



## **Tuesday e-Tech Alert February 22, 2005**

### **System Components Questions**

As noted below, the NFSA is currently conducting a 10-part series focusing on the 2002 edition of NFPA 13. This edition of the Tuesday e-Tech Alert shares some of the questions raised by participants during the second seminar in the series, which addressed Chapter 6 – System Components and Hardware:

#### 1. New Sprinklers

**Q:** If a sprinkler leaks during initial system testing and is taken out, cleaned, re-taped, and re-installed in the fitting, is it still considered a new sprinkler?

**A:** Yes, since this would still be considered part of the initial installation. The sprinkler should be installed, taken out, and re-installed using great care and the proper wrench.

#### 2. Sprinkler Bulbs

**Q:** Why don't sprinkler bulb colors match frame arm color codes, and why are there both yellow and green bulbs in the marketplace, since Table 6.2.5.1 shows them to be in the same temperature classification?

**A:** Bulb sprinkler technology developed largely in Europe, whereas solder link technology in North America, and by the time international standards were developed it was easier to acknowledge long-standing color code differences. Although the temperature rating of solder type sprinklers reflects the melting points of a limited number of metal alloy combinations, the bulbs can be made to any temperature rating. However, product standards allow only specific temperature possibilities for the bulb colors. The yellow color is used for 175°F (79°C) bulb sprinklers and the green color is used for 200°F and 212°F (93°C and 100°C) bulb sprinklers.

#### 3. Sprinkler Guards

**Q:** Are there sprinkler guards/cages listed for use with residential sprinklers or sidewall sprinklers?

**A:** UL confirms that guards are currently available for commercial sidewall sprinklers, but that to date no one has sought a listing for a residential sprinkler guard.

#### 4. Unavailable Reducing Fittings

**Q:** Are hex bushings allowed when the pipe fabricator does not have a reducing tee in stock for a standard fitting?

A: Not if the proper fittings can be readily obtained. NFPA 13 does not clarify whether “available” means “available in stock” or “available in the marketplace”, which tends to leave the issue to the authority having jurisdiction if contested.

## 5. Temporary Bushings

Q: Is there a time period that qualifies what “temporary protection” means for the use of bushings allowed under Section 8.14.19.2?

A: No. These bushings are allowed for upright sprinklers in situations where it is assumed that a ceiling will eventually be installed during tenant fit-out, at which time the bushings will be removed and armovers to pendent sprinklers installed. In the meantime, the sprinklers are positioned to provide protection in accordance with the standard.

## 6. Size-on-Size Welds

Q: Are size on size welds permitted? For example, can a 1.5-inch outlet be welded onto a 1.5-inch diameter pipe?

A: NFPA 13 makes no prohibition in this area, and if you review the UL listings for weld outlets, you’ll see that many, but not all, have the same size pipe included among the listed options.

## 7. Dry Listings for Couplings

Q: Is the requirement that rubber-gasketed couplings be listed for dry service based on concern of the coupling to hold up under impact pressure of dry systems, heat prior to water arrival, or to require flush seal gaskets?

A: The requirement for special listing for use in dry systems is intended to address the gasket freezing issue. It is assumed that pressure-rating safety factors adequately address impact loads associated with the filling of dry systems. The potential loss of a gasket due to heat is also possible if a wet system is temporarily shut off during the course of a fire. FM Global has traditionally addressed this by requiring that a gasketless version of a coupling allow no more flow than a K-5.6 sprinkler, and the proposed international standard for grooved couplings incorporates this same concept.

## 8. Listings for Small Backflow Valves

Q: Are listings required for controls on small backflow prevention valves, i.e. ¼-turn ball valves?

A: Section 6.7.3 clarifies that drain and test valves can be approved rather than listed, meaning that they only have to be acceptable to the authority having jurisdiction. If the valves on the backflow preventer control the connection to the water supply (and they generally do) then they must be listed indicating control valves.

## 9. Paddle-type Water Flow Switches Upstream of Dry and Preaction Systems

Q: Section 6.9.2.4 of NFPA 13 states that a paddle-type water flow alarm indicator shall be installed in wet systems only. In the event that a room in the middle of the building requires a

pre-action system, the existing overhead system is a wet system and has a paddle type water flow alarm indicator on the riser, is it the intent of this section of NFPA that the new supply piping to the pre-action system be taken upstream of the existing water flow switch as not damage the paddle when the pre-action valve trips, or can the supply be taken downstream off of the existing system?

A: Technically, the paddle type flow switch described is located in a wet pipe system upstream of the preaction system, and so the prohibition would not apply. Nevertheless, a reasonable approach would be to evaluate the location of the paddle-type flow switch with regard to the location of the preaction system and to consider the size of the piping feeding the preaction system as compared to the size of the riser. If the preaction system is smaller and somewhat distant from the riser, the water flow switch should not experience much of a surge and the downstream supply to the preaction system should therefore present no problem. If the location and relative size are questionable, the velocity of flow through the riser can be calculated based on an assumed simultaneous flow through all sprinklers in the preaction system, and compared to the velocity used in the surge test in UL 346 – *Water Flow Indicators for Fire Protective Signaling Systems*, which is 18 ft/sec. The flow switch manufacturer could also be contacted for evidence of durability at higher velocities, such as might be found in overseas approvals.

Upcoming NFSA Technical Tuesday Online Seminar:

### **NFPA 13 Chapter 7 – System Requirements**

**Instructor: Russell P. Fleming, P.E.**

***Date: March 1, 2005***

This seminar will address the separate requirements of NFPA 13 for wet pipe systems, dry pipe systems, deluge systems and various types of preaction systems. Requirements for antifreeze systems are also addressed, as are multi-purpose piping systems, exposure protection systems, and commercial cooking systems. This is the third in a series of ten seminars dedicated to an in-depth review of the current (2002) edition of NFPA 13. Participants will develop an appreciation for the way in which the material is organized in the 2002 edition while learning more about the background of the rules themselves.

The level of all seminar topics is considered intermediate. These seminars are being offered as a complete program on NFPA 13 - a 20% discount is available if signing up for all eight remaining seminars in the series.

Information and registration for this seminar is available at [www.nfsa.org](http://www.nfsa.org).

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*In the promotion of the fire sprinkler concept, the National Fire Sprinkler Association represents all fire sprinkler industry interests including fire sprinkler contractors, manufacturers and suppliers of fire sprinklers and related equipment and fire protection professionals. Established*

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