation.

Ms. Davis pointed out that the intent of this is to clarify that it is prohibited.

Mr. Witt stated that there is confusion with the language and it's beginning to sound like maintenance instead of construction.

Mr. Beahm pointed out that the issue is after the fact. It's whose putting it on the device. He believes the code already addresses it, it's just adding language. He opposes it. This is not a permanent construction item it's an after.

Mr. Craft mentioned that if you saw this in normal inspection you would fail it.

Mr. Hickman responded that is correct.

There was committee consensus to this.

NONCONSENSUS**TP608.16.7**

Proponents: Paul Hickman (paul.hickman@fairfaxcounty.gov); Richard Grace (richard.grace@fairfaxcounty.gov)

Reason Statement: This is what we are trying to avoid. This installation places the Plumbing Fixture's built-in ASSE 1001 Atmospheric-type Vacuum Breaker under "Continuous Pressure". Which is not consistent with 608.13.6 which states "...These devices [ASSE 1001] shall operate under normal atmospheric pressure..." The proposed addition to Section 608.16.7 will make an extremely common violation more clear.

Comments:

Mr. Hickman gave an overview of proposal

Mr. Beahm stated that he raised opposition to the chemical dispenser as it being indicated on that particular item, it's a maintenance item it's not intended to be a permanent fixture. He can site code that states it's not allowed.

NONCONSENSUS**TP705.11.2**

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: The addition of this exception into the code has caused a direct conflict between what the code allows and what many pipe manufacturers require. We currently have two sections in the Virginia Plumbing Code to address conflicts, 112.3.1 and 301.7 (the Virginia Residential Code has only one, 112.3.1). Both of these sections require that the most restrictive provision apply. In the case of primer use on PVC pipe and fittings, the most restrictive is the use of primer on the joints. I have been unable to locate a piping manufacturer's *installation instructions* that does not require the use of primer on a PVC joint.

Comments:

Mr. Grace gave an overview of proposal

CONSENSUS APPROVED**TP717**

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: To date there has been limited to no code reference for all the technologies currently available to the reline piping systems. Many localities across the state, and country, are accepting it as an alternate material and method with no code guidance. This proposal is not an endorsement of any particular method or process. It does not promote or require relining. It simply provides installation and acceptance criteria when the application is encountered. This language will provide consistent application for all materials and technologies for the industry, including the code official and installers alike. Pipe relining technology has been successfully used for many years. It began with larger utility piping systems and has progressed into smaller piping systems that are privately owned and fall within the purview of the plumbing code. The process reduces the impact of open trench excavation's and thereby reduces repair cost according to industry data.

Comments:

This proposal goes with RTP3011 and was discussed during that proposal.

CONSENSUS APPROVED

TP1101.7

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: The 2015 IPC introduced a different methodology for sizing conductors, leaders and storm drains using the flow rate through the roof drain. When Virginia adopted the 2015 IPC, we kept the methodology contained in the 2012 IPC. There were a couple of items that didn't get addressed in that Virginia amendment, this is one. The section refers to the published roof drain flow rate for sizing the storm drainage system. This is not applicable to the Virginia amended methodology for sizing these systems.

Comments:

Mr. Grace gave an overview of proposal

CONSENSUS APPROVED**TP1105.2**

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: The 2015 IPC introduced a different methodology for sizing conductors, leaders and storm drains using the flow rate through the roof drain. When Virginia adopted the 2015 IPC, we kept the methodology contained in the 2012 IPC. There were a couple of items that didn't get addressed in that Virginia amendment, this is one. The section refers to the published roof drain flow rate for sizing the storm drainage system. This is not applicable to the Virginia amended methodology for sizing these systems.

Comments:

Mr. Grace gave an overview of proposal

CONSENSUS APPROVED**TP1110**

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: The 2015 IPC introduced a different methodology for sizing conductors, leaders and storm drains using the flow rate through the roof drain. When Virginia adopted the 2015 IPC, we kept the methodology contained in the 2012 IPC. There were a couple of items that didn't get addressed in that Virginia amendment, this is one. This section was removed as part of the "package" to introduce the 2015 IPC methodology for sizing storm drainage systems. The Virginia amended methodology still requires the use of this section.

Comments:

Mr. Grace gave an overview of proposal

CONSENSUS APPROVED

TP1303.1

Proponents: Richard Grace, representing VPMIA/VBCOA (richard.grace@fairfaxcounty.gov)

Reason Statement: This proposal adds the CSA B805/ICC 805 Standard as an alternate compliance path for rainwater to be used in nonpotable applications. This language was approved on the national level to be incorporated into the 2021 International Plumbing Code and International Residential Code. The standard contains provisions for nonpotable applications as well as for potable applications, however the provisions for potable applications are not being proposed in this technical amendment, nor were they approved on the national level. The Standard provides a far more comprehensive prescriptive and/or performance document as an alternate compliance path to nonpotable applications which includes the ability to collect rainwater from areas other than aboveground impervious roofing surfaces, identification of end uses based on tier levels and a water quality guidance requirement measured and documented through a required water safety plan.

Comments:

Mr. Grace gave an overview of proposal

Ms. Davis pointed out that there was one concern that was received from another state agency DEQ, they're concern is related to CSA allowing storm water to be included in the collection of rain water which our code specifically does not allow per the definition of rain water. They're concern is addressed by the order of precedence in chapter 1 which states the code comes first, just because there is a secondary allowance in the standard will not permit storm water to be collected as rain water which is what DEQ concern is as a state agency.

DEQ's concern is the intermingling of the two.

TABLED

Work Group Meeting 3 & 4
Community Development Building
9800 Government Center Parkway, Chesterfield, VA 23832

June 5, 2019
SIGN IN SHEET

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Workgroup 1 and 2 Meeting
Chesterfield Community Development Building
April 10, 2019
Summary Notes

Cindy Davis, Deputy Director of Building and Fire Regulations at the VA Department of Housing and Community Development (DHCD) welcomed everyone and had the attendees introduce themselves. She then introduced DHCD staff.

Ms. Davis gave an overview of the online code development process CdpVa and showed everyone how to access proposals. She also explained how to view the future meetings and provided a brief outline on what to expect for the meetings.

Review of the code proposals began.

A103.2

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Some people have been confused as to whether Section 103.2 which provides a one year period before mandating the new code edition, applies to EXISTING construction or only NEW construction. By deleting the word 'new' it should eliminate the confusion - thus applying to all construction. Even though it will be changed in the future updating the year to 2018 was changed as well.

Comments:

Mr. Payne provided an overview of his proposal.

Mr. McGraw. questioned if it should read building department instead of local building department because it could create a conflict with the fact that the State DGS building department issues memos of when options of codes are to take effect.

Ms. Davis confirmed that it is existing language and there is a whole section 103.7 that is specific to state buildings.

Ms. Davis suggested submitting another code change, if it is felt that it is necessary to include the DGS language in this section.

Consensus for Approval

A108.4

Proponent: DHCD Staff, sbco@dhcd.virginia.gov

Reason: Discussion on the reason statement indicated that it was to comply with legislation, not DPOR regulations.

Comments:

Ms. Davis provided an overview of proposal.

The changes are necessary to correlate with the law that came out of the General Assembly. The law eliminated the requirements for an affidavit.

Consensus for Approval

A110.8

Proponent: Richard Witt, witr@chesterfield.gov

Reason: This change clarifies that an issued permit can be revoked should it have been issued in noncompliance with pertinent laws and ordinances.

Comments:

Mr. Witt provided an overview of proposal.

Mr. Witt stated that this will provide clarification that the building official has the right to revoke the permit.

Mr. Gordon suggested using the word applicable instead of pertinent because pertinent is broader and more subjective.

Mr. Witt stated that he used the word pertinent because it is already used throughout the codes but he will talk it over with Mr. Pharr.

Consensus for Approval

A115.2 (1)

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Notices of violation should not be used as the first means of notifying individuals that their building or structure is unsafe. Clearly, the intent of the VCC is that a "different" means must be used when declaring something to be unsafe - thus the purpose of Section 118 and 118.4 specifically - where you issue a report in lieu of just a notice. The methods of issuing such notice have been reformatted for easier reading (lists should be considered when multiple methods and commas are used).

Comments (VCC Section 115.2):

Mr. Payne provided an overview of the proposal.

Mr. Payne explained there have been times when the notice of violation has been used to advise that the building needed to be demoed, but from his understanding they need to have a report not notice of violation.

He further indicated that there have been times when jurisdictions send mail out but there is no indication when it's received.

Mr. Payne pointed out that the methods of how the notices are issued should be listed instead of in a paragraph format.

Mr. Clements has an issue with the delivery of mail being registered or certified. He would rather it go through regular mail or first class.

Mr. Beahm has concerns with the relevance of pulling unsafe buildings into a separate category. He also questioned why there is delineation between when they issue a notice of violation between the unsafe as well as any notices being issued.

Comments (VCC Section 115:3):

Mr. Payne provided an overview of proposal.

Mr. Payne felt that the added language of reasonable time period is important because there was a time when a 15 day remedy period was given and then legal proceeding was filed the next day.

Mr. Clements stated that the reasonable time period is unnecessary because if they are complying with the notice then that would be included in the time period. It redundant language.

Tabled

A115.2 (2)

Proponent: Michael Redifer, redifermd@nnva.gov

Reason: The revisions establish responsibility for work as being that of the permit holder in cases where permits are obtained. It relieves local building departments of the requirement to spend ever-decreasing resources on investigations which in some cases find the individuals who actually performed the work are well out of reach prior to any violations being discovered.

Comments:

Mr. Redifer was not in attendance.

Mr. Clements shared that the VBCOA Admin committee discussed with Michael their concerns with the language. Michael informed them that he's working to modify the proposal.

Mr. Witt has an issue with changing the responsible party to the permit holder.

Mr. Beahm requested that there be a definition of permit holder.

Ms. Davis reiterated that Mr. Payne and Mr. Redifer will collaborate and come back with one proposal instead of two.

Tabled

A116.4

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: There are many buildings and structures out there today that were post-USBC that do not have certificates. Why limit 116.4 to pre-USBC buildings? As proposed, this provision would still apply to pre-USBC, but would also capture those post-USBC buildings that do not have COs, or had them but they cannot be found. With the heading and new language, the exception would no longer be an exception.

Comments:

Mr. Payne provided an overview of proposal.

Mr. Clements stated that VBCOA supports the proposal and added that there was a change to the State Fire Prevention Code in 2015, where if an owner doesn't have a CO they can request from the building official and it's not limited to pre- USBC. This change would make it more consistent with the current State Fire Prevention Code.

Consensus for Approval

A119.5

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason (VCC Section 119.5): Adding "decisions arising under" is the same language used in Section 36-114 of the Code of Virginia (refer below - emphasis added). Also, by adding the term "decisions" in the first sentence, every reference to the word "decisions" when used throughout the rest of 119.5 would apply to decisions arising under the application of the USBC. Otherwise, without context, what does "building official's decision" mean when it is NOT referenced in the first sentence? Finally, not everything that is appealed may be made by the building official, but may come from the "local building department." "The Review Board shall have the power and duty to hear all appeals from decisions arising under application of the Building Code . . ."
"Approved application" is what is really required - not just "written request" which could be crayon on a napkin. The word "approved" is a defined word and avoids someone from submitting just any "application" that would not have been approved by the locality or LBBCA.

Comments:

Mr. Payne provided an overview of proposal.

The desired outcome is to use consistent terms and be specific on approved application instead of a "written request". Currently that language is too vague. There was a situation where an email was sent and then an application was not received until 2 to 3 weeks later.

Mr. Clements opposes the "approved application" because he (VBOCA) doesn't want to get into approving applications. He feels this is a solution looking for a problem.

Reason (VCC Section 119:8): "Approved" application is what is really required - not just any "application" which may not be in the form approved by the TRB. The word "approved" is a defined word. "Certified mail" is added because that is the method of notice identified in 119.7. "Determination" is substituted because that is the term used in the first sentence. The appeal is actually of the LBBCA's determination (which arises from the local building department's application of the USBC - and not just the building official's decision.

Comments:

Mr. Payne provided an overview of proposal.

Mr. Witt agreed to consistency, however, he opposes the language as far as “approved” and feels Mr. Payne can loosen it up to make it easier to appeal. He feels it shouldn’t be tied to the application.

Mr. McGraw doesn’t agree that it’s a difficult process. He stated that it doesn’t need a simplified quasi-judicial process but it needs some structure. His issue is with the word “approved” application, it brings up questions if the governing body or local appeal board approves the application form or the application once it is submitted. He suggested changing the language “approved” to “the application or form prescribed by the body”.

Mr. Revels stated an issue with the language and suggested changing “appeal determination” to “appeal decision” because the appellants are already confused as they think it’s based on the record of the local appeal as opposed to opening it up for a de novo hearing.

Withdrawn**B202**

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: We revised the definition of “work area” to basically involve “walls” because “wall” was/is a defined term. However, for 2015, ICC added “(for Chapter 21)” in the definition header (it did not exist prior to 2015). The concern is that some might say that particular definition is for Chapter 21 only and does NOT apply to the VEBC. Thus, they might say system’s furniture is a “wall” even though they do not “enclose space.” If the proposed language was deleted and we went back to the definition as it was for many years prior, it can still serve its purpose regarding Chapter 21, while also serving its intended purpose for the VEBC’s definition for “work area.”

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval**B401.1.1**

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: (VCC 401.1.1): As currently written, requiring such signage for existing buildings is a retrofit requirement that is not triggered by any work. If this is the case, then the reference to existing buildings should be in VEBC Chapter 11. If it is not intended to be a retrofit requirement, then the existing building reference should be deleted. While I admit I am not excited about where I am proposing to relocate the provision, I do believe that locating this requirement in VCC Chapter 6 is not a good location - which deals with heights and area - not a place for applicants to look for building address requirements. This proposes to locate it in Chapter 4 - still not the best but better than Chapter 6 - since the address requirement could be

classified as a "special use." The last sentence was deleted because the VCC is not a maintenance code and such requirements should be in the VMC and/or SFPC.

Comments:

Mr. Payne provided an overview of the proposals.

Mr. McGraw stated that the signage requirements are ordered by the fire code and doesn't feel the language is broken.

Mr. Witt agrees with the language change but pointed out it should be in the original code 501.2.

Reason: VEBC (301.3): If there is a desire to provide such address signage for existing buildings, it belongs in the VEBC. It also should not be triggered by a repair, Level 1 alteration (which might mean just replacing carpet and ceiling tile, or a partial change of occupancy (might be just one or two rooms in a larger building. However, those classifications of work listed appear reasonable to require such signage. It is proposed to be located in Chapter 3 as it is the chapter that is home to "special details" and "general provisions" and for "where can I put this" type of provisions.

Comments:

Mr. Payne provided an overview of proposal.

Mr. Clements suggested striking from the first sentence "undergoing a Level 3 alteration, complete change of occupancy, and addition, or being moved" and keeping the rest and moving it to Chapter 11 as a retrofit provisions for building codes.

Consensus for Approval with amendments
Amendments

- **VCC 401.1.1: no amendments**
- **VEBC 301.3: Delete "undergoing a Level 3 alteration, complete change of occupancy, and addition, or being moved" from first sentence. The rest to remain the same. Move this section to Chapter 11 (retrofit 1101.18)**

B703.3

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Existing reference was to Chapter 1 of the IBC. Since Virginia deleted Chapter 1 of the IBC, the section number should be updated to the equivalent reference in Chapter 1 of the VCC.

Comments:

Mr. Payne provided an overview of proposal.

Ms. Boykins pointed out that there is no definition for the word "approved" in the code book.

Mr. Brown agreed that it's not there and that it had been inadvertently deleted in the last code cycle but will be added back in the 2018 USBC base document.

Consensus for Approval

B907.5.2.3

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Existing building requirements belong in the VEBC, not the VCC. Also, alterations come in three flavors (Level 1, 2, and 3) and such alarms would not necessarily be required in a Level 1 alteration. If left in the VCC, it could produce a potential conflict with the requirements of the VEBC - which are supposed to govern all construction in existing buildings (per VCC 103.1.1). Alarms in alterations are addressed in VEBC 603.5.4.

Comments:

Mr. Payne provided an overview of the proposal.

Consensus for Approval**B912.2.2**

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: The provision is in SFPC Section 912.2.2, where it belongs. It does not belong in the "new" construction code since it deals with "existing" buildings.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval**B1010.1.9.3**

Proponent: Natalia Larrimer, nlarrimer@outlook.com

Reason: Many child care facilities are located in urban areas in close proximity to parking lots, roads and other hazards. Although, many facilities undertake these types of preventative measures not all do.

Comments:

Ms. Larrimer was not in attendance.

Ms. Davis and Mr. Payne suggested that they wait for the school safety workgroup meeting to address.

Mr. Brown contacted the proponent and she agreed to allow this issue to be vetted by the School Safety sub-workgroup.

Tabled

B1011.5.2

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: When the VEBC was reformatted for 2015, this code section reference should have been revised as well - as it currently pointed you to "Additions" under "Accessibility" (which is currently VEBC 403.1). This code proposal provides the equivalent reference in the VEBC. Also, if we did not change IEBC to VEBC, one would be looking at repairs of fire protection in the IEBC.

Comments:

Mr. Payne provided an overview of the proposal.

Mr. Clements pointed out that section 4 should be deleted all together because that exception will not be reached.

Consensus for Approval with Amendments

Amendments:

- **Delete #4 all together and #5 becomes #4.**

B1030.4

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Existing building requirements belong in the VEBC, not the VCC (per VCC 103.1.1). VEBC 304.3 provides requirements for EERO. While the entire IBC Section 1030.4 was included in the 2018 IEBC (Section 505.4), only the last portion of this provision is required for existing buildings - since any "new" elements must already comply with the VCC/IBC. We need to know how to treat existing and/or replacement EERO windows and what we would need to do if we add anything (e.g., bars, grates, etc.) over them.

Comments:

Mr. Payne gave an overview of proposals.

Consensus for Approval

B3302.1

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Existing building requirements belong in the VEBC, not the VCC (per VCC 103.1.1). VEBC 1201.3 already has the exact same language; so, rather than delete this provision in its entirety without substitution, a reference to the VEBC has been provided.

Comments:

Mr. Payne provided an overview of the proposal.

Suggestion to just delete the entire section. Mr. Payne agreed

Consensus for Approval with Amendments

Amendment:

- **Delete section 3302.1 entirely without substitution.**

B3303.1

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Existing building requirements belong in the VEBC, not the VCC (per VCC 103.1.1. So, the entire section is proposed to be relocated to VEBC Chapter 12 leaving only a reference to the VEBC in the VCC.

Comments:

Mr. Payne provided an overview of proposals.

Mr. Revels questioned leaving the words “comply with section 1210 of the VEBC”. He suggested deleting the whole thing entirely.

Mr. Clements suggested that it needs to get people to the right code and should be under existing building codes and if any cleanup/issues are needed, he will do it under the unsafe provisions.

Consensus for Approval with Amendment

Amendments:

- **Delete VCC section 3303.1 entirely**
- **VEBC 1210.1-1210.7 (new sections): approved without amendment.**

B3310.1

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: The deleted provisions are already covered in VEBC 1205.1 and 1205.2 and the VCC does not govern existing buildings per VCC 103.1.1.

Comments:

Mr. Payne provided an overview of proposals.

Consensus for Approval

EB103.5

Proponents: Ronald Clements Jr., clementsro@chesterfield.gov

Reason: VEBC section 103.5 is not necessary and misleading. VEBC 103.5 as written applies to all occupancy classifications but the section referenced, VCC 113.3.1, is only applicable to group R-5. All inspection requirements of the VCC, including VCC 113.3.1 as applicable to group R-5,

are applicable to VEBC enforcement per VEBC 103.1 (first sentence); therefore, VEBC 103.5 is not necessary.

Comments:

Mr. Clements provided an overview of proposal.

Consensus for Approval

EB103.10

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Per the first sentence of this section, the work is to be classified, not identified. Since 'alterations' is considered 'work' the alterations should also be classified. Just trying to be consistent with the terms within this section and exception.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval

EB304.3

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: If there is no reference to another code, said reference(s) are to the code in which the language is written. Therefore, it would mean those sections are referencing the VEBC. If so, those VEBC sections have nothing to do with said windows, because the sections are actually in the VCC. So, this references the proper code which is the VCC.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval

EB305.1

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: Virginia uses the term "moved" buildings in lieu of "relocated" buildings, which are governed by the Industrialized Building Code. Also, since we deleted the compliance methods in the 2015 VEBC the last portion of the last sentence should have been deleted also.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval with Amendment

Amendment:

- Strike the word “the” before added word moving (under 305.1)

EB307.8 (1) and EB307.8 (2)

Proponent: Justin Koscher, jkoscher@pima.org; Jeff Mang jeff.mang@hoganlovells.com; Eric Lacey eric@reca-codes.com

Reason(s):

307.8 (1) This proposal clarifies that roof replacements must comply with the energy conservation requirements of the International Energy Conservation Code (IECC). This proposal incorporates the language of Section C503.3.1 of the IECC in order to provide users and code officials with specific information on the requirements for roof replacements. Chapter 5 of the IECC was developed to place the energy code requirements for existing buildings in one convenient location. Virginia adopted this IECC language as part of the 2015 code update process. This proposal is necessary because the Virginia Existing Building Code (VEBC) regulates reroofing and roof repair under Section 307. The International Existing Building Code (IEBC) requirements for energy conservation were inadvertently lost when the requirements for reroofing and roof repair were moved to a separate section. This proposal corrects this oversight and clarifies the intent of the VEBC that roof replacements comply with the requirements of the IECC. Additionally, this proposal matches the format used for describing other energy conservation requirements in the VEBC. This familiar format will make the code easy to use and understand for both users and code officials. Importantly, this proposal does not create any new requirements for reroofing, including roof recovers or roof repairs.

307.8 (2) This proposal clarifies that roof replacements must comply with the energy conservation requirements of Chapter 5 of the International Energy Conservation Code (IECC). This proposal cites Section C503 of the IECC, which Virginia adopted as part of the 2015 code development process. This proposal is similar to another proposal submitted by the proponents in terms of intent and impact. However, this proposal includes a more general reference to the roof replacement requirements in Chapter 5 of the IECC. The proponents want to offer two options for the workgroup's consideration. This proposal is necessary because the Virginia Existing Building Code (VEBC) regulates reroofing and roof repair under Section 307. The International Existing Building Code (IEBC) requirements for energy conservation were inadvertently lost when the requirements for reroofing and roof repair were moved to a separate section. This proposal corrects this oversight and clarifies the intent of the VEBC that roof replacements comply with the requirements of the IECC. Additionally, this proposal matches the format used for describing other energy conservation requirements in the VEBC. This familiar format will make the code easy to use and understand for both users and code officials. Importantly, this proposal does not create any new requirements for reroofing, including roof recovers or roof repairs. This clarification is important because roof replacements provide a cost-effective means for increasing the energy efficiency of existing buildings. Replacing a typical existing roof with an energy code-compliant roof reduces whole building energy use by an average of 5.7% (https://www.polyiso.org/resource/resmgr/report/bayer_report.pdf). The energy efficiency requirements for roof replacements have been part of the IECC and IEBC for many cycles. This proposal will clarify existing VEBC requirements for roof replacements and help promote a greater level of compliance. This proposal will increase Resiliency

Comments:

Mr. Mang provided an overview of their proposals.

Mr. Gordon cannot support moving this proposal forward as consensus at this time because they are still polling membership, it is not our recollection that these provisions were inadvertently lost in the 2015 VEBC.

Mr. Clark agreed with Mr. Gordon's concerns.

Mr. Payne pointed out that Virginia added exceptions specifically for roofing. He would oppose how the proposal is written because now there are chapters in the ICC dealing with existing buildings. He suggested that they meet with the energy advocates to resolve.

Ms. Davis questioned if the energy subgroup meeting can help resolve this.

Mr. Witt pointed out that the individuals needed might not be in attendance of that meeting. He stated that the intent of the existing building codes is to rehabilitate, not bring up to existing building codes and this proposal contradicts that.

Ms. Davis agrees with Mr. Witt and stated that Virginia has to decide what the intent of the existing building codes.

Mr. Payne has an issue with the partial repairs because roof replacement is a final term.

Mr. Mang stated there will be increased cost to bring up to code level.

Mr. Lacey stated that there is already language like that in the energy conservation code and suggested bringing the energy conservation code and existing building code together.

Mr. Clements pointed out the purpose of the code is to lower the bar because it cost too much so we can't raise the bar. Virginia has already decided that what is altered is okay.

Mr. Beahm suggested having a separate subcommittee that consist of existing building, energy, and patrons against it.

Mr. Mang stated that further discussion on boundaries is needed and this is an energy issue.

Mr. Clements pointed out two issues, what does the code require/where will it go and what's the technical stuff.

Tabled (both proposals)

EB501.1

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: The language in the first sentence reflected the 2012 definition of "repair." When the definition of "repair" changed in 2015, this language should have been deleted. Chapters 7 (change of occupancy) and 8 (addition) have no bearing on repairs and should have only referenced Chapter 6 (alterations) which would have been consistent with the old 2012 VRC language that referenced just alterations - and not a change of occupancy or addition.

Exception: This chapter deals with "repairs" not "alterations;" so the alteration language is being proposed to be deleted. The deleted language remains for alterations under VEBC 601.1, Exception 4.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval**EB601.1**

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: General: The proposed language mimics the same language that was used in the 2012 VRC and should have been used for the 2015 VEBC as well. Also, all of Chapter 9 (historic buildings) applies, not just one section in Chapter 9. **Exception 4:** Chapter 6 and the exception deals with alterations - not repairs. VEBC Section 501.1, Exception already deals with repairs. Thus, "repairs" should be deleted here. **602.1:** The proposed revision to 601.1 above would already address alterations to historic buildings, thus making the need to repeat that information unnecessary under 602.1.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval**EB601.4**

Proponent: Eric Lacey, eric@reca-codes.com

Reason: The purpose of this proposal is to clarify the applicability of the energy code requirements to existing buildings in the context of an alteration. This will eliminate a conflict between the Virginia Existing Building Code (VEBC) and the Virginia Uniform Code, simplifying compliance and enforcement. It will also reduce energy costs for building owners and improve energy efficiency and resiliency in existing buildings. This proposal makes two key changes. First, it eliminates a Virginia-specific exception to the energy conservation requirements of Chapter 13 of the Virginia Construction Code (VCC) for certain building envelope alterations. This exception can be misinterpreted to cover a broad range of alterations, and conflicts with the energy code's specific efficiency requirements for existing building alterations. Second, the proposal adds references to the IECC's provisions for existing residential (R503) and commercial (C503) building efficiency. It also clarifies that unaltered portions of the building need not comply with the current energy code requirements.

Comments:

Mr. Lacey provided an overview of proposal.

Mr. Payne disagrees with proposal and doesn't see where it states the thickness of the windows in Chapter 5.

Mr. Lacey responded that the information is in exception #2.

Mr. Payne disagrees with that response

Mr. Gordon disagrees with proposal and suggest that it is rolled over to the other discussion. He states that the code has been to encourage rehabilitate at a low bar and this will counter that.

Tabled

EB603.4.5

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: When we purged provisions that read "where approved by the _____ official" from the 2012 VRC to create the 2015 VEBC, we missed this one. In Virginia, because of our "Uniform Statewide" building code, everyone is allowed to utilize all exceptions and exemptions unless specifically granted such authority to the LAHJ by Chapter 1 of the VCC/VEBC or by state amendment.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval

EB904.10.1

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: In historic structures, unless the guard(s) itself is being altered, the existing guard(s) should be deemed acceptable. This approach is consistent with allowing other existing elements to remain as is and still be deemed acceptable: 904.3, 904.5, 904.9, and 904.10.2. As currently written, it may be interpreted that one can leave the guards "as is" as long as it involves a repair. How would this be interpreted if alterations were involved? Since there was no reference to 602.2, we must have meant to remove the existing guards and provide new guards that fully comply with the VCC. I do not believe this is the intent - especially given all of the other components that are allowed to remain - including means of egress, stairway railings, and guard openings.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval

EB1401.6.1

Proponent: Kenney Payne, kpayne@moseleyarchitects.com

Reason: When we do a state amendment, we consistently try to change references to the "I-Codes" to the "Virginia" codes; otherwise, it may be interpreted that we meant to send them to the IBC and not the VCC (that might include state amendments). This proposal simply tries to maintain that consistency.

Comments:

Mr. Payne provided an overview of proposal.

Consensus for Approval

PM302.5

Proponent: Gregory Revels, Greg.Revels@henrico.us

Reason: The proposed changes are recommended to bring the Virginia Maintenance Code in agreement with the Code of Virginia, Federal Housing standards and Virginia Department of Health regulations. Section 36-99(A) of the Code of Virginia specifically requires that the Virginia Uniform Statewide Building include provisions necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation. Federal housing standards administered by the Department of Housing and Urban Development prohibit insect and rodent infestations in low- and moderate-income housing that is federally subsidized. The Virginia Department of Health further prohibits infestations in hotel and motel properties as a condition of issuing annual lodging permits. The proposed language extends protection from infestations to non-subsidized and short term rental properties on all other rental and long term housing occupancies. The last 2 sentences added at 302.5 are proposed to be consistent with 309.1.

Comments:

Mr. Revels provided an overview of proposal.

Mr. Gordon has issues with specific language, “adjacent premises” because it might not adversely affect the property. He would like to review this further with proponent.

Tabled

PM304.1

Proponents: Teresa Gerber, gerbert@chesterfield.gov; Ronald Clements Jr clementsro@chesterfield.gov

Reason: This proposal deletes "health, safety, or welfare" as this is addressed in Section 102.1. It also deletes "sanitary" based on the commentaries of the IPMC, which use sanitary as a reference to rubbish and garbage on the exterior of a structure.

Comments:

Ms. Gerber provided an overview of proposal.

Consensus for Approval

PM603.7

Proponents: Teresa Gerber, gerbert@chesterfield.gov; Ronald Clements Jr clementsro@chesterfield.gov

Reason: This adds the ability to address fuel oil and propane tanks, including the delivery system from the tank to the equipment or appliance.

Comments:

Ms. Gerber provided an overview of proposal.

Mr. O'Connor has an issue with this addition because it causes unintended consequences, for example, who is going to maintain compliance.

Mr. Gordon has an issue with this addition because it's already addressed in the fire code. He stated that someone could contact the Fire Marshalls office if they have a tank maintenance issue.

Mr. Witt stated that the fire codes doesn't reference single family dwellings and suggested that maybe the proponent can work with individuals that have concerns with the language about who is responsible and clean up the language to cite the person that is in responsible charge, be it the homeowner or whoever is responsible for building.

Ms. Hale disagrees with the comment about single family homes being referenced in the fire codes.

Mr. Clements pointed out that the maintenance code states that the owner is responsible for maintaining the entire building and every system in it. He's not sure what unintended consequences would arise.

Tabled

FP1031.2.1

Proponent: Richard Witt, witr@chesterfield.gov

Reason: Security devices that affect the means of egress require a building permit per VUSBC Section 108.1 and approval by the Building Official, not the Fire Official. The Fire Official is required to notify the Building Official if such devices are discovered upon inspection.

Comments:

Mr. Witt provided an overview of proposal.

Mr. Witt pointed out that USBC requires a permit if you alter the means of egress in an existing building.

Mr. Miatico stated he is not able to find how a building official would get to a security device and asked Mr. Witt if he would walk through how a building official gets to a security device.

Mr. Witt responded that according to the USB section 108.1 "a permit is needed" when you affect the means of egress, this would affect the means of egress and a permit would be required. He also stated that the building official has to make a decision after the permit on security devices.

Mr. Miatico stated that currently the USBC has no enforceable provisions on security devices, only lock and latch systems. There are types of devices that do not require installation. He further questioned does it fall under the lock and latch system and pointed out that a building official would refer to the security device section of the IFC which requires the approval of the fire official. He stated this needs further discussion because the ICC's interpretation of a security device is more inclusive than just locking type devices. He also feels that to state all security devices is going to be problematic.

Mr. McGraw described some types of devices and stated that there is no construction or alteration to utilize/install them and no permit would be required.

Mr. Revels stated that everything described by Mr. McGraw is an alteration to a means of egress and requires a permit.

Ms. Hale stated that she agreed with Ms. Davis opening suggestion that this be tabled for discussion by the school safety sub-workgroup.

Tabled

IB420

Proponent: DHCD Staff, sbco@dhcd.virginia.gov

Reason: Ensure that a path exists for approval of intermodal freight containers as building components in industrialized buildings.

Comments:

Ms. Davis provided an overview of proposal.

Mr. Grumbine questioned if it states what an accredited 3rd party service evaluation is.

Ms. Davis explained that ICCS, NTS or ones that have testing laboratories where they visit sites and against the certain evaluation criteria. Whoever is able to provide accreditation against their criteria.

Ms. Davis questioned if a definition is needed for “accredited 3rd party evaluation service”.

Tabled

IB260

Proponent: DHCD Staff, sbco@dhcd.virginia.gov

Reason: To ensure that panelized construction is not excluded from the regulations and allow for reasonable application of registration seal fees.

Comments:

Ms. Davis provided an overview of proposal.

Mr. Payne questioned if there is a reason to use “finished floor area” instead of just “floor area”.

Mr. Reynolds suggested deleting the word “finished”.

Ms. Davis informed attendees that DHCD is considering proposing an increase in the cost of industrialized building seals (section D). Will bring back as a separate change at a later date.

Consensus for Approval with Amendments
Amendments

- **Strike the word “finished”**

MH10

Proponent: DHCD Staff, sbco@dhcd.virginia.gov

Reason: This will ensure the installation is in compliance with the federal installation standards.

Comments:

Ms. Davis provided an overview of proposal.

Mr. Grumbine suggested that certificate or form number be a mandatory referral.

Ms. Davis stated it’s not a requirement of law yet and requiring a specific form could become problematic any time the form is updated.

Mr. Linderman observed that all acronyms are spelled out at first use or defined.

Consensus for Approval with Amendments
Amendments:

- **Spell out or define all acronyms (DPOR, MHC)**

MH60

Proponent: DHCD Staff, sbco@dhcd.virginia.gov

Reason: This will ensure the installation is in compliance with federal installation standards.

Comment:

Ms. Davis provided an overview of proposal.

Mr. Witt has an issue because it will hold up occupancy waiting on paperwork. He suggested to provide a copy to owner and maintain a copy, to eliminate waiting to get into a home.

Mr. Brown pointed out that that specialty licensed manufactured home installers must be used for all installations according to HUD regulations. This change would make sure an appropriate person was identified up front to eliminate issues with improper installations.

Mr. Witt is comfortable with installer instead of building officials, building officials do not want that responsibility of certificate.

Mr. Beahm pointed out that it's a destroyable document and will become a nuisance.

Mr. Brown suggested adding "and" so someone gets a copy and it's not mandated. This is to protect the home owners that are doing it on their own.

Mr. Beahm suggested dealer's office of who sold the home is where it should be kept.

Mr. Brown suggested amending to require an installer to provide a copy of the certificate to the owner prior to issuance of a CO and to the building official when requested. This would give localities the option of requiring prior to CO but require the owner is getting it at minimum.

Tabled

Additional Issues Discussed:

1. Accessible parking requirements, VCC section 1106.2 and table 1106.1
 - Conflicting or duplicated requirements for "R"
2. Swimming pool
 - International Swimming Pool and Spa code used to have definition for swimming pool in Chapter 2 that only included pools designed for use with circulation pumps, eliminating smaller kiddie pools.
 - 2015 code description of a swimming pool was moved to Chapter 1 in ISPSC
 - No limitations now in USBC
3. Fire service access lobby elevators
 - The USBC deleted the general elevator lobby section
 - The FSA elevator lobby section references the deleted general section for construction requirements.

1 BOARD OF HOUSING AND COMMUNITY DEVELOPMENT

2 PUBLIC HEARING

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11 A public hearing of the Board of Housing and
12 Community Development was held at Virginia Housing
13 Center, 4224 Cox Road, Glen Allen, VA 23060 on
14 Monday, July 22, 2018 at 10:00 a.m. before Colleen
15 Good, Certified Court Reporter and Notary Public in
16 and for the Commonwealth of Virginia.

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1 MEMBERS PRESENT:

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3 Steve Semones

4 J.P. Carr

5 Erik Johnston

6 Kyle Flanders

7 Earl Reynolds

8 Keith Johnson

9 Ernie Little

10 Abigail Johnson

11 Jeff Sadler

12 Sonny Abbasi

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1 P-R-O-C-E-E-D-I-N-G-S

2 J.P. CARR: Good morning, my name is
3 J.P. Carr, I currently serve as the Chairman of
4 Virginia Housing and Community Development. The
5 Board is holding a public hearing today to receive
6 comments prior to the proposed regulations.

7 At this point it's my pleasure to
8 welcome the members of the Board of the Housing
9 Community Development and the Virginia Fire
10 Services Board, thank you joining us. They are
11 present today.

12 Before we begin to receive comment,
13 I'd like to explain how the hearing will be
14 conducted, anyone wishing to speak should sign in
15 at the registration desk near the door.

16 Comments are offered by, comments
17 offered by a previous speaker need not be
18 repeated. The speaker may establish their
19 position on any point simply by referring to their
20 earlier statement which expresses his or her
21 position.

22 We ask that each speaker limit their
23 remarks to two minutes due to the number of people
24 expected to comment on these various issues. We

25 welcome the submission of written statements in

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1 such cases oral comments are not necessary. The
2 Board will review all written materials that are
3 submitted. If you have written statements today,
4 please leave them with Kyle Flanders, member of
5 the Board.

6 We will receive public comment for
7 regulations in this order, so first off is the
8 Virginia Statewide Fire Prevention Code. Next,
9 the Virginia Amusement Device Regulations,
10 following VADR, Virginia Industrialized Building
11 Safety Regulations. Next the Uniform Statewide
12 Building Code, general comments, followed by any
13 comments specific to the Emergency Cooling
14 Regulations. Finally we will hear any comments on
15 the Virginia Certification Standards and
16 Manufacturing Home Safety Regulations.

17 I now open the public hearing. Call
18 the first speaker, and we are talking first about
19 the Virginia Fire Prevention Code. Do we have any
20 speakers on the Fire Prevention Code?

21 Next we will move on to the Virginia
22 Amusement Device Regulations, any speakers on
23 that?

24 The Virginia Industrialized Building

25 Safety Regulations, any speakers on those?

5

1 Next, the Uniformed Statewide

2 Building Code general comments. I think we do

3 have, are there two speakers for that one?

4 I would like to call Laura Wynn.

5 Would you like to speak?

6 LAURA WYNN: Good morning, everyone.

7 My name is Laura Wynn. I'm with the Responsible

8 Energy Codes Alliance. I work with Eric Lacey.

9 I'm also a resident of the Commonwealth, I live up

10 in Arlington County and before that I lived in

11 Williamsburg, Virginia.

12 I'm here to talk to you today, just

13 introduce myself and to kind of give you a broad

14 statement of where RECO is coming from as we're

15 going into the 2018 code update process.

16 When Virginia was considering the

17 2012 code updates, Virginia ended adopting several

18 weakening amendments which have really left a lot

19 of energy conservation on the table and really has

20 resulted in a lot of energy and cost that are

21 really much higher than they should be for

22 Virginia.

23 Just to give you a couple of examples

24 blow door testing which is really quick and simple

25 to do, it is not only going to improve energy and

6

1 cost savings for Virginians, it will also improve
2 indoor health, indoor air quality and therefore
3 health and safety for Virginians.

4 Also another amendment which got made
5 in the 2012 process was weakening amendments for
6 wall and ceiling insulation, and those have been
7 proven time and time again to be cost effective
8 and result in a lot of energy and cost savings for
9 Virginians.

10 Now when, you know, a lot of these
11 weakening amendments have been carried through,
12 not only where they adopted in the 2012 update,
13 but it's because of the way Virginia's code
14 process works, they were carried through to 2015.

15 And now a lot of industry
16 stakeholders, efficiency advocates and
17 environmental groups are coming to you in this
18 2018 code update process to ask you to support
19 updates which would eliminate these weakening
20 amendments and basically bring Virginia up to the
21 National Energy Code.

22 We believe Virginia is a regional and
23 national leader and we think they should be up to
24 date and even ahead of the codes if they can,

25 where it's possible.

7

1 So just to, kind of, again, I wanted
2 to introduce myself, I'm Laura Wynn, and just to
3 let you know I'm here for comments and questions
4 if you all have any. Thank you.

5 J.P. CARR: Thank you. I'd like to
6 call up Chelsea Harnish.

7 CHELSEA HARNISH: Good morning, thank
8 you for providing the opportunity to speak. I
9 concur with everything that Laura just said, so I
10 won't repeat what she said, but I would just add
11 that what, so there was a DOE field study that was
12 done earlier, well, last year and wrapped up
13 earlier this year, and it was done by Meridian on
14 behalf of the Southeast Energy Efficiency Alliance
15 and funded through the Department of Energy.

16 And that field study went and they
17 tested various different pieces of the code to
18 check for compliance for homes that are being
19 built today, and one thing I just wanted to point
20 out was that they did show that based on the code
21 before duct blaster testing was included in the
22 code which was (inaudible) last fall, 74 percent
23 of ducts were failing.

24 So I just wanted to point out that I

25 think it was great that the testing for ducts was

8

1 added last year, but for, on the building thermal
2 envelope, only 78 percent of the homes were
3 passing and so while that is a high passing rate,
4 we do see that only 22 percent of the -- 22
5 percent of homes being built, they are not meeting
6 the current standards.

7 So with the five air changes per hour
8 standard on the books as part of the Uniformed
9 Statewide Building Code, we see that there are
10 still some homes that are not passing what is
11 currently on the books.

12 That's why it's incredibly important
13 now we also have mechanical testing for the blower
14 door, mechanical testing which is a blower door
15 test in the next cycle. So I just wanted to
16 advocate for that. Thank you.

17 J.P. CARR: Thank you. That's the
18 only two people we have signed up. Are there any
19 other people who would like to speak?

20 Okay, we will close that out and move
21 on to Emergency Cooling Regulations. Is there
22 anybody that would like to speak about Emergency
23 Cooling Regulations?

24 Okay, hearing none. We will hear

1 the Manufactured Home Safety Regulations. Would
2 anyone like to speak about that?

3 Hearing no further comments we are
4 going to close the public comment section. You
5 can always submit written comments to Kyle which
6 would be entered into the record for the Board to
7 review.

8 With that I think we will close the
9 public comment portion. Thank you.

10 (The public comment portion of the meeting
11 concluded at 10:20 a.m.)

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2 CERTIFICATE OF COURT REPORTER

3 I, Colleen Good, hereby certify that I was the
4 Court Reporter for the Board of Housing and
5 Community Development public hearing at the offices
6 Virginia Housing Center, 4224 Cox Road, Glen Allen,
7 VA 23060 on Monday, July 22, 2018 at the time of the
8 hearing herein.

9 I further certify that the foregoing
10 transcript is a true and accurate record of the
11 hearing herein.

12 Given under my hand this 31st day of
13 July, 2019.

14

15 _____
16 COLLEEN GOOD, CCR, Court Reporter

17

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20 My Commission Expires:
21 September 30, 2023

22

23

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PO Box 0535
Gordonsville VA 22942-0535
August 3, 2019

Thomas B King
Department of Housing & Community Development
600 E. Main Street # 300
Richmond VA 23219

Dear Mr. King:

This letter is in regards to your letter dated 7/26/19. I have included a copy for your reference.

Unfortunately, my new home built by Ryan Homes did not comply with current codes but Orange County passed the inspection. It was easier for me to pay a plumber and have the work done correctly rather than get Ryan Homes involved. While I am tempted to complain to the DPOR/DBPR about Ryan Homes, the complaint list is too long and I don't think it would do any good.

From the information that you have provided to me, I definitely see the deficiencies in the State of Virginia building codes in regards to energy efficiency. In looking for information about insulation, your building codes are too low. This past winter, out of curiosity, I used an Infrared thermometer to check the interior wall temperature of my home's exterior walls. The temperature ranged from 58 degrees F to 61 degrees F. On cold days, I would see condensation on the exterior walls of my home. When some work was being done on my home, I saw the insulation in the exterior walls and it looked insufficient. Due to a problem in the vinyl siding, I saw what was beneath the siding. If Ryan Homes is building their homes to the State's building codes then this is proof to me that VA's building codes are too low for a cold/hot environment.

N1102.2.1 (402.2.1) Who determines what the R value is for blown-in insulation that covers three quarters of the attic? How can I find out? Installing R-30 over 100 percent of the ceiling area, does that include the garage area ceiling or just the living area ceiling?

The majority of Americans believe that climate change is a real problem. In trying to slow down climate change, the US government has to raise its building standards. I would rather pay more money for an energy efficient home than pay a lot of money for a mediocre home. My children and my grandchildren are worth the effort to try to slow down climate change.

It is time for VA to be a leader in raising the building codes rather than just being a follower. Think outside the box. Human beings are the destroyers. It is time for human beings to be the protectors.

Cordially yours,



P. Grant

Fwd: Police Executive Research Forum Weighs in on School Safety

DHCD-Director, rr <director@dhcd.virginia.gov>
To: Kyle Flanders <kyle.flanders@dhcd.virginia.gov>

Thu, May 9, 2019 at 11:38 AM

----- Forwarded message -----

From: **Sean Lauziere** <slauziere@ravemobilesafety.com>
Date: Tue, May 7, 2019 at 1:41 PM
Subject: Police Executive Research Forum Weighs in on School Safety
To: Erik Johnston <director@dhcd.virginia.gov>

Good Morning,

Often times we place our educators in the unenviable position of evaluating security solutions; a daunting task for someone without a public safety background. In order to vet new solutions, legislators and educators often look to the men and women that will answer their emergency calls to weigh in with their opinions. To that end, I wanted to share with you a piece from the Police Executive Research Forum (PERF), a national organization of police executives that develop policies and best practices on a number of police issues, including how to respond to emergencies in our schools. An excerpt is below:

"In July 2017, SSD launched a panic button app in Seminole County Public Schools. When an emergency occurs, students and teachers can open the app on their phone and hold a button for 1.5 seconds that indicates the type of emergency they are experiencing. The app will then connect them with a 9-1-1 call taker. The school panic button app is designed to improve the outcome in an emergency by enabling a faster response and more effective communication between school faculty and staff and first responders."

As you continue to determine which policies and best practices can be leveraged to protect our children at school, we would encourage you to look to the first responders that will answer those calls for input on the most effective programs available. Rave has worked extensively with 9-1-1 and first responder agencies nationwide, and we would appreciate the opportunity to share what we have learned during our time as the nation's leading provider of school panic button systems.

Sincerely,
Sean Lauziere, MPA
Rave Mobile Safety

[Unsubscribe](#)

April 23, 2019

Cindy Davis
Deputy Director
Division of Building and Fire Regulations
Department of Housing and Community Development
600 East Main Street
Suite 300
Richmond, VA 23219

Email: cindy.davis@dhcd.virginia.gov

Dear Deputy Director Davis,

I am writing to you on behalf of the Fire Equipment Manufacturers' Association (FEMA) regarding the State of Virginia's effort to update the State Fire Prevention Code. Specifically, we are writing to urge you not to deviate from the national model codes and insert an amendment which would significantly reduce the level of safety in buildings by limiting the number of portable fire extinguishers required in most public buildings. The amendment in question, which was inserted during previous code adoptions, adds an exception to the extinguisher requirement in A, B, E and R occupancies (Section 906.1) and limits extinguisher placement to only hazardous areas in these occupancies.

Fire extinguishers are the first line of defense for small, controllable fires. They are intended to be used for fires of limited size and easily controlled. If a fire is discovered in its early stages, the most effective means of protecting life and preventing property loss is to sound an alarm and then to control and/or extinguish the incipient stage fire with a portable fire extinguisher. To simply wait for the fire to grow large enough in size for a sprinkler head to activate, is contrary to lessons and guidance from fire service and fire protection professionals. Since fire extinguishers provide a first line of defense versus sprinklers, it remains unclear as to the justification for this exception.

It is for that reason that prior to the 2012 International Fire Code (IFC), more than 20 states adopted amended versions of the 2006 and 2009 IFC that removed the exception and required extinguishers throughout most buildings regardless of the presence of sprinklers. After considering a proposal from the National Association of State Fire Marshals (NASFM), the International Code Council (ICC) voted to remove this exception in the 2012 code. NASFM, and other supporters of the exception's removal, rightly argued that exempting occupancies from fire extinguisher requirements can leave those buildings without a proper firefighting tool for small, controllable fires. The ICC agreed with this rationale and removed the exception in the last two versions (2012 and 2015) of the IFC. As the Commonwealth of Virginia bases its building and fire codes on these national model codes, we respectfully

request that the Division of Building and Fire Regulations to increase the state's fire protection standards and not insert the 906.1 Line 1 exception.

Virginia is not unique in the decision to base the building and fire codes on these national model codes, as most jurisdictions do the same. The reasons are relatively simple: by utilizing a national consensus process the requirements of the ICC model codes are well vetted by a cross-section of regulators and industries. This results in appropriate safety provisions for the vast majority of jurisdictions, based upon national consensus processes. Amendments that weaken the model codes upon their state adoption should be carefully considered and only made through deliberate, well-reasoned processes, resulting in changes that only make the model codes safer for the residents of Virginia.

With FEMA representing an international group of leading fire protection manufacturers, we are continuously committed to developing complete and balanced fire protection plans that will save lives and reduce property damage. Further, given our more than a decade's worth of experience with the issue, we have been able to curate the following detailed account for the model codes' requirements for portable fire extinguishers.

- If there is any question as to whether the citizenry in the United States is acting early to extinguish incipient fires, the report of the U.S. Consumer Products Safety Commission should put those doubts to rest. According to their report, only 5-10 percent of fires are reported to fire departments in the U.S. We submit that, since people are, in fact, extinguishing small fires in their incipient stage on a very regular basis, the code should provide for the proper tools to do so - that is, maintain the requirements for portable extinguishers. According to this report, people use portable extinguishers on 371,000 residential fires in the U.S. annually. In this same report, the agency stated that extinguishers were effective in 80 percent of the cases where they were used. The entire 234 page report, published in 2009, can be found at: <https://www.cpsc.gov/PageFiles/105297/UnreportedResidentialFires.pdf>

Some of these fires are extinguished using fire extinguishers; others are being extinguished with makeshift means. Extinguishers are the appropriate tool and designed for use on incipient fires. Providing portable fire extinguishers in facilities greatly enhances safety, including the safety of those who choose to extinguish a fire in its incipient phase; extinguishers should be available in all buildings.

- An NFPA report on fires in sprinklered buildings published in 2010 states that in fires reported in buildings equipped with sprinkler systems, the fire didn't grow large enough to activate the sprinklers in 65 percent of the cases (page 11). The fires cited in this report were large enough to be reported to the fire department; the sprinkler systems were operational and would have activated if the fire had grown larger, but were extinguished or otherwise mitigated prior to sprinkler activation. This report verifies that people are intervening when a fire is small, saving the property owner(s) substantial sums of money by putting the fire out before it grows larger, doing more damage and before sprinklers activate, while protecting the lives of building occupants. You can see that report here: http://www.tvsfpe.org/images/us_experience_with_sprinklers.pdf
- Where cost is a consideration, portable fire extinguishers are, without a doubt, one of the most cost effective layers of fire protection available. A life cycle cost analysis was conducted in 2014 by Richard Bukowski, P.E., then working for RJA. In that

study, the actual cost of portable extinguishers in several facilities was used to determine the real-world cost of these devices. Using 12 health care facilities, the costs of initial purchase, installation, monthly and annual maintenance, as well as all associated maintenance required by NFPA-10 (the standard referenced in ICC Codes) were compiled and analyzed. According to this study, the actual costs of portable extinguishers in these facilities ranged from \$.015 (one and one half cent) to \$.04 (four cents) per square foot per year. His study also states that, if a facility were able to utilize the minimum number of extinguishers required by the Codes based upon coverage of an area, the costs would be between \$.005 (one half cent) and \$.01 (one cent) per square foot per year. This report can be found at:

<http://www.femalifesafety.org/docs/006GRCAAtt01RJAFinalReport011714.pdf>

- Finally, the question of whether a person needs to be trained in order to use a portable extinguisher is sometimes mentioned. While we encourage training those who may utilize portable extinguishers, there is substantial evidence that people without training can and do use extinguishers safely and effectively. Specifically, Worcester Polytechnic Institute and Eastern Kentucky University conducted a study titled "Ordinary People and Fire Extinguisher Effectiveness". In that study of 276 untrained persons, over 90 percent operated the extinguisher effectively on a simulated fire, with 98% successfully pulling the pin, squeezing the trigger, and discharging the agent. 74% used proper techniques including aiming at the base of the fire and using a sweeping motion. This study dispels any doubt that extinguishers can be effective in the hands of novice users.

<http://www.femalifesafety.org/docs/WPIStudyFinal.pdf>

In conclusion, FEMA would respectfully request that when drafting the State Fire Protection Code, the Division should maintain the model codes level of fire safety and not insert the exception in to Section 906.1. Thank you for your consideration to this letter. Please do not hesitate to contact me with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Craig Addington". The signature is fluid and cursive, with the first name "Craig" and last name "Addington" clearly distinguishable.

CRAIG H. ADDINGTON



COMMONWEALTH OF VIRGINIA
HOUSE OF DELEGATES
RICHMOND

KATHY J. BYRON
POST OFFICE BOX 900
FOREST, VIRGINIA 24551

TWENTY-SECOND DISTRICT

August 21, 2019

COMMITTEE ASSIGNMENTS:
COMMERCE AND LABOR (VICE CHAIRMAN)
FINANCE
SCIENCE AND TECHNOLOGY

Department of Housing and Community Development
Comments for Workgroup 4, Proposal T2701.1.1-18 Feeder equipment grounding conductor.

When I was first contacted by Misters Erler, Lane, and Harrington about Electric Shock Drowning and learned of their proposal, I was surprised that a danger as serious as this could continue to exist. The more I learned about this issue, and about the loss of life it has already caused, I became concerned that government was failing in one of its core missions: keeping our citizens safe.

Representing an area like Smith Mountain Lake, I am no stranger to issues related to personal safety. Not long ago, I successfully worked to enact measures related to boating safety that are now the standard in our state and among our nation's strongest.

The solution these gentlemen are proposing is not novel. Already enacted in England, France, Germany, and Italy, their proposal is actually representative of a new and already proven safety standard. In this instance, we are simply behind the times.

Inaction on this matter is not an option. A genuine risk – one that has resulted in the loss of life – has been identified. Electrical current leakage adjacent to lakes and waterways is not a problem we can ignore. By adopting the recommendations of Misters Erler, Lane, and Harrington, we can dramatically reduce the risk of Electric Shock Drowning and prevent the loss of life.

What Misters Erler, Lane, and Harrington have produced with their proposal is evidence that engaged citizens who are willing to research a problem and propose a workable solution can make a very big difference. I urge this Board to give its strongest possible consideration to adopting the reasonable and proven solution these gentlemen have advanced.

Sincerely,

Kathy J. Byron, Member
House of Delegates



COMMONWEALTH of VIRGINIA
Department of General Services
Division of Engineering & Buildings

W. Michael Coppa, RA
Director

1100 Bank Street, 6th Floor
Richmond, Virginia 23219

Voice (804) 786-3581
FAX (804) 225-4709

July 10, 2019

Cindy L. Davis, CBO
Deputy Director, Division of Fire and Building Regulations
Virginia Department of Housing and Community Development
600 East Main Street, Suite 300
Richmond, VA 23219

RE: **Virginia 2019 Uncodified Acts, Chapter 723**
Senate Bill 1755, 2019 Session
Proposed changes to the VUSBC and SFPC

Dear Deputy Director Davis:

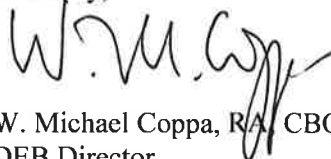
The Virginia 2019 Uncodified Acts, Chapter 723 (SB1755, 2019 Session) requires examination of various safety and security measures to utilize in the event of an active shooter or hostile threat, but does not mandate changes to the Virginia Construction Code or Virginia Fire Prevention Code. The Act language - not the executive summary language - directs that, in addition to examination of barricade devices, locking devices and other safety measures shall be examined. There is no mandate for allowing barricade devices. There is a building code mandate to assure life and fire safety for building occupants. Barricade devices that are not readily openable from the egress side without the use of a key or special knowledge or effort compromise life and fire safety.

The critical code requirement to assure life and fire safety of the building occupants is by providing free and unobstructed egress from a building. This requirement cannot be compromised.

Locking door hardware (i.e., classroom lock function) provides a code compliant and secure method to prevent unauthorized access while maintaining free egress. Barricade devices do not allow free egress per the Building Code. In the case of an emergency, a barricade device may impede egress or emergency access and result in loss of life. In the event of an active shooter or hostile threat, a barricade device could be used by the assailant to keep occupants in a building resulting in a greater loss of life.

Standard door hardware can provide a code compliant, tested and safe method to assure physical security. Standard operational procedures (i.e., security personnel, screening protocols and locking doors) should be established to supplement Virginia Construction Code and Virginia Fire Prevention Code compliant physical security. Allowing barricade devices in a building is a contradiction and violation of the Virginia Construction Code and Virginia Fire Prevention Code. These codes must not be amended to allow barricade devices.

Sincerely,



W. Michael Coppa, RA, CBO
DEB Director

USBC / Fire Code

1 message

Dave Prosser <dprosser@freedomfirst.com>

Tue, May 14, 2019 at 2:25 PM

To: "kyle.flanders@dhcd.virginia.gov" <kyle.flanders@dhcd.virginia.gov>

Mr. Flanders:

My name is Dave Prosser and I am a resident in the City of Salem. I am Board Chair for Family Promise of Greater Roanoke (FPGR) and my Church, First United Methodist in Salem, host families in need of FPGR's services. FPGR serves families experiencing homelessness.

I am writing to submit a public comment on the USBC / Fire Code currently being considered by Department of Housing and Community Development.

My church First United Methodist, currently works with families experiencing temporary homelessness – by providing an overnight accommodation for 7 days at a time. We cook meals and give families a safe place to stay.

Currently under the code, our main church buildings may not be suitable for such purpose despite being religious buildings. We would be grateful for an addition to the fire code that says, religiously exempt organizations providing temporary shelter, do not need to meet state fire code standards for overnight shelter, if the buildings meet fire code standards for public worship, assembly etc.

This way, we can serve our neighbors, in a safe environment and keep families off the streets. The alternative is that families remain on the streets as our houses of worship do not meet shelter (and cannot financially adapt to meet) formal shelter fire code standards.

The Commonwealth's homelessness issue is a matter of public welfare that may be addressed through each agency's interpretation of its regulations and how those regulations affects the non-profits working to provide temporary relief to homelessness in their communities.

Thank you your time addressing the matter.

Dave Prosser

SVP Community Development

5240 Valleypark Drive

Roanoke, VA 24019

Tel: (540) 378-8922

Cell: (540) 580-0797

Toll Free: (866) 389-0244

Fax: (540) 427-6783

NMLS# 713071

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Emergency Shelter Issue / USBC and Fire Code public comment

Marie Muddiman <mmuddiman@familypromiseroanoke.org>

Wed, May 15, 2019 at 2:21 PM

To: Kyle Flanders <kyle.flanders@dhcd.virginia.gov>

Dear Kyle,

Providing temporary shelter to homeless people in congregational facilities has been a practice for thousands of years. In many communities it is the only thing keeping folks off the streets, out of the cold, and free from harm. This is currently being challenged and many communities could face further issues related to their homeless population if this issue is not resolved. The current fire code and building code is subject to interpretation. The City of Roanoke has chosen to interpret the fire code in such a way that in order for congregational facilities to be used for temporary shelter they must meet the code for a hotel. This means a complete fire suppression system. This is obviously quite expensive and unattainable for congregations. The result in the City of Roanoke is that families with children, who stay in congregational facilities for a week at a time, will no longer be able to stay in these facilities. Family Promise of Greater Roanoke has been operating in the Roanoke Valley for 21 years. 4 families with a maximum of 14 people with no more than 5 children under 2 and a half stay in a congregational facility for a week at a time. Each family has their own room and a host who is familiar with the facility stays with them throughout the night to ensure their safety. I would encourage the fire code to be reviewed to include some type of temporary use certificate for something such as this. It is much safer for families to stay in a congregational facility than to sleep in their car, on the street, under a bridge, or another place not suitable for habitation. Other programs throughout the Commonwealth are beginning to experience pushback as well from their respective fire marshals.

This is clearly an issue in communities that offer thermal shelters in congregational facilities.

In our efforts to end homelessness, this is obviously an issue that needs to be resolved.

I would be glad and honored to attend and share more during public hearings on the matter.

Thank you for the opportunity to share my concerns.

H. Marie Muddiman

Executive Director

Family Promise of Greater Roanoke

[37 East Clay Street](#)[Salem, VA 24153](#)

540.444.7374

540.444.0220 fax

mmuddiman@familypromiseroanoke.orgwww.familypromiseroanoke.org

Emergency Shelter Issue / USBC and Fire Code public comment

2 messages

Lauren Ellerman <LEllerman@frithlawfirm.com>

Tue, May 14, 2019 at 1:55 PM

To: "kyle.flanders@dhcd.virginia.gov" <kyle.flanders@dhcd.virginia.gov>

Cc: Marie Muddiman <mmuddiman@familypromiseroanoke.org>

Mr. Flanders:

My name is Lauren Ellerman and I am a resident of the City of Roanoke. I am a member of a local church, and a volunteer with an organization that serves families experiencing homelessness called Family Promise of Greater Roanoke.

I am writing to submit a public comment on the USBC / Fire Code currently being considered by Department of Housing and Community Development.

My church Second Presbyterian Church, currently works with families experiencing temporary homelessness – by providing an overnight accommodation for 7 days at a time. We cook meals and give families a safe place to stay.

Currently under the code, our main church buildings may not be suitable for such purpose despite being religious buildings. We would be grateful for an addition to the fire code that says, religiously exempt organizations providing temporary shelter, do not need to meet state fire code standards for overnight shelter, if the buildings meet fire code standards for public worship, assembly etc.

This way, we can serve our neighbors, in a safe environment and keep families off the streets. The alternative is that families remain on the streets as our houses of worship do not meet shelter (and cannot financially adapt to meet) formal shelter fire code standards.

The Commonwealth's homelessness issue is a matter of public welfare that may be addressed through each agency's interpretation of its regulations and how those regulations affects the non-profits working to provide temporary relief to homelessness in their communities.

We would be delighted to attend and share more during public hearings on the matter.

Thank you for considering.

Lauren Ellerman

Frith Ellerman & Davis Law Firm, P.C.

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Flanders, Kyle <kyle.flanders@dhcd.virginia.gov>

Tue, May 14, 2019 at 1:59 PM

To: "Davis, Cindy (DHCD)" <cindy.davis@dhcd.virginia.gov>, Jeff Brown <jeff.brown@dhcd.virginia.gov>, "Johnston, Erik (DHCD)" <Erik.Johnston@dhcd.virginia.gov>, Weaver Matthew qpk49966 <matthew.weaver@dhcd.virginia.gov>

Cc: Robertson Kathy qgr28072 <kathy.robertson@dhcd.virginia.gov>

FYI

[Quoted text hidden]

A comment on the USBC/Fire Code

1 message

Dr. George C. Anderson <pastor@spres.org>

Tue, May 14, 2019 at 11:01 PM

To: "kyle.flanders@dhcd.virginia.gov" <kyle.flanders@dhcd.virginia.gov>

May, 14, 2019

Mr. Flanders:

I am the Senior Minister of Second Presbyterian Church in Roanoke, Virginia. For the entire history of the Christian Church, a core mission has been to follow the commands of Jesus in showing compassion to those in need. For those in crisis and seeking shelter, churches have provided "sanctuary."

Governments traditionally have made allowances so that churches and other faith communities can provide needed shelter even though their facilities are designed primarily for worship and not as hotels or housing facilities.

Second Presbyterian for years has been working with Family Promise in providing overnight shelter, meals, and companionship for a week at a time for homeless families. We do so as part of an organization called Family Promise of Greater Roanoke which operates according to a successful model used in many places around the country. The families served nearly always include small children.

I write to comment on the USBC/Fire Code under consideration by the Department of Housing and Community Development. Most places of worship do not meet state fire code for buildings designed for overnight shelter and historically have not been expected to do so. In the interests of common sense and compassion, I encourage a clarification of the code that will allow for religiously exempt organizations that meet fire code requirements for places of worship and assembly to continue to provide temporary shelter.

Keeping the potentially homeless off the streets and out of severe danger is in the best interests of the community. Reasonable allowances within the USBC/Fire Code that allow churches and other faith communities to carry on a sheltering ministry will save lives and serve the greater good.

I am available for questions and conversation.

Thank you for your consideration.

Sincerely,

George C. Anderson, D.Min.

Second Presbyterian Church

214 Mountain Ave.

Roanoke, VA. 24016

Office: 540-343-3659, Cell: 540-353-3659

pastor@spres.org

PROPOSED VIRGINIA CODE AMENDMENT Inbox ×



Acton <acton@phoenix-society.org>

10:35 AM (5 minutes ago)

to cindy.davis@dhcd.virginia.gov, me, richard.potts@dhcd.virginia.gov

Dear Cindy, Jeff and Richard,

My name is Amy Acton and I am the Executive Director of a national organization called the Phoenix Society for Burn Survivors. I represent thousands of men, women and children across the United States who are burn survivors as well as family members, caregivers, burn care professionals, nurses, doctors, firefighters, fire chiefs and more who value fire safety.

On behalf of the Phoenix Society and its hundreds of Virginia members, I strongly support amendment **RTE3902.16(1)**, which increases arc-fault circuit interrupter (AFCI) protection in Virginia homes.

I join my organization in supporting programs and technologies that help prevent and protect against fires, including the 40,000+ electrical fires that occur annually causing injury and death. AFCIs are proven to protect residents from dangerous electrical arcing in a home's wiring, preventing devastating and deadly electrical fires. The effects of a burn injury are lifelong, and we support those who must walk that journey. The best treatment of a burn injury is preventing it in the first place, through fire prevention technology like AFCIs.

This proposed amendment will strengthen Virginia's electrical code and help protect the state's residents for years to come. With this in mind, our organization would respectfully ask that you accept this proposed modification and keep Virginia on the right path regarding proven fire prevention technology.

Sincerely,

Amy Acton

Amy Acton

Executive Director



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Grand Rapids, MI 49503
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Reply

Reply all

Forward