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COMMONWEALTH of VIRGINIA

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

Bryan W. Horn
Director

Memorandum

To: Single-Staircase Advisory Group

From: Board of Housing and Community Development Staff

Subject: Single-Staircase Advisory Group Meeting – September 9, 2024

Date: September 4, 2024

The first meeting of the Single-staircase Advisory Group will be held on Monday, September 9, 2024 at 10:00 a.m. at the Virginia Housing Center located in Innsbrook at 4224 Cox Road in Glen Allen, Virginia. Enclosed is the agenda and additional meeting materials.

As you know, during the 2024 General Assembly Session, [HB368](#) and [SB195](#) were approved by the General Assembly and signed by the Governor (2024 Acts of Assembly Chapters 384 and 385, respectively). The identical bills direct the Board of Housing and Community Development (BHCD) to convene a workgroup to provide recommendations for allowing a single stair exit for Group R-2 (multifamily residential) structures up to six stories in height. At the August 19, 2024 meeting of the BHCD, the Board authorized the Board Chair to appoint members to the advisory group. The advisory group is to submit its findings and recommendations to the Board and General Assembly by December 1, 2024.

In addition to the meeting agenda and the authorizing legislation, a code change proposal from the 2021 code cycle has been enclosed. The code change proposal would have allowed a single exit staircase for Group R-2 occupancies with no more than five stories. The proposal was not approved by the Board. This code change proposal is being included for background and informational purposes only and is not an endorsement of the proposal by staff.

Enclosure



AGENDA
SINGLE-STAIRCASE ADVISORY GROUP
Monday, September 9, 2024
10:00 AM
Virginia Housing Center
4224 Cox Rd, Glen Allen, VA

- | | | |
|------|---|------------|
| I. | Introductions | All |
| II. | Legislation and Advisory Group Overview | DHCD Staff |
| III. | Advisory Group Member Presentations | All |
| IV. | Other Discussion Topics | All |
| V. | Public Comment | All |
| VI. | Next Steps and Questions | All |

VIRGINIA ACTS OF ASSEMBLY -- 2024 SESSION

CHAPTER 385

An Act to direct the Board of Housing and Community Development to convene a stakeholder advisory group to evaluate and recommend revisions to the Uniform Statewide Building Code to permit Group R-2 occupancies to be served by a single exit.

[S 195]

Approved April 4, 2024

Be it enacted by the General Assembly of Virginia:

1. § 1. *The Board of Housing and Community Development (the Board) shall convene a stakeholder advisory group including fire code officials to evaluate and recommend revisions to the Uniform Statewide Building Code (§ 36-97 et seq. of the Code of Virginia) to permit Group R-2 occupancies to be served by a single exit, provided that the building has not more than six stories above grade plane. The advisory group shall submit its findings and recommendations to the Board and to the Chairmen of the House Committee on General Laws and the Senate Committee on General Laws and Technology no later than December 1, 2024.*

B1006.3.4-21

Proponents: Lyle Solla-Yates (lyle.sollayates@gmail.com)

2021 International Building Code

Revise as follows:

1006.3.4 Single exits. A single *exit* or access to a single *exit* shall be permitted from any *story* or occupied roof where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units* and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one *exit* or access to a single *exit*.
4. Group R-3 and R-4 occupancies shall be permitted to have one *exit* or access to a single *exit*.
5. Individual single-story or multistory *dwelling units* shall be permitted to have a single *exit* or access to a single *exit* from the *dwelling unit* provided that both of the following criteria are met:
 - 5.1. The *dwelling unit* complies with Section 1006.2.1 as a space with one *means of egress*.
 - 5.2. Either the exit from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two *approved independent exits*.
6. Not more than 5 stories of Group R-2 occupancy are permitted to be served by a single exit under the following conditions:
 - 6.1. The building shall be of not less than one hour fire-resistive construction and shall also be equipped throughout with an automatic sprinkler system in accordance with subsection 903.3.1.1. Residential-type sprinklers shall be used in all habitable spaces in each dwelling unit.
 - 6.2. An exterior stairway or interior exit stairway shall be provided. The interior exit stairway, including any related exit passageway, shall be pressurized in accordance with subsection 909.20. Doors in the stairway shall swing into the interior exit stairway regardless of the occupant load served, provided that doors from the interior exit stairway to the building exterior are permitted to swing in the direction of exit travel.
 - 6.3. A corridor shall separate each dwelling unit entry/exit door from the door to an interior exit stairway, including any related exit passageway, on each floor. Dwelling unit doors shall not open directly into an interior exit stairway. Dwelling unit doors are permitted to open directly into an exterior stairway.
 - 6.4. There shall be no more than 20 feet (6096 mm) of travel to the exit stairway from the entry/exit door of any dwelling unit.
 - 6.5. Travel distance measured in accordance with section 1017 shall not exceed 125 feet (38100 mm).
 - 6.6. Elevators shall be pressurized in accordance with section 909.21 or shall open into elevator lobbies that comply with section 713.14. Where approved by the building official, natural ventilation is permitted to be substituted for pressurization where the ventilation would prevent the accumulation of smoke and gases.
 - 6.7. Other occupancies are permitted in the same building provided they comply with all the requirements of this code. Other occupancies shall not communicate with the Group R occupancy portion of the building or with the single-exit stairway. Exception: parking garages and occupied roofs accessory to the Group R occupancy are permitted to communicate with the exit stairway.
 - 6.8. The exit serving the Group R occupancy shall not discharge through any other occupancy, including an accessory parking garage.
 - 6.9. There shall be no openings within 10 feet (3048 mm) of unprotected openings into the stairway other than required exit doors having a one-hour fire-resistance rating.

Reason Statement: Experience in Seattle and New York City has shown that this kind of development with a limited floorplan can be allowed safely, as well as in other countries. This allows more compact missing middle residential development that was historically common in Virginia but has not

been permitted for many years. Reviewers note that there is still a need for reliable aerial access, sprinklers, and alarms.

For more on this see the attached articles "The Single-Staircase Radicals Have a Good Point" by writer Henry Grabar in Slate posted here <https://slate.com/business/2021/12/staircases-floor-plan-twitter-housing-apartments.html> and "The Case for More Single Stair Buildings in the US" by architect Michael Eliason in Treehugger posted here <https://www.treehugger.com/single-stair-buildings-united-states-5197036>

Cost Impact: The code change proposal will decrease the cost of construction

Reducing the number of staircases required for smaller missing middle residential structures will reduce cost per square foot and make more sites and configurations feasible.

Resiliency Impact Statement: This proposal will neither increase nor decrease Resiliency

Attached Files

- **The Single-Staircase Radicals Have a Good Point Grabar.pdf**
<https://va.cdpassess.com/proposal/944/1676/files/download/525/>
- **singlestaireliason.pdf**
<https://va.cdpassess.com/proposal/944/1676/files/download/521/>

Workgroup Recommendation

2021 Workgroups Workgroup Action: Non-Consensus

2021 Workgroups Reason:

Board Decision

C & S Action: None

Board Reason: N/A

Board Decisions

- Approved
- Approved with Modifications
- Carryover
- Disapproved
- None

Public Comments for: B1006.3.4-21

Discussion by Florin Moldovan

Jun 13, 2022 17:24 UTC

See attached floor modification discussed at the GSWG meeting on 06/07/2022.

Attachments: <https://va.cdpassess.com/proposal/944/discuss/173/file/download/780/B1006.3.4-21+Floor+Modification.pdf>

B1006.3.4-21 – Staff Summary

Proponent: Lyle Solla-Yates

Brief Description:

The proposal allows up to 5 stories of Group R-2 occupancy to be served by a single exit.

STUDY GROUP OR SUB-WORKGROUP INFORMATION

N/A

GENERAL STAKEHOLDERS WORKGROUP INFORMATION

Support:

Names: Andrew Clark, Home Builders Association of Virginia (HBAV); Rory Stolzenberg, Charlottesville Planning Commission; and Dannie (last name and/or organization represented not indicated).

- Andrew Clark, HBAV, expressed support for the proposal as it reduces building costs (in contrast with many other proposals which increase costs). In response to some opposing comments, he suggested that perhaps this should be limited to where there's ISO-1 fire service. He hears everyone's suggestion to wait for the review of such a proposal at the national level (see opposing comments below), but if we are going to wait for the national level, we will be waiting for a long time as there does not appear to be any progress at the national level in trying to lower the cost of housing. Every year there are more proposals to pile on cost with the justification that it is just a little bit more. He suggested that a Study Group be put together next code development cycle to focus specifically on trying to increase the middle housing supply into the market. This is the chief concern for local governments, industry, state policy makers, but he does not see a lot of progress in the building codes to account for that. He hopes that next cycle we can dedicate as much time to focus on housing affordability and lowering housing cost as we do for fire sprinklers, energy code proposals and resiliency. He supports the idea of a workgroup at the national level as suggested by others, but indicated that maybe we should be leading the way, as he hears so often on energy code proposals, instead of waiting for ICC to do something about it.
- Rory Stolzenberg, Charlottesville Planning Commission, stated that an incremental approach would be good. Instead of 5-story, it could start with 4-story buildings. It could also have limits like not allowing exterior stairs, etc.
- Dannie expressed that he is strongly in favor of the proposal.

Opposition:

Names: Steve Shapiro, representing self; Allison Cook, Arlington County; Dan Willham, Fairfax County; David Beahm, Warren County; Andrew Milliken, representing self.

- Steve Shapiro, representing self, as a former building official for 34 years thinks this is bigger than just Virginia and should be proposed and debated at the national level. The code in Seattle, which this proposal is based on, has about 14 limitations and this proposal does not. For as long

as he has been in the codes profession, single exit buildings have been fairly limited due to the inherent dangers of only having one stairwell. This is dangerous and he is totally opposed to it.

- Allison Cook, Arlington County, noted that one exit is unsafe; and agreed that the changes should be debated at the national level. She understands that there is a housing problem but she does not think this is the way to address it were for a lower cost of housing we end up with a lower degree of safety.
- Dan Willham, Fairfax County, pointed out that the Seattle code has many limitations and exceptions which this proposal does not include, not that he would support it if it did. For example, the number of units on each floor and the size of the floorplans, as well as the limitation of no more than two single exit buildings per lot. He also thinks this should be debated at the national level.
- David Beahm, Warren County, agreed with the other commenters that the changes should be submitted and vetted at the national level. He also stated that this is the first time he saw the floor modification and has not had a chance to review it.
- Andrew Milliken:
 - Speaking in behalf of the Virginia Fire Services Board, Codes and Standards Committee: they oppose the original version of the proposal and did not have a chance to review the floor modification which was shared today by the proponent.
 - Representing self, expressed opposition to the proposal and touched on a few aspects of the proposal that he sees problematic: exterior stairways have no ventilation; interior stairway pressure is discussed by the proposal, but there is no requirement to use an interior stairway; and, there's a lot of different landscape in Virginia, unlike in Seattle and New York City.

DHCD Staff Notes:

The proposal was originally discussed at the General Stakeholders Workgroup (GSWG) meeting on April 12, 2022. The proponent requested for the proposal to be carried over to the July GSWG meeting so that he can meet with stakeholders in the meantime and explore potential areas of agreement. DHCD staff offered to attend said meetings to provide assistance, as applicable, but the staff was not invited to the meetings and conversations that took place outside of the code development process facilitated by DHCD. The comments noted in the "GENERAL STAKEHOLDERS WORKGROUP INFORMATION" section above are based on the floor modification submitted by the proponent at the July GSWG meeting.

Meeting summaries and proposal related information: Tab 10 - Page 27; Tab 10 - Page 63.

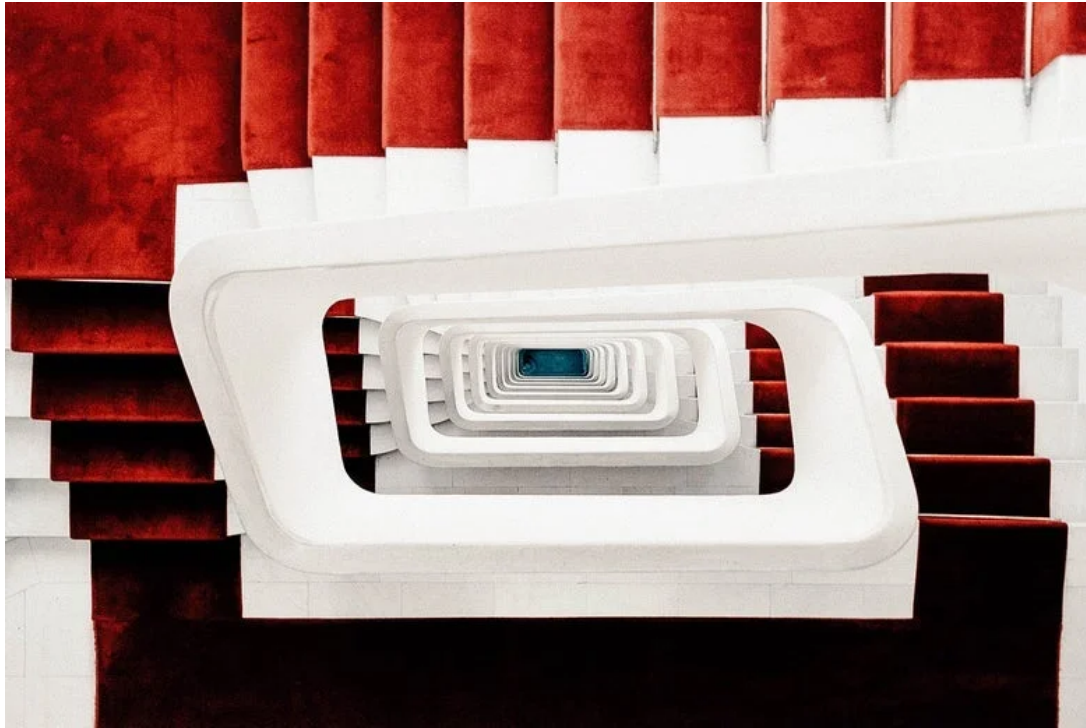
METROPOLIS

The Single-Staircase Radicals Have a Good Point

A surprising theory of what's wrong with North American apartment buildings.

BY HENRY GRABAR

DEC 23, 2021 • 10:29 AM

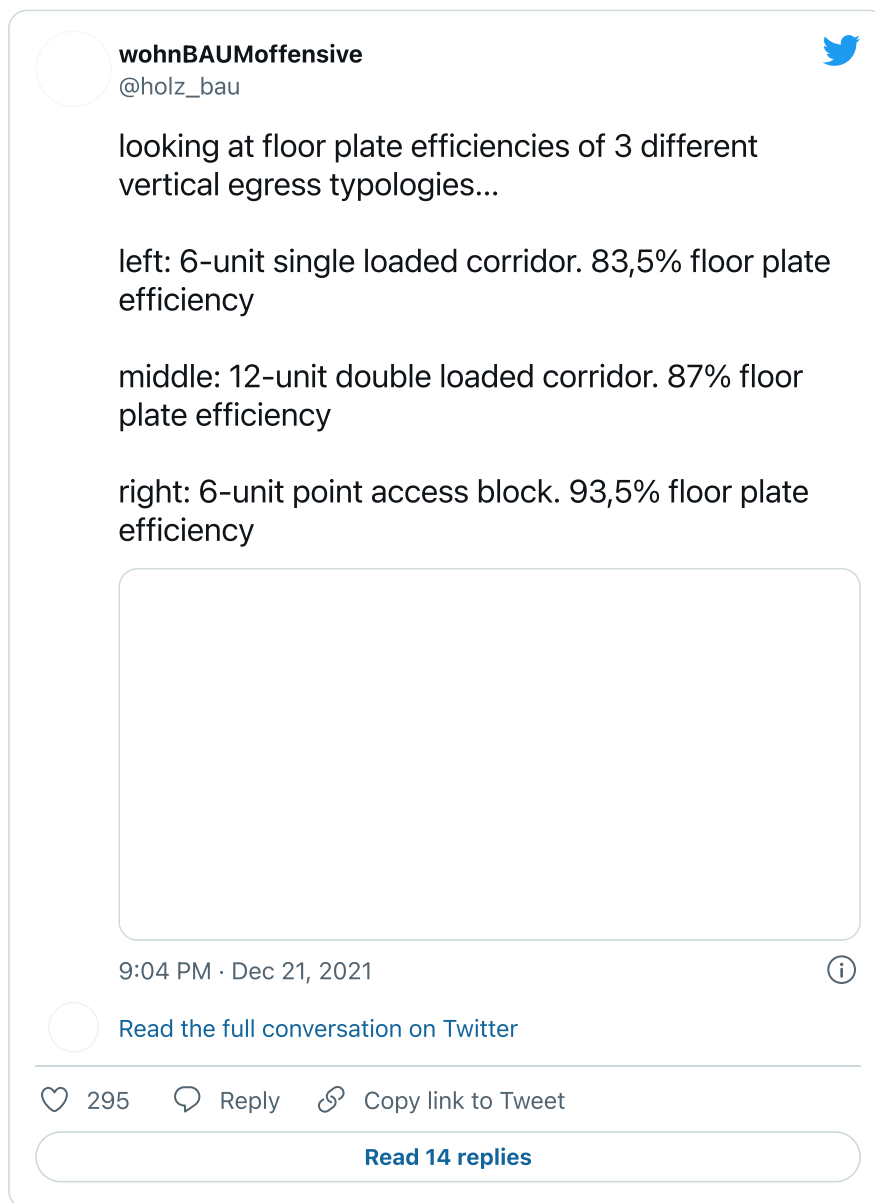


Now that's a staircase. Thomas Serer on Unsplash

The Seattle-based architect Michael Eliason has a number of complaints about the way America makes its apartment buildings. The components are inferior, he says: The best sliding doors and windows are made elsewhere. The designs rarely accommodate larger families. And there are too many staircases.

Too many what now? Eliason is the founder of Larch Lab and the lead evangelist of a small group of architects and developers intrigued by the possibilities of making multifamily buildings with only one stairway. And conversely, fed up with the North American standards that require most apartments to be accessible by two of them.

Mandating two stairways, Eliason says, produces smaller, more unpleasant, more expensive apartments in larger buildings full of wasted space. He likes to contrast the boxy North American multifamily building with nimbler designs from South Korea, China, Sweden, Italy, or Germany. In those countries, apartments in midrise buildings may be served by a single stair, often encircling or adjacent to the elevator. Online, Eliason is a founding father of what he's called Floor Plan Twitter, where he shares these foreign, single-stair blueprints with a gusto usually reserved for imports like wine or sports cars.



Of all of Eliason’s beefs with U.S. building practices, which he has outlined for the environmental news site Treehugger, this one is both the most tangible—you don’t need to be an architect to understand the difference between two staircases and one—and the most opaque. It’s one staircase, Michael. What could it cost?

The answer, Eliason and the single-staircase brigade insist, can be measured in terms of light, air, space, and money.

Most American apartment buildings over four stories are required to include two means of egress from every apartment. In Canada, the height limit of a single-stair building is just two stories. The purported reason for such rules is fire safety, though there’s no evidence that Americans and Canadians are any safer from structure fires than our neighbors around the world, where one-staircase construction is permitted even in buildings eight, 10, or 20 stories high.

That second staircase is a drag. When we spoke last week, Eliason showed me a presentation he gives to drive home the building culture that is shaped by the two-stair

system. It featured a still from the movie *The Shining*, of Danny riding his tricycle down the long, carpeted hallway of the Overlook Hotel. If you've been in an American apartment building of the past half-century or so, you probably recognize this airless environment, which architects call a "double-loaded corridor" because it has doors on both sides. Nobody likes these hallways. The double-loaded corridor, the architect Frank Zimmerman writes, is a "case study in anti-human engineering."

Eliason observes that when you require every apartment to connect to two staircases, you all but ensure those units are built around one long double-loaded corridor, to give all residents access to both stairways. You tilt the scales in favor of larger floor plates in bigger buildings, because developers need to find room for two stairways, and connect them—and then compensate for the unsellable interior space consumed by the corridor.

The designs that result, Eliason argues, are more likely than not to offer smaller, cookie-cutter units constrained by their position along the long hallway. Apartments must look either north or south. Sunlight or shade. Sunrise or sunset. Busy street or quiet back yard. And no one, save perhaps a lucky occupant of a corner unit, gets a cross-breeze.

The Bandeira Building, a 20-story apartment complex in São Paulo, has one staircase and three units on each floor, each with windows on two sides. [Una Arquitetos](#), via [Divisare](#)

Cut out one of those staircases, and you can cut out the corridor, too. Narrower sites are suddenly in play. Construction costs go down. The ratio of "rentable" space in a building goes up, which makes development cheaper. That in turn can translate into lower rents or more flexible designs. Two or three units a floor is suddenly more economical, which makes the stairway a more intimate, closely shared space. Family-size units. Units where the living room faces south to the sun and the street and the bedrooms face north to the quiet shade. "In the architecture world it's hammered in from the beginning that we need two exits from every space," Eliason said. "But in most other countries, that second means of egress is the fire brigade."

Another Floor Plan Twitter fan is Conrad Speckert, an architecture student at McGill University who takes that required second staircase personally. “I grew up in a three-storey, single egress apartment building where we knew our neighbours well, the stair landings were generous and naturally lit, and everyone got pretty crazy with their Christmas decorations,” he writes on the website for his master’s degree project, [Second Egress](#). “My childhood home in Switzerland reminds me that stairs should be about more than just circulation and fire safety, and that there is a sensuality to them too—the tactile sensation of a winding guardrail, the slip-resistance of the treads, the wash of light from a skylight or the breeze from an operable window.” (The classic European single-stair also produces a mean movie fight-scene.)

But such buildings have been illegal in Canada since 1941, when the country adopted stricter building regulations. For Speckert, the [Second Egress](#) website is the first step toward petitioning for a change to the Canadian building code. He has collected the maximum heights of single-stair buildings in various countries and assembled a [“Manual of Illegal Floor Plans”](#) from more permissive regimes, showing what might be possible.

In North America, staircases are usually required to be closed off from the corridor, which makes them into isolated and unpleasant spaces. They’re also designed that way. But they don’t need to be. “There’s an intuition that once a building is more than two stories of height, you use the elevator,” Speckert told me. “But when you have a building with one stair that opens directly to the landing, you have the opportunity to design that stair. To not make it concrete with an aluminum guardrail. Now you’re sharing circulation with neighbors, you may know them.”

The 14-story Stone Garden building in Beirut, which has one staircase and one or two units on each floor. Lina Ghotmeh Architecture, via [Divisare](#)

But the biggest problem with two staircases, the single-stair brigade agrees, is affordability: A second staircase makes it harder to build small-footprint, midrise, multifamily rental buildings. It is one of the many obstacles (zoning, parking, height limits,

etc.) we have thrown up over the past century to block the “missing middle” housing that defined early 20th century cities, and now constitutes some of their most beloved and expensive real estate.

The specter of big structure fires—like the fire at London’s Grenfell Tower, the single-stair housing project whose defective façade panels caught fire in 2017, killing 71 people—is what reformers like Eliason and Speckert are up against. But building fires are much less common than they were when single-stair rules were codified, to the extent that most city dwellers roll their eyes at office fire drills and curse their hyperactive apartment smoke alarms. [Data from the World Fire Statistics Centre](#) show Canada, for example, has little to show for its two-story limit.

Bobby Fijan, a developer in Philadelphia, is another guy who likes a single stair. Fijan calls himself the Bill James of floor plans, a reference to the baseball analyst whose keen statistical-appraisal technique helped changed the way players and skills were valued in the sport. “I’m not sure the effect it would have on a 250-unit building by Mill Creek,” he said, citing a large apartment developer. “But it would be particularly meaningful on urban infill”—the one-off apartment projects taken on by developers in already dense neighborhoods.

“I’m having to do increasingly convoluted ‘stacked townhouse’ arrangements instead of small-flat buildings,” said the developer Payton Chung. He’s putting the top floors of a small building inside one multistory apartment, rather than making them separate apartments, to avoid triggering that second-stair requirement. The International Building Code (which, like the World Series, is really an American institution) doesn’t care if you have six or 60 units on a floor—you still need your two staircases.

One place that’s closer to the global standard? Eliason’s [hometown of Seattle](#). The city has approved single stairs in buildings up to six stories. It’s all right with the Seattle Fire Department. Could it work in your city, too? ■

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News • Home & Design

The Case for More Single Stair Buildings in the US

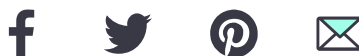
Citing the Grenfell Tower tragedy isn't enough to nix this idea.

By Michael Eliason

Published August 10, 2021 06:36PM EDT



Little Buildings in Aspern Seestadt.
Lloyd Alter



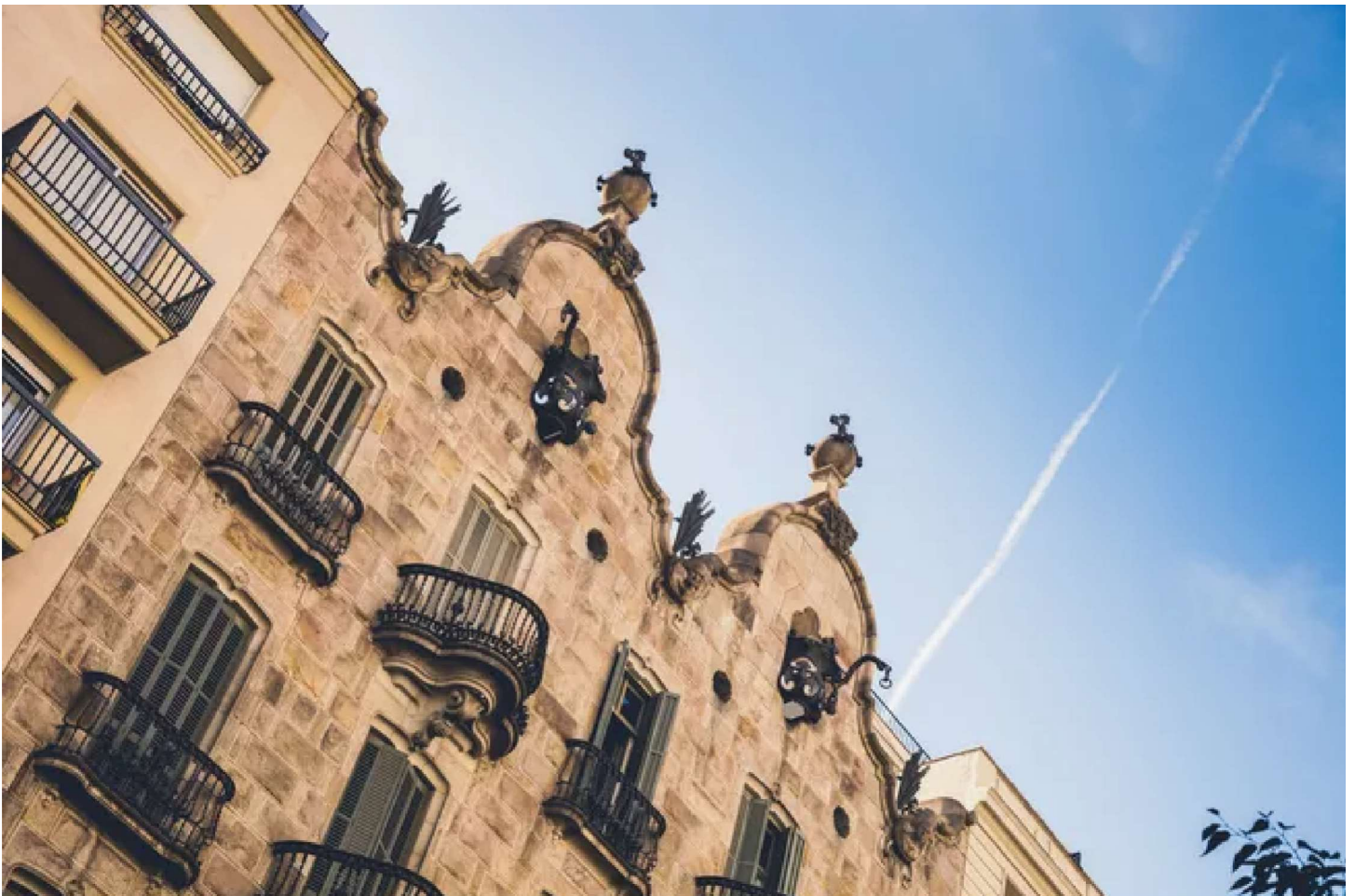
While covering [America's broken architecture and construction industries](#) recently, I made a passing remark on how single stair buildings should be legal. This resulted in several comments and discussions across a spectrum of media. It is a topic I weighed in on regularly for several years, but I had never seen this much consternation regarding it.

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designed to compartmentalize fires that occurred, but as the recent trial has laid bare, it was poorly managed and badly renovated, with an [incredible number of faulty decisions](#) leading up to the fire.

Acknowledging this tragedy is important because I am not advocating that construction should be a free-for-all — in fact, far from it. Building regulations are necessary for establishing minimum standards, safety, and accessibility. Often they are data-driven, but there are also cultural elements based on historic practices found in building regulations.

In the United States, building and energy regulations are [written by a private entity](#) rather than government agencies, as found in [Europe](#), [Canada](#), and most other countries. It should be noted single stair multifamily buildings are incredibly common in Europe and most don't have fire sprinklers either. That goes for both existing, historic, and new construction. The tallest single stair building I've seen outside of the United Kingdom, in comparison, is only 10 floors.



Casa Calvet.
Leo Patrizi/ Getty Images

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massive influx of workers migrating to cities, before the advent of the elevator and when people got around primarily by foot. In these urban centers, building parcels were generally narrow and family-owned – and they were expanded on over time. Due to the narrowness, there was largely only room for one stairwell.

Most of the construction wasn't wood framed like in the United States, but rather solid construction — generally brick or stone, and eventually concrete. Floors and roofs/inhabited attics were built with wood beams and floors. Thus, many buildings were of the sort where vertical elements were relatively fire-resistant, but the horizontal elements were not.

There was no professional fire brigade until the 19th century. With little to no fire regulations, cities throughout Europe had massive fires. Some, like Passau, Germany, had multiple fire events that destroyed the city several times over.

Construction detailing and the onset of concrete floors generally changed the equation on this, allowing for compartmentalization to slow or contain fires. Mass Timber today can be designed to operate in a similar manner.

To this date, the single stair configuration has endured. But double-loaded corridor buildings — buildings with units on either side of a central hallway — have been less common. I don't know the exact reasons for this, but I believe a large part is cultural. Double loaded corridors prevent units from getting lights from multiple sides, and they don't allow cross ventilation, which is a growing issue on a warming planet. (Yes, even for multifamily passivhaus projects.)

Double loaded corridors generally have dark hallways, and result in less usable space per floor than a single stair configuration, especially if your building code allows units to enter directly off the stairwell, as they do in Germany, Austria, and France. There are also structural tradeoffs with a double-loaded corridor, particularly for a building that is cellular or repetitive in design like a hotel, dormitory, or efficiency units. Single stair buildings generally have more flexibility in their floor plan configurations.

 A double loaded corridor

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**Long corridor with lots of units in Kent, Ohio.
Lloyd Alter**

Another issue with large double-loaded corridor buildings is there are more people using the same elevators, halls, and entries. There are more people entering this sort of building than would in a single-stair configuration, due to limits on the number of units per floor. There are certainly social implications for this worth evaluating, whether one is more personal or impersonal. Post-pandemic, does it make sense to design buildings where many residents are using the same public spaces or does it make sense to partition buildings into smaller pods?

 Open Stair in Munich

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**Single open stair in Munich.
Lloyd Alter**

So, what does this single stair configuration look like in Germany or Austria? Well, for starters, it should also be noted there generally is not a requirement for sprinklers. There are regulations on [fire-rated stairwells, walls, and floors](#). There are limits on the number of units per floor for each stair – four for Germany; eight for Austria. There are maximum travel distances to the stairwell (115 feet).

There are limits on the building height as well: In Germany, the floor must be a maximum of 72 feet above grade — generally seven or eight stories. Interestingly, 72 feet is the [max wall height for most of the Berlin Altstadt](#), which was set at the max height of ladder rescue, as well as street width in case of collapse. There are allowances to go a little higher with more stringent requirements on exit doors and egress, as well as the availability of rescue apparatuses that can reach this high. This is where it gets interesting.

Austrian architecture firm Querkraft Architekten designed an incredible [8-floor passivhaus multifamily building](#) with a single stair configuration serving up to eight units per floor, in the heart of Vienna, Austria. Note the exterior (thermally broken!) concrete balconies. What is the function of balconies? The function of balconies is to access urban life, the outdoors directly from one's unit. However, most importantly, it is the second means of egress.

Yes, you read that correctly. Like the United States and Canada, German and Austrian building regulations require two means of egress. The difference is that, in part due to

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one, they have monstrous fire apparatuses that can do bucket rescues on tall buildings such as this [rescue in Karlsruhe at 131 feet up](#).

Cute little fire truck in Copenhagen

CC BY 2.0. Seen in Copenhagen: cute little fire engines/ Lloyd Alter

In Germany, there are also [very specific regulations on fire planning](#) — where buildings are located, separation between buildings or courtyards, the heights/widths to get around or through a building to a courtyard, as well as where apparatuses go to make these rescues. When I was working there, a fair amount of my time was spent planning for stuff like this, studying *schleppkurven* (turning radii) and apparatus layouts. Perhaps it is also a function of smaller, more nimble [fire apparatuses in Europe](#). Possible also, is their fire departments spend more time dealing with fires, rather than medical emergencies, [as in the United States](#).

Single Stair in Munich

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**Single Open Stair in Munich.
Lloyd Alter**

Germany also allows for multiple single-stair configurations to be used in the same building, as in the lovely [walden48 baugruppe](#) by scharabi + raupach architekten, a massive mass timber multifamily development that is effectively broken up into 3 separate buildings, separated by firewalls. Similarly, the [Dennewitz Einz baugruppe](#) — one big development, 3 separate buildings, designed in collaboration by 3 separate architecture firms. These units get light on multiple sides, cross-ventilation, and a good variety in the unit mix. Those additional measures for additional height that I mentioned are how a 10-floor, mass timber multifamily building with a single stair, like the [Skaio in Heilbronn, Germany](#), by Berlin-based architecture firm Kaden + Lager, can be built.

Another personal favorite is this 9-unit, 7-floor social housing project by FRES architectes in Paris – a stunning project that would be infeasible if a second stairwell were required. As well as this 6-floor plus mezzanine and roof deck multifamily building by [Lola Domènech and Lussi + Partner](#) in the heart of Barcelona.

[Mexico](#) and [Japan](#) also have 10-story, single exit buildings. Despite this abundance of buildings with single stair configurations and little to no active fire suppression, these buildings are quite safe due to compartmentalization and building regulations. Many also have [wonderful, daylight, open stairwells](#) for active usage by residents.

 Fema fire deaths

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FEMA

Per this [FEMA report](#), France, Germany, and Austria all have much lower fire death rates than the United States, where multiple stairs and active fire suppression are required for most multifamily buildings. Despite what we have been led to believe over the years, single stair multifamily buildings are legal even in some U.S. jurisdictions. The International Building Code allows for up to four floors, but with stringent regulations including a max of four units per floor, and requirements for sprinklers. [Seattle](#) allows up to six floors plus a mezzanine with a single stair configuration.

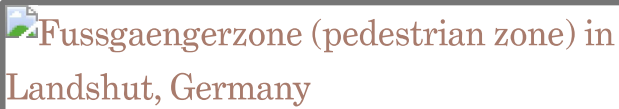
Small buildings in Munich

Small Buildings with Single Stairs in Munich.
Lloyd Alter

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also accessible, as buildings in both continents require elevators on projects like this and many in Germany are barrier-free or adaptable.

Most importantly, they are legal. Maybe we should follow suit.

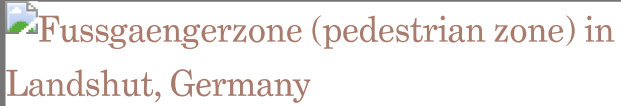


Treehugger Voices
America's Architecture and Construction Industry Is Broken



Treehugger Voices
Intelligent City Builds Prefab, Passive, Mass Timber Housing With Robots

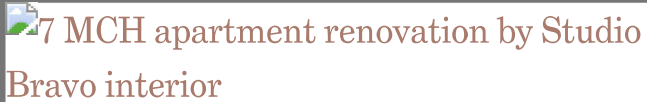
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 huts on the wall

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 Interior of Theater

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Sara Kulturhus by White Arkitekter Is a Wooden Wonder

 Stairway to Nowhere

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In Praise of Stairs

 Three Generation House by BETA
interior

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Family's Modern, Adaptable

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 Il Cubotto micro-apartment renovation by thecaterpillar interior

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Architect Converts Historic Micro-Apartment Into a Modern Live-Work Space

 Through The Looking Glass House by Ben Callery Architects kitchen

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Heritage Renovation Gets Lit Up With a Clever Glass Floor

 A Moulting Flat small apartment renovation by Husos Architects living room

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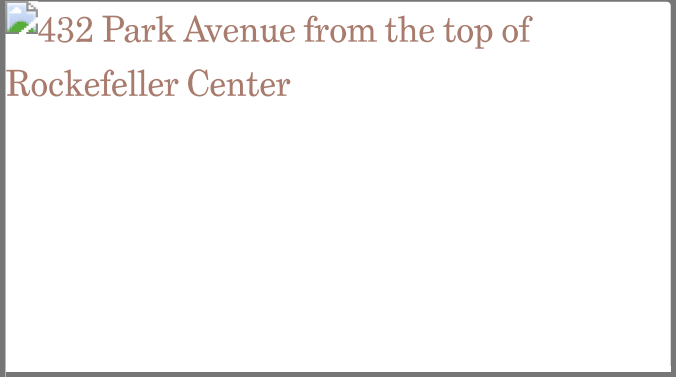
Musician's Dramatic Small Apartment Renovated With Reclaimed Materials

 Interior of Passivhaus

Home & Design

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432 Park Avenue from the top of Rockefeller Center

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Floor Modification

2021 International Building Code

Revise as follows:

1006.3.4 Single exits.

A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.
4. Group R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit.
5. Individual single-story or multistory dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that both of the following criteria are met:
 - 5.1. The dwelling unit complies with Section 1006.2.1 as a space with one means of egress.
 - 5.2. Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.
6. Not more than 5 stories of Group R-2 occupancy are permitted to be served by a single exit under the following conditions:
 - 6.1. The building shall be of not less than one hour fire-resistive construction and shall also be equipped throughout with an automatic sprinkler system in accordance with subsection 903.3.1.1. Residential-type sprinklers shall be used in all habitable spaces in each dwelling unit.
 - 6.2. An exterior stairway or interior exit stairway shall be provided. The interior exit stairway, including any related exit passageway, shall be pressurized in accordance with subsection 909.20. Doors in the stairway shall swing into the interior exit stairway regardless of the occupant load served, provided that doors from the interior exit stairway to the building exterior are permitted to swing in the direction of exit travel.
 - 6.3. A corridor shall separate each dwelling unit entry/exit door from the door to an interior exit stairway, including any related exit passageway, on each floor. Dwelling unit doors shall not open directly into an interior exit stairway. Dwelling unit doors are permitted to open directly into an exterior stairway.
 - 6.4. There shall be no more than 20 feet (6096 mm) of travel to the exit stairway from the entry/exit door of any dwelling unit.
 - 6.5. Travel distance measured in accordance with section 1017 shall not exceed 125 feet (38100 mm).
 - 6.6. Elevators shall be pressurized in accordance with section 909.21 or shall open into elevator lobbies that comply with section 713.14. Where approved by the building official, natural

ventilation is permitted to be substituted for pressurization where the ventilation would prevent the accumulation of smoke or toxic gases.

6.7. Other occupancies are permitted in the same building provided they comply with all the requirements of this code. Other occupancies shall not communicate with the Group R occupancy portion of the building or with the single-exit stairway. Exception: parking garages and occupied roofs accessory to the Group R occupancy are permitted to communicate with the exit stairway.

6.8. The exit serving the Group R occupancy shall not discharge through any other occupancy, including an accessory parking garage.

6.9. There shall be no openings within 10 feet (3048 mm) of unprotected openings into the stairway other than required exit doors having a one-hour fire-resistance rating.

identify...” The stricken words “The fire” and “provided in accordance with” should be kept.

Dan: Virginia doesn’t enforce the IFC unless it’s specifically referenced, what does it say in the SFPC?

Kenny: Not sure, but what he suggests is done regularly.

Dan: He understands. He would have to consider how to say that.

Kenny: Are there any fire people on the call to speak to where the link exists in the IFC?

Joshua Davis: Can see the desire to point to the IFC. The fire code requires some type of evacuation plan. He thinks there should be more discussion and rewording. He would like to assist Dan with that. He sees the significance and benefit of not making it the responsibility of the architect, and putting back to building official and fire official.

Kenny: He could work with Dan and Joshua

Dan: Agreed, and asked for Joshua’s email address.

Jeff: This will be marked Carried Over for editing to be brought back in June.

B706.1-21

Jeff: This is a proposal from Ron Clements.

Jason: This is an attempt to fix a broken code change, which removed “Each portion of a building separated by one or more fire walls shall be considered a separate building”. When that was removed, some other areas were affected; Chapter 9 specifically. This proposal also adds the sentence “Equipment and systems are permitted to serve multiple attached buildings on the same lot where separated by one or more fire walls.” This clarifies that one sprinkler system, for example, can be used to serve both sides of the fire wall.

Dan: This did create a problem in the IBC and also created broken sections in Chapter 10 for egress. What does it mean to egress a building and not re-enter it? Chapter 10 has specific provisions that an exit shall not re-enter a building without a fire wall, so without a fire wall, where does it end? There’s no definition for the end of a building unless you’re outside. There’s also a provision in Chapter 10 that states that every building should have at least one exterior exit door. There can be buildings inside of buildings without exit doors. This is hazardous for fire fighters. He does think that this proposal helps to clarify those things.

Andrew Milliken: The Fire Service Board’s Codes and Standards Sub-Committee supports this change.

Kenny: The language in 503.1 is still there about how a fire wall is used for determining the height and area. This proposal helps to determine the other technical provisions in the code.

Jeff: Asked Dan to clarify if he supports this proposal and if his comments were about how the proposal fixes other broken areas.

Dan: Yes, that is correct.

Jeff: With no other discussion offered, this is marked as Consensus for Approval.

B1006.3.4-21

Lyle Solla-Yates: Is Chair of the Charlottesville Planning Commission, but is representing himself. Charlottesville is finishing a 5 year planning process, which allows more affordable housing in the city. Staircase requirements in the building code are important to affordability and sustainability. He shared an excerpt from an article which was not provided prior to the meeting. He put a link to the article in the chat: https://www.larchlab.com/wp-content/uploads/2022/01/Eliason_CoV-Point-Access-Blocks-report_v1.2.pdf The article said, in part, that compact single stair buildings or point access blocks provide sufficient safe egress, while offering affordable, attractive and energy efficient building development.

Steve: He is opposed to having a 6 story building with only one exit for safety reasons.

Kenny: Does this need to be correlated with any other building code provisions? I.e. the difference between R2 and R5, height and area tables, types of construction, etc.

Rory: He encourages adoption of this proposal, which provides for smaller footprint, family friendly and energy efficient buildings. The two stairway requirement incentivizes long, double loaded corridors,

which then incentivizes larger inter-connected buildings with smaller apartments with windows on only one side. Residential buildings with only 4 units per floor would enable point access block configurations and smaller footprint buildings with more fire walls between them. There would also be more cross ventilation and natural lighting available. Single stair buildings have been proven safe in Seattle, New York City and across the world. He sent a link to the Seattle building code section 1006.3 in the chat: <https://www.seattle.gov/documents/Departments/SDCI/Codes/SeattleBuildingCode/2015SBCChapter10.pdf#page=8>

Andrew Milliken: He opposes this proposal. With one exit path, the impact is extremely detrimental to occupant egress and fire fighters. He strongly feels that this change needs to be vetted at the national level, and not having Virginia stepping out until it has been properly vetted.

Joshua: Served for 26 years in the Charlottesville fire department and he was the Fire Marshal in his last 5 years there. He has been with the state now for 2 years. He is very well versed in the construction planning process and has been part of the discussion for affordable housing needs. He offered to work with the proponents to edit the wording and make it more agreeable to all. With some of the designs that Charlottesville has worked on, the concern was to not grab a little piece of language and forget that there's a vast amount of code behind it. Multiple things go into the design which would allow for a single stairwell. It's not something that can't be considered. Some states have made alterations to accommodate that desire. He again offered to help edit the proposal to allow for lower construction costs without creating a hazardous situation. They would need to address a lot of construction concerns like fire walls, sprinklers and alarm systems from the IBC and the IFC.

Dan: Agrees with Steve's concern. Exits are very important. The higher the building, the less safe the building is in general, especially when trying to egress from it. He appreciates the link to the Seattle code. There are a lot of requirements in there, like pressurized stairwells, no connection to interior stairways, door swings, etc. which are safety requirements that are not provided in this proposal. New York City limits the type of construction to Type 1 or 2 and limits the area per floor to 2,500 square feet with a slew of requirements, or in the case of 6 stories, 2,000 square feet per floor. None of those requirements are in this proposal. He also agrees that it should be handled at the international level.

Andrew C: Would like to be involved in conversations with Josh and proponents. Other states have explored this and it's also being done outside of the United States. It does warrant more discussion.

Lyle: It all seems to make sense. He would be happy to talk and work on it more.

Kenny: Given the magnitude of the potential impact of changes through all codes, would DHCD create a Sub-Workgroup to address?

Jeff: DHCD can help coordinate a discussion but there isn't enough time left in this cycle for a Sub-Workgroup or committee. DHCD can collect and distribute contact information for anyone wishing to discuss further, to help the proponent convene a meeting. It's up to the proponents, if they want DHCD to help in that way. He asked Lyle what he wanted to do.

Lyle: Asked DHCD if other code changes would be necessary, they said no. The reply was that there can be other code changes, but this one could stand alone. He's happy to carry this over to continue working on it and dialogue with others to help refine the proposal.

Steve: Wants to be part of the discussion. He thinks there would be many other codes that would be affected.

Jeff: Clarified that DHCD did not opine on whether other code sections should be changed. Lyle asked DHCD if there was any conflict with other code provisions. In our cursory review, there didn't appear to be any direct technical conflicts or technical issues with the changes proposed. However, other code sections should be considered for coordination or potential impacts.

Kenny: In his opinion, based on his experience with the code development process. If this goes up to 6 stories, he thinks there will be non-consensus. Historically when proposals are non-consensus, there's less than a 50/50 chance that they will be approved. He suggests

taking baby steps, and only going up to 4 floors to start.

Jeff: If anyone wants to participate in the continued discussions before the next General Workgroup meeting, provide your name and email in the chat. DHCD will assist Lyle with setting up discussions. This item will be Carried Over.

{Break: 11:12 – 11:17}

B1010.2.8-21

Jeff: This is a proposal that was developed as part of the Active Shooter and Hostile Threats in Public Buildings Study Group. In the 2018 cycle, the General Assembly directed DHCD to develop regulations to allow barricade devices in school buildings for active shooter events. A Study Group was formed and a code change proposal was developed to layout a compliance path in both the USBC and SFPC for anyone who wanted to install these devices in schools. The proposal laid the framework for minimum safety criteria, training requirements and coordination between officials and first responders. In 2020, the General Assembly directed DHCD to form a Study Group to develop a code change proposal that would allow these devices in public buildings, which is where this proposal came from. This proposal takes what was laid out in the USBC and SFPC for schools in the last cycle, and added public buildings as another occupancy where ESS hardware would be allowed. The proposal also defines public buildings. Some Study Group members supported this and are listed as proponents, while other members didn't support it. Some who are not proponents of barricade devices in general did support the proposal, since devices could already be added and approved by officials using the code modification process without clear guidance otherwise. They thought that this would provide at least minimum standards and consistency in application if someone chooses to install them.

Dan: The wording in section 1103.2.15 seems incomplete, like there's one or more words missing. It says when emergency supplemental hardware is deployed in accordance with section 1010.2.8, is not required. Does it mean that it's not required to comply with the chapter?

Jeff: Thinks that the subsection that is being amended in this proposal is part of a list of things that wouldn't apply (taken out of context from another section not shown in the proposal).

Kenny: 1103.2 is the charging statement and 1103.2.15 is one of a list of items. Also, there's need to correct another word in 1031.11.

Jeff: Kenny is correct about the list. The other word will be fixed.

Dan: Still thinks "when" sounds out of place.

Jeff: Explained that if the device isn't active, there is no exception. When the device is active, there is an exemption from accessibility compliance.

Dan: If it said "the deployment" that would make sense. But, saying "when" followed by another "when" isn't a good sentence.

Jeff: If it said "supplemental hardware, when deployed..."

Dan: He suggests "the deployment of ESH during an active shooter event..."

Jeff: Can't speak on behalf of the Study Group to make the change. It will be marked as Carried Over for the Study Group to revisit the proposed language.

B1026.2-21

Jane Kim: This proposal is making a correction to something proposed in 2018 that was approved. This is proposing a change in the wording to ensure that necessary protection is provided for the refuge compartments.

Dan: Thinks the correction proposed does better align with the intent of the code.

Jeff: With no other discussion, this is marked as Consensus for Approval.

Next Steps:

the Fire Code as a technical reference, without making changes to who's responsible to install the systems. Wiring would be the responsibility of the building owner and the rest of the system would be installed by the locality.

Steve S: AOBA and VAMA are in support of this proposal.

Jeff: Hearing no further discussion, this proposal will be marked as Consensus for Approval.

B918.1.1-21

Jeff: The DHCD staff prepared this proposal on behalf of some stakeholders in the IBEC study group. It eliminates some outdated language in an old Virginia amendment. Radiating cable is an outdated term.

Steve S: AOBA and VAMA are in support of this. Radiating cable technology actually defeats the purpose.

Jeff: Hearing no further discussion, this proposal will be marked as Consensus for Approval.

B1010.2.8-21

Jeff: The DHCD staff prepared this proposal on behalf of some stakeholders in the Active Shooter and Hostile Threats in Public Buildings Study Group. It uses language from a previously-approved use of barricades in schools to approve use of barricades in public buildings. Many members of the Study Group were in support of this, even if they were not in support of barricades in general, because it gives guidelines for proper use.

Jimmy: He was in the Study Group and there was a thorough discussion. He supports this proposal.

Andrew M: Representing the VFSB – Codes and Standards Committee, stated that they discussed the proposal and the group supports the proposal.

Andrew M: Representing self, noted that the proposal goes beyond the scope of the model code and although there was some good feedback for and against the proposal, he thinks it is appropriate for additional discussions to take place at the Board level, so the proposal should move forward as Non Consensus.

Jeff: With some support and some opposition, this proposal will be marked as Non Consensus.

B1020.1-21

Jeff: The proponent was not on the call. This proposal changes ratings for I-1 and I-3 occupancies, which seems to have been incorrectly labeled in the VCC. This change brings the table back in line with the I-Code.

Dan: Chair of the VBCOA Building Code Committee. In support of this proposal.

Jeff: Hearing no further discussion, this proposal will be marked as Consensus for Approval.

B1006.3.4-21

Lyle Solla-Yates: Speaking on behalf of himself. This proposal is driven by middle sized structures. It would allow residential buildings up to 20 homes with up to 5 stories to have a single staircase. This is a floor modification which is presented on the screen. This language is copied from Seattle codes. It reduces costs, is a better design, and makes things easier for fire personnel. This permits interior or exterior stairs with smoke control. He received an architect estimate, and it would cost about \$380k per building for a second stairway.

Lyle: Gave some additional information in the chat box regarding this proposal:

Lyle Solla-Yates: This is an additional resource for item 22 <https://www.larchlab.com/city-of-vancouver-report-on-point-access-blocks/> We also got an estimate for the cost of mandating a second staircase in Virginia, which came to \$360,000 per building for six flights, assuming land, furring, and drywall are free. The estimate was \$380,000, you can review the numbers at this link <https://drive.google.com/file/d/1nG5bXXVvjHiGrEMTulr1cEO6fPIUhnfE/view?usp=sharing>

Florin: Typed in the chat box:

Florin Moldovan - DHCD: The floor modification is available for download in the FILES pod at the left of screen.

Steve S: Speaking for himself. He thinks this is bigger than just Virginia and should be proposed on a national level. The code in Seattle has about 14 limitations and this does not. He is opposed to this.

Allison: Is also in opposition. One exit sounds unsafe. It should be debated at the national level.

Dan: Fairfax County. He is in opposition to this proposal. The Seattle code has many limitations and exceptions, which this does not. For example, the number of units on each floor and the size of the floorplans. He also thinks this should be debated at the national level.

David: Agrees that it should be done on a national level. He hasn't looked at the floor modification.

Andrew M: Virginia Fire Services Board, Codes and Standards Committee. The Committee reviewed the original proposal and is opposed to it. The Committee did not have a chance to review the floor modification shared today by the proponent.

Andrew M: Speaking for himself. Is opposed to the proposal. Exterior stairway has no ventilation, interior stairway pressure is discussed, but there is no requirement to use the interior stairway. There's a lot of different landscape in Virginia and one area is not like another, such as is the case in Seattle and New York City.

Andrew C: Is in support of the proposal, which reduces building costs. Many proposals increase costs. Waiting for discussion at the national level won't be productive. He would like to see a Study Group on this.

Allison: Thinks this is a national-level issue, but a workgroup next year in an off-year would be good.

Andrew C: Housing challenges in many localities may prohibit Virginia participation at the national level. Yet, he would support any movement at any level. He would like to see Virginia lead the way in reducing housing costs.

Rory: Thinks an incremental approach would be good. Instead of 5-story, it could start with 4-story buildings. It could also have limits like not allowing exterior stairs, etc. Some of the limitations in the Seattle code are redundant.

Lyle: There are some redundancies in the Seattle code, such as caps on units per floor and the per-parcel restriction. These have been removed in this proposal.

Additional discussion in the chat box:

Al Clark: Maybe just limit it to where there's ISO-1 fire service?

Rory Stolzenberg: Table 1006.3.2(1) has a limitation of 4 dwelling units per floor for any height building with a single stair

Lyle Solla-Yates, Charlottesville PC, speaking on own behalf: Mr. Stolzenberg is correct, redundant language was removed

Dannie: I am strongly in favor of that proposal

Jeff: Hearing no further discussion, this proposal will be marked as Non Consensus.

B1022.2.3-21

Jeff: This proposal was prepared by the DHCD staff in response to a letter from Delegate Reid and Senator Boysko to consider requiring automatic door openers in all ingress and egress paths.

David: Is in opposition to this due to additional expense as well as a lack of clarity in the exterior door definition.

Dan: Fairfax County and VBCOA Building Code Committee. The Code Committee was not in support of this. He is also in opposition to this proposal.

Jeff: Asked if there was any support for this proposal. Hearing none, this proposal will be marked as Consensus for Disapproval.

B1103.2.15-21

Dan: This is a proposal to change language. It is administrative.

Allison: Supports this proposal.

Jeff: Hearing no further discussion, this proposal will be marked as Consensus for Approval.

B1112.1-21

Dan: This proposal is a cleanup of language. It removes an exception.

Jeff: All accessible spaces have to have signage. This exception was removed since it was in conflict with the state law.

Steve S: Supports this proposal.

Jeff: Hearing no further discussion, this proposal will be marked as Consensus for Approval.

B1602-21

Jeff: Asked Paul Messplay to introduce the proposal.

Paul: This proposal comes from the proposed changes to the 2024 IBC. It was developed by FEMA and had full support from HBAV at the ICC Committee Action Hearings in Rochester. It adds design considerations for tornado