



## Tuesday e-Tech Alert June 27, 2006

### *Sprinkler Temperature Selection Pitfalls*

Although incidents of accidental sprinkler discharge appear to be on the decline from the numbers anecdotally reported a few years ago, the possibility of a sprinkler discharge for no apparent reason still remains. Since overheating is one possible explanation, specifiers and installing contractors are well advised to exercise caution in the selection of temperature rating to avoid being second-guessed in the event of an unwanted activation. For many years, NFPA 13 has contained specific rules addressing situations where ordinary rated sprinklers were to be avoided, along with a general requirement that higher temperature ratings were to be used where maximum ceiling temperatures exceed 100° F (38° C). In the 2002 edition an additional Table 8.3.2.5(c) was added for “specified residential areas”, parallel to tables in NFPA 13D and 13R. Since the sensitivity of quick response sprinklers is essentially the same as residential sprinklers, however, one would be hard-pressed to justify ignoring those minimums for the same sources of heat in an office or other environment. Furthermore, differences in minimum temperature ratings relative to heat sources for fast response vs. standard response sprinklers can only be justified for intermittent heat sources, i.e. those that cycle on and off such that they might affect a fast response sprinkler but not a standard response sprinkler. As a result, NFPA 13 now puts the user in a position to avoid the use of ordinary temperature rated sprinklers where any of the tables call for higher temperature ratings or any other situation in which the ceiling temperature would be expected to exceed 100° F (38° C). The following are potential problem areas, some of which are created by inconsistencies in NFPA 13 and which have been mentioned in prior issues of *e-Tech Alert*.

### **Sprinklers Near Light Fixtures**

In Table 8.3.2.5(c), added in the 2002 edition for sprinklers in residential areas, the bottom line addresses the proximity of sprinklers to light fixtures of 250 to 499 W and requires a minimum 12 inch (300 mm) separation for ordinary temperature rated sprinklers and a minimum 6 inch (150 mm) separation for intermediate temperature sprinklers, matching the criteria in NFPA 13D and 13R. However, the next line up, for light fixtures of 0 to 250 W, is blank. This does not correlate with NFPA 13D and NFPA 13R, which require 6 inches (150 mm) for ordinary temperature and 3 inches (75 mm) for intermediate temperature sprinklers.

### **Sprinklers in Mechanical Equipment Rooms**

Although not specifically addressed in the section on sprinkler temperature ratings, building mechanical rooms often contain heat-producing equipment that have the potential to create in ambient temperatures in excess of 100° F (38° C), necessitating the use of intermediate temperature-rated sprinklers in accordance with Section 8.3.2.2 and the referenced Table 6.2.5.1. Unfortunately, maximum ambient temperatures can only be determined with accuracy once the building is in operation.

### **Sprinklers Near Ceiling Heat Diffusers**

As explained in an NFSA informal interpretation published in the *eTechAlert* for April 11, 2006, NFPA 13 Table 8.3.2.5(a) contains condition 1(c) for sprinkler temperature ratings near diffusers. Ordinary temperature rated sprinklers are prohibited within a 12-inch cylinder of diffusers that discharge downward, and prohibited within a 30-inch semi-cylinder of diffusers that discharge horizontally. The table does not

appear to specifically address the very common heat duct diffuser in a suspended ceiling that nominally discharges downward, but for which the discharge is directed horizontally over 360 degrees. This type of diffuser would be expected to better distribute and dilute the heat than a sidewall horizontal discharge, making the cylinder approach to ordinary temperature rated sprinkler avoidance more appropriate than the semi-cylinder. NFSA recommends compliance with the 24-inch minimum specified in Table 8.3.2.5(c), which was developed for fast-response residential sprinklers, for "side of ceiling- or wall-mounted hot air diffusers". Of course, the actual avoidance area is not a true cylinder, since it would extend from the edge of the diffuser in all directions, taking on the shape of the diffuser.

### **Sprinklers in Ventilated Uninsulated Attics**

In the NFSA *e-Tech Alert* for Tuesday, August 10, 2004, an apparent conflict was highlighted in the wording of NFPA 13 relative to the temperature rating of sprinklers in uninsulated ventilated attics. With the exception of flat metal roofs, Table 8.3.2.5(b) of the 2002 and prior editions of NFPA 13 appears to make a clear distinction on the basis of whether attics and roof spaces are ventilated or unventilated. The ventilated conditions fall under the column of ordinary degree temperature ratings, and the unventilated under the intermediate degree temperature ratings. However, the wording of Section 8.3.2.5(5) states: "Sprinklers in an unventilated, concealed space, under an uninsulated roof, or in an unventilated attic shall be of the intermediate temperature classification." The use of the "or" between "uninsulated roof" and "unventilated attic" suggests that intermediate rated sprinklers are required under uninsulated roofs even within ventilated attics.

### **New NFSA "Technical Tuesday" Online Seminar Series Announced**

The NFSA has announced a new series of online technical seminars for the second half of 2006 that focus on ten areas commonly leading to installation problems with sprinkler systems. Some of these ten areas are traditional problems of understanding the installation rules, while some relate to problem areas surfacing with regard to new technologies. Over the course of the ten programs, each area will be explored with the view that problems can be prevented through the use of proper procedures. The programs will be:

July 11	CPVC Piping Compatibility and Use
Aug. 1	Where Codes Override Installation Standards
Aug. 22	Sprinkler Obstructions
Sept. 12	Concealed Spaces
Sept. 26	Commissioning of Systems
Oct. 10	Draft Stops and Closely-Spaced Sprinklers
Oct. 24	Confusing Aspects of Storage Protection
Nov. 7	Emerging Issues for Residential Sprinkler Systems
Nov. 21	Protective Coatings for Piping
Dec. 12	Other Problem Areas/Frequently Asked Questions

A discount of 30 percent is available when signing up now for all ten seminars in the series. Information and registration for this seminar is available at [www.nfsa.org](http://www.nfsa.org).

### **NFSA Launches "Business Thursday" Online Seminars**

Building on the success of the "Technical Tuesday" online seminars that the NFSA has been conducting for many years, the NFSA is presenting a series of ten "Business Thursday" online seminars for the second half of 2006. Aimed at the contractor or project manager rather than the technician, these seminars will

follow the same format, starting at 10:30 am Eastern time and continuing for 1 to 1-1/2 hours. The schedule of dates and topics is as follows:

July 6	Safety and Risk Management
July 20	Contract Language Pitfalls
August 10	Change Orders
August 24	Insurance Programs: OCIPs and CCIPs
September 14	Pre-Job Planning
September 28	Mold Remediation
October 19	Project Scheduling
November 2	Prompt Pay and Retainage
November 16	Water Charges: Impact and Standby Fees
December 7	AHJ Relationships

A discount of 30 percent is available when signing up now for all ten seminars in the series. Information and registration for this seminar is available at [www.nfsa.org](http://www.nfsa.org).

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

**Topic: CPVC Piping Compatibility and Use**

**Instructor: Russell P. Fleming, P.E., NFSA Executive Vice President**

**Date: July 11, 2006**

Although introduced as a special listed product, the CPVC piping system has become the industry standard for residential and similar applications. Some specific rules relating to CPVC pipe and fittings are now found within the NFPA standards. Special precautions must be taken with regard to hanging, testing, and other aspects of use. There are also newer concerns of compatibility with other products found in sprinkler systems that require attention to prevent system failures. The focus of this seminar will be on identifying and avoiding these compatibility problems.

Information and registration for this seminar is available at [www.nfsa.org](http://www.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 United States. The 2006 schedule has been set for the following dates and locations:

#### **2-week Basic Technician Training**

August 14-25, 2006 – Seattle, WA

October 16-27, 2006 – Philadelphia, PA

#### **3-day Advanced Technician Training**

October 3-5, 2006 – Minneapolis, MN

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

June 27-29, 2006 – Sugarland, TX  
July 11-13, 2006 – Edwards, CO  
September 6-8, 2006 – Dallas, TX  
November 14-16, 2006 – Anchorage, AK

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

## **NFSA In-Class Training Opportunities**

NFSA also offers in-class training on a variety of subjects at locations across the country. Here are some upcoming seminars:

July 11-12	Providence, RI	NFPA 13 Overview & Intro to Plan Review
July 13	Providence, RI	Hydraulics for Fire Protection
July 18-19	Prescott Valley, AZ	NFPA 13 Overview & Intro to Plan Review
July 20	Prescott Valley, AZ	Inspection, Testing & Maintenance
July 18	Albuquerque, NM	Hydraulics for Fire Protection
July 19	Albuquerque, NM	Pumps for Fire Protection
July 20	Albuquerque, NM	Sprinkler Protection for General Storage
July 25	Centerville, OH	Sprinkler Protection for General Storage
July 26	Centerville, OH	Sprinkler Protection for Rack Storage
July 27	Centerville, OH	Sprinkler Protection for Special Storage

For more information or to register, visit [www.nfsa.org](http://www.nfsa.org) or call 845-878-4207.

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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 in 1905, the National Fire Sprinkler Association provides publications, nationally accredited seminars, representation in codes and standards-making, market development, labor relations and other services to its membership. Headquartered in Patterson, New York, the National Fire Sprinkler Association has regional operations offices throughout the country.*