

Tuesday e-Tech Alert

October 25, 2005



Floor-Mounted Obstructions and Ordinary Hazard

In the current 2002 edition, NFPA 13 has special criteria that permit sprinklers to spray over the tops of suspended or floor-mounted obstructions. The criteria are found in:

- Table 8.6.5.2.2 for standard upright and pendent sprinklers
- Table 8.7.5.2.2 for standard sidewall sprinklers
- Table 8.8.5.2.2 for extended coverage upright and pendent sprinklers
- Table 8.9.5.2.2 for extended coverage sidewall sprinklers
- Table 8.10.6.2.2 for upright and pendent residential sprinklers, and
- Table 8.10.7.2.2 for sidewall residential sprinklers.

In each case there are accompanying figures with the same numbers. Although the words “in light hazard occupancies only” were added to the title of Figure 8.6.5.2.2 in the 2002 edition, this was not a technical change. The application of the criteria in all of the above tables was limited to light hazard in the 1999 and previous editions through the wording of the sections that reference the use of these tables and figures.

The basic criteria have been around for many years, having first appeared in the 1983 edition. The criteria were developed to address the obstructions posed by patient room privacy curtains and were based on testing funded by the U.S. Department of Health and Human Services at the National Bureau of Standards (now the National Institute of Standards and Technology). The test report was published in 1980 as NBSIR 80-2097. The testing examined the degree of obstruction that would still permit the sprinkler to control a fire in a mattress on the opposite side of the privacy curtain.

From the start there has been a lack of full coordination between the figure, the table and the reference section. The original 1983 edition figure was titled “standard sprinkler installed near privacy curtain”, but the table was titled “minimum horizontal and vertical distances for pendent sprinklers”. The wording of the reference section was broader, stating that the table and figure related to “clearance from sprinklers to privacy curtains, freestanding partitions or room dividers.”

In the 1985 edition, the reference to pendent sprinklers was removed from the title of the table. In the 1989 edition, the title of the figure was changed to match the reference section: “Standard sprinkler installed near privacy curtains, free-standing partitions, or room dividers.” In 1991 the wording of the reference section was revised to clarify that the criteria was only valid for light hazard occupancies. This situation, in which the light hazard limitation appeared only in the

reference section, stayed unchanged when the obstruction criteria was duplicated for the various types of sprinklers in the 1996 edition. In the 1996 edition, however, the title of the figures was revised to a more general “Suspended or floor-mounted obstructions.” Parallel criteria were added for residential sprinklers in the 2002 edition. The addition of the words “in light hazard occupancies only” to the figure relating to standard upright and pendent sprinklers in the 2002 edition appears to be an editorial change, and it is not known why corresponding changes were not made to the figures for other types of sprinklers.

In any event, all of these figures and tables are limited to light hazard applications by virtue of the reference sections.

What about ordinary hazard? There are no specific rules relating to suspended or floor-mounted vertical obstructions within NFPA 13 for ordinary or extra hazard occupancies, so the general requirement for 18 inches of clearance to obstructions would apply. With regard to centering an upright or pendent sprinkler over an obstruction, however, guidance can also be obtained through reference to the rules for sprinkler placement with respect to the lower chord of trusses. Sections 8.6.5.2.1.7, 8.8.5.2.1.6, and 8.10.6.2.1.6 permit upright and pendent sprinklers to be installed on the centerline of a truss or bar joist or directly above a beam provided the truss chord or beam dimension is not more than 8 inches wide and the sprinkler deflector is located at least 6 inches above the structural member. These sections also require application of the “three times” or “four times” rule with regard to adjacent web members, but this should not be a factor if the obstruction is located only below the sprinkler.

Upcoming NFSA Technical Tuesday Online Seminar

Topic: Pitching and Draining of Sprinkler Systems

Instructor: Cecil Bilbo, NFSA Director of Technical Services

Date: November 8, 2005

This seminar will discuss the requirements for the proper pitching and draining of automatic fire sprinkler systems. The seminar will focus on the design, installation and testing requirements from NFPA 13 and NFPA 25. The requirements for material selection from NFPA 13 will also be covered.

NOTE: The online seminar “Hose Streams and Hose Stations,” originally scheduled for October 25, 2005, has been postponed until December 20, 2005.

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