



# e-TechNotes

*Editor-Russell P. Fleming, P.E.*

*Issue No. 230*

*Issued: January 17, 2012*

## **New Definitions Proposed for 2013 Edition of NFPA 13**

The various NFPA Technical Committees have concluded their balloting, endorsing the various changes processed through the Report on Proposals and Report on Comments leading to the 2013 edition of NFPA 13. The Committee will officially report its proposed changes to the NFPA membership at the NFPA Annual Meeting scheduled for Las Vegas in June, at which time some types of amendments can be proposed from the floor. If any floor actions take place the Committees will have an opportunity to respond, and appeals can follow, but the NFPA Standards Council will be expected to officially release the 2013 edition in August.

Over the next few months, this publication will be reporting some of the major changes proposed for NFPA 13, 13D, 13R, and 24, the standards developed by the NFPA Sprinkler Committees. This issue addresses changes in definitions, which are the basis of application and enforcement of the standards. Here are the significant changes in definitions for the 2013 edition of NFPA 13:

### **Sprinkler System**

3.3.18 – The long-standing definition of a sprinkler system is being revised to read as follows: “An integrated network of piping designed in accordance with fire protection engineering standards that includes a water supply source, a water control valve, a water flow alarm, and a drain. The portion of the sprinkler system above ground is a network of specifically sized or hydraulically designed piping installed in a building, structure, or area, generally overhead, and to which sprinklers are attached in a systematic pattern. The system is commonly activated by heat from a fire and discharges water over the fire area.”

This change was motivated by an effort to include water mist systems under the current definition of sprinkler system. A companion change will create a new Section 1.1.2 to clarify that “This standard does not provide requirements for the design or installation of water mist fire protection systems, which are not considered fire sprinkler systems and are addressed by NFPA 750...”

### **Shadow Area**

3.X – A new section will define Shadow Area as “The dry floor area created by the portion of sprinkler discharge that is blocked by an obstruction or building architectural feature.” A companion annex section will provide the following guidance:

“A.3.x It is not required that water fall on every square inch of floor space of the occupancy. This definition addresses some of the rules for acceptable dry spaces that occur when obstruction or architectural features interfere with the sprinkler’s spray pattern. Columns, angled walls, wing

walls, slightly indented walls, and various soffit configurations can disrupt water discharging from a sprinkler, which does not travel only in an absolute straight line, as if it were beams of light. Where small (typically triangular) shadowed areas are formed on the floor adjacent to their referenced architectural features, these shadowed areas are purely on paper and do not take into account the dynamic variables of sprinkler discharge.”

### **Continuous vs. Noncontinuous Obstructions**

3.3.x – New definitions of “continuous obstruction” and “non-continuous obstruction” will be added, with a continuous obstruction defined as an obstruction at or below the level of a sprinkler which affects the discharge pattern of two or more adjacent sprinklers.

### **Draft Curtain**

3.3.7 – A new definition will be added to define a draft curtain as “A continuous material protruding downward from the ceiling to create a reservoir for collecting smoke and heat.”

### **High Volume Low Speed (HVLS) Fans**

3.3.11 – A new definition of “High Volume Low Speed Fan” will state that these are “ceiling fans approximately 6-24 ft in diameter with a rotational speed of approximately 30-70 revolutions per minute.”

A new Section 12.1.4 will contain criteria for the HVLS fans, requiring that such fans be approximately centered between four sprinklers, with a minimum vertical clearance between the fan and sprinklers of 3 ft, and the fans interlocked to shutdown within 90 seconds of water flow.

### **Raw Water Source**

3.3.16 – A new definition of “raw water source” as a “water supply that has not been treated and may contain foreign material that could enter the sprinkler system” is intended to differentiate from non-potable sources that are closed or otherwise protected from foreign material.

### **Premixed Antifreeze Solution**

3.4.1.1 – The definition of premixed antifreeze solutions, which since the recent TIAs are the only type of antifreeze solutions allowed, will be modified slightly to read: “A mixture of an antifreeze material with water that is prepared and factory-mixed by the manufacturer with a quality control procedure in place that ensures that the antifreeze solution remains homogenous and that the concentration is as specified.”

### **System Riser**

3.5.12 – The definition will be revised by adding “pressure gauge” and “drain” alongside the control valve and waterflow alarm device as the components that are contained either directly or within supply piping to the system riser.

### **Clearance to Ceiling**

3.9.1.6 – A new definition will define “Clearance to Ceiling” as “The distance from the top of storage to the ceiling above.” Companion changes within Chapters 12, 15 16, and 17 will adopt the use of this

term. New annex wording A.12.1.3.4.1 will clarify that “Batt insulation creates an effective thermal barrier and can be considered the ceiling/roof deck when determining the clearance to ceiling. The insulation needs to be installed in each pocket (not just above the sprinkler) and attached to the ceiling/roof in such a manner that it will not fall out during a fire prior to sprinkler activation.”

### **Open-Top Container**

3.9.1.19 – The current definition is being expanded to read as follows: “A container of any shape that is entirely or partially open on the top and arranged so as to allow for the collection of discharging sprinkler water cascading through the storage array.” The corresponding annex section will also be expanded to provide guidance:

“A.3.9.1.19 Open-Top Container, Open-top containers can prevent water from running across the top to storage and down the flues and can also collect water. The container will prevent water penetration to a fire in the lower levels where it is needed. Rack or flue collapse can also occur if too much water is collected.

“Consideration should be given to the potential degree of water collection possible within the container when applying the definition of an open-top container. The following conditions should be considered:

1. Small openings at the top of containers containing such items as fresh produce are quite common and should not be considered as an open-top container.
2. Arrangements that include open-top containers that are all located on the bottom tier of rack storage do not prevent penetration of water and should not be considered an open-top container.
3. Containers having either wire-mesh siding or large uniform openings along the bottom perimeter of each container, such that water enters the container at the same flow rate and discharges evenly into the flue spaces should not be considered as an open-top container provided the contents of the container are not water absorbent and are not capable of blocking such container openings.
4. Open-top containers that are stored in fixed location on racks equipped with flat or dome-shaped fixed-in-place lids that are provided directly above the open-top containers and prevent water from entering the open-top container, as well as distribute water equally into all flue spaces should not be considered an open-top container.”

### **Hanger**

3.11.X – Previously unaddressed in the standard, a hanger will now be defined as “A device or assembly used to support the gravity load of the system piping.”

### **Seismic Separation Assemblies and Seismic Loops**

3.11.X – A new definition will be added for “Seismic Separation Assembly” as “An assembly of fittings, pipe, flexible pipe and/or couplings that permits movement in all directions to accommodate seismic differential movement across building seismic separation joints. While the term “seismic loop” will not be formally defined, a new companion annex section will state: “Seismic separation assemblies include traditional assemblies as shown in Figure A.9.3.3(a) and seismic loops as in Figure A.9.3.3(b).”

### **Net Vertical Force**

3.11.X – A new definition will be added for Net Vertical Force as “The vertical reaction due to the angle of installation of sway braces on system piping resulting from earthquake motion.”

## **Small Room**

3.3.17 – A revised definition of “small room” as simply a light hazard compartment with unobstructed ceiling construction and a floor area not exceeding 800 sq ft is intended to reduce confusion. The current wording within the definition addressing lintel depths and openings to adjoining spaces is being deleted, but will remain within the definition of a “compartment” in Section 3.3.6.

## **Listed**

One of the most significant non-actions involved a challenge to the definition of “listed.” A proposal to change the definition would have required that the organization be an OSHA Nationally Recognized Testing Laboratory (NRTL) or equivalent, and also would have required that all system components be listed on the basis of compatibility with other components. The Committee rejected the proposal since “listed” carries an official NFPA definition set forth by the NFPA Standards Council.

## **Upcoming NFSA “Technical Tuesday” Seminar – January 24<sup>th</sup>**

**Topic: Class II Standpipe Systems**

**Instructor: Kevin J. Kelly, P.E., NFSA Consultant**

**Date: Tuesday, January 24, 2012 - 10:30 am EST**

NFPA 14 defines three different classes of standpipe systems. The Class II Standpipe System is the simplest of the three, intended and designed for trained personnel in the building that arrive before fire department apparatus. This seminar will discuss the purpose, design and calculation of Class II systems including how to determine where hose connections need to be located and pressure limitations on the water discharging from the system.

**To register or for more information, click [HERE](#) or contact Michael Repko at (845) 878-4207 or e-mail to [seminars@nfsa.org](mailto:seminars@nfsa.org).**

## **Sprinkler System Basic Hydraulics – Distance Learning**

**Seminar Description:** Over a course of nine weeks, basic hydraulic calculations for fire sprinkler systems will be covered so that the participant will be able to recognize and apply the terminology used in the fire sprinkler industry, calculate flow and pressure demands for a sprinkler system by hand, prepare the input for a computer program to perform hydraulic calculations, and interpret the output from a program. The seminar will be taught via the internet in a live distance learning format using the NFSA Media Center to broadcast lectures and facilitate live discussions from wherever the participants are, worldwide. Activities will be done in class and homework will be assigned each week, graded, and returned with comments. Participants will need a computer and a good internet connection.

**Duration:** One class (60 to 90 minutes) per week for nine weeks.

**Seminar Fees:** \$250 for NFSA members and \$375 for non-members.

**Seminar Schedule:** Nine classes on Wednesday afternoons from 2:00 p.m. to 3:30 p.m. EST

February 1, 2012: Module 1 – Introduction to Hydraulics  
February 8, 2012: Module 2 – Basic Hydraulics  
February 15, 2012: Module 3 – Hydraulic Calculation Theory, Part 1  
February 22, 2012: Module 4 – Hydraulic Calculation Theory, Part 2  
February 29, 2012: Module 5 – First Full System Hydraulic Calculation  
March 7, 2012: Module 6 – Computer Input and Output  
March 14, 2012: Module 7 – Residential Systems  
March 21, 2012: Week 8 – Complex Operating Areas and Non-Uniform Layouts  
March 28, 2012: Week 9 – Homework review and final comments

Visit [www.nfsa.org](http://www.nfsa.org) for info or register [HERE](#)

## Layout Technician Training Course (2-week course)

*Orlando, FL – February 6-17, 2012*

*Fishkill, NY – October 8-19, 2012*

For more information, contact Nicole Sprague using [sprague@nfsa.org](mailto:sprague@nfsa.org) or by calling 845-878-4200 ext. 149 or click [HERE](#).

## Upcoming In-Class Training Seminars

The NFSA training department also offers in-class training on a variety of subjects at locations across the country, and in recognition of the current recession has adopted a new reduced fee structure. Here are some upcoming seminars:

Mar 6-8 Industry	Apple Valley, MN	3-Day Inspection & Testing for the Sprinkler
Mar 6	Pataskala, OH	Inspection, Testing & Maintenance for the AHJ
Mar 7	Pataskala, OH	Hydraulics for Fire Protection
Mar 8	Pataskala, OH	Foam Water Systems/Compacted Storage
Mar 13	Winston-Salem, NC	Hydraulics for Fire Protection
Mar 14	Winston-Salem, NC	Plan Review Policies & Procedures
April 10-11	Willoughby, OH	Two-Day NFPA 13 Overview
April 12	Willoughby, OH	Inspection, Testing & Maintenance

*These seminars qualify for continuing education as required by NICET, and meet mandatory Continuing Education Requirements for Businesses and Authorities Having Jurisdiction.*

To register for these in-class seminars, click [HERE](#). Or contact Michael Repko at (845) 878-4207 or e-mail to [seminars@nfsa.org](mailto:seminars@nfsa.org) for more information.

---

*NFSA Tuesday e-TechNotes is c. 2012 National Fire Sprinkler Association, and is distributed to NFSA members on Tuesdays for which no NFSA Technical Tuesday Online Seminar is scheduled. Statements and conclusions are based on the best judgment of the NFSA Engineering staff, and are not the official position of the NFPA or its technical committees or those of other organizations except as noted. Opinions expressed herein are not intended, and should not be relied upon, to provide professional consultation or services. Please send comments to Russell P. Fleming, P.E. [fleming@nfsa.org](mailto:fleming@nfsa.org).*

***About the National Fire Sprinkler Association***

*Established in 1905, the National Fire Sprinkler Association (NFSA) is the voice of the fire sprinkler industry. NFSA leads the drive to get life-saving and property protecting fire sprinklers into all buildings; provides support and resources for its members – fire sprinkler contractors, manufacturers and suppliers; and educates authorities having jurisdiction on fire protection issues. Headquartered in Patterson, N.Y., NFSA has regional operations offices throughout the country. [www.nfsa.org](http://www.nfsa.org).*