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Life Safety DIGEST

In This Issue:

Continuity Head-Of-Wall Joint Systems

Fire Safety in Educational Facilities

Multi-Family Fire Safety—The Role of Fire Doors

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On the Cover:
Ridgewood High School in Norridge, IL and a 1 hour fire resistive wall with fire rated glazing. *SAFTI FIRST Fire Rated Glazing Solutions Photo.*

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Editor's Message

Designing, constructing and operating buildings for fire and life safety is important. When many individuals reside under one roof, the need for building owners and managers to ensure fire and life safety becomes paramount.

In this issue, you will find articles pertaining to three main areas; life safety in multi-family dwellings, the preventative construction involved in educational buildings, and a look at codes, testing and how fire resistance rated SYSTEMS get installed and inspected in buildings properly.

The protection provided by fire resistance rated and smoke resistant construction during a burning apartment fire that gives inhabitants a few more precious minutes to escape and protects the fire service who must search, rescue and extinguish during their operations. The approach to building a safe and secure dwelling or testing laboratory for occupants, who may be students, and means checks and balances provided by both industry and governmental organizations through the code development process are much needed.

Industry works together at ASTM, NFPA, UL and other Standards Development Organizations to ensure testing standards are reflecting current building

technology and field conditions. Ultimately, well written standards that are implemented by companies who employ knowledgeable people are keys to successful construction and, more important, saving lives.

FCIA believes that when combining standards, effective code regulations and good specifications, plus enforcement in the field, the DIIM of Effective Compartmentation (Design, Installation, Inspection, and Maintenance) has taken place. Through the DIIM, more reliable building safety can be achieved, meaning less lives are lost to tragedy.

Enjoy this issue of *Life Safety Digest*, and thank you for your continued support for the magazine. 🔥

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
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Continuity Head-Of-Wall Joint Systems

By Richard N. Walke, Sr. Regulatory Engineer, UL, LLC

The 2012 International Building Code (IBC) introduced new requirements to protect the voids where a fire barrier wall intersects the lower side of a non-fire-resistance rated roof assembly. The intent of the new requirement is to prevent flame passage over the top of a wall in the event of a fire. This article describes one method available to comply with these requirements.

New 2012 IBC Requirements

Prior to the 2012 edition of the IBC, Section 707.5 required fire barriers to extend from the top of a floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and to be securely attached thereto. The fire barriers were required to be continuous through concealed space, such as the space above a suspended ceiling. If joints were provided at the intersection of fire barriers with the underside of the floor or roof sheathing, slab or deck above, Section 707.8 required the assembly to comply with the Section 714 requirements for fire-resistant joint systems (this is now Section 715 in the 2012 IBC).

However, since the provisions of Section 714 only covered the methods used to protect joints in or between fire-resistance rated assemblies, there were no specific requirements to cover the situation where the floor or roof sheathing, slab, or deck above did not have a fire-resistance rating.

Section 707.9 was added to the 2012 IBC and requires voids created at the intersection of a fire barrier and a nonfire-resistance rated roof assembly to be filled with an approved material or system that is securely installed in or on the intersection for its entire length so as not to dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases. One example of such a void is a fire barrier used to separate occupancies in a metal building.

ASTM E 2837 Solutions

At the time Section 707.9 was proposed, no consensus test standard existed to test head-of-wall systems involving nonfire-resistance rated horizontal assemblies. Therefore, the 2012 code described how the void protection is to be provided. However, it is rather subjective for the designer and code official to

determine whether the material used to protect a void will not dislodge, will accommodate expected building movements and will prevent the passage of fire and hot gases.

To address this situation, the ASTM E 2837 Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies was developed.

This standard includes a procedure in which a joint system is installed within a test assembly at the intersection of a rated wall assembly and a non-rated roof assembly. Once cured, the assembly is subjected to a cyclical movement in the direction, magnitude and frequency as requested by the test sponsor based on the intended use of the system. Following the movement cycling, the system is subjected to a fire exposure representing a fully involved building fire for the time period equivalent to the fire-resistance rating of the wall construction. The fire exposure test is followed by the hose stream test, intended to evaluate the structural integrity of the test specimen. After these tests, the system is assigned an F rating and a T rating. The F rating relates to the ability of the system to:

1. Accommodate cyclical movement
2. Prevent the passage of flames and hot gases sufficient to ignite cotton waste on the unexposed side of the assembly
3. Prevent the projection of water through the system during the hose stream test.

The T rating adds the requirement that a system limit the temperature rise at any individual point on the unexposed side of the system to 325°F. Systems with a maximum joint width greater than 4 inches, must also limited the average temperature rise on the unexposed side of the system to 250°F. The ASTM E 2837 F rating directly address the requirements of Section 707.9 of the 2012 IBC, and verifies that the material or system will not dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases. The ASTM E 2837 T rating would also address the requirements of Section 707.9.


UL Certifications

UL has certified over a dozen systems to ASTM E 2873 under the Continuity Head-of-Wall Joint Systems (XHBO) product category, which can be found in the UL Online Certifications Directory at www.ul.com/database. Each system describes the construction of the wall assembly and the roof assembly, along with the material or materials used to fill the linear opening between the two assemblies. UL's certification information also includes the movement capabilities of the system in terms of intended use, magnitude and direction, and the established F and T ratings. Tests done to date have achieved the rating without additional protection or modifications to the nonrated roof assembly.

When selecting or approving a continuity head-of-wall joint system for use in a particular application, it is important to ask:

1. Does the construction of the wall assembly in the system match the field conditions?
2. Does the construction of the roof assembly in the

system match the field conditions?

3. Does the published joint width match the field conditions?
4. Do the published movement capabilities of the system match the field needs?
5. Does the published F Rating of the system match the required rating of the wall assembly? 

For more information on continuity head-of-wall joint systems, please contact Rich Walke in Northbrook, Ill., at Richard.N.Walke@ul.com or at +1.847.664.3084.





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Aggressive Test Requirements For Passive Fire Protection Devices: A closer look into UL test requirements for Fire, Smoke & Combination Fire/Smoke Dampers

By: Michael J. Bulzomi, LEED Green Associate and Stoil Pamoukov, EIT

Did you know, according to the National Fire Protection Agency (NFPA) report “Structure Fires in Educational Properties” (Campbell 2013), between 2007 and 2011, the majority of educational property fires occurred in nursery, elementary, middle or high schools, with an estimated average of **4,060 fires per year**? Over half of these fires took place between *9:00 a.m. and 3:00 p.m., the peak occupancy hours of these buildings*. Approximately **700 fires per year** were reported in college classrooms and adult education centers and nearly *three-quarters of these fires occurred between 9:00 a.m. and 9:00 p.m.* Combined, fires in educational properties caused an **annual average of 85 civilian fire injuries and \$92 million in direct property damage**.

Fire, Smoke and Combination Fire/Smoke Dampers are passive fire protection devices intended to resist the passage of flame or smoke, or both. They contain these elements within the affected zone or allowing for the controlled migration of smoke, as in the case of an engineered dynamic smoke management system. The use of these products in an engineered fire and life safety system design can serve to protect building occupants by providing time and a path to egress, allow for firefighter operations to save property and limit loss in the event of a fire emergency.

How A Tiger Earns Its Stripes

Before you can understand the applications for Fire, Smoke and Combination Fire/Smoke Dampers, it is important to understand how they are tested for **UL Classification**. Understanding what the damper is designed and tested to will provide guidance on the type of opening protection required, and help to show the importance of properly selecting dampers.

First published in 1968, Underwriters Laboratories (UL) *Standard for Safety for Fire Dampers, UL 555*, provides uniform testing standards in order to ensure that fire dampers perform as intended during a fire emergency. Currently, UL 555 evaluates fire dampers for use as:

1. **Fire Dampers for Static Systems** - For HVAC systems that are automatically shut down in the event of a fire (“Fans Off”).
2. **Fire Dampers for Dynamic Systems** - For HVAC systems that remain operational in the event of a fire (“Fans On”).

“Before you can understand the applications for Fire, Smoke and Combination Fire/Smoke Dampers, it is important to understand how they are tested for certification...”

3. **Combination Fire/Smoke Dampers** - For locations in HVAC systems where a fire damper and a smoke damper are required. Combination Fire/Smoke Dampers must also comply with *Safety Standard for Smoke Dampers, UL 555S* requirements.
4. **Corridor Dampers** - For locations in HVAC systems where air ducts penetrate or terminate at openings in the ceilings of interior corridors when permitted by the authority having jurisdiction.

Fire dampers today are also categorized by their blade design. The traditional **Curtain Fire Damper** employs a stack of interlocking blades that are held in place by a **fusible link** of a specified temperature rating that is released during a fire once ambient temperatures reach the link’s melting point. **Multi-Blade Fire Dampers** are being specified more frequently as system designs are evolving to meet more complex ventilation strategies to accommodate green building practices. They typically have larger available size ranges for dynamic system applications and assured performance at higher system velocities and pressures. Furthermore, **actuated Fire/Smoke Dampers** are used in the system design for their use as balancing and modulating control dampers during normal HVAC mode, making them important additions to green building design strategies.



Curtain Fire Dampers Nailor Photo.

Prior to UL Classification, a fire damper is exposed to an enumeration of tests to validate consistency and durability. Per the latest edition of **UL 555**, fire dampers undergo the following test procedures (including, but not limited to):

The **Fire Endurance/Hose Stream Test** determines whether the damper will prevent the passage of flame through and around the damper sleeve. The maximum size damper is installed in a furnace and exposed to the standard UL Time/Temperature curve for either 1 ½ or 3 hours. After the fire exposure test, the damper is subjected to a hose stream test. The conditions of acceptance require:

1. The damper shall completely close (and latch, when latch is provided) upon activation of the heat responsive device (i.e. fuse link).

2. There shall be no flaming on the unexposed surface, subject to some exceptions relating to nonmetallic or organic component used in the damper.
3. The damper shall remain in place within the opening during the Fire Endurance and Hose Stream Tests.
4. Any openings through the damper shall be limited to 3/8" in the vertical plane and 1/32" in the horizontal plane.



Combination Fire/Smoke Damper during Hose Stream Test. *Nailor Photo.*

Note the last condition of the Fire Endurance/Hose Stream test makes allowances for gaps between the blades. The purpose of the test is to determine the damper's ability to resist the passage of flame with little consideration for the migration of smoke. A UL 555 listed Fire Damper is not tested and rated for leakage and will not effectively prevent the spread of smoke, unless it is a Combination Fire/Smoke Damper that has undergone the testing procedures of **UL 555S**.

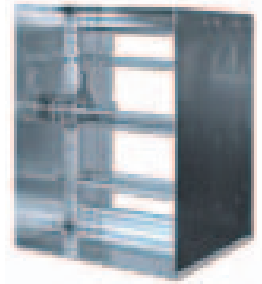
Most of today's Fire/Smoke Damper designs employ a synthetic blade seal that performs well during the leakage portion of testing. However, these seals will burn off during a fire and result in smoke leakage through the allowable clearances as per the Fire Endurance/Hose Stream Test set forth in UL 555.

There are Fire/Smoke Damper designs on the market today that do not incorporate combustible blade seals and utilize an interlocking blade design that performs extremely well in both the **UL 555** Fire Endurance and **UL 555S** Leakage Tests, and even maintain its leakage rating during fire conditions up to 2000 °F!

"There are Fire/Smoke Damper designs on the market today that do not incorporate combustible blade seals..."

Under Pressure To Perform

The velocity/pressure ratings listed on a damper's UL required label represent the maximum airflow and closure pressure rating tested for that specific damper model, size and configuration. Traditionally, dampers for use in dynamic systems are expected to be able to operate against the air velocity and pressure produced by the system fan.



Nailor Photo.

However, with the advances of fire modeling, the airflow rating required for a particular damper is not necessarily the same as the normal design airflow of the HVAC system the damper is to be installed in.

The designer and Authority Having Jurisdiction (AHJ) have the ability to evaluate an HVAC system using various combinations of opened or closed dampers to determine what the worst-case velocity/pressure would be at a particular damper under different fire scenarios. In this case, the listed ratings for the installed damper should meet/or exceed the maximum expected velocity/pressure from the analyzed scenarios. It is the responsibility of the designer to take into account pressure drop, noise and turbulence when designing the HVAC system and selecting dampers for use in this system. For example, it has been shown that airfoil blade dampers perform better than vee blade dampers in higher velocity systems (over 2000 feet per minute [fpm]) in respects to reduced pressure drop, noise and turbulence.

The **Dynamic Closure Test** (a heated airflow and pressure test) is intended to demonstrate that dynamic dampers will close (and latch, when latch is provided) automatically under the highest airflow and pressure conditions recommended by the manufacturer, with a minimum velocity/pressure rating of 2000 fpm and 4 in. water gauge [w.g.]. Higher ratings are established in increments of 1000 fpm and 2 in. w.g.. Actual test airflows and velocities build in a safety factor; the test airflow is to be 400 fpm higher than the rated airflow and the test pressure is to be 0.5 in w.g. higher than the rated pressure. See Table 1.0 below.

Rated Airflow and Pressure		Minimum Test Airflow and Pressure	
Airflow, fpm (m/s)	Pressure, in. w.g. (kPa)	Airflow, fpm (m/s)	Pressure, in. w.g. (kPa)
2000 (10)	4 (1.0)	2400 (12)	4.5 (1.1)
3000 (15)	4 (1.0)	3400 (17)	4.5 (1.1)
4000 (20)	4 (1.0)	4400 (22)	4.5 (1.1)
2000 (10)	6 (1.5)	2400 (12)	6.5 (1.6)
3000 (15)	6 (1.5)	3400 (17)	6.5 (1.6)
4000 (20)	6 (1.5)	4400 (22)	6.5 (1.6)
2000 (10)	8 (2.0)	2400 (12)	8.5 (2.1)
3000 (15)	8 (2.0)	3400 (17)	8.5 (2.1)
4000 (20)	8 (2.0)	4400 (22)	8.5 (2.1)

Table 1.0 – Test Airflow and Pressure Conditions

It is essential that the proper airflow rating for a damper is specified during the design process to meet system requirements. If the design calls for “fans on” during a fire emergency, selecting a static rated damper that has not been tested and evaluated to close under airflow may adversely affect the ability of that damper to close under airflow. Dynamic **damper designs employ closure springs** to assist with closure against airflow, and the presence of airflow may impede a static damper’s ability to fully close. Vertical Curtain Fire Dampers with a static rating for example, rely on gravity to close the damper under migratory airflow after the fire alarm has shut down the HVAC system.

Sealing The Deal

Per the latest edition of **UL 555S**, Smoke and Combination Fire/Smoke Dampers undergo the following additional test procedure related to leakage:

The **Leakage Test** determines the amount of leakage through the closed damper and therefore a damper’s leakage classification at a specified pressure differential. Smoke Dampers are tested for leakage following the Operation Test. Combination Fire & Smoke Dampers are subjected to the **UL 555** Dynamic Closure Test and are tested for leakage following the Dynamic Closure Test. In both cases, the air leakage tests are conducted under elevated temperatures, either 250 °F or 350 °F.

“It is essential that the proper airflow rating for a damper is specified during the design process to meet system requirements.”

The minimum closed damper pressure rating is 4 in. w.g.. Higher airflow ratings must be in increments of 1000 fpm, and higher pressure ratings must be in increments of 2 in. w.g.. Leakage Classification is determined as shown in the following chart:

Leakage Class	Leakage in cfm/ft. ² (m ³ /s/m ²)				
	@ 4 in. w.g. (1.0 kPa)	@ 6 in. w.g. (1.5 kPa)	@ 8 in. w.g. (2.0 kPa)	@ 10 in. w.g. (2.5 kPa)	@ 12 in. w.g. (3.0 kPa)
I	8 (0.041)	9.5 (0.048)	11 (0.056)	12.5 (0.064)	14 (0.071)
II	20 (0.102)	24 (0.123)	28 (0.143)	31.5 (0.160)	35 (0.179)
III	80 (0.408)	96 (0.489)	112 (0.571)	125 (0.640)	140 (0.714)

Table 2.0 – UL Leakage Classifications

With Class I being the best leakage rating available on the market today, the trend in most model building codes (i.e. International Building Code), specifications and system designs is eliminating the need for a Class III leakage rated damper. This is much like the elimination of the Class IV leakage rating from earlier editions of the standard.

Working Together To Protect

When part of a properly designed Fire & Life Safety system, Fire, Smoke & Combination Fire/Smoke Dampers act to protect building occupants and property as part of the passive fire protection system. **When properly installed, and part of a routine maintenance and inspection program**, these life safety devices work consistently and dependably to restrict the spread of fire and smoke during a fire. Further reading about the testing procedures of UL 555 and UL 555S not covered in this article can be found on the UL website, www.ul.com. 🔥

Michael J. Bulzomi is the Air Control Product Marketing Manager (Life Safety, Control & Industrial Dampers, Louvers) at Nailor Industries, Inc. Houston, TX. and can be reached via email: MBulzomi@nailor.com.

Stoil Pamoukov is the Damper Product Engineer at Nailor Industries, Inc. Houston, TX. and can be reached via email: stoil@nailor.com.

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Contractor Fire-Resistance Rating and Firestopping Questions & The Bidding/Tender Process

By: Hal Cohen, P.E., CSP and Jeff Krebs

Building construction codes and fire codes adopted by authorities having jurisdiction (AHJ) typically require compliance with nationally recognized standards and codes. These standards and codes are usually adopted by reference and are not repeated verbatim in the building construction or fire code in which they are adopted. Standards and codes developed by the National Fire Protection Association (NFPA) are oftentimes cited. The NFPA is responsible for three hundred standards and codes that are designed to minimize the risk and effects of fire by establishing criteria for building construction, process protection, and the design, installation, and ongoing maintenance of required fire protection systems. Several of these documents include requirements for fire resistance-rated construction and the proper protection of the associated openings and penetrations through those assemblies.

Experience indicates that not all architects and engineers are familiar with all of these standards and codes. Design drawings might fail to properly specify areas where fire-resistance rated construction is required.

General contractors and specialty firestopping contractors are not expected to know all of the standards and codes that require fire-resistance rated construction. However, a contractor who is slightly familiar with the various standards and codes is equipped to ask questions during a project's bidding and construction phases. The answers might result in additional locations that require fire-resistance rated construction and potentially the firestopping of any associated openings and penetrations at those locations.

Below are examples of common adopted codes and standards that require fire-resistance rated construction within their document. Sample "Requests for Information" (RFIs) are provided for each document that may be submitted during the bidding process or construction phase to help identify the possible need for additional firestopping.

NFPA 13, Standard for the Installation of Sprinkler Systems - Look for notes on the fire protection, plumbing, and/or sprinkler drawings that indicate areas where sprinkler protection is not to be provided. These areas might include high voltage electrical equipment rooms or vaults, or concealed spaces that do not require sprinkler protection but

might require enclosure in fire rated construction.

Sample request for RFI wording - The note on sheet "x" states that sprinkler protection is not required in area "y". Is area "y" required to be enclosed in fire-resistance rated construction and do the openings (joints such as head-of-wall, wall-to-wall, etc.) and penetrations need to be properly firestopped?

NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection - Some designers are not aware that the room containing the fire pump requires enclosure in fire-resistance rated construction.

Sample request for RFI wording - Does the fire pump room need enclosure in fire-resistance rated construction in accordance with NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, and do the openings and penetrations need to be properly firestopped?

NFPA 30, Flammable and Combustible Liquids Code - Look for room descriptions that suggest flammable and combustible liquids might be stored in them. These rooms might include engineering maintenance shops, hazardous waste collection rooms, and chemical, fuel, or paint storage rooms and might require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Room "x" might include the storage and use of flammable and combustible liquids that exceed the maximum allowable quantity. Does the room need enclosure in fire-resistance rated construction as required by NFPA 30, Flammable and Combustible Liquids Code, and do the openings and penetrations need to be properly firestopped?

NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages - Some parking garages and/or vehicle maintenance bays might include fuel dispensing capabilities or the repair of equipment. These rooms sometime require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Room "x" might be used for fuel dispensing or vehicular maintenance and repair. Does the room need enclosure in fire-resistance rated construction in accordance with NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, and do

the openings and penetrations need to be properly firestopped?

NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals - Look for room descriptions that indicate the area is used as a laboratory. The quantities of flammable and combustible liquids that are stored and used in a laboratory typically determine those areas that might require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Room “x” is identified as a laboratory. Do the expected quantities of flammable and combustible liquids warrant the need to enclose the room in fire-resistance rated construction as required by NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals, and do the openings and penetrations need to be properly firestopped?

NFPA 58, Liquefied Petroleum Gas Code - Liquefied petroleum gas (LPG) is not typically stored inside rooms. However, these rooms typically require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Room “x” is identified as storing liquefied petroleum gas (LPG). Does the room need enclosure in fire-resistance rated construction as required by NFPA 58, Liquefied Petroleum Gas Code, and do the openings and penetrations need to be properly firestopped?

NFPA 70, National Electrical Code® - Rooms that are identified as electrical vaults and high voltage equipment rooms typically require enclosure in fire-resistance rated construction. Although oftentimes seen, typical electrical equipment rooms do not require enclosure in fire-resistance rated construction if the floor openings and penetrations are properly firestopped. The deciding factor is typically the size and types of transformers that might be installed in the room.

Sample request for RFI wording - Does the electrical equipment room require enclosure in fire-resistance rated construction? NFPA 70, National Electrical Code® requires the electrical equipment room to be enclosed in fire-resistance rated construction if the room’s transformer is rated over 112½-kVA, unless

1. The transformer includes a Class 155 or higher insulation system and is separated from combustible material by a fire-resistant, heat-insulating barrier or by not less than six feet horizontally and twelve feet vertically, or,
2. The transformer includes a Class 155 or higher insulation system and is completely enclosed except for ventilating openings.

NFPA 72, National Fire Alarm and Signaling Code - Fire command centers and similar rooms that include full time personnel who monitor fire and security systems typically require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Does the fire/security command center need enclosure in fire-

resistance rated construction in accordance with NFPA 72, National Fire Alarm and Signaling Code, and do the openings and penetrations need to be properly firestopped?

NFPA 75, Standard for the Fire Protection of Information Technology Equipment - Computer equipment rooms and similar rooms might require enclosure in fire-resistance rated construction. Risk analysis is oftentimes used to determine those walls requiring a fire-resistance rating.

Sample request for RFI wording - Room “x” is identified as a computer equipment room. Does the room need enclosure in fire-resistance rated construction as required by NFPA 75, Standard for the Fire Protection of Information Technology Equipment, and do the openings and penetrations need to be properly firestopped?

NFPA 82, Standard on Incinerators and Waste and Linen Handling Systems and Equipment - Chutes, the rooms at the top and bottom of the chutes, and chute loading rooms might require enclosure in fire-resistance rated construction. These include trash and linen chutes. The size of the trash or linen room (i.e., used for storage or some other use) is an indicator of an area that might require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Does the collection room at the bottom of the linen chute and any chute loading room need enclosure in fire-resistance rated construction in accordance with NFPA 82, Standard on Incinerators and Waste and Linen Handling Systems and Equipment, and do the openings and penetrations need to be properly firestopped?

NFPA 88A, Standard for Parking Structures - Parking structures are sometimes attached or located below buildings that are used for other purposes (i.e., office or stores). The parking area sometimes requires separation from the remaining building areas (including the elevator lobby) by fire-resistance rated construction.

Sample request for RFI wording - Do the parking areas that are connected to the building need separation with fire-resistance rated construction in accordance with NFPA 88A, Standard for Parking Structures, and do the openings and penetrations need to be properly firestopped?

NFPA 101, Life Safety Code® - As a general rule, an area that is considered a “greater hazard” than the surrounding predominant area might require enclosure in fire-resistance rated construction, especially if the areas are not sprinkler protected. These areas might include boiler equipment rooms or other room where fuel-fired equipment exists, large storage rooms, etc.

Sample request for RFI wording - Room “x” appears to have a degree of hazard greater than the general building occupancy. Does the room need to be enclosed in fire-resistance rated construction in accordance with NFPA 101, Life Safety Code®, and

do the openings and penetrations need to be properly firestopped?

NFPA 110, Standard for Emergency and Standby Power Systems - Rooms that include emergency generators might require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Room “x” appears to include the emergency generator. Does the room need enclosure in fire-resistance rated construction in accordance with NFPA 110, Standard for Emergency and Standby Power Systems, and do the openings and penetrations need to be properly firestopped?

NFPA 232, Standards for the Protection of Records - Rooms that contain rolling file storage units, computer tape storage equipment and similar rooms that appear to be used for the long term storage of records might require enclosure in fire-resistance rated construction.

Sample request for RFI wording - Room “x” appears to be used for long term or permanent storage of records. Does the room need to be enclosed in fire-resistance rated construction in accordance with NFPA 232, Standards for the Protection of Records, and do the openings and penetrations need to be properly firestopped?

NFPA 909, Code for the Protection of Cultural Resource Properties — Museums, Libraries, and Places of Worship - Some designers are not aware that this code exists. The requirements for fire-resistance rated construction vary and are oftentimes determined through a risk analysis. As the name implies, the code is applicable to museums, libraries and places of worship.



Sample request for RFI wording - The building is used as a museum, library or place of worship. Is NFPA 909, Code for the Protection of Cultural Resource Properties — Museums, Libraries, and Places of Worship, applicable and is any additional fire-resistance rated construction required?

During the competitive bidding process, submitting a Request for Information (RFI) might be imperative for ensuring that all competitors are pricing the identical scope of work. Resolving issues during the bidding process will help reduce potential problems and delays during construction. 🔥

Hal Cohen, P.E., CSP, is President of HCC Fire Barrier Management and HCC & Associates, Inc, a fire protection engineering consulting firm near Philadelphia, PA. Hal has a B.S in Fire Protection Engineering from the University of Maryland and over thirty years of experience. He can be reached at hcohen@hccassoc.com

Jeffrey Krebs is the Mechanical Engineering Manager at Christiana Care Health System in Newark, Delaware with over 20 years of fire protection experience.

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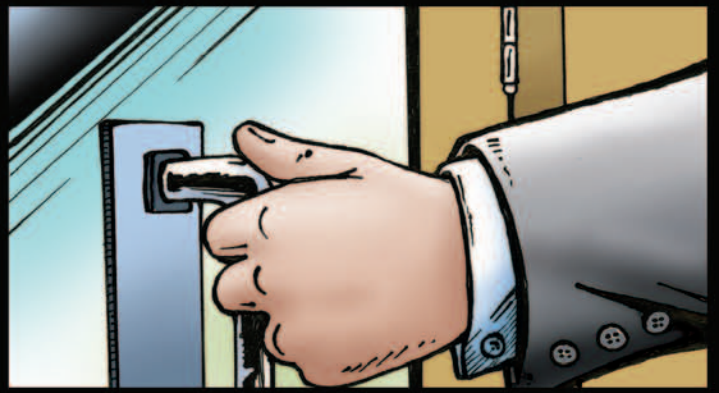
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THE ADVENTURES OF **APEX**™ THE FIRESTOPPER

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GOOD DAY. I'M WITH THE RED TAPE INSPECTOR'S OFFICE AND I'M HERE TO SURVEY YOUR FIRE-BARRIERS, SO I'LL NEED TO SEE YOUR DOCUMENTATION.



UM, UH, SURE... JUST LET ME GET THAT FOR YOU.

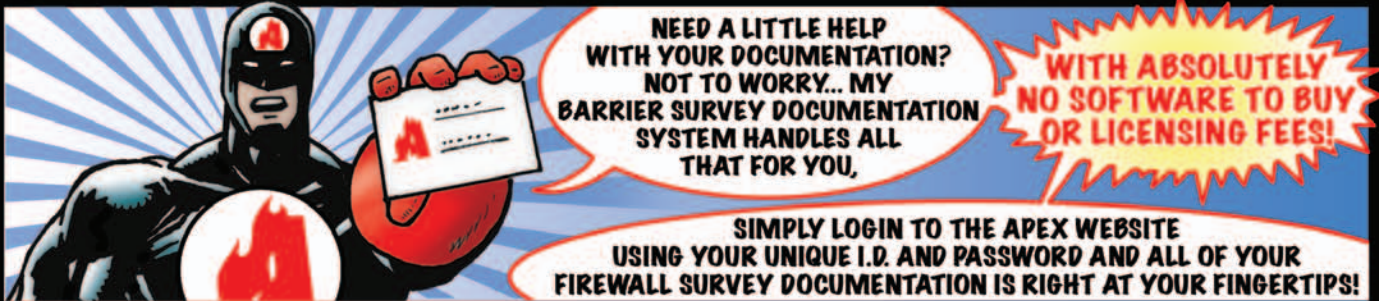
I'M SURE THEY'RE AROUND HERE SOMEWHERE—JUST GIVE ME A FEW MORE MINUTES!



I DON'T HAVE ALL DAY! MY PATIENCE IS WEARING THIN!



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Fire Safety in Educational Facilities

By Bill Feil, Ernie Schmidt, Vickie Lovell

Facilities that provide education can range from a single-family dwelling unit used for teaching small children, to vocational schools and adult education centers, to a sprawling university with tens of thousands of young adults, to graduate students doing high-tech research in state-of-the-art laboratory facilities. Compliance with fire and life safety requirements and regulations should be among the highest priorities for educational facility owners and managers. The requirements for the construction of educational facilities are based on specific classifications found in building and fire codes. They are based on the variety of ways such buildings are used by both the faculty and students and their associated risks.

Recent Fires In Educational Facilities

A recently released National Fire Protection Association (NFPA) report entitled "Structure Fire in Educational Properties" (September 2013), defines "educational properties" as daycare centers, public, private or parochial boarding schools, trade or business schools, and college or university classroom buildings. This report further sub-divides property use into three categories: daycare centers; nursery, elementary, middle, junior, and high schools; and college classroom buildings and adult education centers.

According to the report, most fires in educational properties occurred in nursery, elementary, middle, junior or high schools, with an estimated average of 4,060 structure fires per year reported in these properties (71% of the educational property total) in 2007-2011. Over half (54%) of the fires in these properties occurred between 9 a.m. and 3:00 p.m.; half (49%) of the fires in these properties were set intentionally; one-third (32%) of the fires in these schools occurred in a lavatory or bathroom; and 13% began in a kitchen or cooking area.

Building Code Requirements For Facilities That Provide Education

Facilities that provide all types of education are classified by the building code in a variety of ways, depending on who the students are, how many are present, their ages, and what discipline or skill they are learning. Determining the occupancy classification of a building where education takes place is the first essential step in complying with the specific fire safety requirements found throughout the code. The specific requirements for fire resistance ratings, the protection

of vertical openings, penetrations, shafts, and joints are found throughout the building and fire code, and are specific to each group. A university campus, for example, will likely have many types of building classifications, depending on the occupancy use.

Occupancy Groups For Facilities That Provide Education

The building code contains criteria for classification of all types of building into "groups" based on their use. The 2012 International Building Code Section 508 also identifies a type of property referred to as "Mixed Use and Occupancy", which permits a single building to be designed to have more than one use classification. For example, buildings on a campus could have offices, assembly areas, a laboratory, and storage areas. However, the 2012 IBC Commentary correctly points out that "the presence of children does not automatically mean a classification as a Group E." The 2012 IBC Commentary clarifies that "the risks to life safety in this occupancy vary with the composition of the facilities and also with the ages of the occupants."

Every building, or each area of a building, will be constructed in accordance with the specific requirements for its respective occupancy group.

Group E - Educational

The three fundamental characteristics of an educational building (Group E) are as follows:

- The facility is occupied by more than five persons (excluding the instructor); and
- The purpose of the facility is for educating persons at the 12th-grade level and below.
- Educational facilities for five or less occupants that are under 2 1/2 years of age are not considered Group E.

Section 305 of the 2012 International Building Code (IBC) defines Group E as follows:

305.1 Educational Group E. Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade.

305.2 Group E, daycare facilities. This group includes buildings and structures or portions thereof occupied by more than five children

older than 2 1/2 years of age who receive educational, supervision or personal care services for fewer than 24 hours per day.

Group B - Business

Section 304 of the 2012 International Building Code classifies educational facilities for students above the 12th grade to be Group B, Business Occupancies, as follows:

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, educational occupancies for students above the 12th grade, and (include) laboratories for testing and research.

Classrooms and laboratories located in colleges, universities and academies for students above the 12th grade are classified in Group B, because the occupancy characteristics and potential hazards to life safety present in these facilities more closely resemble those of business occupancy than educational occupancy.

Other Use Groups - Group A - Assembly, Group I - Institutional, and Group H - Hazardous

Buildings, or parts of buildings, that are part of an educational facility may be considered Group A Assembly, Group I Institutional, Group S Storage, or even Group H Hazardous. Section 303.4 of the IBC states that classrooms with an occupant load of 50 or more are classified in Group A-3. When lecture facilities for large groups (i.e., occupant load of 50 or more) are located within the same building where classrooms with an occupant load less than 50 are found, the building is a mixed occupancy (Groups A-3 and B) and is subject to the building code provisions of Section 508. Lecture halls for students above the 12th grade with an occupant load of 50 or more are classified in Group A-3 based on the requirements of IBC Section 303.4.

Laboratories and vocational shops are often located in Group E and B facilities. Labs that do not use or store materials considered hazardous by the Fire Code (such labs in a Group E or an I-2 occupancy care facility) and are not classified by the building code as Group H, are only required to provide a 1-hour fire rated assembly or provide an automatic sprinkler system. However, if the nature of the laboratory requires storage of materials considered to be hazardous, such as certain flammable, radioactive, or explosive materials, then the laboratory becomes Use Group H, and more stringent fire safety requirements found in both the Building Code and also the Fire Code will be triggered.

The Fire Code has strict requirements to limit the

amounts of hazardous materials, and also to maintain them in control areas. The boundaries for such control areas are required to be fire resistance rated for two or more hours.

Firestopping solutions in educational facilities

Firestopping is a key component to maintaining fire resistance ratings of assemblies used to subdivide buildings for vertical and horizontal occupancy separations. As had been discussed, the firestopping requirements in educational facilities are based foremost on the use groups: Group B Business, Group A Assembly, Group E Educational, Group I Institutional, and Group H Hazardous. The least stringent fire safety requirements, including firestopping, for educational facilities are for Group B; the most stringent is Group H. For smaller facilities or in Group B occupancies, the firestop requirements may be limited. However, the firestop requirements for more complex facilities, such as a university laboratory building, may require an array of firestop solutions. The specific firestop solutions will vary with the complexity of the intended use and design of the building.

For example, in buildings used for chemistry or other types of hi-tech research, there may be chemical fume hoods which require particular attention to the range of gases that may be exhausted and the dangers that they may pose. This requires the ducts to be enclosed using an appropriate method, such as flexible ceramic fiber blankets systems. There may also be a range of piping materials in these more complex buildings based on the type of fluid running through the pipes.

One of the most common plastic piping materials in use today, PVC, is resistant to many chemicals. It is also one of the most common forms of piping that a user would find in a listed firestop system. Other specialty use pipes, such as PVDF (polyvinylidene fluoride) exhibit better chemical resistance than PVC, but there are fewer listed firestop systems from which to choose. HDPE (high density polyethylene) piping systems have seen an increase in use in recent years; however, there are very few firestop systems from which to choose. There are also multi-layered, chemically-resistant piping systems that pose their own unique challenges for firestopping depending on the composition of the layers themselves. Glass piping is another example of specialized piping that is commonly found in laboratory buildings, both new and retrofit applications.

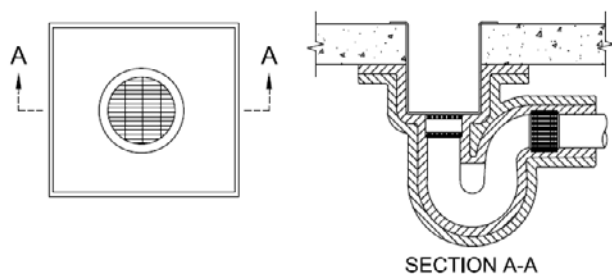
With the many types of piping that are found in laboratory buildings, it is a challenge for firestopping manufacturers, building designers and managers, and the inspection community to ensure that the hazards are addressed appropriately. It is important to clearly understand the chemical composition of the pipe, along with the other typical parameters (pipe size, annular space, wall or floor construction, hourly rating, etc.).

These buildings also have a significant number of floor drains (sinks). These will also need to be protected using an appropriate listed system. One of

the issues that the floor sinks are subject to is the equal fire “F” and temperature “T” rating requirement when a penetration through a horizontal assembly is located outside of a wall assembly. Although the firestopping of these floor sinks to achieve the “F” rating is relatively straightforward, achieving the “T” rating can be significantly more difficult. It can be achieved by using a flexible ceramic fiber blanket below the floor assembly. There are listed systems that are published to address this configuration.

Finally, many buildings on campuses have backup generators that have fuel lines that will also need protection using appropriate measures to limit the temperature increase on the outer surface of the pipes. Flexible endothermic mat systems are available for this purpose. These are just a few of the examples that deserve careful scrutiny and require experienced installers to properly implement to ensure the risk of fire is properly managed based on the building use.

FLOOR SINK WITH EQUAL 2 HR F&T RATING



Conclusion

The proper use of firestop in educational buildings is a critical component in assessing and addressing the fire safety concerns in educational facilities. An appropriate mix of fire protection strategies, including compartmentation, is supported by the Center for Campus Fire Safety (CCFS). The CCFS has developed a summary of GUIDING PRINCIPLES on campus fire safety and posted it on their website. The CCFS guidelines are as follows:

- Students need to be more aware of the personal responsibility that they have in their own fire safety.
- Parents expect, and deserve, to have the tools to make educated and informed decisions about fire safety when they select institutions of higher education.
- Campus fire and life safety professionals deserve superior services and opportunities from their membership organization.
- Continued encouragement of the higher education community to upgrade their fire safety programs and infrastructure will assist in providing the greatest level of fire safety possible for everyone student on-campus.

- Total fire protection relies on a “balanced” approach, employing a multiplicity of engineering solutions and technology options.

Regardless of what type of occupancy the actual educational building is classified as, the overall goal of fire protection remains the same. That is first and foremost the protection of the lives of the occupants of that structure whether they are children, adolescents, teen agers or young adults. The compartmentation of the structure provides containment of fire and smoke to areas remote from the fire. It also affords these occupants a reasonable means of egress to escape any incident. We owe them that level of protection as they are our future. 🔥

Bill Feil is the Technical Manager for 3M Fire Protection Products (www.3M.com/firestop) with over 25 years of research and development laboratory experience. Bill can be reached at firetech1@mmm.com.

Ernie Schmidt is the Technical Service Manager for 3M Fire Protection Products with a degree in Fire Protection Engineering and over 20 years of experience in fire protection.

Vickie J. Lovell is the President of InterCode Incorporated (www.intercodeinc.com), an independent consulting firm located in Delray Beach, Florida.

Resources:

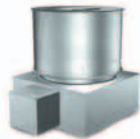
1. Richard Campbell, “Structure Fire in Educational Properties” National Fire Protection Association, September 2013.
2. 2012 International Building Code Commentary, International Code Council Inc., 2011.
3. 2012 International Fire Code, International Code Council Inc., 2011.
4. Center for Campus Fire Safety (CCFS) website, www.campusfiresafety.org.

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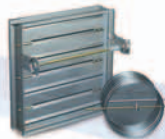
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Mythbuster: The Truth About Recessed Lights and Fire Ratings

By Marco Kristen

Knowledge about the regulations regarding recessed lights in fire rated ceilings can help you avoid costly mistakes and legal actions.

There is to be a great deal of confusion about what exactly “fire-resistance rating” means, where it is enforced, and the solutions available to meet the building code requirements for such ratings.

The widespread adoption of the International Building and Fire Codes throughout the United States and beyond has made this subject more and more relevant to contractors, builders, architects, and multifamily homeowners. But instead of decreasing confusion over the issue, continuous changes in requirements and increased demand for fire-resistance rated and code compliant products have far outpaced the availability of education on the topic.

What Does Fire Resistance Rating actually mean?

Municipalities all across the United States require fire-resistance rated drywall ceilings for certain commercial or residential buildings. Most of the mandatory fire ratings occur in multi-story residential structures such as apartment buildings, hospitals or hotels. The rating affects ceilings separating the levels directly above and below a residence or office space. The International Building Code addresses this issue explicitly in Chapter 7.

In order to meet this code requirement, the ceiling must serve as an unbroken fire barrier for a certain period of time (the usual standard performance rating is 60 minutes). However this time requirement can be greater than one hour, depending on the occupancy, type of construction and code adopted in the municipality. This is very important to remember when selecting appropriate fire-resistance rated solutions.



Recessed light with fire rated light cover.
Tenmat Photo

Lighting Fixtures and Fire-Resistance Ratings

Fire-Resistance Rated ceilings must provide continuity of the fire rating from wall to wall. The issue with recessed lighting fixtures occurs impairing the drywall rated barrier by cutting an opening for the fixture. In order to maintain the fire rating for the building, the barrier must somehow be restored after holes have been cut for the fixtures. Expensive mistakes are often made when an airtight or Insulated Contact (IC) fixture is assumed to be fire-rated.



Unprotected recessed light next to properly fire rated light. *Tenmat Photo*

IC Rating does not stand for Fire Rating

IC-rated light fixtures were designed and tested for direct contact with combustible materials, including overhead structural material and blow-in thermal insulation. IC-rated fixtures have a thermal switching device that is set to trip if the shell of the fixture reaches 194°F, (90°C). Cellulose blow-in thermal insulation has an ignition temperature of over 750°F, (398.89°C). The thermal switch on the IC-rated light ensures that the fixture will not reach a temperature high enough to catch on fire.

The critical point is that “IC” only states that the fixture was constructed in such a way as to avoid starting a fire, whereas “fire-resistance rating” addresses a fire-resistance rated assembly’s performance in the event a fire has already started and is in progress.

IC-rated light fixtures by themselves are extremely poor flame barriers. Most of them are constructed either from aluminum or light sheet metal that breaks down rapidly when in



Tenmat Photo

direct contact with fire, and will not provide a flame barrier for any length of time. In case of a fire the fixture will break down and the fire can now easily spread to the living space above. A fire-resistance rated barrier will help to keep the fire contained giving the residents additional time to escape. To meet the building code and to maintain the required fire rating, non fire rated lights need additional fire protection.

Solving the problem

There are several different solutions for fire-rated applications with a diverse range of prices, approvals and complexity.

A common solution to the problem are prefabricated Fire Rated Light Fixtures, which have a variety of fire tested systems available but are also the most costly choice.

To avoid these expensive lights, many installers construct boxes from drywall to surround the lighting fixture. This is very labor-intensive and may increase the cost of installation beyond budget limits.

Metal enclosures are also becoming an increasing popular choice to the fire-rating dilemma. However these are not UL-Classified and not suitable for every application.

A UL-Classified and very popular solution are Fire Rated Light Covers. These covers are suitable for various recessed light fixture sizes and luminaires and widely accepted by building code officials throughout the United States.

Choosing the right recessed housing to accomplish the correct fire-resistance rating is not as easy as many contractors or builders may believe. An "IC" label on a recessed light fixture does not imply that the light is also fire-rated. Lighting professionals and consultants with experience in fire-rated environments are the best source for suitable solutions and can help building professionals to avoid costly mistakes. 🔥

Marco Kristen has written and published multiple articles relating to fire protection and energy conservation. Marco can be reached at marco@tenmatus.com.

Roberto Casini is the General Manager at Tenmat Inc. and has been working in the fire protection industry for more than ten years.

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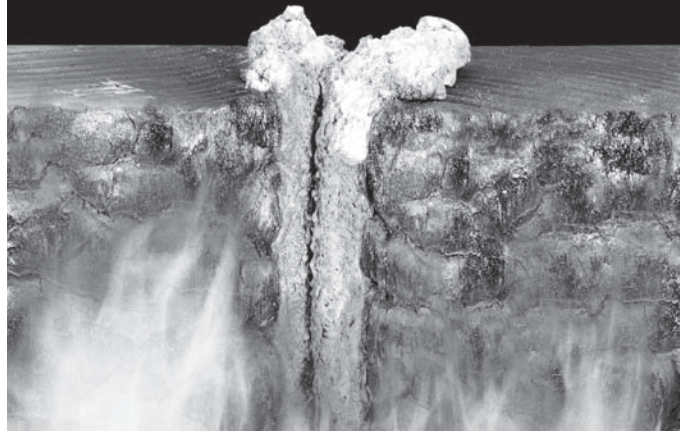
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Multi-Family Fire Safety - The Role of Fire Doors

By Lori Greene, Manager – Codes & Resources, Allegion PLC

Fire door assemblies play a vital role in the protection of life safety, yet many people remain unaware of their existence. We pass through these doors every day in commercial, institutional, and multi-family residential buildings. A lack of awareness can lead to modifications or deficiencies which affect the opening protective's performance when it's critical – during a fire.

Many codes now require fire and egress door assemblies to be inspected annually, with their condition documented and any noted deficiencies repaired without delay. But with a little education, building occupants can help to ensure that the fire and egress doors where they live and work are able to perform properly every day.



Labels located on the door edge and frame rabbet include important information about the fire door assembly and must remain legible. *Allegion Photo*

The first step is to be able to identify which openings are fire door assemblies. In a multi-family residential building, fire-rated assemblies would typically be found on door openings leading to the stairs, the doors leading from the corridor to each apartment or condominium, and some utility rooms like elevator machine rooms and electrical rooms. A label from a listing agency like Underwriters Laboratories or Intertek should be visible on the door edge and the frame rabbet. On existing openings

this label is often painted over, but it is required by code to be legible.

The role of a fire door is to work with the fire resistance rated wall to provide continuity and compartmentalize a building, inhibiting the spread of smoke, flames, and hot gases. Fire doors are available in varying levels of protection. For example, a fire door used on a stair enclosure will typically provide 90 minutes of protection, while most corridor doors in a multi-family building are required to provide 20 minutes of protection. Many fire doors are also egress doors, and therefore must allow free egress for building occupants. Specific codes will dictate the ratings required for each assembly.

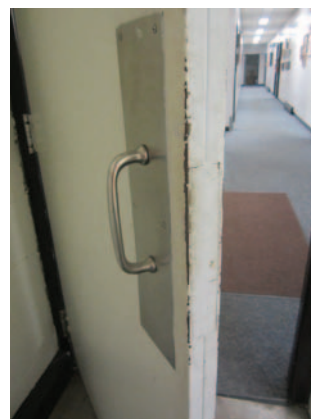
In order for a fire door to perform as designed and tested, it must be closed and latched when a fire occurs. One of the most frequent deficiencies noted during fire door inspections is that the door does not close properly.

Fire doors are typically equipped with door closers or spring hinges. However, doors are often propped open for convenience using wedges, hooks, or other mechanical means.

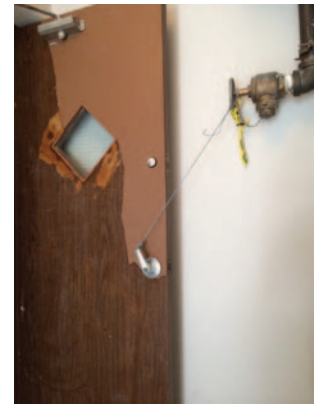
During a fire, an open door will allow smoke and flames to spread. Hold-open devices on fire doors must be automatic-closing devices, which allow the door to close upon a signal from the fire alarm system, or an integral smoke detector. The closing device should reliably close the door until it latches.

Spring hinges used on fire doors will likely need to be adjusted periodically. NFPA 80, Annex A states that spring hinges should be adjusted to achieve positive latching when allowed to close freely from an open position of 30 degrees. Many existing fire doors with spring hinges do not reliably close and latch from this position.

In a recent fire in a Manhattan, New York high-rise residential building, an electrical fire began in a 20th floor apartment while the apartment's resident was not at home. When he returned home and opened the apartment entry door, he saw the fire and left the building. The apartment door was not self-closing as required by code, which allowed the smoke



This fire door is part of a rated stair enclosure, but it's missing the active latchbolt that is critical for keeping the fire door closed during a fire. *Allegion Photo*



When holding open a fire door, the hold-open device must be listed for that purpose to ensure that the door will be closed if there is a fire. *Allegion Photo*

and flames to spread. The smoke filled the means of egress for residents of that floor. When firefighters arrived on the 20th floor and opened the stair door, smoke filled the stair, resulting in several injuries and one fatality. There have been similar incidents in other multi-family buildings where an apartment fire that would have been minor if contained to the unit of origin spread because of an open door, resulting in fatalities.

The latching requirement for a fire door ensures that the pressure from a fire is not able to push the door open and allow smoke and flames to spread through the opening. Fire door assemblies may be equipped with locksets or latchsets with an active latchbolt to provide positive latching, or a type of panic hardware called fire exit hardware. While panic hardware used on non-fire-rated doors includes a mechanical dogging feature which allows the latch to be held retracted, fire exit hardware does not include mechanical dogging. Fire exit hardware may be provided with electric latch retraction to hold the latch retracted electrically, as long as the latch projects automatically upon a signal from the fire alarm system. The positive-latching feature on a fire door is often defeated by improper modification of the hardware, or failure to repair latching hardware that has become damaged.

The clearance around a fire door is an important factor for limiting the spread of smoke. NFPA 80 – Standard for Fire Doors and Other Opening Protectives, limits the clearance at the head and



Excess clearance around a fire door will affect smoke infiltration, as well as the performance of the assembly during a fire.
Allegion Photo

jambs to 1/8-inch maximum for wood doors and 3/16-inch maximum for hollow metal doors. For pairs of doors, clearance at the meeting stiles is limited to those same dimensions. And adding meeting stile gasketing is technically not a code-compliant solution to the problem. The clearance between the bottom of a fire door and the top of the flooring or raised threshold is limited to 3/4 of an inch. There are products which have been tested for use on a fire door with oversized clearance at the bottom, but there are limitations on the door rating, material, and the amount of clearance. A standard door sweep that has not been specifically tested for use on non-compliant doors where clearance is incorrect should not be used for this application.

The International Building Code (IBC) and NFPA 101 – The Life Safety Code, both require doors in certain locations to have limited air infiltration when tested in accordance with UL 1784 – Air Leakage Tests of Door Assemblies. Although the codes don't specifically include a requirement for smoke gasketing, most door openings will not meet the air infiltration requirements without gasketing at the head and jambs. Refer to the codes for specific requirements, and opening locations which require this testing. Most smoke and draft control doors are not required to have seals at the door bottom, with the exception of elevator hoistway doors.

Field modification of fire doors is limited by NFPA 80 to preparations for surface-applied hardware, function holes for mortise locks, holes for labeled viewers, installation of protection plates, and a maximum 3/4-inch wood and composite door undercutting. Holes drilled in the field are limited to 1-inch diameter, with the exception of cylinder holes which can be any size. If holes are left in a fire door assembly when hardware is removed, those holes must be filled with steel fasteners or the same material as the door or frame. There is also a fire door caulk now available for use in filling small holes in wood doors. Other modifications should not be made in the field, unless the doors will be reinspected by a labeling agency.



When the door closer on this fire door was replaced, the resulting holes should have been filled with steel fasteners or a material that is approved for this use.
Allegion Photo

NFPA 80 includes the annual inspection requirements for fire door assemblies – detailed information about the inspection along with 13 criteria which must be verified for each fire door assembly. NFPA 101 and the International Fire Code (IFC) also contain annual inspection requirements for fire doors and certain egress doors. These detailed inspections are intended to be conducted by third-party inspectors, and the documentation reviewed by a fire marshal or other code official during their periodic inspection of the building. Although some code officials may not review the documentation from the fire door inspection, it is the responsibility of building owners and property managers to maintain their fire doors in code-compliant condition.

Failure to keep fire doors in code compliant and operating condition could result in property damage, injury, or even loss of life, and the associated liability that comes along with negligence. With more focus on the fire doors we use every day, we can improve life safety for all building occupants including those in educational and multifamily structures. 🔥

Lori Greene, AHC/CDC, CCPR, FDAI is Manager – Codes and Resources for Allegion PLC, and has worked in the door and hardware industry for more than 25 years. In her current role she provides code-related support and training, and uses her blog – www.iDigHardware.com, to teach about the code requirements affecting door openings.

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How did Firestop Special Inspections wind up in 2012's International Building Code?

By Eric Keeton, Randy Bosscawen, Tracy Smith

Firestop Special Inspection is required on certain buildings where the 2009 or 2012 International Building Code (IBC) has been adopted. The inspection is required to be performed to ASTM E 2174 Standard for the Inspection of Installed Penetration Firestops & ASTM E 2393, Standard for the Inspection of Installed Fire Resistive Joint Systems,

What's the big deal about two standards becoming part of the International Building Code? Well, it was a long journey. The story starts quite a bit before the 2009 I-Codes adapted special inspections.

At the 1999 spring FCIA Education and Committee Action Conference in San Antonio, FCIA member Don Sabrsula, FireSafe of Houston asked a question of speaker Mike Pfeiffer, ICC's Vice President, Code Development. "Why is there no special inspection for firestopping like there is for fireproofing?" Don continued, "in Spray Fire Resistive Material Application (Fireproofing), a trade installs the products. In Firestopping, it's a free for all and we really need it for life safety".

Mike Pfeiffer replied, "The code is your code....and anyone can write and submit a code proposal. If you want special inspections for firestopping to be added to the International Building Code, then consider building standards for inspection and submitting to the ICC Code Development Process".

Immediately, a FCIA Standards Committee was formed. The FCIA Standards Committee then went to ASTM, requested a Task Group be formed to build the standards. Firestop Contractors, Firestop Manufacturers and ASTM Staff then worked together at ASTM through the consensus process to build two standards, ASTM E 2174, Standard for the Inspection of Installed Firestops and ASTM E 2393, Standard for the Inspection of Installed Fire Resistive Joints. FCIA hired a consultant to help the standards follow ASTM Form and Style. The standards were then published in 2002 and 2004 respectfully.

Once the ASTM E 2174 & ASTM E 2393 Inspection Standards were built, FCIA submitted them to the International Building Code (IBC) Development Process. In the 2005/2006 and 2007/2008 ICC Code Development Cycle, the proposals were disapproved. It was found that there were places where mandatory/non mandatory language was incorrectly located and some changes were needed.

FCIA's Executive Director became Chair of the Task Group at ASTM and collaborated with manufacturers and consultants in coordination with ASTM Staff with over 65 individual ballots to correct the standards and ready them for code submissions. We had much help from ASTM Staff, Firestop Manufacturers and Consultants as we worked through the ballots resolving negatives.

Our submission of ASTM E 2174 & ASTM E 2393 Standards for the 2008/2009 Code Development Cycle for the 2009 International Building Code passed at ICC's Committee Action Hearings and Final Action Hearings. The standards were then added. We had help from industry manufacturers, consultants and others to gain this success. Collaboration worked well as we worked to put these standards in IBC's Chapter 17, Special Inspections.

As the proponent to have these inspection standards added to the code, we also proposed at the same time, that on the same types of buildings (see below), that "FM 4991 Approved Contractors or UL Qualified Firestop Contractors" be added to the IBC code as well. The vote was very close to mandating the requirement for FM 4991 Approved or UL Qualified Firestop Contractors. More on this in the next issue of Life Safety Digest. During this code proposal, we had help from Underwriters Laboratories, FM Approvals and even the National Fire Sprinkler Association.

Special Inspection Agency Qualifications

We believe in the concept of special inspection. We also believe that firestop special inspection agencies need to be knowledgeable about firestop systems. Firestop systems are defined as:

... "an assemblage of materials designed to prevent the spread of fire through penetrations and joints".

The assemblage consists of several components:

- Penetrating item size, type, orientation and coverings
- Joint Opening size
- Annular space size and shape
- Floor or wall assembly type and rating
- Firestop materials required,
- Installing exactly as described in tested and listed system

The assemblage of materials installed to the tested and listed system is what makes the firestop materials become a SYSTEM. It's not the material alone, nor the wall or floor that make the rating. It's the SYSTEM that carries the fire resistance rating.

Understanding the SYSTEMS is the key to firestop special inspection as it is in firestop installation. If the firestop/containment worker does not understand the SYSTEMS concept, then it is only by luck that a firestop SYSTEM is installed. If the special inspection agency does not have the understanding that SYSTEMS need to be found during both destructive and observations, then potential waste of resources and breach in fire resistance is created where there is no firestop SYSTEM installed.

Inspection Agency Accreditation - IAS AC 291

In 2008, FCIA recognized that there should be an accreditation for firestop special inspection agencies to prevent an unqualified firm that does not recognize when a system is installed properly. The intent of the inspections was better quality and reliability of the installed systems. Without a knowledgeable inspection agency, the code requirement for inspection would not be valuable to the ultimate end user, the building occupant.

International Accreditation Services (IAS) already had a program, Accreditation Criteria AC 291, Criteria for Accreditation of Special Inspection Agencies. AC 291 was suited for both large special inspection agencies and also very small, sole proprietor inspection agencies and seemed the right choice for inspection agency and inspection quality.

The AC 291 Accreditation is a quality management system based program where the special inspection agency writes a management system manual with procedures that reflect their operations. IAS' personnel then audit the firestop special inspection agency to see if the firm does as it says it does in its procedure manual.

The IAS AC 291 Special Inspection Agency company must also have at least one person on staff that has passed the FM or UL Firestop Exam. Once the FM or UL Firestop Exam is successfully completed and the firm passes the special inspection agency office audit and also an audit at a project site location, the firm becomes IAS AC 291 Accredited. The firms that have become IAS AC 291 Accredited can be found at www.FCIA.org.

IAS AC 291 Fees

The cost of doing business for any firm is an important factor for its participants. IAS AC 291 costs are very inexpensive when compared to revenue. It's also cheaper than taking a group of 6 to three pro-football games and dinner. What's involved and what's the cost??

- Accreditation Management System Development – FCIA offers a free template to members.

- FCIA's Manual of Practice - \$295/members, \$895/non-members
- UL Firestop Exam - \$500
- FM Firestop Exam - \$745
- IAS Audit - \$2650
- IAS Annual Ongoing Audit - \$1950

We worked with IAS to develop the IAS AC 291 Special Inspection Agency Accreditation Program rather than going into the inspector accreditation business for an important reason. With independence and separation comes objectivity and credibility. That's why both the inspection agency and firestop contractor programs are managed and owned by 3rd parties and not the association.

We could have developed the exams and had an association accreditation program with a nice revenue stream to accompany these programs. Revenue for both the FM 4991 and UL Qualified Firestop Contractor and Inspection Agency programs would have meant the association's revenue would be over double current income. Instead, the FCIA Accreditation Committee and FCIA Board of Directors decided that third party accreditation programs managed and owned by world class testing laboratories such as FM, UL and IAS would be more valuable to the specifier, building code official or fire marshal plus building owner and managers.

The results of strategic choices made have proven correct. There are over 140 Firestop Contractor Companies who have chosen to become FM 4991 Approved or UL/ULC Qualified Firestop Contractors. Over 40 special inspection personnel have taken the FM or UL Firestop Exams in North America and the Middle East. As demand starts growing for special inspection due to the new Chapter 17 IBC requirement for special inspection, IAS AC 291 Accredited Special Inspection Agencies will begin appearing in greater numbers as well.

Special Inspection and Good Contractors

What does the building owner and manager want to pay for? Inspection or Installation? Really, the answer is the right mix of both. While Special Inspection is a great benefit to getting firestopping installed to the tested and listed SYSTEM, if contractors don't understand the proper installation processes, then the cost of inspection skyrockets to the building owner and manager because of all the errors. Or, if an inspection agency who does not understand the importance of accuracy to the tested and listed firestop SYSTEM design is hired, then a life safety risk becomes real.

Firestopping's objective is to maintain fire resistance and/or smoke resistant continuity of the floor or wall. An incorrectly installed firestop SYSTEM means a breach in that continuity. It also means the building owner and manager did not get what was bought in the specification. And, an incorrect value of the firestop installation was established that an unknowing purchaser will use to benchmark the next project.

What's the Point?

Firestopping Special Inspection can work and help building owners and managers get the correct value for their construction dollar. It only happens when a FCIA Member, FM 4991 Approved, UL Qualified Firestop Contractor is used and an IAS AC 291 Accredited Special Inspection Agency is hired. Only then, will there be equilibrium, a balance of special inspection and contracting on equal footing.

Why have company certifications for Inspection Agencies and Contractor Companies? The company hires individuals to perform work whether a firestop contractor or firestop special inspection agency. It's the company that instructs the employee to "install that assemblage of materials to the tested and listed SYSTEM design"...or "inspect that firestop installation to the tested and listed SYSTEM design". Individuals do need to be knowledgeable about firestop SYSTEMS, but they also need to be given the correct direction to keep the SYSTEMS discipline in all firestopping.

The Point

Never underestimate what individuals can do collectively as an association. What started as a single question at a FCIA Conference, became a FCIA Committee and an industry strategy to improve the reliability of installed firestopping through both FM 4991 Approved or UL Qualified Firestop Contractors, ASTM E 2174 & ASTM E 2393 Standards and IAS Accredited Special Inspection Agencies, with a firestopping endorsement.

Continue on with us as we journey through this path. More in the next issue of Life Safety Digest. 🔥

Randy Bosscawen is a FCIA Past President & Standards Committee Member can be reached at rbosscawen@multicon.us. Eric Keeton is 2014 FCIA President and Standards Committee Chair, can be reached at ekeeton@daltonprotection.com. Tracy Smith is FCIA Past President and Standards Committee Vice Chair, can be reached at tracys@firestopsouthwest.com.

FM & UL Firestop Exam

The FM & UL Firestop Exam is an industry knowledge based examination meant for inspection agency and contractor personnel who participate in the firestop industry. The exams are based on the FCIA Firestop Manual of Practice, tested and listed SYSTEMS from the UL Fire Resistance Directory, Intertek Directory or FM Approvals Guide. The examination provides a proof that the person has a benchmark level of knowledge about firestopping based on the concept that the firestop SYSTEM is an *assemblage of materials* that has to be installed exactly to the parameters of the tested and listed system.

Special Inspection in Codes

During the 2009/2010 Code development cycle, the Firestop Contractors International Association (FCIA) proposed that Special Inspections for Firestopping be added the International Building Code (IBC) We had great support from the Firestop Manufacturers and Consultants for this proposal.

Below are the 2012 IBC Chapter 17 special inspection sections where the ASTM E 2174 & ASTM E 2393 Standards are located; Penetrations & Joint Firestops:

1705.16 Fire-resistant penetrations and joints. In high-rise buildings or in buildings assigned to Risk Category III or IV in accordance with Section 1604.5, special inspections for through-penetrations, membrane penetration firestops, fire resistant joint systems, and perimeter fire barrier systems that are tested and listed in accordance with Sections 714.3.1.2, 714.4.1.2, 715.3 and 715.4 shall be in accordance with Section 1705.16.1 or 1705.16.2.

1705.16.1 Penetration firestops. Inspections of penetration firestop systems that are tested and listed in accordance with Sections 714.3.1.2 and 714.4.1.2 shall be conducted by an approved inspection agency in accordance with **ASTM E 2174**.

1705.16.2 Fire-resistant joint systems. Inspection of fire resistant joint systems that are tested and listed in accordance with Sections 715.3 and 715.4 shall be conducted by an approved inspection agency in accordance with **ASTM E 2393**.

NOTE from FCIA: For clarification, "High Rise Buildings" are structures with floors greater than 75 feet above lowest fire department access. The Category III or IV buildings in Section 1604.5 are "special occupancies." These structures are described in the IBC 2012, table 1604.5:

Table 1604.5 – Risk Category III Buildings

Buildings and other structures that represent a substantial hazard to human life in the event of failure, include but are not limited to:

- Buildings and other structures whose primary occupancy is public assembly with an occupant load greater than 300.
- Buildings and other structures containing elementary school, secondary school or day care facilities with an occupant load greater than 250.
- Buildings and other structures containing adult education facilities, such as colleges and universities, with an occupant load greater than 500.
- Group I-2 occupancies with an occupant load of 50 or more resident care recipients but not having surgery or emergency treatment facilities.
- Group I-3 occupancies.
- Any other occupancy with an occupant load greater than 5,000.
- Power-generating stations, water treatment facilities for potable water, waste water treatment facilities and other public utility facilities not included in Risk Category IV.
- Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that:

Exceed maximum allowable quantities per control area as given in Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with the International Fire Code; and are sufficient to pose a threat to the public if released.

Sidebar continued on page 31



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Industry News & Code Corner



ICC 2015 Codes Available in June.

Coming in June, the ICC will publish the new 2015 International Family of Codes. All codes are being published except the International Green Construction Code (IgCC). The IgCC Code Committee Action Hearings take place in early May, Memphis. The Public Comment Hearing is scheduled for late September. Check out FCIA's Industry Calendar for more info.



Public Input and Comments on NFPA's Code Cycle.

The deadline to submit a public comment to the NFPA on their annual 2015 revision cycle site has been set at May 16th, 2014. The NFPA now has a twofold process for incorporating revisions to the code. A full list of committees still soliciting public input can be found on the NFPA's website in the Codes and Standards section, NFPA.org.



Barrier Management Symposiums.

The Barrier Management Symposium is an educational event that provides keys to barrier effectiveness for healthcare facility managers, architects, specifiers, engineers, and more individuals has finally arrived!

The Barrier Management Symposium, held at the University of Alabama – Birmingham, brought together representatives from healthcare facilities to learn about effective compartmentation and the features of fire resistance in today's construction and healthcare buildings.

The Joint Commission (TJC), American Society of Healthcare Engineers (ASHE), Underwriters Laboratories



(UL) and Firestop Contractors International Association (FCIA) came together March 3rd and 4th providing education about how fire resistance rated and smoke resistant construction become SYSTEMS that protect buildings.



These SYSTEMS were represented at the Symposium by nationally known expert speakers from across the industries such as Anne Guglielmo (The Joint Commission), Keith Pardoe (Door and Hardware Institute), Bill Koffel (Koffel Associates), Nestor Sanchez, (USG), Marc Sorge, (Greenheck), Jonathan Flannery, (ASHE), with Bill McHugh, (FCIA), moderating. The Symposium travels to Philadelphia, PA on May 12th and 13th. Register for the Philadelphia Symposium at www.FCIA.org. For more information including past presentations, future schedule, and speakers, check out <http://www.fcia.org/barriermanagementsymposium.htm>.



FCIA Trade Show

Schedule. FCIA's Marketing Committee is keeping its trade show schedule as busy as ever. FCIA's Life Safety Digest IFMA Facility Fusion April 15-17 in Washington D.C. Up next is the NFPA Conference, June 9-12 in Las Vegas, NV. Stop by the FCIA Education Session where Bill McHugh & Bill Koffel will present on Firestopping & Effective Compartmentation. And, visit FCIA in booth #2062.

Stay tuned to FCIA.org for more information and visit the Life Safety Digest Industry Calendar for a full list of industry relevant events.

Sidebar continued from page 29

Table 1604.5 – Risk Category IV Buildings

Buildings and other structures designated as essential facilities, including but not limited to:

- Group I-2 occupancies having surgery or emergency treatment facilities.
- Fire, rescue, ambulance and police stations and emergency vehicle garages.
- Designated earthquake, hurricane or other emergency shelters.
- Designated emergency preparedness, communications and operations centers and other facilities required for emergency response.
- Power-generating stations and other public utility facilities required as emergency backup facilities for

Table 1604.5 - Risk Category IV structures

Buildings and other structures containing quantities of highly toxic materials that:

- Exceed maximum allowable quantities per control area as given in Table 307.1(2) or per outdoor control area in accordance with the International Fire Code, and are sufficient to pose a threat to the public if released.
- Aviation control towers, air traffic control centers and emergency aircraft hangars.
- Buildings and other structures having critical national defense functions.
- Water storage facilities and pump structures required to maintain water pressure for fire suppression.

The codes build fire and smoke resistance on the concept of "continuity." Fire barriers are to be minimum one-hour fire-resistance-rated and continuous from fire barrier to fire barrier and from fire-resistance-rated horizontal assembly to the next horizontal assembly...and from outside wall to outside wall. That's what generates the need for all types of fire resistance features including firestopping, fire and/or smoke dampers, swinging and rolling fire doors and hardware fire rated walls and floors.

FCIA supports special inspection for these important occupancies during construction. FCIA also believes that the maintenance of these important fire resistance rated assemblies. Look for more on that in the next article of Life Safety Digest.



FCIA Members (from left to right) Don Murphy, Gus Mancini, Randy Bosscawen, and Tracy Smith at the FCIA booth during the 2013 ASHE Convention.

FCIA Canadian Educational Symposium. FCIA returns to Canada hosting the next FCIA Educational Symposium in Calgary, AB. June 3rd and 4th marks the second year in

a row the FCIA heads to Canada for education and firestop FM & UL examinations. Stay posted to FCIA.org for more information as it becomes available.



DHI Announces Changes to Technical Staff. Keith Pardoe, DAHC/CDC, FDAI, CDT recently assumed the position of Director of

Technical Development to help facilitate the ongoing development of DHI's technical education products. Keith will be responsible for assessing the industry's needs and will represent DHI to various codes and standards organizations within the US.

NFPA Names New President: Jim Pauley. The NFPA has named its new president, Jim Pauley. Jim has been with Schneider Electric since 1985 and has been involved with the NFPA for many years. A member on many codes and standards committees, including chairman of the board for the American National Standards Institute (ANSI), Jim brings with him a passion for fire and life safety to the position. He will succeed James Shannon, the NFPA president since 2002. Shannon has been a part of the NFPA for 23 years.



FCIA Education and Committee Action Conference (ECA) in San Antonio is Approaching! The FCIA's ECA is the premier fire and life safety event. The ECA comes your way at the beautiful Omni La Mansion in San Antonio, TX.



FCIA Members Randy Perry, Guy Bradley, Ken Slama at the 2013 ECA in Denver, CO.

The ECA also includes dynamic speakers across the industry such as Fred Worley (Texas Department of Aging and Disability Services), Bill Koffel (Koffel & Associates), Jeff Gould (FM Approvals), and Matt Schumann (UL), a tour of the Southwest Research Institute Fire Testing Laboratory, with plenty more speakers to be announced on FCIA.org..

The FM 4991 Standard for the Approval of Firestop Contractors and UL/ULC Qualified Firestop Contractor program updates happen here. Also, FM

& UL Firestop Examinations take place April 29th for those seeking FM 4991 DRI, UL/ULC QFC DRI and IAS AC 291 Responsible Person designations from the company that employs them

Intertek Acquires Architectural Testing, Inc. (ATI). Architectural Testing, Inc. (ATI) has recently been acquired by Intertek to provide a larger network of regional offices and testing labs. In ATI, Intertek is acquiring more than 303 highly specialized technicians, engineers, and support professionals located across the USA and Canada in 20 locations.



Rich Ferron named Operations Vice President and Manager, Testing and Certification Services. Rich has been named the VP of Operations for Testing and Certification at FM Approvals. Previously, Rich was assistant VP to the director of fire protection at FM Approvals. Rich holds a bachelors and masters in mechanical engineering from Worcester Polytechnic Institute, Worcester, MA and has been a friend to FCIA in his various roles at FM Approvals.

15,000 Jobs Added to Construction Sector in February. Of the 175,000 non-farm jobs, 15,000 were added to the construction sector. Bad weather did not dampen hiring as expected, and the industry continues to grow in the right direction.

MMC Revisiting the 2005 "Mitigation Saves" Study. The Multihazard Mitigation Council (MMC) of NIBS is revisiting the groundbreaking "Mitigation Saves" study funded by the Federal Emergency Management Agency (FEMA). The study concluded that mitigation activities proved to be cost-effective, but did not relate that to building code design. The study aims to broaden its scope to include design aspects.



cdpAccess rolled out: Smooth Launch. Travel budgets for ICC Governmental Member building code officials and fire marshals were slashed during the recent recession. Staffs were cut to meet budget requirements. The International Code Council (ICC)

has been conducting code development hearings using a "attend hearings and vote in person" model. The hearings can last up to 10 days. That's a lot of time for anyone to be out of the office. As a result, voting governmental members have asked for ways to participate remotely.

The new ICC cdpACCESS Program was conceived as a way for ICC Governmental and Industry Voters to plug in their opinion remotely. The program has evolved into a fully interactive, cloud based submission system for code proposals and changes in addition to altering the voting process. Code collaboration has been streamlined, and ICC staff can now process code proposals quickly online. The Code Hearings will still take place live. However, there will be an option to vote remotely by viewing code proposal testimony and submitting votes after the hearings have taken place. For more information, visit www.iccsafe.org.



IgCC Code Changes available.

The International Code Council (ICC) posted its International Green Construction Code (IgCC) code development proposals in preparation for the code hearings April 27-May 3, in Memphis. The IgCC code hearings are using the cdpACCESS Program for the IgCC Code Development Process.

Michael Gardner appointed as ICC Executive Vice President of Compliance Programs. Gardner's role will take effect on April 7, 2014. Michael has been involved in contracting, the ICC Code Development Process participating in the Industry Advisory Council, Code Hearings and more in the industry. He has been in association management at the Gypsum Association since 1998 and served as Executive Director and CEO of the organization since 2003.

ICC Supports NIST Disaster Resilience Efforts.

The International Code Council (ICC) is helping the National Institute of Standards and Technology (NIST) reach out to ICC Members and building safety professionals throughout the industry to attend a series of workshops devoted to developing a comprehensive, community-based disaster resilience framework. The NIST Disaster Resilience effort begins April 7 with the first of six workshops that will focus on buildings and infrastructure systems, and inform development of private-sector standards and codes.

Life Safety Digest believes that by restricting the spread of fire and smoke in buildings, effective compartmentation limits damage in buildings and increases their resilience capabilities. Total fire protection with the combination of effective compartmentation, suppression systems, alarms and occupant education contributes to resilience. The simple effect of an individual letting building management know that a fire door isn't operating contributes to resilience. Watch for more on this as it evolves.

Building Safety Month Coming in May.

Building Safety Month is scheduled for May with a theme of "BUILDING SAFETY: Maximizing Resilience, Minimizing Risks." Building Safety Month is a public awareness campaign supported by ICC and its members to help individuals, families and businesses understand what it takes to create and sustain safe, sustainable and resilient structures. ICC is making information and resources available on its website for jurisdictions to secure proclamations and promote local events. Check out ICCsafe.org for complete coverage in May.

New Fire Safety Report in Green Buildings on its way. A \$1 Million Homeland security award that it will use to conduct a study on green building technology and assess its fire safety risk. As an emerging industry/trend in today's construction, the fire risk involved with green building is yet unknown. Key collaborating partners include Worcester Polytechnic Institute, (WPI), The University of Maryland, (UMD) the National Fire Protection Foundation. Watch for more as study results in documents.

New Report on the Oklahoma EF5 Tornado to be Released. A new report on the tragic EF5 Tornado's that stormed through Oklahoma last year will reveal many building code violations and structure flaws, a sobering reminder to safe building and proper inspection to help save and sustain lives. To review, revisit last year's Educational Building issue of Life Safety Digest for Stephen Szoke's article, "Tornado Resistant Schools Mean Much More Than Wind", at FCIA.org/magazine.htm. Click on archives, Spring/Summer 2013.

New "High Rise Building Safety" Guide Now Available on NFPA.org. Visit NFPA.org, High-Rise Building committee page, to view the new guide. The committee that worked on the document recently completed the new guidebook to help facility managers and all those responsible for building safety to develop emergency action plans for high-rise buildings.

This type of guide has been a big subject at both ICC and NFPA. ICC's Ad-hoc Committee on Terrorism Resistant Buildings focused on high rise occupancies for over 7 years resulting in many code requirements for buildings from 75' to 420' taller than lowest fire department access. Watch for an article on these proposals in the Fall 2014 Life Safety Digest.

NIBS: Safer Buildings Are the Result of Building Codes Created by Private Sector.

A statement from National Institute for Building Sciences (NIBS) President, Henry Green, attributes safe buildings to strong codes, standards and the regulatory system. Green says, "The short sighted calls to make access to codes and standards 'free' today will have long standing – and expensive – consequences to the safety of our buildings and communities tomorrow". This refers to the movement to make standards available for free to the public. Standards Development Organizations such as ASTM, ICC, ASSE and many others fund standards development through sales of standards and code documents. 🔥



Life Safety Digest

2014 Industry Calendar

April 15 to 17

International Facility Managers Association
IFMA Fusion 2014
Washington, D.C.
www.ifma.org

April 29 to May 2

FCIA Education and Committee Action Conference (ECA)
San Antonio, TX
www.fcia.org

April 27 to May 4

ICC Committee Action Hearings (Group C Codes)
Memphis, TN
www.iccsafe.org

May 21 to 22

Canadian Healthcare Engineering Society (CHES)
Canadian Healthcare Construction Course
St. John's, NL
<http://www.ches.org>

May 21 to 25

Construction Specifications Canada Conference
Kitchener, ON
www.csc-dss.ca

June 4 to 5

CHES Canadian Healthcare Construction Course
Penticton, BC
<http://www.ches.org>

June 9 to 12

NFPA Conference & Expo
Las Vegas, NV
www.nfpa.org

June 20 to 22

BOMA 2014 Every Building Conference & Expo
Orlando, FL
www.boma.org

June 26 to 28

AIA Convention 2014
Chicago, IL
www.aia.org

July 28 to 30

National Association of State Fire Marshals Convention
St. Pete Beach, FL
www.firemarshals.org

August 3 to 6

ASHE Annual Conference and Technical Exhibition
Chicago, IL
www.ashe.org

September 8 to 12

CONSTRUCT2014
Baltimore, MD
www.constructshow.com

September 13 to 16

TIAC Annual Conference
Victoria, BC
www.tiac.ca

September 26 to 27

IIDEX Canada
Toronto, ON
www.iidexcanada.com

September 28 to

October 7
ICC Annual Business Meeting, Expo and Public Comment Hearings
Ft. Lauderdale, FL

October 5 to 8

ASTM E06 Meetings
New Orleans, LA
www.astm.org

October 21 to 22

CHES Canadian Healthcare Construction Course
Toronto, ON
<http://www.ches.org>

November 4 to 8

FCIA Firestop Industry Conference & Trade Show
www.fcia.org

January 12 to 15, 2015

The National Institute of Building Sciences Conference and Expo
Washington, D.C.
<http://www.nibs.org/?page=conference2015>

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FyreWrap® DPS Insulation just opened the door to improved dryer duct fire protection.



Recent NFPA statistics indicate significant injuries, loss of life and property damage due to clothes dryer fires in residential buildings. At the same time, code requirements for dryer exhaust ductwork in multi-family residences have been difficult to achieve in real-world conditions – until now.

Introducing new FyreWrap® DPS Insulation for dryer ducts and plenums.

FyreWrap® DPS Insulation is an innovative duct wrap that provides a safe and cost-effective means to achieve a 1-hour fire resistance-rated enclosure for routing dryer ductwork through rated wood construction. It utilizes a lightweight, high temperature, low bio persistence fiber blanket specifically designed, UL tested and classified for this

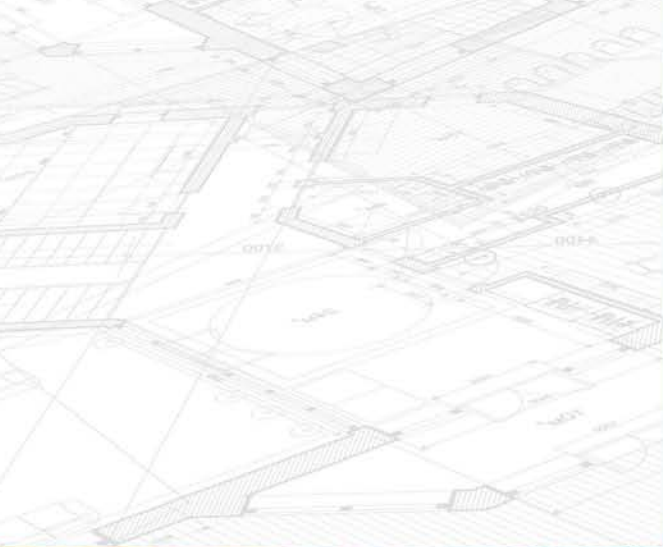
critical application. It also provides code compliant fire protection for combustible items such as plastic pipes in the plenum area. FyreWrap DPS Insulation features a ½", single layer design that is flexible and easy to cut, fabricate and wrap to fit tight spaces, providing time- and cost-savings on many projects.



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