



Tuesday e-Tech Alert
May 29, 2007
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Other Big News from Rochester – Seismic Endorsement for NFPA 13

The fire sprinkler community was focused on the vote in Rochester, New York, last week to see whether the International Residential Code would be amended to call for sprinkler systems in new dwellings. Although a majority vote was obtained, the two-thirds vote needed to overturn the Code Committee recommendation wasn't forthcoming, and efforts will now be focused on the 2009 edition of the Code, scheduled to be voted upon in 18 months.

However, there was other good news to be found in this interim amendment cycle for the 2006 International Codes. Fire sprinkler contractors working in areas subject to earthquakes may be glad to hear that an amendment was processed to Section 1613.6.3 of the International Building Code to reword the section as follows:

1613.6.3 Automatic Fire Sprinkler Systems. Automatic fire sprinkler systems designed and installed in accordance with NFPA 13 shall be deemed to meet the requirements of Section 13.6.8 of ASCE 7.

Note: A corresponding change to Chapter 35 of the IBC specifically references the use of the 2007 edition of NFPA 13.

The use of the standardized NFPA 13 approach to satisfy the IBC requirements for earthquake protection of sprinkler systems has been confused in recent years due to the deletion of Section 9.6.3.11.2 of the 2002 edition of ASCE 7 by Section 1621.1.1 of the 2003 edition of the International Building Code. Since this Section of ASCE 7 specifically recognized the use of the NFPA 13 approach provided the force and displacement requirements of the Code were satisfied, it led some local code officials to believe the NFPA 13 criteria were inadequate, and that a structural engineering review of bracing details was appropriate.

The 2006 edition of the IBC more directly referenced the use of the 2005 edition of ASCE 7, which recognized the use of NFPA 13 but with the stipulation for high-risk earthquake areas in Section 13.6.8.3(2) that the "fire protection sprinkler system piping itself shall meet the force and displacement requirements...". Because the 2006 edition of the IBC referenced the use of the 2002 edition of NFPA 13, it was not clear how this was to be accomplished.

It is important to note that the use of the 2007 edition of NFPA 13 is considered critical to the full acceptance of the NFPA 13 approach. The 2007 edition includes the Tentative Interim Amendment processed to the 2002 edition of the standard, which reduced the allowable fastener loads to match current industry standards, limited the maximum spacing of lateral braces to 40 ft (12.2 m) on center, and provided clarification of how NFPA 13 could be used in conjunction with the nonstructural component seismic design force formula contained in ASCE 7. The 2007 edition of NFPA 13 also contains a number of individual rule changes of significance relative to the installation of seismic bracing and restraint:

- Where seismic separation assemblies are provided, four-way bracing must be provided on piping within 6 ft (1.8 m) of both sides of the separation.
- To limit piping deflections, a new table limits maximum load per lateral brace based on spacing from 20 ft to 40 ft (6.1 to 12.2 m) along with size and type of pipe; the allowance for maximum lateral brace spacing over 40 ft (12.2 m) has been eliminated.
- The distance between the last lateral brace and the end of a pipe being braced must not exceed 6 ft (1.8 m).
- Except where branch lines are supported by rods less than 6 in. (150 mm) in length, restraint of all branch lines is required, with maximum distance between restraints ranging from 27 to 55 ft (8.2 to 16.7 m) depending on the size of the branch line and the force level. Branch lines 2-1/2 in. (65 mm) and larger continue to require lateral bracing.
- Additional hangers used at an angle of not less than 45 degrees from vertical fulfill the requirements for branch line restraint provided the hanger rod slenderness ratio does not exceed a value of 300.

A simplified approach to determining seismic forces on sprinkler systems has also been developed for the 2007 edition of NFPA 13, involving a number of conservative assumptions. For example, the approach assumes poor soil conditions, leading to higher earthquake forces on the piping. The user of the standard always has the option to determine lateral forces in accordance with the actual equation of ASCE/SEI 7, but the simplified approach allows the determination of loads without the use of the equation. Table 9.3.5.6.2 contains a series of “seismic coefficients”, factors that are simply applied to the design acceleration S_{DS} taken from the USGS maps (or website) to arrive at the earthquake design force levels.

Several structural engineers who participated extensively in the federally-funded development of national earthquake criteria have been participating in the NFPA 13 amendment process as members of the NFPA Technical Committee on Hanging and Bracing of Water-Based Fire Protection Systems, trying to eliminate areas of conflict between NFPA 13 and ASCE 7. At a recent structural engineering conference in Long Beach, CA, it was noted that the fire sprinkler industry is the first of the mechanical trades to “get its’ house in order” by coordinating its industry standard with the earthquake protection criteria used by the structural engineering community.

Upcoming NFSA “Technical Tuesday” Online Seminar – May 22nd

Topic: Changes to the Pump Requirements

Instructor: Kenneth E. Isman, P.E., NFSA Vice President of Engineering

Date: June 12, 2007

Along with the other standards, NFPA 20 has also undergone a revision for 2007. This seminar will discuss the major changes in this new edition including the use of the term “alarm” throughout the standard and the new definition for “reliable” power supplies so that it is more clear when an electric motor driven fire pump can be installed without back-up power.

Information and registration for this seminar is available at www.nfsa.org or by calling Dawn Fitzmaurice at 845-878-4200 ext. 133 or email: dawn@nfsa.org.

Upcoming NFSA “Business Thursday” Online Seminar – June 21st

Topic: Tort Law Reform

Instructor: Buddy Dewar, NFSA Director of Regional Operations

Date: June 21, 2007

Tort law reform has been taking place in some areas of the country and these areas have experienced above-average economic growth. Coincidence? There are many areas in the U.S. unfriendly to the business environment of a fire sprinkler contractor. This seminar defines a “tort” with regard to fire protection law, describes how it may be dangerous to business and local economics, and reviews examples of successful reform.

Information and registration for this seminar is available at www.nfsa.org or by calling Dawn Fitzmaurice at 845-878-4200 ext. 133 or email: dawn@nfsa.org.

Sign Up Now for July-December 2007 “Technical Tuesday” Seminars

Registration is under way for the series of ten “Technical Tuesday” online classes for the second half of 2007. As in the past, a discount of 30 percent is available when signing up for all ten seminars in the series:

Date	Topic	Instructor
July 17	Multipurpose Piping Systems	Russell P. Fleming, P.E.
Aug 7	Flammable and Combustible Liquids – Part 1	Victoria B. Valentine, P.E.
Aug 21	Concealed Space Area Calculations	Cecil Bilbo, Jr.
Sept 11	Smoke and Heat Vents	Michael Friedman, P.E.
Sept 25	Cloud Ceilings	Kenneth E. Isman, P.E.
Oct 9	Special Considerations for Dry Systems	Cecil Bilbo, Jr.
Oct 23	Flammable and Combustible Liquids – Part 2	Victoria B. Valentine, P.E.
Nov 6	Spec Buildings	Kenneth E. Isman, P.E.
Nov 20	NFPA 25 – 2007 Update	Russell P. Fleming, P.E.
Dec 11	Special Storage Sprinkler Systems	Cecil Bilbo, Jr.

The following are the descriptions for each class:

July 17, 2007 – **Multi-Purpose Piping Systems** – Russell P. Fleming, P.E, Executive Vice President – Basic/Intermediate

NFPA 13 specifically recognizes the use of sprinkler systems with non-fire protection connections, and NFPA 13D and NFPA 13R also contemplate some types of combined piping systems. This seminar will provide a historical review of combination system concepts, review the current applicable rules of the NFPA standards, and discuss the potential impacts of their use. Do these systems simply represent an available alternative or are they the future of the fire sprinkler industry?

August 7, 2007 – **Flammable and Combustible Liquids – Part 1** – Victoria B. Valentine, P.E., Manager of Product Standards – Basic/Intermediate

Flammable and combustible liquids offer a challenge to many fire protection systems. The amount of liquids and the storage arrangement can affect the ability of a fire to be controlled. NFPA 30, Flammable and Combustible Liquids Code, offers some guidelines on how to protect specific arrangements. This seminar will review the different types of systems that can be used to protect these hazardous liquids and some scenarios that fall outside the scope of the standardized protection schemes.

August 21, 2007 – **Concealed Space Area Calculations** – Cecil Bilbo, Jr., Director of Technical Services – Basic/Intermediate

There are many different requirements for defining the remote areas of a sprinkler system when concealed spaces are present. This seminar will discuss the calculation of sprinkler systems when there are concealed spaces present. It will define concealed spaces and explain the differences between the types of concealed spaces. In addition, the 3,000 sq ft rule and how eaves and overhangs affect these decisions will be included. Also, optional methods of protection for these spaces will be reviewed.

September 11, 2007 – **Smoke Vents, Heat Vents, and Draft Curtains** – Michael J. Friedman, P.E., NFSA Consultant – Intermediate

While not the primary function of a sprinkler design technician, the effect of smoke vents, heat vents, and draft curtains on sprinkler performance is critical to proper sprinkler placement and integration of venting systems. This seminar will provide information a technician needs to know and the effect on sprinkler layout.

September 25, 2007 – **Cloud Ceilings** – Kenneth E. Isman, P.E, Vice President of Engineering – Intermediate

They have been called “Cloud Ceilings”, “Non-continuous Ceilings” and even “Islands in the Sky” by architects. These architectural features can be described as any ceiling that is not continuous across an entire room or space creating multiple objects in between the observer on the floor and the eventual roof of the room or space. As far as fire sprinklers are concerned, the issues are whether to sprinkle above or below these features (or both). This seminar will address all of the relevant concerns of matching a sprinkler system to a variety of different architectural features that have the potential to block hot gasses from getting to sprinklers and the potential to block discharge from the sprinklers from getting to the floor below.

October 9, 2007 – **Special Considerations for Dry Systems** – Cecil Bilbo, Jr., Director of Technical Services – Intermediate

This seminar will discuss the special requirements that are often overlooked on dry systems. The discussion will include the calculation of water delivery times and the new manifolds for testing systems in this manner, as well as the new requirements for signs and information on a dry sprinkler system. Also, find out if the small room rule and the largest room method can be used on dry systems. More importantly, the TIA recently issued for dry systems and its affect on the development of the 2007 edition of NFPA 13 will be discussed. In addition, this seminar will take a look at the history of the requirements for water delivery in NFPA 13 over the last hundred years.

October 23, 2007 – **Flammable and Combustible Liquids – Part 2** – Victoria B. Valentine, P.E., Manager of Product Standards – Intermediate

Automatic fire protection for inside storage of flammable and combustible liquids is one of the most common topics that sprinkler contractors have to deal with in NFPA 30. There are many protection schemes that are laid out for the users based on testing data. This seminar will focus on the different arrangements of inside storage and the options put forth by NFPA 30 including the flow charts used for determining protection. In addition, where in-rack protection is needed the schemes will be reviewed.

November 6, 2007 – **Spec Buildings** – Kenneth E. Isman, P.E., Vice President of Engineering – Intermediate

A fundamental assumption of NFPA 13 is that the sprinkler system is designed to match the use of the building. But what do sprinkler contractors do if the use of the building has not been established by the owner? What if the owner does not know how the building is going to be used and is just putting up the building in the hopes that someone else will buy or lease it? This seminar will provide strategies that sprinkler contractors can use to adequately protect these buildings that are being constructed without specific uses in mind.

November 20, 2007 – **NFPA 25 Update** – Russell P. Fleming, P.E., Executive Vice President – Basic/Intermediate

The 2008 edition of NFPA 25, presented at the June 2007 NFPA conference, includes new responsibilities for system inspectors. Among other items, the committee has been concerned about the lack of signage and the need for an air pressure integrity test for dry pipe systems. The committee has also attempted to address long-standing gray areas such as the degree to which a water supply can deteriorate before an investigation of adequacy is warranted, and the tests needed following component replacement or repair. Even in areas where older editions of NFPA 25 are enforced, the new provisions represent the state of the art that can impact the liability of companies performing inspection, testing and maintenance.

December 11, 2007 – **Special Storage Sprinkler Systems** - Cecil Bilbo, Jr., Director of Technical Services – Intermediate/Advanced

There have been numerous types of sprinklers listed for use in Storage Applications in recent years. Now there are entire systems listed for use in Storage Applications. This seminar will discuss the many options available and the history behind their development. From Large Orifice, to Large Drop, to ESFR, to Big Box, to Antifreeze, all of the available options on the market will be discussed. Also included will be a conversation about “surrounding and drowning” a fire. Understanding the limitations faced by all of these products will help you choose the best strategy for winning the next bid on a storage project.

Additional NFSA Training Opportunities

Two-Week Technician Training Seminar

September 24- October 5 Kansas City, MO

This seminar, the last available for 2007, also serve as a starting point for the NFSA's two-year Certificate Program for Fire Sprinkler Technicians. For more information, contact Nicole Sprague at 845-878-4200 ext. 149 or email: Sprague@nfsa.org.

3-day Advanced Technician Training Classes

<i>July 24-26</i>	<i>Chicago, IL</i>
<i>September 5-7</i>	<i>St Louis, MO</i>

For more information, contact Nicole Sprague at 845-878-4200 ext. 149 or email: Sprague@nfsa.org.

NICET Inspector Certification Review Classes

<i>June 19-21</i>	<i>Wilmington, DE</i>
<i>August 14-16</i>	<i>San Antonio, TX</i>
<i>November 6-8</i>	<i>Providence, RI</i>

For more information, contact Nicole Sprague at 845-878-4200 ext. 149 or email: Sprague@nfsa.org.

In-Class Training Seminars

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

May 31	Hydraulics for Fire Protection////Rogers, AR
June 5-6	Two-day NFPA 13 Overview & Intro to Plan Review////Willoughby, OH
June 7	Underground Piping (1/2 day) (AM)////Willoughby, OH
June 7	Advanced Pump Layout Procedures (1/2 day)(PM)////Willoughby, OH
June 5	Hydraulics for Fire Protection////Albany, NY
June 6	NFPA 13 2002 Update////Albany, NY
June 7	Pumps for Fire Protection////Albany, NY
June 12-13	Two-day NFPA 13 Overview & Intro to Plan Review////Holland, MI
June 14	Hydraulics for Fire Protection////Holland, MI
July 31	Introduction to Sprinkler Systems (1/2 day)(AM)////Pataskala, OH
July 31	Underground Piping (1/2 day) (PM)////Pataskala, OH
Aug 1	Pumps for Fire Protection////Pataskala, OH
Aug 2	Sprinkler Protection for Rack Storage////Pataskala, OH

For more information or to register, visit www.nfsa.org or call Michael Repko at 845-878-4207 or email: seminars@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 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.