

Fire Sprinkler System Standards: Are They Meeting Our Expectations?

APPA, other key stakeholders gather at NFPA Workshop to discuss effectiveness of residential sprinkler system standards

By John Bernhards

On July 12, 2015, firefighters in Oviedo, Florida responded to a sweeping, three-alarm fire at the Tivoli Apartments, a privately owned off-campus residential complex adjacent to the University of Central Florida. Thankfully there were no casualties. The Tivoli fire did, however, displace 75 residents—including 25 undergraduates of UCF—many of whom moved to temporary housing on campus or moved in with local family and friends. Interestingly, the Tivoli fire has become, in recent months, a focal point for discussion among sprinkler manufacturers, the insurance industry, fire and life safety personnel, APPA, and other stakeholders who are now evaluating the overall effectiveness of the NFPA 13 sprinkler system installation standards.

The Tivoli Apartments were designed and built to comply with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*. Unlike the bellwether sprinkler standard NFPA 13, the NFPA 13R standard does not require sprinklers in certain areas deemed as “unoccupied” such as attics and apartment closets. In the case of the Tivoli apartments, the fire originated on a third-floor residence apartment balcony before reaching into the non-sprinkled attic and eventually collapsing the apartment roof.

At NFPA’s invitation, APPA participated in a two-day Sprinkler System Workshop, joining over 70 subject matter experts, NFPA 13 committee leaders and other stakeholders to offer observations and recommendations for improvement with regard to the current 2016 edition of NFPA 13 and NFPA 13R. The findings of the workshop will be published by NFPA in early summer 2016.

THE KEY DISTINCTIONS BETWEEN NFPA 13 AND NFPA 13R

Among the oldest of NFPA standards (the first version was written in 1896), NFPA 13 is a fire sprinkler system standard designed to accommodate all buildings, and to provide both life safety and protection to the facility and its assets to include unoccupied spaces (attics, closets, etc.). In contrast, NFPA 13R provides a high but not absolute level of life safety to building occupants in residential properties that are four stories or less in height, yet a lesser degree of property protection than NFPA 13.

NFPA 13R was first developed in 1989 and in response to stakeholders seeking a more cost-effective solution that was specific to low-rise residences, in contrast to NFPA 13 compliant sprinkler systems. The key distinctions between NFPA 13 and NFPA 13R are:

- NFPA 13R commonly allows for the elimination of fire protection in attics, closets, porches, balconies, and certain bathrooms
- NFPA 13R allows for a lesser water discharge demand from the sprinkler system, leading to smaller pipe sizes
- NFPA 13R allows for a shorter duration of water supply than NFPA 13. In situations where water storage tanks supply the sprinkler system, a smaller tank can be used.

OBSERVATIONS

In general, most participants in the NFPA Workshop view NFPA 13R as a standard that meets its primary objective of life safety. However, there was agreement that opportunities exist to further improve the standard. Additionally, it was agreed that there needs to be greater awareness among



stakeholders—most notably owners and tenants—of the goals as well as the limitations of differing fire sprinkler systems, so that prudent installation decisions can be made and expectations best served. At least one insurance industry representative present indicated that his company will not insure buildings using NFPA 13R approved systems.

Also observed was that the increasing use of manufactured synthetic materials found in construction, furniture, and household items poses the risk of spreading fires more rapidly. The increasing popularity of wood framing in low-rise residences, and whether the intent and goals of NFPA 13R can be realized as envisioned as when the standard was first introduced prior to increased use of wood framing, were raised as additional concerns.

NEXT STEPS FOR APPA

NFPA 13 and NFPA 13R are part of a suite of 20 standards recently identified by APPA's NFPA Standards Work Group as primary areas of interest

to APPA members. More detailed observations from the recent Workshop will be reviewed by APPA's Work Group members early this year, as it prepares to submit to NFPA its comments and suggested improvements on NFPA sprinkler standards.

Employees from all APPA member institutions are encouraged and welcome to participate in the APPA NFPA Standards Work Group. Please contact me for more information on how you and others within your facilities and/or life safety department can engage in our Work Group efforts. ☎

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