

Number 118

June 17, 2008
Editor – Russell P. Fleming, P.E.

Shut-offs Urged for High Volume Low Velocity Ceiling Fans

The NFSA Contractor's Council has asked that all members be alerted to the need to recommend early shut-off of high volume low velocity (HVLV) fans in the event of a fire in a sprinklered building. These extra large ceiling fans, originally developed in 1995 for energy efficiency in dairy farms, are now finding use in warehouses and other applications. They are very efficient at equalizing air temperatures throughout large open areas, so efficient that they can delay the activation of the first sprinklers by suppressing the development of the fire plume and ceiling jet. Furthermore, they appear to have the potential to push a fire horizontally through piled storage, leading to larger fires and more sprinklers operating.

A series of three full-scale wet pipe sprinkler system tests sponsored recently by Global Asset Protection Services (GAPS) at Underwriters Laboratories have highlighted potential problems with control mode sprinkler systems. Test 1 looked at standard response 286°F K-11.2 spray sprinklers protecting 15 ft high palletized Group A plastics in the test configuration required for the listing of these storage sprinklers. A 24-ft diameter ceiling fan was positioned with its outer edge over the ignition point, arranged to push air downward at a 50% power setting, and set to shut off at first sprinkler operation. The first sprinkler operated 3 minutes and twenty-six seconds (3:26) after ignition, compared to normal first-sprinkler activation in this type of test of between 47 and 90 seconds. Some seventy-three (73) ceiling sprinklers operated, far more than what would be considered acceptable, and the test was terminated after only 8 minutes.

Two other tests looked at the effect of the ceiling fans on standard response ordinary temperature rated K-5.6 spray sprinklers protecting 12 ft palletized Class II commodity. Test 2 was a baseline test without fan operation, whereas Test 3 involved a fan pushing air downward at a 50% power setting, again arranged to shut off at first sprinkler operation. In Test 2 twenty-one (21) ceiling sprinklers opened between 1:14 and 3:30 after ignition, and the fire had not reached the end of the storage array when it was terminated after 30 minutes. In Test 3 twenty-six (26) ceiling sprinklers operated between 1:57 and 3:51, and the fire did reach the end of the array.

The test series suggested that a fire in a high hazard commodity can overtax a control mode fire sprinkler system even when power to the fan is shut off at the time of first sprinkler operation. These large ceiling fans continue to turn for some time, so there is a question as to whether power should be discontinued even earlier using some type of smoke detection.

The NFPA's Fire Protection Research Foundation has initiated a project to explore the interaction of these fans with ESFR sprinklers. The first phase of the research will focus on the obstructions to ESFR discharge posed by the fan blades as well as the required shut off time needed to minimize the effects on sprinkler actuation and effectiveness. NFSA's Vice President of Engineering Ken Isman has been invited to serve as a member of the project's technical panel.

Upcoming NFSA "Business Thursday" Seminar – June 19th

Topic: Safety for Contractors

Instructor: Ray Lonabaugh, NFSA Mid-Atlantic Regional Manager

Date: June 19, 2008

As virtually every employer in the country is aware, the health, safety and welfare of a company's workforce are major concerns. An effective and comprehensive safety program can reduce risk to the company and help bring workers

compensation costs down. This presentation will review some of the important aspects of an effective safety program and examine why it should be a high priority for every fire sprinkler contractor.

Information and registration for the above “Technical Tuesday” and “Business Thursday” seminars are available at www.nfsa.org or by calling Dawn Fitzmaurice at 845-878-4200 ext. 133.

Upcoming NFSA “Technical Tuesday” Seminar – June 24th

Topic: The Extent of Systems

Instructor: Jeff Hugo, NFSA Manager of Codes

Date: June 24, 2008

Are sprinklers required under a Porte-Cochere? When is an addition a separate building? Does the foundation of a building have anything to do with sprinklers? This seminar will answer those questions that stump the designer and can come out to haunt you in some jurisdictions. The Extent of Systems will go into detail on where to install sprinklers, where the codes and standards designate them, and how to justify their existence or non-existence. This seminar will also summarize the “Systems” theme used in the NFSA’s Technical Tuesday online seminars for the first half of 2008.

Additional NFSA training opportunities include...

NFSA Two-Week Technician Training Classes

August 4-15, 2008

Providence, RI

October 13-24, 2008

Chicago, IL

November 10-21, 2008

Houston, TX

For more information, contact Nicole Sprague using Sprague@nfsa.org or by calling 845-878-4200 ext. 149.

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:

June 18	Centennial, CO	Sprinkler Protection for Rack Storage
June 18	Seattle, WA	Commissioning & Acceptance Testing (a.m.)
June 18	Seattle, WA	Fire Pump Layout & Sizing (p.m.)
June 19	Centennial, CO	Sprinkler Protection for Special Storage
June 19	Seattle, WA	Sprinkler Protection for Special Storage
June 24	Cheyenne, WY	Plan Review Policies & Procedures
June 25	Cheyenne, WY	CPVC Piping (a.m.)
June 26	Cheyenne, WY	Low, Medium and High Expansion (NFPA 11) (a.m.)
July 15	Rogers, AR	Pumps for Fire Protection
July 16	Rogers, AR	Fire Pump Layout & Sizing (a.m.)
July 16	Rogers, AR	CPVC Piping (p.m.)
July 17	Rogers, AR	Residential Homes to High-Rise
July 28	Miami Beach, FL	Pumps for Fire Protection
Aug 26	Freeport, ME	Basic Seismic Protection (a.m.)
Aug 26	Freeport, ME	Advanced Seismic Protection (p.m.)
Aug 27	Freeport, ME	Sprinklers for Dwellings
Aug 28	Freeport, ME	CPVC Piping (a.m.)
Aug 28	Freeport, ME	Commissioning & Acceptance Testing (p.m.)
Sept 9	Anchorage, AK	Plan Review Policies & Procedures
Sept 10	Anchorage, AK	Inspection, Testing & Maintenance

Sept 11 Anchorage, AK Basic Seismic Protection (a.m.)
Sept 11 Anchorage, AK Advanced Seismic Protection (p.m.)

For more information on these seminars, or to register, please visit www.nfsa.org or call Dawn Fitzmaurice at 845-878-4207 or email seminars@nfsa.org.

NFSA Tuesday eTechAlert is c. 2008 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.

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.

You are receiving this message because you are subscribed to the NFSA email list. To remove yourself from this service and stop receiving email messages from NFSA, Please reply to this message with “remove” in the subject line.