

This edition of TechNotes has been prepared by Andrew Bevis, MCP, Codes and Standards Specialist for the National Fire Sprinkler Association.

The NFSA and Changing the Model Codes

We find ourselves on the eve of another code development cycle within the International Code Council (ICC). This coming January proposals are due for the Group A which include the International Building Code (IBC) and International Fire Code (IFC) among many others code that will go into the next phase of development in what will eventually become the 2024 edition of the I-Codes. Also, the National Fire Protection Association (NFPA) develops three of its own model codes: NFPA 1, NFPA 101, and NFPA 5000. However, it is time to look at the 2021 model codes that are being prepared to be released in print and digital formats. The development of the 2021 model codes began in the beginning of 2018. There were several changes throughout the model codes that affected the fire sprinkler industry.

There are two teams within the NFSA that are heavily involved in the model code development process. They are the Codes, Standards and Public Fire Protection department (CSPFP) and Code Development Team (CDT). The CSPFP Team is a dynamic team that is involved in many projects and touches the day to day business of every NFSA member, however, everyone on the team is involved in the development of model codes and standards at some level. Additionally, much of the model code development work within the NFSA is completed by the CDT. The primary job of the CDT is to research, develop, discuss, and advocate for changes to the nation model codes in the ICC and the NFPA. The CDT meets monthly to complete these tasks.

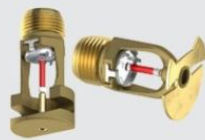


Changes in 2018 for the 2021 edition of the IBC and IFC

2018 was the year that developed the 2021 International Building Code (IBC), International Fire Code (IFC) as well as the plumbing portion of the International Residential Code (IRC). Of the 28 NFSA-related proposals submitted, 25 were approved by the ICC membership. The biggest changes for the fire sprinkler

industry are:

- **High-rise retrofit:** This proposal adds language in IFC Chapter 11 that requires existing high-rise buildings over 120 feet to retrofit with fire sprinklers. High-rises less than 120 feet (to 75 feet) have an option to provide a second stairway, a full fire-alarm system, or retrofit with fire sprinklers.
- **Open parking garages:** This proposal eliminates the blanket exception for fire sprinklers for open parking garages in the IBC and supplies two new major thresholds to trigger fire sprinklers: new open parking garages over 55 feet in height or new open parking garages over 48,000 square feet in fire area to have fire sprinklers installed.
- **Pedestal buildings and NFPA 13R:** This proposal reduces the application of NFPA 13R to 30 feet to the top floor and eliminating four-stories on top of pedestal. This was not a NFSA proposal.



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Changes in 2019 for the 2021 edition of the IEBC and IRC

2019 contained the cycle that developed the 2021 International Existing Building Code (IEBC) and International Residential Code (IRC). The Group B cycles is the final cycle in the I-Codes development process. There were several notable code developments that affected the fire sprinkler industry. Some of these changes include:

- **Habitable Attics:** This code change requires that habitable attics to be considered a sprinklered story above grade plane. The current allowance for a "habitable attic" in the IRC creates an inconsistency within the I-Codes. By allowing the creation of a habitable attic, but not considering it an additional story, is allowing a structure that potentially creates unmitigated life safety hazards especially in some states that prohibit residential fire sprinklers.
- **Penetration exception in the IRC:** This change allows for listed fire sprinkler piping in wet systems to penetrate fire-resistance-rated wall or floor assemblies in townhouses with additional annular space protection. Common walls will be permitted to contain water filled sprinkler piping. This option provides for improved sprinkler designs for townhouses by allowing sidewall sprinklers to be deployed from common walls, which unlike exterior walls, are not exposed to freezing exterior conditions.
- **Townhouse structural independence in the IRC:** This code change provides an additional exception for structural independence requirements of townhouses in the IRC, if townhouses are protected by a fire sprinkler system complying with Section P2904 or NFPA 13D. This is a needed clarification to the IRC that encourages the use of fire sprinkler systems in townhouses in jurisdictions where fire sprinklers systems are not required.
- **Duplex separation wall reduction in the IRC:** This code changes the current exception to Section R302.3. The current exception will likely never be used due to the cost of installing a full NFPA 13 system in a duplex will far

outweigh savings associated with reducing the separation wall rating from one-hour to 30 minutes.

- Level 2 and 3 Alterations in the IEBC: This code change backfills Section 803.2.4 to Chapter 8 of the IEBC to fill the void that was unintendedly created in the 2018 cycle (EB61-15). Without this change, other areas that require fire protection in the IBC will be missed in Level 2 Alterations. The two new 904 sections (904.1.4 and 904.1.5) for Level 3 alterations correlate with the new threshold of having water available at the site to trigger fire sprinklers in Level 3 alterations created by 2018 IEBC. The changes to Section 904 fill a void for increased fire protection for Level 3 alterations.



Changes for 2021 NFPA 1, 101, and 5000

The NFPA has three model codes and they include: NFPA 1 Fire Code, NFPA 101 Life Safety Code, and PA 5000 Building Construction and Safety Code. These model codes like that I-Codes are completing the final steps in becoming the 2021 editions. The NFSA CSPFP staff, as well as members of NFSA's Engineering and Standards Committee (E&S) sit on several NFPA 1, 101 and 5000 technical committees. Some of those sprinkler related code changes are:

- Correlation of the NFPA 5000 1 & 2 family sprinkler tradeoff requirements to the International Residential Code (IRC). This is done to keep the two model residential codes correlated to benefit builders and owners worldwide.
- Clarifying and correlation of fire sprinkler supervision requirements. Prior to the changes submitted by the NFSA, the electric supervision requirements differed from new and existing buildings in NFPA 101 and NFPA 5000. Users of the 2021 versions of both model codes will see all new occupancies with fire sprinkler systems have electric supervision of fire sprinkler valves, flow switches and other critical components.
- New language in NFPA 101 clarifies several points on retrofitting fire sprinklers in existing residential and business high-rise building. Existing apartment buildings are required to be retrofitted with fire sprinklers by January 1, 2033. The use of new engineered life safety systems (ELSS) in high-rise (existing) apartment buildings is no longer permitted, however, existing ELSS systems are allowed to remain, if they were previously approved and are maintained. Existing business high-rises do not have a sunset date for compliance; however, the charging requirement is retrofitting with fire sprinklers but ELSS is approved if the ELSS plan is developed by a registered professional engineer with experience in fire and life safety system design and approved and inspected by the AHJ. Additionally, the ELSS must be maintained with the approved design documents.

The NFSA has two internal technical committees and teams composed of experienced staff and members that represent the industry on the model code side. Are you interested in how the model codes are changed, or do you have a

change to propose? Contact Andrew Bevis, bevis@nfsa.org for more information. But hurry, the proposals for the 2024 edition of the IBC and IFC are due in January of 2021.

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This position supports the mission by providing technical services including representation on committees, research of sprinkler system performance, preparing written reports and developing and teaching seminars. Please view the entire position description and apply here: [Fire Protection Engineer Position](#)

Manager of Training and Education

This positions supports the mission by providing direction for the development and delivery of all Association education and training programs. These programs should be available for a broad delivery system of on-line and in-classroom training. This position must provide a high level of coordination between multiple departments of the processes for the development and delivery of technical seminars within the subject expertise of NFSA. Please view the entire position description and apply here: [Manager of Training and Education](#).



New EOD Process

Starting on July 15, 2020, the NFSA has a new EOD process where members can submit questions, track the progress, and view their EOD cases. The step by step process is detailed in [TechNotes #442](#).

National Fire Sprinkler Association

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