



## Tuesday e-Tech Alert December 13, 2005

### Fire Department Connection Q&A

A recent NFSA Technical Tuesday Online Seminar dealt with the subject of fire department connections. The following are some recent questions that have come to the NFSA Engineering staff with regard to these devices:

Q: Is it acceptable to locate the FDC in a location remote from a sprinkler system riser so long as all portions are fed with minimum 4-inch pipe?

A: Yes. For wet pipe and deluge systems, NFPA 13 does not require the FDC to be connected to the sprinkler system in any specific location provided it is downstream of all system control, check and alarm valves. As such, it could feed into the end of the system feed or cross main opposite the system riser. For dry pipe or preaction systems the FDC could be remotely located provided it is connected to the system valving in accordance with Section 8.16.2.4.2.

Q: Our company has been using a rule of thumb of providing a minimum 4 ft of piping in the warm space between the check valve and the FDC. Is there anything in NFPA 13 that would govern this? Could this distance change in very cold areas?

A: The minimum 4 ft of piping in a warm space now only appears in a note to Figure 8.15.2.4 on drain connections that states: "Not less than 4 ft of exposed drain pipe in warm room beyond valve when pipe extends through wall to outside." In the 1989 and prior editions of NFPA 13, this guidance was assigned to fire department connection piping as well, but the standard now leaves freeze protection up to the judgment of the AHJ and the designer/installer. By requiring "adequate protection from freezing", the standard is purposefully vague about the requirement, recognizing that the demands of climate change from one area to another. The only requirement specifically relating to freeze protection of fire department connections is found in Section 8.16.2.6: "Drainage. The piping between the check valve and the outside hose coupling shall be equipped with an approved automatic drip in areas subject to freezing."

Q: Can an alternative to the automatic drip in areas subject to freezing be provided, such as an FDC cap that drains a system in which the FDC inlet is the low point of the piping?

A: Yes, but only with the approval of the AHJ based on the equivalency provisions of Section 1.5. In very cold climates, slow drainage through the FDC cap could freeze and plug due to its exterior location.

Q: Can you combine a fire department connection and main drain such that the main drain is run through the FDC?

A: No. Since the check valve in the FDC line would prevent you from draining the sprinkler system, you could not connect the main drain to the FDC piping.

Q: If a fire standpipe system has 3 risers, how many fire department connections are required?

A: Unlike NFPA 13, NFPA 14 – *Installation of Standpipe and Hose Systems* requires (Section 7.7.1 in the 2003 edition) that “Class I and Class III standpipe systems shall be designed so that the system demand can be supplied by each fire department connection.” Section 7.7.2 clarifies this is true even where an automatic water supply is provided. NFPA 14 also requires one or more fire department connections for each zone of a Class I or III standpipe system (section 7.13.1 in the 2003 edition). However, none of this prohibits a single FDC location from supplying multiple zones. If a building protected by three standpipe risers were connected to a single FDC such that the FDC provided the entire flow for the standpipe system, this would require one inlet for every 250 gpm of flow, or a total of four inlets. The first standpipe would require 500 gpm, and the other two standpipes would require 250 gpm each. It should be noted, however, that Section 7.13.2 requires that high-rise buildings have at least two remotely located fire department connections for each zone unless a single connection is acceptable to the fire department. Some local building and fire codes also dictate the minimum number of fire department connections based on the number of street fronts.

Q: If an ESFR sprinkler system has a demand over 1600 gpm, how many FDC inlets are required?

A: Two 2-1/2-inch inlets, in other words a standard fire department connection. There is no requirement for the FDC to flow any specific amount on a sprinkler system. This includes ESFR sprinkler systems. The NFPA Sprinkler Installation Criteria Committee has clarified this as it prepares the 2007 edition of NFPA 13. The Committee has made it very clear that a 4 x 2½ x 2½ connection is sufficient for any sprinkler system where the exceptions from 8.16.2.3 do not apply. This is because the FDC is only intended to supplement the available water supply. The FDC is never intended to replace or become the water supply on fire sprinkler systems defined in NFPA 13.

## **Upcoming NFSA Technical Tuesday Online Seminar**

**Topic: Hose Streams and Hose Stations**

**Instructor: Kevin J. Kelly, P.E., NFSA Manager of Codes**

**Date: December 20, 2005**

NFPA 13 has specific criteria for hose connections supplied by sprinkler systems. The rules for their installation and use are different from those for standpipes. This seminar will cover the current installation rules from NFPA 13 as well as when these systems are required to be installed. Topics covered include; protection of storage, hose equipment, flow and pressure requirements, hose station location, proper use and training, plans and calculations.

NOTE: This seminar was postponed from its original date of October 25, 2005. Information and registration for this seminar is available at [www.nfsa.org](http://www.nfsa.org).

## **Are You Aware of CPFST?**

There are more than a hundred students currently enrolled in the NFSA's Certificate Program for Fire Sprinkler Technicians (CPFST). This 2-year program, initiated in 2004, has become the industry standard for technician training. It starts with the NFSA's two-week basic technician training seminar, and continues with a planned sequence of proctored on-the-job training, online training, chat rooms, and advanced training. The program includes periodic testing to monitor progress, and a certificate is awarded to recognize successful completion of the program. There are two "entry points" to the program each year, with the next entry point coming up in February/March of 2006. More information is available at the NFSA website or by contacting Ken Isman at [isman@nfsa.org](mailto:isman@nfsa.org).

### **Engineer of the Day Contact Information**

The NFSA "Engineer of the Day" program, by which NFSA members have access to a staff engineer on call during every business day of the year for technical assistance, has been improved with easier access. In addition to calling NFSA at 845-878-4200 and choosing selection 2 to reach the engineer of the day, members can now send e-mail questions to [eod@nfsa.org](mailto:eod@nfsa.org)

### **2006 Basic and Advanced Technician Training, NICET Inspection Seminars**

The NFSA is the only organization that offers two-week basic technician training seminars, 3-day advanced technician training seminars, and NICET-oriented inspection and testing review seminars at various locations across the U.S. The 2006 schedule:

#### 2-week Basic Technician Training

**March 6-17, 2006 – Chicago, IL**  
**August 14-25, 2006 – Seattle, WA or Denver, CO**  
**October 16-27, 2006 – Philadelphia, PA**

#### 3-day Advanced Technician Training

**April 18-20, 2006 – Chicago, IL**  
**May 16-18, 2006 – TBD**  
**October 3-5, 2006 – Minneapolis, MN**

#### 3-day NICET Inspection and Testing Certification Review

**January 9, 10, 11, and 12, 2006 – first day of split sessions in five Florida locations**  
**January 24-26, 2006 – New Jersey**  
**February 22-24 – Phoenix, AZ**  
**February 28-March 2 – Washington State**  
**May 9-11 – Washington State**  
**June 27-29 – Anchorage, AK**  
**July 11-13 – Edwards, CO**

For more information, contact Nicole Sprague using [Sprague@nfsa.org](mailto:Sprague@nfsa.org)

### **Spring 2006 Onlines Announced**

For the On Line Seminar Series in the first half of 2006, the NFSA has decided to focus on the devices on the system that discharge the water (sprinklers and nozzles). Over the course of 10 programs, the use of different kinds of sprinklers will be explored. Each program will take a slightly different slant, but each one will look at the situations unique to that kind of sprinkler. The programs will be:

<b>Date</b>	<b>Topic</b>	<b>Instructor</b>
Jan. 24	Standard Spray Upright and Pendent Sprinklers	Kenneth E. Isman, P.E.
Feb. 7	Standard Spray Sidewall Sprinklers	Kevin J. Kelly, P.E.
Feb. 21	Extended Coverage and Quick Response Sprinklers	Kenneth E. Isman, P.E.
Mar. 7	Residential Sprinklers	Victoria B. Valentine, P.E.
Mar. 21	ESFR, Large Drop and Specific Application Sprinklers	Kevin J. Kelly, P.E.
Apr. 4	Dry Sprinklers	Russell P. Fleming, P.E.
Apr. 18	Special Sprinklers	Cecil Bilbo, Jr.
May 9	Sprinkler Aesthetics and Protective Coverings	Russell P. Fleming, P.E.
May 23	Spray Nozzles and Directional Sprinklers	Cecil Bilbo, Jr.
June 13	Water Mist Nozzles	Victoria B. Valentine, P.E.

The level of all seminar topics is considered intermediate. Because these seminars are being offered as a complete program on the various types of sprinklers, a 30% discount is available when signing up for all ten seminars in the series.

To register visit [www.nfsa.org](http://www.nfsa.org)