



**Tuesday e-Tech Alert**  
**July 3, 2007**  
**Number 88**

**Best Questions of June 2007**

We have selected the following questions as the “best of June 2007” answered by the engineering staff as part of the NFSA’s EOD member assistance program:

**Question 1 – Listing of Air Compressors**

Does a riser mount air compressor have to be listed for use on dry sprinkler systems?

**Answer:** No, air compressors are not required to be listed. Where an air supply to a dry pipe system is to be maintained automatically, Section 7.2.6.5.1 of NFPA 13 (2007 edition) requires a dry-pipe sprinkler system to "utilize an air maintenance device specifically listed for such service." However, the air maintenance device is not the compressor. The air maintenance device is the device that monitors the pressure in the sprinkler system piping and turns on the compressor when the pressure drops too low or otherwise regulates a plant air supply. Section 7.2.6.5.2, new in the 2007 edition, waives the requirement for an air maintenance device or air receiver tank for an automatic air compressor with a capacity less than 5.5 ft<sup>3</sup>/min (156 L/min) at 10 psig (0.7 bar). Essentially this new section clarified the requirement for air maintenance devices and air receivers for systems with larger compressors. That the compressors themselves do not have to be listed is consistent with Section 6.1.1.2, which requires that "all materials and devices essential to successful system operation shall be listed." Since the fire protection system should be able to put out a fire even without a working compressor, the interpretation has been that the compressor is not essential to the successful operation of the system. Certainly, if the compressor fails on a freezing day and allows a system trip there will be a problem, so the owner does need to make sure that they maintain a good working compressor. But there is no requirement that the compressor be listed.

**Question 2 – Combined Riser Pressure Gauges**

NFPA 14, 2003 edition Section 5.6.2 requires a pressure gauge at the upstream side of all pressure regulating devices. NFPA 13, 2002 edition Section 8.15.1.2.2 also requires a pressure gauge at the inlet of a pressure regulating device. In the case of a combined sprinkler/standpipe system, on a floor with a sprinkler regulating valve at 7 ft above finished floor (AFF) and a hose valve at 5 ft AFF, can a single gauge mounted directly on the combined riser at 6 ft AFF serve both functions? Or does each system require its own gauge? Also, is there a reason the gauge cannot be mounted on the riser as opposed to a nipple leading to the pressure regulating device?

**Answer:** The answer to your question is "yes". Both standards have the requirement for the pressure gauge to be upstream of the device, but neither standard states that it must be immediately upstream of the device. The intent is to be able to test the device, which means the

pressure on both sides of the pressure regulating device needs to be known. In your description of the combined system you noted that the devices were a couple of feet apart. It would meet the intent to locate one gauge in between them in order to read the upstream pressure in the piping.

### **Question 3 – Changing Fire Pump Diesel Fuel**

Is there a requirement to change out the diesel fuel for a fire pump after a period of time?

**Answer:** Indirectly, yes. There is no direct requirement for changing out the fuel, but there are two provisions of NFPA 25 that lead to eventual replacement of the fuel, ensuring that the fuel in the tank is not too old. First, section 8.3.1.3 of NFPA 25 requires that the diesel engine driven fire pump be started and run for 30 minutes each week. Since the fuel tank is basically sized for 8 hours of fuel, this would mean that the fuel will be replaced approximately every 16 weeks. However, these tests are not performed from a single tank of fuel. After a few weekly tests, new fuel is added, mixing the new with the old. So, a complete replacement does not occur exactly every 16 weeks, but this constant testing does sufficiently keep the fuel in the tank fresh enough that there should be no concern about it going bad. The second requirement from NFPA 25 that helps with the fuel is section 8.5.1, which mandates a regular maintenance schedule in accordance with the manufacturer's instructions. Diesel fuel tanks are manufactured with a sump (approximately 5% of the total volume of the tank) at the bottom. The fuel line from the tank to the engine is located on the tank above this sump. Manufacturers of tanks recommend that the sump be drained on a regular basis. Check with the manufacturers for specific frequencies. This continuous draining and replacing of the fuel from the bottom of the tank also helps to ensure that the fuel does not go bad.

### **Question 4 – Butterfly Valves in Closed Loop Fire Pump Testing**

I have a question regarding the intent of NFPA 20 Sections 5.14.1.1, 5.14.5, 5.19.1.2 and Figure A.5.19.1.2(b) for the 2007 and prior editions. Section 5.14.1.1 describes components in the suction piping from the fire pump suction flange back to sources of water that feed the fire pump. Sections 5.14.5.1 and 5.14.5.2 say that no valve other than a listed OS&Y valve shall be installed within 50 ft of the pump suction flange. However, Section 5.19.1.2 and Figure A.5.19.1.2(b) indicate that an OS&Y gate valve or indicating butterfly valve (down-stream of the fire pump test flow meter "M") can be installed within a close proximity to the fire pump suction flange, even less than 50 ft. This appears to be acceptable per Note 2 to the figure, as long as the "return tee" distance is not less than 5 diameters of suction pipe for a top or bottom suction connection, or the distance is not less than 10 diameters of suction pipe for a side connection. I suspect the reason an indicating butterfly valve in the flow meter piping can be installed within 50 ft of the fire pump suction flange is that this valve is not installed in the suction piping, but it is installed in piping off to the side of the suction piping. Please let me know if you agree this is the intent of the NFPA 20 standard.

**Answer:** We do not agree. You appear to be asking if it is acceptable to install a butterfly control valve on a flow meter bypass where you are using "closed loop metering" and returning the meter discharge to the suction side of the pump. This should be discouraged. Section 5.14.5.2 mandates that the butterfly valve be at least 50 ft from the pump suction flange for a good reason. The turbulence caused by the valve has the potential to do serious damage to the fire pump. The loophole that you have pointed out saying that the valve is technically not in the suction piping as defined by section 5.14.1.1 does not change the physics of the water flow. We are not sure about

the origin of the figure in the annex that appears to show that it is acceptable to use a butterfly valve, since this figure has been in the standard for years. However, it is not acceptable to use a figure in an annex to try and override a very specific requirement in the body of a standard.

### **Question 5 – Vertical Full Height Obstructions**

We have a situation where there are toilet partitions 24 inches wide x 1 inch thick located approximately 36 inches from our sprinklers. Per Section 5-6.5.2.2 of the 1999 edition of NFPA 13, do these constitute obstructions requiring sprinklers on both sides of the partitions? The partitions run from the floor thru the ceiling to create full height obstructions similar to columns. The sprinklers are located 36 inches horizontally from the faces (24-inch widths) of the obstructions.

**Answer:** The typical use of the 3-times rule allows a sprinkler to be 24 inches away from a column 8 inches wide. In a worse-case condition where the sprinkler is in the center of a 15 ft x 15 ft room and the column is 24 inches away, this forms a shadow of approximately 12 sq ft behind the column. If your situation forms a shadow less than 12 sq ft, and you can show that water is capable of getting to both sides of the obstruction, you might ask the AHJ to consider your situation roughly equivalent to what is permitted by the 3-times rule. In this case, the AHJ would be permitted to allow this alternate arrangement in accordance with section 1-2 of the standard, but it would be up to the AHJ to determine that equivalency had been established.

### **Question 6 – Master Pressure Control Valves in pre-2007 NFPA 14**

We are in the process of designing systems for a number of high rise buildings, so we are dealing with limiting the pressure on the floors within the high pressure zone. We have chosen to utilize a pressure reducing valve to reduce the high pressure at the pertinent floors. The 2003 edition of NFPA 14, does not give too much guidance on this issue, so we are referencing the 2007 edition of NFPA 14. However, technically, we need not comply with the 2007 edition of 14, so please keep this in mind when responding to our questions.

Per Section 7.2.2 of NFPA 14, when system pressure-regulating devices are used in lieu of providing separate pumps, multiple zones are permitted to be supplied by a single pump and pressure-regulating device(s) under specific conditions, two of which are:

“(2) A method to isolate the pressure-regulating device(s) shall be provided for maintenance and repair”, and

“(7) The fire department connection(s) shall be connected to the system side of the outlet isolation valve.”

We have discussed with the PRV manufacturer the fact that their diagram and the requirements of a listed indicating valve on the inlet side of the PRV contradict each other. Technically, then, there should be two listed indicating valves, one on the inlet/supply side of the PRV, and one somewhere on the system side of the PRV. Our initial inclination is to locate it right at the inlet side of the riser manifold. This arrangement would then meet the requirements as outlined in the 2007 edition of NFPA 14 except for the location of the hose valve. However, since the job was bid prior to the release of the 2007 edition of NFPA 14, can we locate the indicating valve on the inlet/supply side of the riser manifold, and omit the indicating valve on the inlet/supply side of

the PRV? We assume the main purpose of the valve on the inlet/supply side of the PRV is purely for maintenance. The PRVs would still be able to be maintained by utilizing the control valve located at the base of the standpipe. We know that this is not the most desirable arrangement, but it would seem to meet the requirements of the 2003 edition of NFPA 14.

Also, with regard to the requirement in 7.2.2(7) regarding the FDC, does this include hose valves as well or does this pertain only to FDCs? If it does pertain to hose valves, this does not make sense. It seems to us that if the fire department wanted to shut down the sprinkler system apart from the hose valves, they could not do so.

**Answer:** If you are not going to use the 2007 edition, then you can't use a "master" pressure control valve to control the pressure. You must use separate pumps for each zone. The basis of the 2007 rules is to allow master pressure reducing valves to serve multiple hose outlets, but only if there is a redundant pressure reducing valve to take over if the first one fails open. If you receive permission to use the 2007 edition criteria, you must meet all of the accompanying requirements.

With regard to FDCs, the committee wants the FDCs connected to the system side in case both of the pressure reducing valves fail closed.

#### **Question 7 – Do Tamper Switches Secure Valves?**

In Minnesota there are amendments to the adopted version of the International Fire Code (IFC). Section 903.4.4 on valve security requires the valve to be locked or secured. We are proposing that the term secured is defined as to keep safe from tampering with and causing the valve to be left in the closed position. These valves are wired to a central monitoring service and are located inside the stairwell and open to the public. We feel that we have met the definition of the word "secured" by having these valves tampered. Do you agree?

**Answer:** The Minnesota requirement states that control valves must be "locked or secured in the open position". You have asked if tamper switches would meet this requirement. The first step would be to define "locked or secured". Since we can understand "locked" to require some manual intervention to close the valve, we should compare the definition of "locked" with that for "secured". Webster's essentially uses the same definition for both words. Although tamper switches certainly meet the requirements for "monitored" and possibly "supervised", it is reasonable that an AHJ would only see tamper switches as meeting the definition of "secured" if the tampers send a signal to a central station service or to a constantly attended location where it was certain intervention would take place. It should be noted, however, that NFPA 72 requires only owner notification, not fire department notification, for a supervisory signal.

The above is simply an analysis of the words from the code. A better solution would be to contact the State Fire Marshal's Office to understand why they introduced such a rule. They may intend for all valves to have some kind of locking mechanism in place. Considering that a closed valve is the primary reason for sprinkler system failure during a fire event, it may be prudent to buy locks and chains for these valves.

#### **Question 8 – Vertical In-line Fire Pump Suction Piping**

NFPA 20 (2003) 5.14.6.3.2 requires a distance of 10 suction pipe diameters between the flanges of a horizontal tee or elbow and the suction intake of the fire pump when the tee or elbow has a centerline plane parallel to the horizontal split-case pump shaft. Does this same rule apply to vertical in-line fire pumps?

**Answer:** No. The section that you have referenced specifically refers to horizontal split case pumps; vertical in-line pumps were intentionally left out of this paragraph. Vertical in-line pumps have their intakes shaped in a different manner and are less susceptible to turbulence problems caused by momentum shifts in the water traveling through a tee or elbow.

### **Question 9 – Window Protection**

Does a non-rated window in a sprinklered building that is exposed to a nonsprinklered building need to be protected?

**Answer:** The answer depends on the local building code and other supplemental requirements, such as insurance carrier guidelines. NFPA 13, 2007 edition, discusses exposure protection systems in Section 7.8. However, the section talks about the applications and how the system should be installed. The building code or other legally adopted ordinance might contain a requirement to install an exposure protection system. Some jurisdictions have enforced exposure protection systems where buildings are spaced close together to assist in keeping a fire contained to the building of origin.

### **Question 10 – Galvanized Piping Above a Swimming Pool**

NFPA 13 (2002 edition) mentions protecting piping against corrosion (Section 8.15.3.2) in certain corrosive environments and the annex goes on to further mention bleacheries, dye houses, metal plating processes, animal pens, and chemical plants. All of those mentioned (with the exception of the animal pens) are similar to industrial type processes. |We are currently working on a project where there is a pool in an activity center for a small college campus. Does NFPA 13 require galvanized piping in swimming pool areas?

**Answer:** You have asked if NFPA 13 requires galvanized piping when the piping is installed above a swimming pool. The NFPA 13 Committee has made their intention clear in the section of the standard that you have cited. Galvanized piping is one solution when installing piping in a corrosive environment. However, the Committee intends to allow other types of protection within these environments. Section 8.15.3.2.1 of the 2002 edition of NFPA 13 states: *“Where corrosive conditions are known to exist due to moisture or fumes from corrosive chemicals or both, special types of fittings, pipes, and hangers that resist corrosion shall be used, or a protective coating shall be applied to all unprotected exposed surfaces of the sprinkler system.”* This section indicates that any type of approved piping that is corrosion resistant and appropriate for installation in this environment may be utilized. The Committee also allows the installer to apply a protective coating that would resist corrosion in the environment in which it is installed. It should also be noted that this applies to more than just the piping. Hangers, fittings and sprinklers are of concern here too. The harsh environment of a pool room does require that some protective measure be taken to protect the sprinkler system components. When you have chosen the appropriate materials for such an environment, have these materials approved by the AHJ prior to installation.

### **Question 11 – Ceiling Removal on Revamped System**

An existing store uses a short nipple and reducing elbow as shown in Figure 5-13.20(a) of the 1999 edition of NFPA 13 to supply sprinklers below a ceiling. The use of the short ½-inch nipple indicates the system was previously revamped when the suspended ceiling was installed. If the store now removes all the ceiling tile during a renovation, should the pendent sprinklers and goosenecks be removed and upright sprinklers added below the main ceiling?

**Answer:** If the deflector distance of the pendent sprinklers below the original ceiling is in accordance with the rules of the standard, there is no need to make a change, but this is unlikely. It is more likely that the removal of the ceiling created a situation in which they violated the positioning requirements for the sprinklers. Any time there is a change in the building, the owner is responsible to update/upgrade the sprinkler system in accordance with the current and adopted standards. The local authority having jurisdiction should be pursuing compliance.

To speak in terms of the codes and standards, NFPA 13 tells what to do to install or renovate a sprinkler system, not when such tasks are required. The “when” comes from building, fire, or life safety codes. As an example, this situation would be considered a Level 1 Alteration by definition in the 2003 *International Existing Building Code*. The Code Council felt so strongly about the need to maintain fire protection systems appropriately that they added a brief section in Chapter 5 consisting of one sentence to cover this need: “*SECTION 504, FIRE PROTECTION; 504.1 General. Alterations shall be done in a manner that maintains the level of fire protection provided.*”

### **Question 12 – Remote Inspectors Tests vs. 5-Year Internal Obstruction Inspection**

We are pursuing an opinion of Section 13.2.1 of the 2002 edition of NFPA 25 relative to the 5-year internal obstruction inspection for sprinkler piping. We currently inspect our fire sprinkler system monthly and annually and the system is 6 years old. Since we have a remote inspectors test valve on the system and the flow has been checked monthly and is always consistent, is a visual inspection needed? If there were obstruction in the line we would have a variance in flow that would indicate an obstruction. Safety of our employees and buildings are our number one priority, but with budgets getting tighter and tighter it seems that checking the flow would be a much more cost effective way to get the same results as tearing the system apart or running a camera through the system.

**Answer:** No, the flow tests are not a substitute for the random internal inspection. The obstruction inspection is intended to catch problems in as early a phase as possible. If the system is being flowed on a monthly basis, it is unlikely that a major obstruction in the water supply piping will go undiscovered. However, since water is not flowing through every branch line or main during the monthly flow test, such lines and mains may still contain obstructions. Another example may be the early stages of a bacteria problem, either tubercles or slime, which may be small enough to allow the appropriate amounts of flow but represent a problem in the piping that needs to be addressed. Even with the regular flow testing, it is important to complete a physical inspection. The alternative methods that are referenced in Section 13.2.1.1 were intended to include gamma radiation or possibly ultrasound techniques. These methods, although nondestructive to the piping arrangement, still allow the inspector to determine if the piping contains obstructions or blockages.

## **Upcoming NFSA “Technical Tuesday” Online Seminar – July 17th**

**Topic: Multi-Purpose Piping Systems**

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

**Date: July 17, 2007**

NFPA 13 specifically recognizes the use of sprinkler systems with non-fire protection connections, and NFPA 13D and 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?

Information and registration for this seminar is available at [www.nfsa.org](http://www.nfsa.org) or by calling Dawn Fitzmaurice at 845-878-4200 ext. 133.

## **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](http://www.nfsa.org) or by calling Dawn Fitzmaurice at 845-878-4200 ext. 133.

## **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:

<b>Date</b>	<b>Topic</b>	<b>Instructor</b>
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.

Register at [www.nfsa.org](http://www.nfsa.org) or call Dawn Fitzmaurice at 845-878-4200 ext. 133.

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*  
*November 5-16                Newburgh, NY*

At the request of NFSA members, an additional seminar has been added for 2007. These two-week seminars also serve as starting points for the NFSA’s two-year Certificate Program for Fire Sprinkler Technicians. For more information, contact Nicole Sprague using [Sprague@nfsa.org](mailto:Sprague@nfsa.org) or by calling 845-878-4200 ext. 149.

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

*July 24-26                        Chicago, IL*  
*September 5-7                 St Louis, MO*

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

### **NICET Inspector Certification Review Classes**

*June 19-21                        Wilmington, DE*  
*August 14-16                    San Antonio, TX*  
*November 6-8                    Providence, RI*

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

## **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:

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  
Aug 14-15 Two-day NFPA 13 Overview & Intro to Plan Review///Centerville, OH  
Aug 16 Hydraulics for Fire Protection///Centerville, OH  
Sept 18 Sprinkler Protection for General Storage///Seattle, WA  
Sept 19 Sprinkler Protection for Rack Storage///Seattle, WA  
Sept 20 Pumps for Fire Protection///Seattle, WA  
Sept 18-19 Two-day NFPA 13 Overview & Intro to Plan Review///Baltimore, MD  
Sept 20 Pumps for Fire Protection///Baltimore, MD  
Sept 25 Sprinkler Protection for General Storage///Eugene, OR  
Sept 26 Sprinkler Protection for General Storage///Eugene, OR  
Sept 27 Inspection, Testing & Maintenance///Eugene, OR  
Oct 23 Introduction to Sprinkler Systems (1/2 day)(AM)///Woodland, CA  
Oct 23 Underground Piping (1/2 day)(PM)///Woodland, CA  
Oct 24 Inspection, Testing & Maintenance///Woodland, CA  
Oct 25 Basic Seismic Protection (1/2 day)(AM)///Woodland, CA  
Oct 25 Advanced Seismic Protection (1/2 day)(PM)///Woodland, CA

For more information on these seminars, or to register, please visit [www.nfsa.org](http://www.nfsa.org) or call Michael Repko at 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.*