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## **Specific Application Window Sprinkler to be Included in NFPA 13 and 13R**

The proposed 2016 editions of NFPA 13, 13D and 13R are being presented to the NFPA membership this week at the organization's 2015 Annual Conference & Expo in Chicago. One of the changes to NFPA 13 and NFPA 13R is the inclusion of installation criteria developed 20 years ago for a special listed sprinkler...the specific application window sprinkler.

First listed by Underwriters Laboratories for Central Sprinkler in 1995, these special window sprinklers were demonstrated to be able to provide the equivalent of a 2-hour fire rated assembly. However, recent efforts by some parties in the model code arena to reduce the permissible uses of these assemblies led Tyco Fire Protection Products to propose a suitable reference within both NFPA 13 and 13R for the continued use of the sprinkler.

For NFPA 13, the proposed new wording will be found in a new Section 8.15.26 and an accompanying annex section:

*8.15.26 Where sprinklers are used in combination with glazing as an alternative to a fire-rated wall or window assembly, the sprinkler-protected assembly shall comply with the following:*

- 1. Sprinklers shall be listed as specific application window sprinklers unless the standard spray sprinklers are specifically permitted by the building code.*
- 2. Sprinklers shall be supplied by a wet-pipe system.*
- 3. Glazing shall be heat-strengthened, tempered, or glass ceramic and shall be fixed.*
- 4. Where the assembly is required to be protected from both sides, sprinklers shall be installed on both sides of the glazing.*
- 5. The use of sprinkler-protected glazing shall be limited to non-load-bearing walls.*
- 6. The glazed wall assembly shall not have any horizontal members that would interfere with uniform distribution of water over the surface of the glazing, and there shall be no obstructions between sprinklers and glazing that would obstruct water distribution.*
- 7. The water supply duration for the design area that includes the window sprinklers shall not be less than the required rating of the assembly.*

*A.8.15.26 It is not the intent of this section to apply to sprinkler protection of glass atrium enclosures, pedestrian walkways, which are permitted by NFPA 101, or model building codes, to be protected by standard spray sprinklers installed in accordance with the special provisions set forth in those codes for atrium construction. In some cases, sprinkler*

*protected assemblies as an alternative to a fire-rated wall or window assembly could require the approval of the building official.*

Identical wording is proposed in a new Section 6.5.4 of NFPA 13R, although the annex material in A.6.5.4 is not proposed to include the last sentence from the NFPA 13 annex material.

### **Spray Sprinklers Protecting Atrium Glass**

As indicated in the above text, efforts have been made to avoid confusion with the longstanding use of other types of sprinklers to protect glazing in atria. These efforts include references to specific allowances by the building codes, both in the text and in the accompanying annex sections.

The current version of this longstanding allowance, which predates the specific application window sprinkler, can be found in Section 404.6 of the 2015 edition of the International Building Code (IBC). The code allows the use of a glass wall serving as a smoke barrier in lieu of a 1-hour rated fire barrier if the following conditions are met:

1. *Automatic sprinklers are provided along both sides of the separation wall and doors, or along the room side only if there is not a walkway on the atrium side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass at intervals not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;*
2. *The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and*
3. *Where glass doors are provided in the glass wall they shall be either self-closing or automatic-closing.*

The described protection scheme was tested at Livermore Laboratories in 1986 and found to be adequate. A summary of the tests was published in an article in the *NFPA Journal*. Tempered glass was considered adequate although laminated glass was found to work best.

In making the distinction between the two types of sprinkler protection, it should be noted that the installation criteria for the specific application window sprinkler is more detailed because it represents a broader application and a resource to provide the equivalent of up to 2 hours of fire resistant construction. The use of the regular spray sprinklers is limited to the single designated application of protecting atrium glazing in lieu of a 1-hour fire barrier.

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