F1. Scoping of the International Fire Code

This amendment removes language that would apply the provisions of the International Fire Code on one- and two-family dwellings that are constructed using the International Residential Code.

Revise as follows:

IFC [A] 102.5 Application of residential code. Where structures are designed and constructed in accordance with the International Residential Code, the provisions of this code shall apply as follows:

1. Construction and design provisions of this code pertaining to the exterior of the structure shall apply including, but not limited to, premises identification, fire apparatus access and water supplies. ~~Where interior or exterior systems or devices are installed, construction permits required by Section 105.6 of this code shall also apply.~~
2. Administrative~~,~~ and operational ~~and maintenance~~ provisions of this code shall apply.

Reason:

This amendment addresses some of the controversy that has risen since the language was added to the code. One of the significant problems is found in the last sentence of the first application, regarding the construction permits required by section 105.6. All required construction permits that would apply to these types of structures, as indicated in this section, are already addressed within the scope of the IRC. The concept of the IRC being a single-source construction code is specifically stated within the commentary to R101.1, which says the intent of the IRC is to be a “stand-alone residential code that establishes minimum regulations for one- and two-family dwellings and townhouses.” The IFC commentary to 102.5 further emphasizes this concept by stating “the IRC is designed and intended for use as a stand-alone code for the construction of detached one- and two-family dwellings and townhouses not more than three stories in height”. As such, the construction of detached one- and two-family dwellings and townhouses is regulated exclusively by the IRC and not subject to the provision of any other I-Codes, other than to the extent specifically referenced. The intent of providing a stand-alone residential code is that there is no need for duplicative construction or permitting requirements within the I-Codes that would require a builder or homeowner to get separate permits under the IRC and IFC for the same scope of work. Approval of this amendment will ensure the intent of the IRC scope, as a stand-alone construction document, is maintained while ensuring that the exterior fire protection features are still regulated under the scope of the IFC.

Another problem with the current language is the reference to all maintenance requirements of the IFC for IRC constructed structures. Prior to the approval of the model code language, there was no specific provision in the IFC that required maintenance for IRC structures in accordance with the IFC. If maintenance provisions apply, it raises the question: Is the fire service truly planning on enforcing the maintenance provisions in the IFC for fire alarm systems and carbon monoxide detectors in single family homes? And if so, how? In many states, once a one- and two-family dwelling or townhouse receives its certificate of occupancy there is no more involvement with the building official. The IFC states that it is the fire official’s responsibility to ensure existing buildings meet the requirements of this code and that all buildings are maintained in accordance with its provisions. How many departments have requested entry to

ensure that every existing one- and two-family dwelling is equipped with a carbon monoxide detector as required by the IFC? The current language of the IFC leaves the fire service open to liability if they are not enforcing the provisions of this code as it is written and adopted. Although some of the referenced standards in the IFC do not require maintenance on some of the systems in one- and two-family dwellings or townhouses, the inference is that maintenance is required if the term “maintenance” remains in Item 2 under Section 102.5.

F2. Multifamily Sprinklers

This amendment adjusts the allowed height of the building where a NFPA 13R multifamily sprinkler system can be used before a full NFPA 13 system is required.

Revise as follows:

[F] 903.3.1.2 NFPA 13R sprinkler systems. Automatic sprinkler systems in Group R occupancies shall be permitted to be installed throughout in accordance with NFPA 13R where the Group R occupancy meets all of the following conditions:

1. Four stories or fewer above grade plane.
2. The floor level of the highest story is ~~30~~ 35 feet (~~9144~~ 10668 mm) or less above the lowest level of fire department vehicle access.
3. The floor level of the lowest story is ~~30~~ 35 feet (~~9144~~ 10668 mm) or less below the lowest level of fire department vehicle access.

The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 shall be measured from grade plane.

Reason:

During the 2018-19 code development cycle, an issue of significant concern was rectified with respect to NFPA 13R sprinklers in Group R occupancies in podium-style buildings and allowance for as many as four stories up to 60 ft in height above grade to be constructed on top of the horizontal building separation. However, while continuing to allow for NFPA 13R systems in four story Group R occupancies, the height limit from fire department vehicle access to the floor level of the highest story was changed to only 30 ft. In most cases, this height limit will not allow for NFPA 13R sprinklers in a four-story apartment building.

According to feedback from contractors, developers, and design professionals, the typical height of floor assembly framing in multifamily buildings is slightly less than twelve inches. A four-story apartment building with 8'-6" ceiling heights and the necessary 8- to 12-inch foundation exposure above grade, would exceed this 30-ft limit. Likewise, a very common mixed-use building type of three stories of residential occupancy above ground level retail space would also exceed the 30-ft limit. The current 30-ft limit is at the very low end of the floor level height for a fourth-story and offers little flexibility for floor-to-ceiling heights greater than 8'-0". With the current limitation, NFPA 13R sprinkler systems are essentially limited to three-story buildings, even though the NFPA 13R standard was specifically created to permit these systems in buildings up to four stories. This amendment will allow the use of NFPA 13R sprinkler systems as envisioned by the standard.

It is also important to understand that the floor level measurement is not taken from the grade adjacent to the building but from the lowest level of fire department vehicle access, which can be up to 150 feet away. The difference in elevation over such a distance can be significant, further limiting the number of buildings which can meet this section with a 13R system. Below is an example of a 4-story multifamily building. The 4th floor is at a height of 32 ft above grade. However, the dimension used as the threshold for a 13R system increases where the lowest level of fire department vehicle access is below the level of grade at the building.

The dimension of 35 ft was selected as the limit for this amendment because it allows more flexibility for building design and floor-to-ceiling height while still remaining well within the 75-ft reach of typical fire truck ladders. It is also significantly lower than the 60-ft height limit which had been in place prior to the code change in the 2021 I-Codes.

NFPA 13R systems have been extremely effective in protecting human lives as well as preventing significant property damage from fire in low-rise residential buildings since the NFPA 13R Standard was first published in 1989. A 2016 issue of the NFPA Journal published the findings of a workshop attended by subject matter experts that focused on the adequacy of 13R sprinklers. Overarching conclusions were 1) that major fires in 13R-protected buildings were the exception – not the rule and 2) that there was not sufficient evidence to indicate that 13R sprinklers have not been effective in protecting human life and reducing property damage. To quote the June 2016 NFPA Report describing the outcomes of the workshop:

- “NFPA 13R/13D are effective standards that reduces loss of life and building damage due to a fire event.”

Limiting the use of NFPA 13R sprinkler systems to Group R buildings three-stories or less does not recognize other significant changes in the codes in recent cycles that offer increased fire protection (see Section 903.3.1.2.3 Attics in the 2021 IBC). Furthermore, there may be some unintended consequences with respect to the current language. Recent cycles have seen changes such as sprinkler requirements for balconies in buildings where 13R sprinklers are used, increased attic protection if it is not sprinklered such as construction of the attic using fire retardant wood or non-combustible materials, and the recent 2021 requirement for special inspections of sealing fire penetrations and draft stopping. All these ancillary provisions have increased fire protection and stringency of the fire code. Furthermore, by reducing the use of NFPA 13R systems in R-2 occupancies, requirements for sprinkler protection of balconies in these buildings have also been reduced – historically, an issue of significant concern. By

extending requirements for NFPA 13 sprinklers in R-2 occupancies, sprinkler requirements for balconies are fewer or non-existent when compared to the absolute mandate of sprinklers on balconies for NFPA 13R systems through the IBC.

Census data reports that of the 13,000 multifamily buildings completed nationally in 2019, 77 percent (more than 10,000) of these buildings were four stories or fewer. By reducing the percentage of multifamily buildings where NFPA 13R sprinklers are permitted, housing affordability is significantly impacted. The National Multifamily Housing Council estimates that moving from NFPA 13R to NFPA 13 sprinkler systems would carry an incremental installed cost increase of approximately $1.00/sq. ft. to $2.00/sq. ft. of overall building area on average across the US.

Costs associated with requirements for attic protection in NFPA 13 systems not only includes the additional sprinklers and piping but also costs associated with increased hydraulic demand and water supply as well as necessary freeze protection in cold and even moderate climates. Greater density and spacing of sprinklers, larger pipe diameter, sprinklers in concealed spaces, and especially, requirements for attic protection (with some exceptions) all contribute to the added cost. This cost increase does not include the final cost with markup to the building owner or the potential need to add a fire pump in the NFPA 13 system. Moving from a 13R system to a 13 system for a $9,342,688, four-story, 48-unit apartment building increased construction costs by $102,255 or a little over $2,100/unit. (Home Innovation Research Labs, *Cost Analysis of Proposed Group A Code Changes (2018-2019 ICC Code Development Cycle)* – October 2018). This would have a substantial impact on both tenant rental rates and owner-occupied units. The detailed cost analysis is shown below.

Table F117-A. Cost of NFPA 13 Sprinkler System Compared to NFPA 13R System

Component	Unit	Material	Labor	Total	w/O&P	Qty	Cost
Residential sprinkler heads	EA	16	21.50	37.5	53	292	15,476
3/4" diameter CPVC piping (NFPA 13R)	LF	7	6.90	13.9	19.05	4292	81,763
Wet standpipe riser, schedule 20, 4" diameter pipe	FL	5800	2875	--	8675	4	34,700
						Total NFPA 13R System	**131,939**
Additional sprinkler heads (attic)	EA	16	21.50	37.5	53	44	2,332
Additional sprinkler heads (non-exempt bathrooms)	EA	16	21.50	37.5	53	2	106
3/4" diameter CPVC piping (NFPA 13R)	LF	7	6.90	13.9	19.05	(4292)	(81,763)
1-1/2" CPVC piping (NFPA 13)	LF	18.55	9.75	28.3	36.50	4292	156,658
Additional 1-1/2" CPVC piping for new sprinkler heads (NFPA 13)	LF	18.55	9.75	28.3	36.50	618	22,557
Additional floor, wet standpipe riser, schedule 20, 4" diameter pipe	FL	1475	890	--	2365	1	2,365
						Total NFPA 13 System	**234,194**
						Total to Builder	**102,255**

NFPA 13R sprinklers are a very effective means of assuring life safety and property protection in Group R buildings four stories and less while maintaining housing affordability. An increase in height to 35 ft above the lowest level of fire department vehicle access is reasonable and modest and can easily be reached by the typical fire truck ladder. This proposal recognizes the long-standing effectiveness of 13R life safety systems, which have been allowed since the early years of the I-Codes as well as the legacy codes.

F3. Plan of Correction

This amendment modifies the minimum construction requirement section for existing buildings to involve the owner of a building in developing a timeline for corrections.

Revise as follows:

CHAPTER 11

CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

SECTION 1101 GENERAL

1101.2 Intent. The intent of this chapter is to provide a minimum degree of fire and life safety to persons occupying existing buildings by providing minimum construction requirements where such existing buildings do not comply with the minimum requirements of the International Building Code.

1101.1 Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code.

1101.3 Permits. Permits shall be required as set forth in Sections 105.5 and 105.6 and the International Building Code.

1101.4 Owner notification. When a building is found to be in noncompliance with this chapter, the fire code official shall duly notify the owner of the building. ~~Upon receipt of such notice, the owner shall, subject to the following time limits, take necessary actions to comply with the provisions of this chapter.~~

1101.4.1 Owners responsibility. Upon receiving notice as required in Section 1101.4, the building owner is required to provide a systematic plan of correction and documentation to support a compliance path based on the provisions of section 1101.4.2 within a timeframe established by the fire code official. The fire code official is authorized to request additional documentation to support owner's proposed schedule.

1101.4.2 Establishing a systematic plan of correction. Upon receipt of such notice, the owner shall take necessary actions to establish a systematic plan of correction to comply with the provisions of this chapter. The fire code official shall evaluate the plan submitted and provide approval of the plan if the fire code official finds the terms acceptable. When developing the plan, the fire code official and building owner shall agree to a compliance path based on all of the following:

1. The number of provisions of Chapter 11 of this code the owner has been cited to comply with.
2. Any planned alterations within the building where work required to comply with the provisions of Chapter 11 of this code and the International Existing Building Code where work can be incorporated into the compliance path schedule.
3. Any disruption of business operations that may occur within the building during construction required to comply with Chapter 11 of this code that must be addressed that may will?? either (not needed) lengthen time for completion or cause work to be performed outside of normal business operations.
4. The number of buildings under the owner's control that have to comply with provisions of Chapter 11 of this code.
5. The owner's availability to have funding available to complete the work.
6. Availability of necessary design professionals and contractors to design and conduct the work.

~~**1101.4.1**~~ **1101.4.3 Construction documents.** Construction documents necessary to comply with this chapter shall be completed ~~and submitted within a time schedule~~ in accordance with systematic plan of correction approved by the fire code official.

~~1101.4.2~~ 1101.4.4 **Completion of work.** Work necessary to comply with this chapter shall be completed ~~within a time schedule~~ in accordance with the systematic plan of correction approved by the fire code official.

~~1101.4.3~~ 1101.4.5 **Extension of time.** The fire code official is authorized to grant necessary extensions of time where it can be shown that the specified time periods are not physically practical or pose an undue hardship and the owner has shown a good faith effort to comply with the approved systematic plan of correction. The granting of an extension of time for compliance shall be based on the showing of good cause and subject to the filing of ~~an~~ a revised acceptable systematic plan of correction that is approved by ~~with~~ the fire code official.

Reason:

This code proposal is intended to address the lack of direction to fire code officials regarding seeking compliance with Chapter 11 of the IFC. The code has been silent in addressing the realities and difficulties that retrofitting requirement compliance place on building owners. Unlike new construction, change of use, or alterations where regulatory compliance can be factored into project budgets, retrofitting is not part of a building's maintenance and operations budget and can create a hardship.

Building owners are often confronted with violation notices for compliance with Chapter 11 items from field inspectors who treat the requirements the same as a routine violation like exit light maintenance, replacing a noncompliant lock, or unblocking an exit. We can provide examples of where this has already occurred. The lack of realization that many of the items have significant cost associated with them, the lack of available designers and contractors needed to meet demand to do the work necessary to comply with a notice, and sometimes the inability to comply safely without disruption of building occupants, is not recognized with short time period notices.

Why this is important:

Building owners are not sitting on massive reserves of funds. Even small ownership entities have business plans that have to take in staffing cost, overhead from taxes and utilities, disruptions of normal business activities such as what occurred with the Covid pandemic, and both budgeted and unbudgeted maintenance cost. They operate on a cash flow based on occupancy rates of space. Receiving a short compliance period for very expensive safety enhancements without funding from grants, tax deductions or credits can be financially difficult, many times requiring the diversion of intended preventative maintenance funds, reserves for unintended maintenance cost, or actually being required to take loans to accomplish the work. This, in turn adds cost to the end user in the form of higher rents and places the building owner in a very precarious situation of keeping rents in line with regional rental rates.

We need to understand that these buildings are not inherently unsafe. If they were, they would be subject the unsafe building provisions of both the fire and property maintenance codes. Many of the buildings were built under building codes in effect at the time of construction that have been enhanced over time. In no way should Chapter 11 be applied as if an emergency, unsafe condition or event has occurred. To be palatable, Chapter 11 should be applied as a partnership between the building owner and the fire official.

The proposed code change attempts to accomplish this. It brings forth the elements that need to be considered from the building owner's perspective when issued a notice of violation to comply

with Chapter 11. In addition, it recognizes code changes brought into the 2021 IEBC that makes specific reference to compliance with IFC Chapter 11.

The proposed language leaves the fire code official as the ultimate decider, but by working with the building owner to understand their needs when developing a plan to make the building compliant. This takes time. Time to secure contractors and designers to develop plans, get cost estimates, and secure funding without disruption of cash flow. Especially during busy construction cycles when new buildings reduce the capabilities to access these professionals that are working on much larger projects.

Compliance sometimes requires the additional cost of having work performed when buildings are closed from daily operations. Drilling and sounds generated from construction, contractors needing access to occupied spaces, and the potential to create unsafe construction related issues (Blocked corridors and stairways, etc.) occurs when buildings are occupied. This adds expense to any project as contractors add to cost estimates the real cost of working outside of a normal day.

Building owners face uncertain times. They are facing unprecedented pressure to shoulder the burden of energy efficiency beyond what they can expect as a return on investment. The combination of energy compliance and IFC Chapter 11 compliance has a potential to be disastrous to the office building and multi-family residential rental market. This code proposal allows for the continuous movement toward *safer* buildings while realizing the associate cost, hurdles, and disruption compliance can entail.

F4. Fire Dept Apparatus Road Option

This amendment clarifies that a second fire apparatus access road can be a sidewalk, bike path, or other path of travel that need not be constructed as a "road" with curb & gutter, shoulders, intersections, etc.

Revise as follows:

D102.1 Access and loading. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing up to 75,000 pounds (34 050 kg).

Exception: Where *approved* by the *fire code official*, an additional fire apparatus access road required by this appendix is permitted to be a sidewalk, driveway, pathway, court or other *approved* surface not accessible to public motor vehicles provided the loading requirements and minimum specifications of this appendix are met.

Reason:

The current provisions of IFC Section 503, Appendix D and the definition of “fire department apparatus road” as written can be interpreted to require the construction of an actual road, street, lane or other feature potentially accessible to public vehicular traffic as well as fire department vehicles, complete with curbs and gutters, shoulders and other components and making a complete intersection with a main road, street, highway, etc. adjacent to the development. However, for long, narrow parcels of land which can only be physically accessed along one of the narrow sides, such an interpretation may result in placing the intersection created by the second access road closer to the main access to the development than is permitted by local highway or zoning ordinances.

Nothing in IFC Section 503 or Appendix D requires the additional road intersect a public way at the same elevation as the public way, or even be a true “road” accessible to vehicular traffic. A code-compliant “road” could simply be a sidewalk or other pathway primarily intended for pedestrian use but constructed to meet the width, loading and other requirements of a fire apparatus access road. Such a walking path would not need to form a true intersection with public streets but could simply end at a sloped or roll-up curb.

F5. Fire Dept Apparatus Road Alternate Width

This amendment raises the trigger for a second fire department apparatus road to 50 dwellings if the primary road is at least 26' feet wide and the development is not located in a wildfire-prone area.

Revise as follows:

D107.1 One- or two-family dwelling residential developments. Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads.

Exceptions:

1. Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.
2. The number of *dwelling units* on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the *fire code official*.
3. Where the number of dwelling units on a single public or private fire apparatus access road does not exceed 50, the minimum unobstructed width of the single fire apparatus access road is 26 feet (7925 mm), and the development is not located in a wildland-urban interface area as defined in the *International Wildland-Urban Interface Code*, access from two directions shall not be required.

Reason:

One of the barriers to affordable housing frequently cited by NAHB members is availability of lots for development. In some cases, the dimensions of such parcels, surrounding development, surrounding terrain or other constraints make it difficult if not impossible to provide a second fire department apparatus road, even if constructed as a sidewalk, bike path or other feature only accessible to fire trucks, not accessible to public motor vehicles. A developer may either be faced with having to sacrifice planned dwelling units or providing alternative, potentially costly, means of fire protection in order to construct the development. Either solution increases the cost of construction for the homes in the development and may render them unaffordable to homebuyers or renters with modest incomes. Or, the developer may be forced to abandon the lot, meaning the IFC has improperly acted as a de facto zoning code.

The current 30 dwelling trigger is low compared to a multifamily development can contain up to 100 units. One of the reasons for the second fire department apparatus road is in case the primary access to the development is blocked by traffic congestion or an accident. Given the average household size is between 2 and 3 people, clearly a 100-unit multifamily building is likely to generate more traffic than 30 single-family houses. Average lot size has also been shrinking, so if travel distance is a concern it will take less time for fire equipment to traverse many current single-family developments than it may have previously. There is no reason for such a low trigger as 30 homes.

This proposal adds an exception that raises the trigger to 50 dwellings, or half the number of dwelling units at which a multifamily development triggers the second fire department apparatus road, if the minimum unobstructed width of the primary fire department apparatus road is increased to 26 feet in width to aid in both fire department access and evacuation, and the development is not in a wildfire-prone area.