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Suspended Ceiling Clearance Rule a Hidden Seismic Problem

As discussed in a previous issue of *eTechAlert* (No. 107 – February 5, 2008), the rule for a minimum 2-inch clearance around sprinkler penetrations through suspended ceilings in higher risk earthquake areas is not part of NFPA 13, and somewhat hard to locate. Here is the Q&A that dealt with the subject several years ago:

Question – Earthquake Clearance for Suspended Ceiling Penetrations

I am going nuts trying to find the section in the building code that requires a large clearance around a sprinkler head escutcheon in a category D or higher classification. Can you point me in the right direction?

Answer: The rule is actually in ASCE 7, which is referenced by the building code. The 2002 edition of ASCE 7 is referenced in the 2003 IBC, and the 2005 edition of ASCE 7 is referenced in the 2006 IBC. In the 2002 edition, Section 9.6.2.6.2.1 requires ¼-inch (6 mm) clearance on all sides of sprinkler and other ceiling penetrations through suspended ceilings in Seismic Design Category C and Section 9.6.2.6.2.2 requires a 2-inch (50 mm) oversize ring, sleeve or adapter through the ceiling tile to allow for free movement of at least 1 inch (25 mm) in all horizontal directions in Seismic Design Categories D, E, and F. In the 2005 edition there is no mention of the 1/4-inch requirement for Seismic Design Category C, but the 2-inch requirement for Seismic Design Categories D through F appears in Section 13.5.6.2.2.

In both editions there are some alternatives to the 2-inch clearance. One exception is where rigid braces to be used to limit lateral deflections, although NFPA 13 requires that only 2-1/2-inch and larger sprinkler branch lines be provided with lateral bracing. Another alternative is to have the suspended ceiling engineered to move with the sprinkler system. A third alternative is to provide each sprinkler drop with a swing joint capable of accommodating the 1-inch free movement in all horizontal directions, which is increasingly being met through the use of flexible sprinkler drops.

ASCE 7 is somewhat confusing in that it references an A through F classification system for site class (soil types) as well as Seismic Design Categories. It is important to note that the ceiling penetration clearance requirements relate to the overall Seismic Design Category classifications D through F, not the site soil classifications D through F.

Now it appears that the requirement will be one more step removed and even harder to find in the future.

In the 2010 edition of ASCE-7, expected to be referenced by the 2012 edition of the International Building Code, the requirement for the 2-inch clearance will not be spelled out directly, but found only through a reference to ASTM Standard E580. While it does not contain the rule, the 2010 edition of ASCE-7 continues to contain the exception to the rule: a Section 13.5.6.3 entitled “Integral Construction”, which notes that a design and installation that ties the ceiling grid and sprinkler system together as an

integral unit is “an alternate to providing large clearances around sprinkler system penetrations through ceilings.”

The NFSA will be submitting a proposal to NFPA 13 for the next cycle that will recommend an annex section or some other means of bringing this requirement to the attention of sprinkler system installers so that they are not surprised with costly modifications following system installation.

Upcoming NFSA “Technical Tuesday” Seminar – August 31st

Topic: When to Use NFPA 13R

Instructor: Jeff Hugo, C.B.O., NFSA Manager of Codes

Date: August 31, 2010

NFPA 13R can only be used in certain size and types of occupancies. This presentation will discuss the different types of occupancies that can use NFPA 13R (hotels, motels, lodging and rooming houses, etc.) and the limitations on their size. Typical problems will be addressed including mixed use buildings, pedestal buildings and combination commercial/residential construction. The presentation will examine and review these situations and how the building code and the standard work together.

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

Upcoming NFSA/FSI “Best Practices Thursday” Seminar – Sept 16th

Topic: Budgeting for Success

Instructor: Paul Johnson

Date: September 16, 2010

Would you like to improve your team’s ability to accurately forecast new sales? Are you anxious to get a better handle on budgeting operating and capital expenses? Join us for this 45-minute discussion on collaborative budgeting and prepare to improve your sales and expenses forecasting efforts! One-on-one follow-up is available after the call at no additional charge.

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

Inspection & Testing for the Sprinkler Industry (3-day course)

New Castle, DE – September 28-30, 2010

Delaware State Fire School’s Regional Center

2311 McArthur Drive, New Castle, DE 19720

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

Additional 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 seminars scheduled for 2010:

Sept 8	Seattle, WA	Sprinklers for Dwellings
Sept 9	Seattle, WA	Plan Review Policies & Procedures
Sept 10	Seattle, WA	Commissioning & Acceptance Testing (1/2 day a.m.)
Sept 10	Seattle, WA	CPVC Piping (1/2 day p.m.)
Sept 14	Dayton, OH	Plan Review Policies & Procedures
Sept 15	Dayton, OH	Inspection, Testing & Maintenance
Sept 16	Dayton, OH	Basic Seismic Protection (1/2 day a.m.)
Sept 16	Dayton, OH	Standpipe Systems (1/2 day p.m.)
Sept 16	Concord, NH	Sprinkler Protection for General Storage
Sept 17	Concord, NH	Sprinkler Protection for Rack Storage
Sept 18	Concord, NH	Plan Review Policies & Procedures
Sept 21-22	Brea, CA	Two-day NFPA 13 Overview
Sept 23	Brea, CA	Plan Review Policies & Procedures

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, contact Michael Repko at (845) 878-4207 or e-mail to seminars@nfsa.org

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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.