NFSA
The Voice of the Fire Sprinkler Industry

Tuesday e-Tech Alert

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Calculating the Volume of Water in a Pressure Tank

One of the most complicated mathematical tasks faced by a fire sprinkler industry technician is determining the amount of water in a partially-filled pressure tank. Unlike vertical cylindrical water storage tanks, the volume per unit area of tank height is not constant, and the fact that the ends of the cylinder are typically not flat adds additional complication to the mathematics of the situation.

There is a free online calculator that performs this calculation. It asks for the length and radius of the tank, and allows for spherical, conical or elliptical end caps. A table can be constructed of water volume in gallons as the height increases in stated increments. The program even allows for tilting of the tank (Note: Although the default of 5% shows in the data table, it is only activated if the selection is made for "Tilted" rather than "Horizontal." The location of this site: http://www.arachnoid.com/TankCalc

The website also includes a tutorial on the mathematics involved. It's well worth a visit.

Changes Being Implemented in NICET Layout Program

Water-Based Fire Protection System Layout will be available in Computer Based Testing (CBT) format at four different levels. Level I and Level II are available for testing now (as of Sept. 1, 2010). If you have never taken a NICET test in sprinkler layout and detail before and are starting to take tests for certification, you must now start with the CBT format. If you have already started taking exams for certification using the Work Element format, NICET will allow you to continue for a short period of time (until September 30, 2011) to finish up your testing using Work Elements. After September 30, 2011, all tests will only be offered using the CBT format. Note that to be eligible for testing in the cycle ending September 30, 2011, your application must be postmarked by June 30, 2011.

Upcoming NFSA "Technical Tuesday" Seminar – November 30th

Topic: Rules for Revamping Systems
Instructor: Russell P. Fleming, P.E., NFSA Executive Vice President
Date: November 30, 2010

NFPA 13 does not define "revamping" of sprinkler systems, but contains some definite rules on the subject. In its broadest sense, revamping refers to all system modifications including tenant changes. This seminar will focus on what is permitted in terms of component re-use, pipe and nipple sizing, testing, and other aspects of these system alterations, including new rules intended to simplify certain types of changes.

Upcoming NFSA "SAM Friday" Seminar – December 10th

Topic: Steel Pipe Types and Manufacturing
Instructor: Drew Siddons, Allied Tube
Date: Friday, December 10th

This seminar provides an introduction to the types and manufacturing methods of steel pipe, and will include information on ASTM numbers, continuous welding vs. electric resistance welding, seamless products, corrosion resistance ratios, (CRRs), stencils, and more.

Upcoming NFSA/FSI "Best Practices Thursday" – December 16th

Topic: Contracting 101
Instructors: Paul Johnson & Brian Cullen
Date: December 16, 2010

It always pays to routinely review the fundamentals of contracting. Join us for a lively 45-minute presentation on the latest in contracting strategy and tactics where we will address risk transfer avoidance in everything from design-build to inspections. One-on-one follow-up is available after the call at no additional charge.

2011 Technical Tuesday Onlines Announced

The NFSA has released its schedule of "Technical Tuesday" online seminars for the first half of 2011. As in the past, a 30% discount is available by signing up for all ten seminars in the series.

January 18, 2011
Antifreeze Systems – Russell P. Fleming, P.E.
Antifreeze systems generated more controversy than any other fire sprinkler topic during 2010. With the dust settled, this seminar will discuss the current requirements relative to both new and existing systems. It will explore design alternatives, including the status of dry residential sprinkler systems and new candidate antifreeze solutions. It will also address contractor obligations with regard to the evaluation of existing systems.

February 1, 2011
FM Data Sheets – Kenneth E. Isman, P.E.
In March of 2010, the Factory Mutual Insurance Company (FM) released a new set of data sheets regarding how they would like their clients to design and install fire sprinkler systems in the properties they insure. These new data sheets represent a significant change in philosophy for FM. Rather than follow the format of NFPA standards, showing the text of the NFPA standards and then showing where they have different requirements, FM has written their own criteria from scratch, which sometimes contradicts the NFPA standards. The seminar will review the major differences between the FM standards and the NFPA standards and discuss strategies for dealing with the use of FM standards when NFPA standards are referenced by law.

February 15, 2011
Paint Spray Booths (NFPA 33) – Victoria B. Valentine, P.E.
NFPA 33 notes that paint spray booths should be treated as an extra hazard group 2 occupancy for their fire sprinkler protection. However, there are many additional requirements that get pulled into the layout of the system and the hydraulic calculations because of the hazard classification. Different arrangements

for paint spray booths will be reviewed for application of the extra hazard occupancy. In addition, the water supply demand for these booths will be discussed.

March 1, 2011
IRC/NFPA 13D Prescriptive Pipe Sizing (P2904) – Jeff Hugo, CBO
This seminar will discuss the alternative to designing residential sprinklers according to the criteria listed in Section P2904 of the 2009 IRC and Section 8.4.10 of the 2010 NFPA 13D. The prescriptive method of designing versus the traditional methods used and the familiarity of this method may decrease design time and training hours for new personnel. Other critical sections of the IRC pertinent to the sprinkler designer and contractor will be highlighted and discussed. Residential fire sprinkler mandates are on the rise throughout the country, and attending this seminar will give your company the newest in sprinkler design and enable flexibility in relaying this information to your local AHJ.

March 22, 2011
Plastic Pallets – Karl Wiegand, E.I.T.
Plastic pallets are used in many storage facilities. The presence of plastic pallets in these facilities can greatly affect the design requirements for the sprinkler systems that protect them. NFPA 13 provides all of these requirements. However, they are separated throughout the standard. This seminar will bring together the different protection requirements of plastic pallets in NFPA 13 to assist in the proper use of the regulations.

April 12, 2011
The New NFPA 25 – Russell P. Fleming, P.E.
The 2011 edition of NFPA 25 includes some changes intended to enhance enforcement of the standard and others aimed at making system maintenance more economical. New recognition that not all deficiencies are equal will permit AHJs to implement a multi-colored tagging system following system inspections. The new standard continues the trend of separating owner responsibilities from those of the inspecting party, and the criteria for the 5-year internal inspections have been reworked.

April 26, 2011
Pipe Stands – Victoria B. Valentine, P.E.
Pipe stands can be used to support water-based fire protection system piping where it cannot be hung. Some criteria have been in NFPA 15 for the past few editions. The guidelines have been modified for the next edition. These rules can also be applied to sprinkler system piping where it may need to be supported from the floor.

May 10, 2011
What Happens During Plan Review? – Jeff Hugo, CBO
You just dropped off your shop drawings at City Hall. Questions arise in your mind: Who scrutinizes my plans? What will this do for me? Why is this necessary? When will they be done? Where can I learn more to avoid correction letters and costly delays? This seminar will answer what should be done on the plans prior to their delivery to City Hall and discuss the fire sprinkler plan review process performed by the AHJ. This program outlines NFSA's newest "Plan Review Guide" and the associated check lists to provide the necessary information to cut your review time down and the project moving. Contractors, layout technicians, architects, building and fire officials, and plan reviewers should attend.

May 24, 2011
Storage Occupancies: Ceiling Slopes and Clearances – Kenneth E. Isman, P.E.
Storage occupancies represent much more difficult and challenging fires for sprinklers to control or suppress. These challenging fire situations become even more difficult to control or suppress when the ceiling is sloped or there is a vast vertical distance between the top of the storage array and the sprinklers

at the ceiling. Criteria in NFPA 13 has evolved over the last 10 years to place more stringent rules on how the sprinkler system needs to be designed to protect these occupancies. The seminar will begin with a review of fire dynamics and will then cover the rules of NFPA 13 and potential scenarios for meeting those rules.

June 7, 2011
High Velocity Low Speed (HVLS) Fans – Karl Wiegand, E.I.T.
HVLS fans first came to market in 1995 and since that time have become popular for ventilating large warehouse facilities. In 2007 XL Gaps did a full scale fire test to see how these fans affected sprinkler operation. The test had poor results and a multiphase full-scale testing plan was implemented. Phase 1 of the testing was completed in 2008 and 2009. Phase 2 of the testing was completed in 2010. This seminar will address the test results of the phase 2 testing as well as strategies for installing HVLS fans in a manner in which they will not greatly affect the sprinkler system performance.

In-Class Training Seminars

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

Dec 2	San Diego, CA	Sprinklers for Dwellings
Dec 3	San Diego, CA	Sprinklers for Dwellings

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

To register or for more information on any of the above seminars, contact Michael Repko at (845) 878-4207 or e-mail to seminars@nfsa.org