



Tuesday e-Tech Alert **August 17, 2004**

NFPA 13R Exterior Stairs and Corridors – Are They Open?

One of the cost savings associated with the use of NFPA 13R- *Installation of Sprinklers in Residential Occupancies up to and Including Four Stories in Height* is the allowable omission of sprinklers from “porches, balconies, corridors and stairs that are open and attached.” That wording has essentially remained the same since the original 1989 edition of the standard, and is considered to be especially significant to economical system installation in areas with freezing weather. Yet there continue to be disputes over what is included.

On behalf of a member contractor, NFSA recently sought an interpretation from the staff of the International Code Council relative to the requirements of Section 1005.3.6.5 of the 2000 International Building Code (IBC). The IBC requires a fire resistance rating between a building and exterior stairs unless one of four exceptions is met, the fourth of which includes a requirement for sprinklers throughout the building, including corridors and stairs, where exterior stairways connect to open-ended corridors. Noting that NFPA 13R is a referenced standard under the IBC, the NFSA asked if it was correct that sprinklers would need to be provided for the exterior corridor in this case, as opposed to the general case in which sprinklers would not be provided for an open exterior corridor.

The official letter of interpretation, prepared by Plan Review Services Manager Christopher R. Reeves, P.E., agreed that sprinklers are needed to comply with the exception, but that the converse was not necessarily true. Mr. Reeves noted that open-ended exterior corridors are often roofed-over, allowing potential accumulation of smoke and toxic gases, and that the need for sprinklers in these areas must be decided on a case-by-case basis. He pointed to the lack of a definition of the “extent of openness” within NFPA 13R, leading him to conclude that the local code official will make the ultimate determination of whether sprinklers are needed for exterior stairs and corridors based on the degree of openness.

2003 IBC Requires Balcony and Patio Protection for Some NFPA 13R Systems

Section 903.3.1.2.1, new to the 2003 edition of the International Building Code, adds a requirement to NFPA 13R for sprinkler systems in multi-family dwellings of Type V (wood frame) construction. It calls for sprinkler protection of balconies and ground-floor patios. Sidewall sprinklers used to protect these areas must be located with deflectors 1 to

6 inches below structural members, but maximum 14 inches below the decks of exterior balconies.

Residential Sprinklers and Obstructions

NFPA 13D and 13R do not contain specific obstruction criteria, but instead rely upon a general statement, found in 2002 editions as Section 8.2.4 of 13D and as Section 6.7.1.5.3 of 13R:

“Sprinklers shall be positioned so that the response time and discharge are not unduly affected by obstructions such as ceiling slope, beams, or light fixtures.”

Unless specific obstruction criteria applicable to a situation are found within the sprinkler manufacturer’s literature, the Authority Having Jurisdiction is in the position of determining when obstructions “unduly” affect response time and discharge. However, the development of specific obstruction criteria for residential sprinklers within Section 8.10 of the 2002 edition of NFPA 13 has created benchmarks that are being used as a basis for judgment by some AHJs. While it can be argued that the stated purpose of NFPA 13D and 13R should allow more relaxed criteria, these rules may be brought forward to settle disputes.

NFSA has identified obstruction criteria for NFPA 13D and 13R as a priority for the next (2006) editions, and Victoria Valentine of the NFSA staff is heading a research effort in this area.

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Subject: Special Considerations for Detention and Correctional Facilities
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