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BULLETIN NO.

14-1

Date: **June 2014**      Subject: **New One- or Two-Family Dwellings  
Installing NFPA 13D or P2904 Instead  
of NFPA 13R Sprinkler Systems**  
Code Ref. Update:      *(applicable to projects using editions  
February 2016*      *that predate the IRC/2015)*

Reference: **N.J.A.C. 5:23-3.21, One- and Two-  
Family Dwelling Subcode, Section R300**

This Bulletin provides guidance on allowing the construction of three story International Residential Code (IRC) structures when either a National Fire Protection Association (NFPA) 13D or IRC Section P2904 fire sprinkler system is installed.

To build a new dwelling or rebuild a demolished dwelling, the requirements of the one-and two-family dwelling subcode of the Uniform Construction Code (UCC) need to be followed. Currently, new homes of Type VB construction are limited to two stories, a maximum height of 35 feet and 4,800 square feet in floor area. (Type VB construction is wood frame without a fire resistance rating.) In some cases, people rebuilding two story homes are required to elevate their homes to a height greater than 35 feet. In these instances, Type VB construction cannot be used unless a fire sprinkler system is installed. These homes are currently required to have a NFPA 13R fire sprinkler system installed or to be built of Type VA construction. (Type VA construction requires a one hour fire resistance rating on all load-bearing walls and floor/ceiling assemblies.) *NOTE: This bulletin addresses new construction and rebuilds. For elevating existing houses to greater than 35 ft., see Bulletin 13-1A.*

When the Department proposed the adoption of the 2000 IRC back in 2003, the 2000 IRC allowed three story unlimited area dwellings without sprinkler protection. There were valid concerns expressed about fire fighter safety in such a large dwelling. The Department agreed with these concerns and modified the proposal to maintain the requirements of the 1996 BOCA National Building Code. These requirements were to retain the thresholds of 4,800 sq ft in area and not more than two stories, 35 feet in height for Type VB construction and 10,200 sq ft in area and not more than three stories, 40 feet in height for Type VA construction.

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Along with this, the height increase section of the 1996 BOCA National Building Code was also maintained to address the concerns of the fire service. The height of a building would be increased one story, up to three stories or 55 feet, when a NFPA 13 or 13R system was installed.

When installing a NFPA 13 or 13R system instead of a 13D or P2904 system, there are additional components that do not provide any extra benefit for the evacuation of the occupants. The requirement to install NFPA 13 or 13R systems, with the associated higher costs, may actually discourage the installation of residential sprinkler systems.

The NFPA 13R and the 13D/P2904 systems provide essentially the same level of life safety protection for the occupants and some property protection of the building. None of the combustible concealed spaces is required to be protected unless it contains gas-fired equipment, then only the area above the equipment requires sprinkler protection. While sprinklers are not required in garages of a dwelling with a NFPA 13D system, they are required in garages when using a NFPA 13R system. However, the same residential-style sprinkler heads that were used inside the dwelling can be used in the garage. With the installation of NFPA 13D systems in Phoenix, Arizona and Prince Georges County, Maryland, the protection of life and property has been proven for over 20 years. There have been no deaths from accidental fires in dwellings that have had 13D systems installed, and, in many cases, the sprinklers have extinguished the fires before the fire department has arrived.

The following is a list of differences between a NFPA 13 or 13R vs. a 13D/P2904 system:

1. Fire Dept Connection (FDC) vs No FDC for 13D or P2904
2. Combined Water Supply Connection may be used (verify with municipal water company; some may require a separate supply)
3. Maximum of a Four Sprinkler Head Design for NFPA 13; up to Four Heads for 13R vs Two Head Design for a NFPA 13D or P2904
4. 30 Minute Water Supply vs 10 Minute Supply for a NFPA 13D or P2904
5. Monitored vs No Monitoring for a NFPA 13D or P2904

*NOTE: Installers of fire sprinklers need Division of Fire Safety certification.*

The unamended 2009 IRC requires the installation of a NFPA 13D or P2904 fire sprinkler system in a dwelling that is limited to three stories in height with unlimited area. The one- and two-family dwelling subcode of the UCC requires a monitored NFPA 13 or 13R system for a new dwelling or for an increase in height of an existing Type VB dwelling above 35 feet. The UCC maintained the sprinkler system requirements of the 1996 BOCA National Building Code with the adoption of the IRC/2006 and IRC/2009.

The Department recommends that a variation be granted to allow construction in accordance with the unamended IRC/2009. Under the IRC/2009, a NFPA 13D or P2904 sprinkler system is required to be installed and the dwelling is limited to a maximum height of three stories and may be unlimited in area. The Department will be proposing modifications to N.J.A.C. 5:23-3.21 to address this issue.

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