

Single Exit Stair Study Group
First Meeting Summary
Date: June 24, 2025
Location: Virginia Housing Center
Time: 10:00 AM – 2:12 PM

Attendees:

VA Department of Housing and Community Development (DHCD) Staff:

- **Jeff Brown** – Deputy Director, Division of Building and Fire Regulation
- **Florin Moldovan** – Code and Regulation Specialist, State Building Codes Office
- **Paul Messplay** – Code and Regulation Specialist, State Building Codes Office
- **Chris Scott** – Code and Regulation Specialist, State Building Codes Office
- **Andrew Malloy** – Policy Analyst

Study Group Members:

- **Joshua Davis** – Virginia Fire Services Board
- **Steven Sites** – Virginia Fire Prevention Association
- **Ron Clements** – Chesterfield County
- **Dan Willham, filling in for Kyle Kratzer** – Virginia Building and Code Officials Association
- **Rick Hinson** – American Council of Engineering Companies
- **Seva Rodnyansky** – PEW Charitable Trust
- **William Abrahamson** – American Institute of Architects, Virginia
- **Hampton Barclay** – Esplanade Consulting
- **Rory Stolzenberg** – Charlottesville Area Planner (Filling in for Lyle Solla-Yates)
- **Andrew Clark** – Home Builders Association of Virginia
- **Sarah Thomas** – Virginia Association of Commercial Real Estate

Interested Parties:

- **John Walser** – Fairfax County
- **Gregory Cavalli** – Virginia Department of Fire Programs
- **Andrew Milliken** – Stafford County, Fire Protection Engineer
- **Billy Hux** – State Fire Marshal's Office
- **Emmaline Herring** – Sen. Van Valkenburg Staff Liaison
- **Nicholas Bowles** – Nottoway County

Purpose:

This meeting brought together DHCD staff, fire marshals, code officials, architects, planners, and other stakeholders to discuss expanding the current allowance for single exit

stair buildings of Group R-2 occupancy to include buildings that are more than three stories in height. Emphasis was placed on reviewing and discussing the code change proposal B1006.3.4-24.

Background

Jeff – Provided background on impetus for the study group’s formation, including a brief review of the 2021 Code Development Cycle proposal (B1006.3.4-21) along with conclusions from the National Fire Prevention Association (NFPA) symposium, “One Stair, Two Perspectives: Single Exit Stair Symposium” held on September 11th and 12th, 2024.

Key Discussion Points:

- **Overview of B1006.3.4-24 (the proposal):**
 - B1006.3.4-24 (the proposal) seeks to permit single-exit, four-story multifamily buildings—especially on small urban lots—mirroring recent NFPA provisions but including additional safety features.
 - Rory – The goal isn’t just to remove a stairwell to save cost, but to build better buildings—ones with greater climate adaptability and more exterior wall space for bedrooms with windows. This approach unlocks 50- to 60-ft urban infill lots, allowing smaller buildings with a lower occupant load per stairwell. The proposal is identical to Jeff Shapiro’s approved 2027 submission and mirrors the NFPA language for four-story construction, while adding safety measures beyond NFPA requirements.
- **Design and Energy Implications:**
 - Participants discussed the potential benefits of increased windows and cross-ventilation for building energy performance, while recognizing the need for continued compliance with the energy code.
 - Steven Sites – [If we add more windows,] how does that affect energy-code compliance and cost?
 - Rory – I’ll defer to the architect.
 - William A – If you have a window-to-wall ratio that’s efficient and proportioned, cross ventilation is an added benefit.
 - Steve – There was also mention of rehab on small lots.
 - William A – Cross-ventilation is usually more energy-efficient; long, compartmentalized buildings have higher conditioning costs.

- Joshua D – How does this align with the IBC and NFPA?
- Rory – A future proposal will address the IBC.
- Joshua D – If it conflicts with the IBC, and since we’re not an NFPA state, can we allow this in Virginia? My concern is that it could create conflicts with current requirements and complicate enforcement. Cross-ventilation also raises design questions—e.g., windows facing each other can trigger exterior sprinklers and other fire-protection features. We need to understand what we add when we remove a stairwell and what benefits we gain.
- Dan W – The IBC change is slated for the 2027 code, so it won’t be effective in 2024 and still isn’t final. Virginia could act now, even if it does not match the 2027 IBC, and reconcile the differences later. The current code already limits openings in exterior walls near property lines. Energy efficiency involves more than two-sided exposure; from a design standpoint, this option is far more flexible and avoids the use of bedroom corridors, creating more pleasant spaces.
- Rick H – From an energy-code perspective, nothing changes; designers have new challenges.
- William A – A collateral benefit: opening southwest windows nightly flushes a house. Current trends favor long, dark units with single exposure; fresh-air issues, long ducts, and higher energy costs follow.

- **Fire and Life Safety Concerns:**

- Fire officials raised concerns about single-exit buildings, particularly regarding the lack of redundancy of exits, fire department response times in rural areas, and potential egress congestion during emergencies. Data from urban jurisdictions with single-stair buildings show low fatality rates; however, these areas typically have robust fire services.
 - Egress Congestion Discussions:
 - John W – Instead of having people and hoses stretched out throughout the building from the rig, everything is now concentrated in the stairwell. Concern for Fairfax is due to the presence of 10 people in a stairwell with a full hose bundle, which impacts the ability of people inside the building to evacuate. The two-exit equipped building has egress to one exit stairwell while the other is compromised. While everything brought up this morning about the benefits of these buildings is important, we need to consider how to make the risk level the same for residents. I believe there are good ways to do this, and that Jeff Shapiro’s proposal needs a bit more development.
 - Rural vs Urban Fire Department Response Discussion:

- Andrew Clark – (Asks for clarification on fire department response times in Virginia.)
- Joshua D – In some areas, the fire department has response times under four minutes, but in rural areas—especially in the southwest part of the state—travel times can be 15 to 20 minutes even in the best cases. In those situations, the fire department may not arrive in time to affect egress. The plan is for buildings to self-evacuate, allowing firefighters to focus on fighting the fire. There are both benefits and disadvantages to single-stairwell buildings. Fire service is especially vocal because these designs impact both operations and life safety.
- Andrew Clark – I would think Jeff Shapiro has already considered those factors, including longer response times, in his proposal at the national level.

::Separate Discussion::

- Joshua D – When you look at studies of buildings in New York and Seattle, those two cities have very robust fire departments. Fire service is concerned about people first and property second. What I didn't hear addressed is the damage done to buildings. In areas with longer response times, how will this building react in a scenario like that?
 - Seva – None of these buildings above three stories exist in rural areas. I've looked at fire response rates—New York is very quick at 3.7 minutes. Seattle is 5.3 minutes, which is on par with the top 100 fire departments, including Richmond.
- Redundancy of Exits
- Joshua D – Fire department response in Charlottesville is very fast, but in rural areas—where this proposal could also apply—larger counties without a robust fire department can have response times of 15-20 minutes. Having the correct number of stairways and redundancy is important to avoid a single point of failure. Single-stairwell buildings require considerations such as positive pressure ventilation to protect both exits and ingress. While quick response times in cities like Charlottesville are beneficial, many areas in Virginia lack this level of service. Therefore, these

buildings must be able to evacuate their occupants independently.

- Dan W – Without redundancy, there's a higher likelihood of occupants being trapped. The longer it takes for the fire department to arrive, the worse the outcome will be.
- Rory – In most counties, there are zoning codes, and I imagine many would not allow these types of buildings.
- Dan W – Building codes and zoning codes operate independently.

::Separate discussion::

- Dan W – (Asks for clarification on whether the number of occupants in a stairwell matters.) The two-stairwell scenario doesn't require occupants to egress through the same stairwell the fire department is trying to ingress. Redundancy is crucial when it comes to egress. I can't overemphasize how important that is.
 - Rory – Good point. Up to 12 units evacuating isn't many. By the time the fire department arrives, the units are usually already evacuated, especially with additional fire safety features. The code as written already allows for some reduction in redundancy.
 - Joshua D – The Fire department response in Charlottesville is very fast. But in rural areas, where this will also apply, larger counties without a response team as robust as Charlottesville's could see response times of 15-20 minutes. Having the correct number of stairways, redundancy of stairwells, and avoiding a single point of failure is critical. A single stairwell requires considerations such as positive pressure ventilation to protect both exit and ingress. While Charlottesville's quick response is commendable, many areas in Virginia lack such response times. So, we're talking about a building that needs to evacuate itself.
 - Dan W – Without redundancy, the likelihood of occupants being trapped increases. The longer it takes the fire department to arrive, the worse their performance will be.
- Fatality Rate Data
 - Seva – Over 2023 and 2024, there were six deaths in multifamily structures in Virginia, all of which were built before 2000. To your

point, Joshua, there's a lot of older housing out there, and that will continue to be an issue regardless of what we do here. Newer buildings tend to hold up well. What we all care about is saving lives, housing people, and doing so safely. Any amount of modern multifamily housing, even under the current code, is much safer than a lot of the older stock. I wanted to put that out there for perspective. It's easy to go down the rabbit holes of response times and ladder trucks, but the current code is extremely safe. We're trying to figure out how to accommodate more multifamily development within it.

Stairwell Type (Interior vs. Exterior):

The group agreed to focus the proposal on interior stairwells for now, noting that exterior stairs present additional life safety challenges and may require separate treatment.

- Florin – Andrew, for the sake of discussion, could you highlight your concerns with exterior stairways versus interior stairways?
- Andrew M – If we had an exterior stair, it wouldn't provide the same protection for first responders and evacuees. I feel more comfortable with interior stairs because exterior stairs can be more easily compromised. You also lose the benefit of the early warning systems available in interior spaces. I believe there's an assumption that facilities always have interior exit stairways.
- Dan W – Now's the time to address that.
- Andrew M – I recommend referring to the charging statement for guidance on interior versus exterior exit stairways.

Code Consistency and Technical Issues:

There were in-depth discussions about ensuring consistency in code language, especially regarding occupancy limits, floor area calculations (net vs. gross), exit stairwell location options, references to standpipes, notification systems, doors opening into the path of travel of the exit stair, and emergency escape openings (EERO).

- Net Floor Area vs Gross Floor Area
 - Concerns were raised and discussed related to the use of the term “net” floor area, as it might conflict with the requirements for calculating the occupant load, which is based on “gross” floor area.
 - The proponent agreed to review further and amend the proposal to avoid potential conflicts.
- Exit Stairwell Location

- Steve – To help me understand the design, where would you put the stairwell?
- William A – The middle of the building is ideal, but pragmatically, it's probably more toward the front so it can be accessed quickly. In the proposal, it's an isolated, windowless, rated vertical shaft. Therefore, the stairwell will most likely be located in the middle or at the front of the building.
- Stairwell Access Doors Opening in Direction of Travel
 - Study group members suggested that the stairwell doors should be required to open in the direction of exit travel.
 - Requiring this might necessitate larger stairwells, which might reduce the available floor space for residential use and potentially increase cost indirectly.
- Addressing Standpipe Requirements
 - Joshua D – Assuming or hoping there's a standpipe in this system. Above the three stories, a standpipe is required, right?
 - Dan W – There's nothing in this proposal that addresses standpipes.
 - Jeff B – If it's required in the building code, it's required regardless of this proposal.
 - Ron C – (Provides the code section where standpipes are required.)
 - Jeff B – So these buildings would have a standpipe.
 - Andrew C – Friendly amendment to reference standpipes here?
 - Rory – We could add that in.
 - Dan W – We don't need it.
- Notification Systems
 - Steven Sites – The proposal mentions a manual fire alarm system. In that concept, are there notification devices in each unit? Where are they located?
 - Dan W – There's nothing in this proposal that would require anything beyond what is normally required. There's no enhanced notification.
 - Steven Sites – I'm just thinking about ways to ensure people are alerted to get into the stairwell. Can we require notification units in each apartment?
 - William A – Notification devices are already required through smoke detectors.
 - Steven Sites – Smoke detectors are one thing, but manual fire alarms are what I was referring to.
 - William A – Maybe it's an assumption, but why wouldn't they be connected already?
 - Steve Sites – They can be, but they don't have to be.

- Dan W – So, your concern is about the interconnectedness of manual fire alarms being activated before the sprinkler system?
- Steven Sites – Yes. Early notification.
- Hampton – How is this any different than if someone is in a 3-story building? All you're doing is adding one floor, along with additional safety features.
- Steven Sites – If we're going to put this in the Virginia code, I just want to make sure we discuss it. I want it on record that we talked about it.
- William A – Do we need something in the proposal to address manual fire alarms being tied into the notification system? Does that need to be clarified?
- Dan W – I'd be surprised if it's not connected.
- Steven Sites – I want to make sure we don't inadvertently remove something else from the code.
- William A – This is already approved for three stories. We're simply adding more risers and longer corridors, and the proposal provides protections to account for this. Is there any dispute that these additional protections aren't enough?
- Joshua D – Not necessarily. I want to make sure we're all seeing this from the same perspective. Not all of these buildings will be constructed in localities with fire departments that have an ISO Class 1 rating.
- EERO
 - Andrew M – (Speaking on behalf of himself.) There are two things to consider or discuss regarding this specific proposal –
 1. There is a lack of requirement for an interior exit stair. Nothing in the proposal requires that the single exit stair be an interior exit stairway. If an exterior stair is used, many of the safety features required in the proposal wouldn't apply.
 2. With regard to EERO, it's important to coordinate this proposal with the one in Chapter 10 that addresses EEROs. Currently, EEROs are required in three-story buildings but not in four-story buildings. We need to make sure that change is made.

Summary of Potential Amendments for Code Change Proposal B1006.3.4-24:

Suggested amendments included:

- Dwelling unit doors shall not open directly into the exit stairway.
- Doors opening into the exit stairway must open in the direction of egress travel.

- Revise the scoping provisions so that the proposal only applies to interior exit stairways.
- Require compliance with the emergency escape and rescue openings provisions (which currently only apply to buildings three stories or less).
- Clarify the “net” vs. “gross” floor area allowance.

Consensus and Next Steps:

- The group reached a general consensus on moving forward with a revised proposal for interior exit stairways, incorporating the discussed safety features and code clarifications.
- Proponent of B1006.3.4-24 to collaborate offline with representatives from the fire services, HBAV, and other interested stakeholders to explore potential solutions for buildings with exterior exit stairways.
- Jeff and staff will assist the proponent with drafting a revised proposal and will circulate it with the group for review. Participants will confirm consensus via email, and if needed, a brief virtual follow-up meeting will be scheduled.

Adjournment:

The meeting concluded at 2:12 PM.