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Life Safety

DIGEST

WINTER 2016


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WINTER 2016

COVER STORY

8 What's New in Fire-Rated Glazing

Recent innovations in fire-rated glazing are providing design professionals with a wide degree of creative freedom in meeting fire- and life-safety goals—and providing effective building compartmentation when designing with glass.

FEATURES:

6 FIRE RESISTANT FUEL PIPE PROTECTION

By Luke Woods

12 FLAME SPREAD—YOU CAN'T STOP IT OR CAN YOU?

By Melanie Bisson

15 MYTHBUSTER: THE TRUTH ABOUT RECESSED LIGHTS AND FIRE-RESISTANCE RATINGS

By Marco Kristen

18 FCIA WORKS FOR LIFE-SAFETY

By Bill McHugh

DEPARTMENTS:

4 EDITOR'S MESSAGE

20 BRIGHT IDEAS

22 CODE CORNER

25 INDUSTRY NEWS

30 INDUSTRY CALENDAR



EDITOR'S MESSAGE

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LIFE SAFETY DIGEST

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ON THE COVER:

Northwestern University's Engineering Life Sciences infill, a fire-resistance-rated glass floor system (horizontal assembly) which serves as a large, central atrium. TGP Photo.

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The Firestop Contractors International Association (FCIA) membership's hearts go out to the victims of the Oakland, CA warehouse fire.

What is the solution to such a tragedy? While some may assert that sprinklers should be mandated in all buildings, there is more to building fire-safety than simply an installed sprinkler system.

Alarms & Detection—The alarm system notifies occupants of smoke or a fire through smoke and fire alarms.

Egress Systems—Adequate exit pathways and emergency exits must be in place, and the complete egress system needs to work. It also needs to be well-known by the occupants. Why? When fire and smoke strike, there is not time—or possibly visibility—to find the way out. Thus, the exit route must be known in advance.

Sprinklers—Sprinkler systems in buildings may be able to control the fire until the fire department arrives to put it out.

Compartmentation and Structural Fire-Resistance—Buildings that use fire-resistance-rated construction and assemblies designed to resist the spread of smoke allow for safe egress for building occupants. These systems also confine the fire to the room where it started. Several recent studies have even shown how keeping non-fire-rated doors closed in homes can help save lives.

Education—Why isn't there a class in grades 6-8, 9-12 that teaches people what safety elements to look for in a building they are going to rent, buy or occupy? Whether it is a restaurant, night club, hotel, school, dorm or other, people should ask about the emergency procedures if an accident takes place. It is critical that all occupants know the locations of exits and confirm that they are not blocked before they are needed in an emergency.

And, do staff at restaurants, apartments or office buildings receive training on how to keep egress systems clear? Do they know not to store chairs or other items in front of marked fire exits? Staffers need not be architects, but they must be aware of what happens when buildings—and when the things stored in buildings—are either used incorrectly or put in the wrong place. The potential for catastrophic consequences rises dramatically.

Safety in buildings is something that needs to be taken seriously by all. Let's make some changes now through education. Educate both kids and adults about how to critically evaluate if a building looks safe.

The key elements to a safe building suggested above could save your life someday. 🔥

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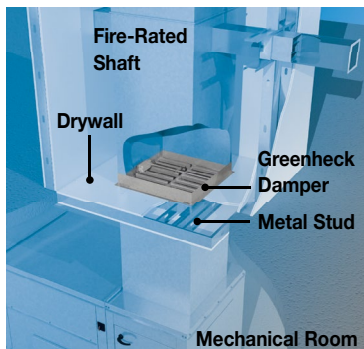


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FIRE RESISTANT FUEL PIPE PROTECTION

UL has developed certification requirements for fire resistant pipe protection materials to satisfy building code requirements.

Building installation codes require generator fuel lines within a building to be protected. The typical protection requirements necessitate a minimum fire protection of 2 hrs. The proper solution and test method to evaluate the proposed solution for fire-resistance rated protection options can be left for interpretation. To address this, UL has recently created and published a test method to evaluate protection materials and systems, and to satisfy the intent of the building code requirement for fuel pipe. This new test method is UL 1489, Outline of Investigation for Fire Resistant Pipe Protection Systems Carrying Combustible Liquids, and establishes a set of criteria to evaluate the protection method for fire resistant pipe protection systems. Just like many test methods used to evaluate the fire-resistance of a product or system, such as ANSI/UL 263, Fire Tests of Building Construction and Materials, the UL 1489 test method uses a standardized fire exposure

to influence heat and energy upon the test sample for a duration based on the request of the test sponsor, often the duration is the desired fire-resistance rating. UL 1489 subjects the test assembly to a standardized fire exposure, water hose stream impact and a leakage test. During the fire exposure and endurance test, the ability of the protection system to prevent flame and elevated temperatures on the fuel pipe is monitored and measured. The test specimen is exposed to the fire endurance test for at least the duration of the desired rating after which, the test sample is exposed to the cooling and impact influences of a standardized water hose stream test. This evaluates the fuel pipe protection system's ability to ensure the mechanical integrity of the pipe network remains sound. Finally, the system is evaluated for leakage, or in other words, the system's ability to ensure leaks will not occur as a result of the fire, heat and impact exposures. Collectively, this evaluation will help to ensure the fuel pipe network will be able to contain the combustible fuel in the event of a nearby fire.



Fire-resistant pipe-protection system during installation on horizontal offset fuel pipe.
Photo courtesy of 3M Fire Protection Products

This test method is not specific to a certain protection technology and has the ability to evaluate materials of a variety of construction and compositions. Such technologies could be, but are not limited to, board type products, spray applied products, wrap applied products or other insulative technologies.

Products under this category covers fire-resistant pipe-protection systems intended to satisfy the prescriptive code requirements (such as the 2008 New York City Mechanical Code, Section 1305.9.3 for Horizontal Offsets) for piping networks carrying combustible liquids in the interior of a building (enclosed structures and semi-conditioned spaces). These systems use products such as, but not limited to, sleeve, wrap or spray-on-type fire-protection technology applied over or on to rigid piping networks typically consisting of sections of thick wall pipe connected with threaded or welded fittings that are assembled on-site.

The result of a compliant test program is a UL Certified fire-resistive pipe protection system that has been evaluated for the intended use in the field. The test assembly consists of a replication of the system and specifications including the pipe type, pipe size, pipe connection method (welded seams, mechanical seams etc.), sleeved outer pipe (not mandatory), splices/joints, hanger types, securement methods etc. These systems are published in the UL Fire Resistance Directory and Online Certification Directory under the UL Product Category of Fire Resistant Pipe-protection Systems

(HNKJ) and are identified by a FP prefix and design number designation. Just as many other fire rated systems certified by UL, the published information contain a maximum hourly fire-resistance rating and details of the various types of components used to assemble the system in the field. This will include the fuel pipe assembly type and size, the pipe support system and the fire resistant pipe protection system along with an illustration of the construction detail. For further information about this category and certification scheme can be view by going to the UL Online Certification Directory at www.ul.com/database and entering HNKJ in the UL Product Category search field.

UL is in the process of developing code proposals for a future submittal to reference this new test method in the code sections that require this type of fuel pipe protection. Concurrently, the UL 1489, Outline of Investigation is being reviewed by a UL Standards Technical Panel to eventually publish it as a formal UL Consensus Standard. 🔥

"Fire-Resistant Fuel Pipe Protection" article written by Luke Woods for the UL Fire & Security Authority (FSA) 2016 Issue 1.

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WHAT'S NEW IN FIRE-RATED GLAZING?

Visit any modern building, particularly in the United States, and you will see an abundance of glass. High-rise towers with shining glass-clad exteriors fill cities, while mixed-use facilities with expansive windows bring life to developments. Offices, schools and healthcare centers utilize extensive glazing to create open and light-filled interiors. Buildings rely on glass partitions with flat glass where frames make a curved form, glowing storefronts and soaring façades to evoke interest.

While the glass in these sleek buildings is easy to spot, many in the general public are not able to identify which glazing applications provide fire protection. In large part, this is due to the sophisticated nature of today's fire-rated glazing systems. New combinations of slender fire-rated frames and clear fire-rated glazing are helping design teams meet a complex set of performance requirements with integrated systems—for better safety and aesthetics.

NEW AND IMPROVED

Spurred by architects' demand for fire-rated materials that maintain visual consistency similar to non-fire-rated materials, manufacturers set out to improve the optical quality of fire-rated glazing.

By the late 20th century, they were producing fire-protection-rated and fire-resistance-rated glazing with color and surface quality comparable to ordinary window glass.

While these tough-yet-transparent materials proved a significant improvement over their wired predecessors, design professionals quickly realized they were only as attractive and functional as the framing members holding them in place. Fire-rated frames that are thick and bulky can cause aesthetic discrepancies, impede sightlines and limit transparency.

The fire-rated frame problem led to industry advances, such as new generation steel fire-rated frames used in fire-protection-rated and fire-resistance-rated glazing assemblies. Unlike the bulky, wrap-around form of traditional hollow metal steel frames, these fire-rated frames have a slender profile and sleek aesthetic. They are available in a wide range of narrow mullion profiles that feature well-defined corners and crisp edges (rather than rounded profiles). Some products can even incorporate custom cover caps and surface finishes to match surrounding curtain wall and door applications.

Although revolutionary, modern fire-rated frames

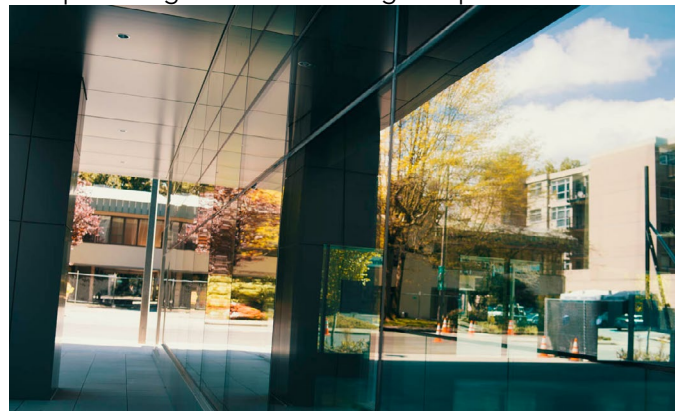
were only the starting point for innovation. In the last decade, manufacturing advances have given rise to new ways to retain fire-rated glazing, expanding the opportunities for design-forward building compartmentation.

Fire-protection rated assemblies use test standard *UL9, Standard for Fire Tests of Window Assemblies to qualify for use of the glazing as a window in a wall, door, or a sidelight in a door assembly*. The UL9 test standard does not have the same rigid criteria as the fire-resistance-rated wall assembly. Because a door or window is classified as an opening protective, it does not have to provide temperature rise protection as is found in the wall or floor assembly.

Fire-resistance-rated assemblies use a different fire test standard which is much more rigorous than the UL 9 test standard used for openings.

From advanced fire-rated curtain wall options with a smooth, frame-free exterior to stunning fire-rated glass floors (horizontal assemblies), design professionals can now select from a number of sleek systems that carry fire-ratings up to 120 minutes and pass the tests for solid walls (*ASTM E119, Standard Test Methods for Fire Tests of Building Construction and Materials*, and Underwriters Laboratories (UL) *263, Fire-resistance Ratings*).

The remainder of this article will address three recent introductions on the market, and how they are providing design professionals with a wide degree of creative design freedom in meeting fire- and life-safety goals—and providing effective building compartmentation.



The seamless aesthetic of a silicone-glazed fire-rated curtain wall brings fire- and life-safety in line with an office tower's design intent. Photo courtesy of TGP.

STRUCTURAL SILICONE-GLAZED FIRE-RATED CURTAIN WALLS

In recent years, manufacturing advances have enabled narrow mullion profiles and large expanses of fire-rated glass. Yet, despite these developments, no system has been able to match the clean, uninterrupted surface aesthetic of a structural silicone glazed curtain wall system.

To achieve this functionality, manufacturers began producing fire-resistance-rated curtain walls that emulate the smooth, monolithic appearance of structural silicone glazed curtain wall systems. One available assembly is silicone-sealed and requires no pressure plates or caps. Its toggle retention system anchors the glazed lites and becomes completely hidden once installed, creating a seamless, uninterrupted surface appearance. The system is available with up to 120-minute fire-resistance-ratings, and can accommodate full-lite doors for a complete curtain wall entrance solution.

In application, these sleek, high-performing fire-resistance-rated glass systems are ideal for architects with stringent design and life safety criteria in highly visible areas. This was the case for LMN Architects' 929 Office Tower in Bellevue, Washington. To attract big-name tech tenants, the firm desired a stylish glass-clad exterior with the frame-free look of silicone glazing. However, building codes required that portions of the upscale building's ground floor exterior be fire-resistance-rated to prevent a fire from traveling to or from neighboring buildings on one of Bellevue's 600 foot by 600 foot downtown "superblocks."

To bring fire- and life-safety in line with the building's design intent, the firm used the monolithic aesthetic of a silicone-glazed fire-resistance-rated curtain wall system. It helped ensure smooth visual transitions at junctions between the rated and non-rated systems while providing critical protection against the spread of fire between adjacent structures.

BUTT-GLAZED FIRE-RATED GLASS WALLS

Another notable development is butt-glazed fire-rated glass walls. They are the next step in a long evolution of fire-resistance-rated glazing with aesthetics comparable to non-rated systems, and they more closely match the continuous glass wall aesthetic popular in interior non-rated glazing applications.

Currently available systems are comprised of fire-rated glass wall panels with butt-glazed joints in a heat-resistive perimeter frame. Some manufacturers offer products with vertical butt-glazed joints as narrow as 5 mm to improve sightlines.

Additionally, those with a solid multi-laminate glass makeup (i.e., those with colorless, wireless, low-iron float glass and clear intumescent interlayers) eliminate the need for colored internal spacers or vertical mullions between adjoining pieces of glass. The result is longer

spans of uninterrupted glass free of vertical mullions that feature nearly colorless transitions between glass panels, for greater vision and transparency.



Design professionals can use butt-glazed fire-resistance-rated glazing system in areas where the building code requires fire-resistance and uninterrupted views are desirable. Photo courtesy of TGP.

To enhance project flexibility, some systems are available with perimeter framing options. For these products, the perimeter of each butt-glazed elevation can be held in place by the designer's choice of fire-rated framing to meet specific project goals.

Today's design-forward butt-glazed fire-resistance-rated glass wall systems are ideal for prominent applications in fire-resistance-rated corridors, fire-resistance-rated stairwells and areas of egress where it is as critical to match the look of neighboring non-rated systems as it is to provide effective compartmentation. Their sleek, monolithic aesthetic makes it nearly impossible for occupants to notice that they are also standing guard against the spread of fire by subdividing spaces into smaller areas.

FIRE-RATED GLASS HORIZONTAL ASSEMBLIES (FLOOR SYSTEMS)

In the International Building Code, a floor or roof assembly is defined as a horizontal assembly. Other codes may define the term differently. For this article, we're using 'floor system' to mean the horizontal assembly as defined in the 2015 IBC.

Fire-resistance-rated glazing developments have not just been limited to vertical applications. In the early 21st century, the first recognized fire-resistance-rated glass floor system was tested and approved in Europe.¹

It relied on a specialty load-transfer system to separate the structural stress placed on the top sheet of glass from the fire-resistance-rated glass below. This effectively allowed the glass floor system to support structural loads while defending against fires.

Today's fire-resistance-rated glass floor systems expand upon this design and are available for both interior and exterior applications that require a code-approved fire-resistance-rated horizontal assembly between floors.

Glass floor systems that are tested in accordance with ASTM E-119, UL 263 and NFPA 251 standards are available with fire-resistance-ratings up to two hours. Non-egress floor or roof applications typically require 60 to 90-minute fire-resistance-ratings; public egress areas typically require two-hour fire-ratings.



A fire-resistance-rated glass floor system provides compartmentation without restricting daylight to the floors below. Photo courtesy of TGP.

Depending on the application, design professionals can select from fire-resistance-rated glass horizontal assemblies that can support live loads up to 150 psf. Floors with this load capacity are ideal for applications with frequent pedestrian use, such as lobby floors, atriums, corridors near exits and other public egress areas at risk for fire progression. They are also suitable for heavily trafficked areas, including airports and railway stations. Where a specific aesthetic is desired, glass floor color and texturing options are available to support the design intent while maintaining adequate slip resistance.

While one of the primary benefits of these multifunctional fire-rated glass floor systems is their ability to increase admissible daylight in areas where building codes deem it is necessary to provide fire-

resistance, they can also enhance safety in today's open building designs. The increased air volumes in large, shared spaces provide an opportunity for faster fire growth. According to the U.S. National Association of State Fire Marshals (NASFM), this can create "a lack of compartmentation that would serve to limit fire spread to a smaller area, such as a room or a wing or a floor of a building."² Building teams can use fire-resistance-rated glass floor systems to help resolve this challenge.

For instance, placing fire-resistance-rated glass floors above open, interior spaces, such as atriums, can provide the feel of an open, light-filled space, while helping reduce the area's overall volume and defending against a fire's spread. This was the case in Northwestern University's Engineering Life Sciences Building infill, where Flad Architects used a two-hour, fire-resistance-rated glass floor system to help create a large central atrium. The system satisfies the atrium's International Building Code mandated two-hour fire separation requirement without restricting critical light transfer.

"We needed a fire-resistance-rated horizontal assembly in the atrium, but we didn't want researchers and students to be in the dark," explained Matt Garrett, project architect at Flad Architects. "The fire-rated glass horizontal assembly allowed us to compartmentalize a very large volume of space without blocking off access to daylight."

CONCLUSION

While today's advanced fire-rated glazing systems—both fire-protection-rated and fire-resistance-rated—make it possible to bridge fire and life-safety and design goals in a way that was not formerly possible, aesthetic goals should never come at the cost of safety. Manufacturers and suppliers are available to help problem solve or create a custom work-around to balance life-safety with design goals. 🔥

Jeff Razwick is the president of Technical Glass Products (TGP), a supplier of fire-rated glass and framing systems, and other specialty architectural glazing. He writes frequently about the design and specification of glazing for institutional and commercial buildings, and is a past chair of the Glass Association of North America's (GANA) Fire-Rated Glazing Council (FRGC). www.fireglass.com, (800) 426-0279

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2. See Jim Tidwell and Jack Murphy's "Bridging the Gap: Fire Safety and Green Buildings," National Association of State Fire Marshals, 2010.



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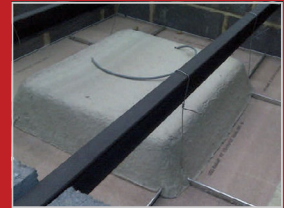
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FLAME SPREAD: YOU CAN'T STOP IT...OR CAN YOU?

Fire, like all living things, has fundamental needs in order to grow: fuel, food source, oxygen, etc. Picture this: within seconds of its birth, a fire meets a food source (combustibles) and the right combination of elements (fuel and air), and develops from a baby flame to a blazing inferno. There's not an obstacle in its way it doesn't consume. Soon after satisfying its hunger, the fire dies, leaving those affected by its rampage left to clean up the destruction.

Think back to a time you remember when an unexpected fire occurred. Maybe it raged faster and further than the firefighters anticipated, the expectations were that the assembly would have held up longer, or perhaps the sprinklers failed. The scenario plays out the same each time—the officials come in and inspect, a material or construction method is called out and the story gets inserted into the next presentation on life-safety and construction materials.

With changes and innovations in the industry happening faster than ever, what could minimize these surprise blazes and will it be something that satisfies the codes and standards specialists as well as the AHJs, manufacturers and installers? It is here that we seek to understand flame spread and the often drastic difference between how a fire responds to materials in a testing facility and how they "perform" in a real world scenario.

UNDERSTANDING FLAME SPREAD

Flame propagation is measured through testing a material according to ASTM E 84 (*Standard Test Method for Surface Burning Characteristics of Building Materials*), resulting in single-number, referred to as the Flame Spread Index (FSI). The FSI assigned to the material (finishes for interior walls and ceilings) is categorized in three ways according to how far down the horizontal test chamber the fire progressed—Class A has an FSI of 0-25, Class B 26-75, and Class C 76-100. The Life Safety Code (NFPA 101) and Section 803.1 of the International Building Code use these ratings to place limitations on material used in certain applications.

Understanding that architects are faced with the difficult task of selecting materials and systems that will satisfy everyone (cost to the owner, ease of install for the contractor, safety and comfort for the occupant), how do we, as Life Safety professionals, guide them through the technical nature of these choices and help

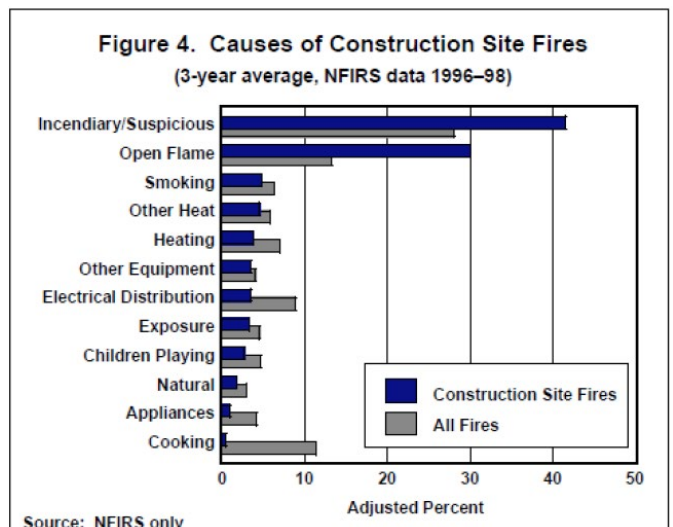
them understand how flame spread really acts?

Consider three separate instances: construction site fires, gypsum board failures and exterior fire propagation. In the first, unprotected materials are extremely vulnerable; in the second, it is near impossible to replicate the perfect conditions of test facility chambers; and in the third, there is an argued tradeoff between protecting combustible materials and utilizing automatic sprinkler systems.

The circumstances surrounding these settings can be altered by selecting materials that are a true zero on the Flame Spread Index, but if we are using materials *within* Class A on the E84 scale (up to 25), why does this matter?

FLAME SPREAD AND CONSTRUCTION SITE FIRES

Timber frame construction is one of the most commonly used building types in the United Kingdom, and we've seen this trend rise considerably in North America. As we build buildings closer together and higher, the risks associated with possible fire spread on the exposed materials during construction increase.



Leading the charge to address these issues in the United Kingdom (UK), the Structural Timber Association (STA) has reacted by providing guidance on separation distances during construction based on the building

size, method of construction and materials involved. For example, during the construction process, the building fabric could significantly contribute to the problem of fire spread since many of the 'protective' layers which help make the completed building a safer structure, such as dry linings, may have yet to be installed. This may be even more important where combustible construction products, such as insulation, have been installed but are left exposed.

The STA design guide goes through a series of assessments to categorize the assembly based on fire spread. Points are assigned that reflect the ability of the assembly to resist fire spread. The higher the number, the better.

Putting this in an applicable context, the STA created a classification of insulations¹ that are intended to provide the necessary information when considering potential fire spread. The highest classification is Type 3, where the insulation maintains volume and does not combust. Stone wool insulation is in this category, as it will not contribute towards the growth of the fire and will prevent possible spread.

Perhaps then, if similar classifications were to be adopted in North America, we would have more dimension and understanding than currently portrayed in ASTM E84.

FLAME SPREAD AND ROOM FIRE TESTING

In order to fully protect the occupants against unanticipated flaws in an installed assembly or material, plans must be made accordingly. NFPA 286 (*Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*) provides a deeper understanding of how the various interior finishes perform in a fire by taking into consideration more than just horizontal flame spread. By documenting the extent of fire growth, rate of extension and heat release as well as time to flashover, this test takes the first step towards mitigating the risks presented by this type of fire condition.

To provide fire performance, we look at a more reasonable, easier to implement, second line of defense in addition to the barrier material type. Because of its noncombustible nature and dimensional stability, incorporating stone wool insulation into an assembly creates this additional safety layer.

The FSI of stone-wool is zero and its advanced fiber chemistry allows the material to withstand temperatures of 2,150° F, providing a critical barrier to the adjacent room or floor in the event of a failure in the barrier material. Remember, in most residential applications, the barrier material is not a fire-resistance-rated material used in a fire-resistance-rated assembly.

There is no question then, that adequate fire suppression is absolutely critical in determining the outcome of a structural fire. At each stage of a fire's extension beyond the room of origin, the rate of civilian deaths, injuries and property damage grows exponentially. These are our children, siblings, co-

workers and firefighters who are potentially affected.

The relationship between fire extension and fire loss is observed in Figure 1.2. The National Fire Protection Association (NFPA) provides data proving rapid and aggressive interior compartmentation and suppression measures can substantially reduce the potential for loss of property and human life associated with structural fires.

If we can assist in confining a fire to the room of origin and prevent this staggering increase in numbers by taking a closer look at the true response of our materials to flame spread, why wouldn't we?

Figure 1.2

Rate Per 1,000 Fires			
4 year averages, 2010-2013:			
Fire Extension in Residential Structures ²	Civilian Deaths	Civilian Injuries	Average Property Damage (billions)
Confined to Room of Origin	2.07	24.30	\$1,505.00
Confined to Floor of Origin	18.60	80.44	\$12,134.00
Beyond Floor of Origin	27.23	55.37	\$21,343.00
Total Residential Structure Losses:	2.60	13.4	\$1,360

NFPA 285

NFPA 285, *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components* has long sought to minimize fire propagation beyond the room of origin by essentially ensuring that the flashover through an exterior window, or a fire originating from the outside, does not propagate vertically or horizontally along the exterior façade. The test standard is designed to determine if the presence of combustible components in exterior wall systems will lead to fire movement to adjacent spaces or buildings. This test standard is different than the *ASTM E119, Standards Test Method for Fire Tests of Building Construction and Materials*.

Despite the catastrophic façade fires experienced across the world, some U.S. states (Washington D.C., Minnesota, Indiana and Massachusetts) have already made amendments to their building codes to waive NFPA 285 requirements if the building is provided with automatic sprinkler systems.

This is potentially dangerous and is also being watched in other countries where fire events have occurred.

Featured in an online video, George Smith, FM Approvals, highlights an example of the difference between materials within Class A (0-25 FSI) on the ASTM E84 scale. During a 15-minute test, failure occurred within 12 minutes and he describes the ferocious way in which the fire fully involved and raced across the combustible plastic material, acceptable by codes because of its flame spread index of 25. The entire ceiling engulfed before the sprinklers had actuated. Once they did, the effects were minimal and the fire continued to evolve because the sprinkler heads point down, not up where the fire was.

... Continue on page 18

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-Tyler Stoller, Sawtooth Caulking, Inc.



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MYTHBUSTER: THE TRUTH ABOUT RECESSED LIGHTS AND FIRE-RESISTANCE-RATINGS

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

There seems 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. The widespread adoption and understanding of codes requiring continuity fire-resistance-rated construction throughout the world has made this subject more and more relevant to contractors, builders, architects and homeowners.

But instead of decreasing confusion over the issue, continuous changes in State Code adoption legislation and increased demand for fire-resistance-rated, code compliant products have far outpaced the availability of education on the topic.

WHAT DOES FIRE-RATING ACTUALLY MEAN?

A fire-resistance-rating typically states the duration for which an assemblage of materials can withstand a standard fire-resistance exposure test. A fire-rating is usually given to an assembly consisting of various building materials that can resist the exposure of a standardized fire exposure for a set amount of time, or it may contain a variety of other criteria involving other evidence of functionality or fitness for purpose.

Fire-resistance-ratings were developed to evaluate the performance of building elements during an intense fire exposure and can be applied to a wall, floor or roof system, also known as a horizontal assembly.

Municipalities across the United States require fire-resistance-rated ceilings, floors and walls for certain commercial, industrial, institutional, assembly and other occupancies, or residential buildings. Most of the mandatory fire-resistance-ratings occur in multi-story structures such as apartment buildings, hospitals or hotels. The rating is used for ceilings that provide separation for the levels directly above and below a residence or other space.

The 2015 version of the International Building Code addresses this issue explicitly in section 714.4.1.2.

714.4.1.2 Through-penetration firestop system. *Through penetrations shall be protected by an approved through-penetration firestop system installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.*

Exceptions:

1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

[IBC 2015, 714.4.1.2]

To meet this code requirement, the ceiling must serve as an unbroken fire-resistance-rated horizontal assembly for a certain period of time. In fire-resistance-rated wallboard applications, a typical assembly might have one layer of wall board used on the underside of a floor/ceiling assembly that meets the ASTM E 119 or UL 263 requirements for the hourly fire-resistance-rated assembly. In some cases, this could be a 1-hour fire-resistance-rated assembly; however this time requirement can be greater than 1-hour, depending on the occupancy, height and area of the building.

For example, fire-rated assemblies in assisted living facilities, hospitals and hotels usually require a 2-hour fire-resistance-rated horizontal assembly or

UNLIMITED?

Not when it comes to fire rated glass

Beware of advertisements urging designers to 'be unlimited' when using ceramics with 'fire ratings up to 3 hours.' The problem is that while ceramics are listed up to 3 hours, the IBC specifically limits its size and applications after 45 minutes. The code limits the use of ceramics to 100. sq. inches in 60/90/180 minute doors and ceramics cannot be used at all in 60/120 minute interior windows, sidelites and transoms regardless of whether sprinklers are employed or not.

For truly unlimited glazing, fire resistive products tested to ASTM E-119 like **SuperLite II^{XL}** must be used. **SuperLite II^{XL}** can be used up to the maximum size tested in all fire rated applications.

Here's a side by side comparison of fire protective vs. fire resistive glazing used in a 1-hour stairwell application:

Ceramics (Fire Protective)



Filmed or Laminated Ceramic in a 60 minute temperature rise door limited to 100 square inches

SuperLite II^{XL} (Fire Resistive)



SuperLite II-XL 60 in a 60 minute temperature door over 100 square inches. The sidelites and transoms also use SuperLite II-XL 60 in GPX Architectural Series Framing

For more information on USA-made, code-compliant fire rated glass and framing products, visit www.safti.com or call **888.653.3333**.



even higher. This is very important to remember when selecting appropriate fire-resistance-rated solutions.



Photo courtesy of Tenmat, Ltd., Christopher Thompson Photo

Installing recessed fixtures in a room or hallway of these fire-resistance-rated assemblies in buildings and maintaining the proper fire-rating of the system can be a challenge. As soon as the installer for the recessed lighting fixtures cuts a breach in the ceiling to install the light fixture, the fire-resistance-rating of the ceiling assembly is compromised. If the fire-resistance-rating of the ceiling membrane is not being restored, these openings in the ceiling would allow flames and smoke to spread in the unfortunate event of a fire. In order to maintain the fire-resistance-rating and meet the code requirement for the building, the horizontal assembly must somehow have its fire-resistance restored after holes have been cut for the fixtures. Expensive mistakes are often made when an airtight or "IC" fixture is assumed to be fire-resistance-rated straight from the factory.

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. Cellulose blow-in thermal insulation has an ignition temperature of over 750°F. 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 an assembly's performance in the event a fire has 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 moves, warps or breaks down rapidly when in direct contact with fire and will not provide fire-resistance 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-resistance-rating, non-fire-resistance-rated lights need additional treatment to maintain the continuity of the fire-resistance-rated assembly.

SOLVING THE PROBLEM



Photo courtesy of Tenmat, Ltd., Christopher Thompson Photo

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

A common solution is prefabricated Fire-Resistance-Rated Light Fixtures, which have a variety of fire testing but are also the costliest choice.

To avoid using these expensive lights, many installers construct boxes from gypsum wallboard to surround the lighting fixture. This is very labor-intensive and may increase the cost of installation beyond budget limits, in addition to possibly not having a fire-resistance-rating.

Metal enclosures are also becoming an increasing popular choice in the fire-resistance-rating dilemma. However, these are not UL-classified as a fire-resistance-rated assembly and so are not suitable for applications where fire-resistance is required.



Photo courtesy of Tenmat, Ltd., Charlie Alfieri Photo

A UL-classified and very popular solution are Fire-Resistance-Rated Light Covers. These covers are suitable for various recessed light fixture sizes and luminaires and are widely accepted by code officials throughout the entire United States, and possibly in other countries

as well. One- and two-hour Fire-Resistance-Rated Light Covers are available from a variety of manufacturers at several different price points. They are proven to act as a suitable fire-resistance-rated horizontal assembly when called upon by fire and smoke.

To conclude, choosing the right recessed light fixture 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-resistance-rated. Lighting professionals and consultants with experience in fire-resistance-rated environments are the best source for suitable solutions and can help building professionals to avoid costly mistakes. 🔥

Marco Kristen has been involved in the fire-resistance-rated construction industry for nearly 10 years and is currently serving as Marketing Director at TENMAT Ltd. The bilingual manager has gained significant experience in leadership, discipline and teamwork during his military service and later as a collegiate athlete, playing Division 1 Football. Marco holds both a Bachelors of Science in Management and Marketing, as well as a Masters Degree in Business with a focus in Finance and International Business from the University of Delaware.

... Continued from page 13

CONCLUSION

Within this framework, it is obvious how flame spread ties together construction site fires and exterior fire propagation.

To think of it differently, picture an athlete making the climb to the top of a rock climbing gym. He/she has a rigid framework in the wall itself which is necessary to make the climb (the building codes), but gets to choose which footholds are used to get to the top (selecting materials, systems and incorporating probability models). So, a climb where the footholds were adjusted to allow a more strategic path for completion is related to our need to be conscientious of the materials we are layering within our assembly for the utmost risk mitigation and ensured safety.

In order to be effective in moving the needle forward in developing a marriage between real-world vs. synthetic testing, it takes this sort of holistic approach, one in which we can change the placement of the footholds. 🔥

Melanie Bisson, CSI, CDT is the Regional Sales Manager for the Southeast Region at ROXUL USA Inc.

REFERENCES:

1. **Type 1**—Melts under heat and has combustible gases
Type 2—Shrinks under heat and may have combustible gases
Type 3—Maintains volume and does not combust
https://en.wikipedia.org/wiki/Mineral_wool
2. <https://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/fires-by-property-type/residential/residential-structure-fires>
3. <http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/fires-by-property-type/residential/residential-structure-fires>

Fire-resistance-rated construction is an important part of a building's safety package. Building owners and managers work diligently to maintain a building's appearance and its safety systems. Sprinklers and alarms have constant maintenance performed to be sure they are working, but what about maintaining the firestop systems above drop ceilings that are not visible?

The Firestop Contractors International Association (FCIA) has always had in its mission, vision and goals the commitment to improve fire- and life-safety in buildings through properly Designed, Installed, Inspected and Maintained ('DIIM'd') firestopping and effective compartmentation to provide fire-resistance-rated walls and horizontal assemblies (floors) in buildings.

Fire-resistance-rated and smoke-resistant assemblies are built using tested and listed systems from the UL Fire-Resistance Directory, FM Approvals Guide, Intertek Directory or other listing service, or through calculated methods or the statements in the Building Code. Fire Walls, Fire Barriers, Fire Partitions, Smoke Barriers, Smoke Partitions and Horizontal Assemblies and Fire Separations (Canada) are all listed in various building and fire codes in North America.

FCIA'S CAMPAIGN FOR SAFE BUILDINGS

Through FCIA's efforts and a team of industry leaders, a campaign to take responsibility for educating building owners and managers and others about the proper 'DIIM'ing of fire-resistance-rated and smoke-resistant construction was launched. If the building owner and manager demands SYSTEMS at new construction or major alterations or additions, maintenance of firestopping and effective compartmentation can be started with the right stuff, in the right place, right from the start.

The International Fire Code, NFPA 101, the National Fire Code of Canada, The United Arab Emirates Fire and Life Safety Code of Practice and other codes around the world govern maintenance of these systems. All the various codes

FCIA WORKS FOR LIFE-SAFETY

require that maintenance be performed—some even stating the intervals to survey—to assure that the fire-resistance and smoke-resistant properties of effective compartmentation and structural fire-resistance are up to the task when fire or smoke attacks the assembly.

To help the building owner and manager maintain fire-resistance through the building life cycle, FCIA's Code Committee and Leadership worked with UL and the International Code Council's (ICC) Fire Code Action Committee to add that an 'Inventory' of fire-resistance be kept. The inventory of fire-resistance-rated and smoke-resistant assemblies helps kick-off the management of these assemblies for the building life-cycle.

MANAGEMENT OF BARRIERS STARTS AT NEW CONSTRUCTION

Through Division 1 of the project manual, the professional specifier can communicate to the contractor that they need to provide the building owner and manager key documents.

In 01-78-23, Operation and Maintenance Data, specifiers should require that manufacturers provide maintenance and repair instructions for firestopping. In 01-78-39, Project Record Documents can be required, where the tested and listed systems and manufacturers installation and maintenance instructions would be communicated.

BUILD IT RIGHT

FCIA's Accreditation Committee worked with FM Approvals to build FM 4991, Standard for the Approval of Firestop Contractors in 1999, and then worked with UL to build the UL/ULC Qualified Contractor Program in 2007. To date, there are over 130 companies that are either FM 4991 Approved or UL Qualified Firestop Contractors since the programs launched.

FM 4991 Approved and UL/ULC Qualified Firestop Contractors offer services for new construction and surveys of existing installations. They even work in existing buildings restoring firestopping to keep the continuity of the barrier in check.

But what these FM 4991 Approved or UL/ULC Qualified Firestop Contractors also provide is a documented management system that incorporates the SYSTEMS concept and manufacturers installation

instructions, plus the total quality management process.

As a result, FM 4991 and UL/ULC Qualified Firestop Contractors are specified in MasterSpec and SpecLink, as well as many project manuals.

MAINTAIN AND MANAGE

How many times have you entered a building, walked into the stairwell instead of the elevator, and noticed that the door did not close and latch? If the doors are not working, what's lurking above the ceiling tiles where there may be breaches in the fire-resistance-rated and or smoke-resistant wall or floor-ceiling assembly? Are the firestop systems there? Did someone poke holes and make a breach in the assembly?

This is where it is recommended that the building owner and manager build a budget to maintain fire-resistance-rated and smoke-resistant assemblies each year. There are budgets for detection and alarms, sprinklers, the landscape, roof and more. Budgeting for an annual survey and repairs to these important life-safety systems is a critical piece of the puzzle as well.

EDUCATION IS KEY

The key to implementing all of this is education for all parties involved in these systems, from design to implementation to inspection to maintenance. FCIA worked with ASHE, UL and The Joint Commission to build a program to educate facility directors and their staff about fire-resistance-rated construction. The Barrier Management Symposium™ brings the complete fire-resistance-rated construction industry together to present on the unique technologies involved in the industry.

Proper Design, Testing, Installation, Inspection and Maintenance for the complete building life-cycle is included for audiences to learn how to manage these assemblies.

Fire-resistance-rated and smoke-resistant assemblies are as critical as alarms and sprinklers, and firestopping is a critical part of that fire-resistance-rated and smoke-resistant assembly package.

Consider working with FCIA Members to build fire- and life-safety for the complete building life cycle. 🔥

BRIGHT IDEAS



OWENS CORNING THERMAFIBER® MINERAL WOOL INSULATION JOPLIN MANUFACTURING FACILITY CONSTRUCTION ON SCHEDULE

Construction of the state-of-the-art Owens Corning Thermafiber plant in Joplin, Missouri is on schedule to begin production in early 2017.

From its inception in 1934, Thermafiber, Inc. (an Owens Corning company) has been dedicated to improving life safety by manufacturing high-performing fire-resistive mineral wool insulation for commercial, residential and industrial applications.

The Missouri facility will be the second Thermafiber® mineral wool insulation manufacturing facility in North America meeting the growing demand for a full range of Thermafiber® board and batt products. The 110-acre site was strategically selected to increase service and freight. It will span 350,000 square-feet with opportunity for future expansion. The new plant will add to Missouri's growing manufacturing sector with a substantial capital investment of \$90 million and the creation of high-quality manufacturing jobs for the area.



2-HOUR FIRE-RESISTIVE CLEAR BUTT-GLAZED WALLS FROM SAFTI FIRST

SAFTI FIRST, leading USA-manufacturer of advanced fire-rated glass and framing systems, is pleased to announce the addition of SuperLite II-XLM to its growing line of fire-resistive glazing products. SuperLite II-XLM is a 45 to 120 minute, hose stream tested, fire-resistive multi-laminate glazing that meets ASTM E-119/UL 263/NFPA 251 and CAN/ULC S101 and CPSC Cat. II (400 ft. lbs.) impact safety. It is available in large sizes and can be used in all fire-rated 20/45/60/90/120 minute applications including clear fire-resistive butt-glazed applications up to 2 hours without vertical mullions or spacers-allowing designers to achieve truly transparent design while meeting all fire and impact safety requirements. SuperLite II-XLM is listed with both UL and Intertek and carries a 5-year warranty.



RUSKIN DFD-LP DYNAMIC FIRE DAMPER

The Ruskin DFD-LP is the only 1 ½ hour low-profile integral frame-sleeve damper design in the industry. Featuring galvanized steel construction, the damper is rated for 4,000 feet per minute (fpm) and static pressure of 4" w.g. on all sizes.

The DFD-LP is bi-direction air flow and can be installed vertically or horizontally. The DFD-LP is supplied with a standard 16-inch-long sleeve (18 or 20 inch optional), along with a fast single-side mounting angle and easy opening crank arm.

The DFD-LP uses the easiest resettable fuse link in the industry. The easy opening crank arm helps in testing to meet National Fire Protection Association (NFPA) requirements.

The DFD-LP is UL555 rated and meets NFPA and ICC International Building Code requirements. Visit www.ruskin.com for more information. 🔥



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CODES AND STANDARDS NEWS

ICC'S FIRE CODE DEVELOPMENT PROCESS

The International Code Council's (ICC) Code Development Process starts with a submission of code proposals in January of each "code cycle". The proposals are published by March.

There are two hearings that take place to review and comment on the proposals. The first is the Committee Action Hearing in April. At the Committee Action Hearing, a balanced committee of governmental officials, building owners and managers, contractors and others are part of the consensus of about 14 people, plus a chair to break ties.

One proposal at a time, a moderator controls the process and debate. Testimony takes place on each item over a 10-day +/- period. There is an 'online' governmental consensus vote (OGCV) that takes place the three weeks after the public hearing. Any 'Floor Votes' are then viewed online for building officials and others to vote on the floor motions.

The report of the hearings is published after the online voting takes place, typically around early June. Public comments to either approve or disapprove the item are then filed by late July from those who disagree with the Committee vote. A Public Comment Hearing monograph is then published and available online for review before the hearings.

The ICC's Public Comment Hearings is the second of the two hearings in the code development process and took place October 19-25 in Kansas City, MO. This second "Public Comment Hearing" is a public hearing that consists of anyone testifying to the assembly of building code officials/governmental and honorary members who can vote on the public comments their opinion about what they think of the code proposal. There is no committee to hear the items, only the assembly.

ONLINE GOVERNMENTAL CONSENSUS VOTE

After the public comment hearing, the governmental and honorary members have the opportunity to vote again using ICC's Online program at www.CDPAccess.com to ratify or disapprove the action that took place at the public comment hearings. For this cycle, that process took about

a month with 162,000 votes cast. Final votes are in and FCIA's public comments to proposal F-113 were approved. There is still one more layer to get through at the ICC's Councils and Board before the code development process is considered completed.

FCIA & PROPOSAL F113-16

Have you ever asked, "what's the building's budget for alarm testing and maintenance? Sprinkler testing and maintenance? Barrier Management?" Likely, the answer is all have a budget to maintain detection and alarm systems and sprinklers. And what is the budget for fire-resistance-rated construction and the breaches made in barriers? Likely, this answer is zero.

Yet, barriers are as important to manage as other fire protection features in buildings as they also save lives through compartmentation and structural fire-resistance. They prevent fire and smoke spread and keep

the building standing. For these fire-tested assemblies and systems to work, they need to be present. Further, the barriers need to be maintained when breached by using tested and listed systems installed to the manufacturers installation instructions.

FCIA applauds the Fire Code Action Committee for reviewing the International Fire Code's (IFC) Section 703.1, Maintenance. This section has all the fire-resistance and smoke-resistant construction assemblies' maintenance responsibilities all in one place.

FCIA, through its code committee and code consultant Bill Koffel, Koffel Associates, participated in code proposal F113 during the ICC Fire Code Action Committee's International Fire Code teleconferences, and also during the Committee and Public Comment Hearings at ICC. The result of the proposal is that the section 703.1 Maintenance of fire-resistance-rated and

construction assembled to resist the passage of smoke is now divided into separate disciplines with some slight changes.

Howard Hopper of UL, a Fire Code Action Committee member and Chair of the task group on 703.1, BOMA, FCIA and many others worked together for continuous management of barriers on this proposal.

PUBLIC COMMENT 1

In a Public Comment (PC) 1, FCIA brought the Fire Code language that was approved for the 2018 International Building Code into the IFC. We inserted in the International Building Code the concept that firestop products need to be installed to the manufacturers' installation instructions and the listing to be code compliant. The addition was approved overwhelmingly at both the Public Comment Hearing and the Online Governmental Consensus Vote.

703.1 Maintaining Protection. Materials and firestop systems used to protect membrane-

and through-penetrations in fire-resistance-rated construction and construction installed to resist the passage of smoke ~~smoke resistant construction~~ shall be maintained. The materials and firestop systems shall be securely attached to or bonded to the construction being penetrated with no openings visible through or into the cavity of the construction. Where the system design number is known, the system shall be inspected to the listing criteria and manufacturers installation instruction.

PUBLIC COMMENT 2

In the second Public Comment (PC2), the passage below, a map of fire-resistance-rated and smoke-resistant assemblies was added.

701.6. Owners Responsibility. Required: The owner shall maintain an inventory of all required fire-resistance-rated and smoke resistant construction, and the construction included in Sections 703 through 707 and such construction shall be visually inspected by the owner annually and properly repaired, replaced where damaged, altered breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar moveable entry to the space.

The FCIA felt that maintaining an inventory of fire-resistance assemblies, all of them, is essential. It's important to the building owner, fire code official or

anyone who may be providing the inspection service on these assemblies in buildings for fire- and life-safety.

How do any of these parties-inspector, owner-know what needs to be inspected? How do they document that the inspections have been performed (as required by this section of the code) if an inventory of such construction is not maintained and available?

Once the final assembly of all public comments is done and the ICC approves the changes through the rest of the process, the 2018 International Fire Code (IFC) will be published. Look for the code to be published in June of 2017, as according to ICC.

In the next issue of *Life Safety Digest*, we'll review the rest of the code proposal and what it will mean to maintaining fire-resistance-rated construction. 🔥

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INDUSTRY NEWS

FCIA AT ICC'S ABM

The International Code Council's Annual Business Meeting is ICC's way of celebrating a good year. It was reported at the ICC Annual Business Meeting that the ICC is very healthy financially and also as a membership organization.

With over 60,000 members, ICC has a very diverse association business model that serves members and building safety through its International Family of Codes.

FCIA also attended the ICC's Global Council Meetings where delegates from around the world meet yearly. This year, ASTM was awarded an honor from ICC. As an International Accreditation Services Board Member, FCIA's Bill McHugh wrote the recommendation for ASTM's ICC Global Award given at the ICC Global Forum luncheon.

NEW ICC LEADERSHIP ELECTED



International Code Council Voting Members elected Board Officers and Directors during the association's Annual

Business Meeting at the 2016 Annual Conference in Kansas City, Mo. Voting Members also elected representatives to sectional and at-large positions on the board.

Georgia State Fire Marshal M. Dwayne Garriss was elected President of the ICC Board. As the Chief of the Safety Fire Commissioner's Office, Garriss coordinates activities of the various industries regulated by the Safety Fire Commissioner throughout the state of Georgia.

Garriss has adopted the theme for his presidential term, "Many Voices for One Purpose," which is intended to further unite the various stakeholder groups within the Code Council and to continue initiatives, including fostering and mentoring the next generation of code and fire service officials.

Jay Elbetta, Building Official for the city Mission Viejo, Calif., was elected Vice President of the ICC Board. Elbetta manages and directs the operation of the Mission Viejo building division through Charles Abbott Associates, including plan check, inspections, counter operations and permit issuance.

William R. Bryant, Assistant Director of Inspections and Permits for Anne Arundel County, Md., was elected Secretary/Treasurer of the ICC Board. He holds several Maryland State licenses as well as ICC certifications, including Master Code Professional and Certified Building Official.



ICC Photo

The 2016-2017 International Code Council Board of Directors Officers, elected by the ICC Members during the 2016 Annual Business Meeting, are President M. Dwayne Garriss (second from right), Georgia State Fire Marshal; Vice President Jay Elbetta (second from left), P.E., CBO, Building Official, city of Mission Viejo, Calif.; Secretary/Treasurer William R. Bryant (left), MCP, CBO, Assistant Director of Inspections and Permits Department of Anne Arundel County, Md.; and Immediate Past President Alex Olszowy III (right), Building Inspector Manager, Lexington Fayette Urban County Government, Ky.

Members also elected and re-elected representatives to sectional and at-large positions on the ICC Board. All elected to three-year terms were: Tom Peterson, Assistant State Building Official with the Utah Division of Facilities Construction and Management; Alan Boswell, Chief Building Official for the city of Tuscaloosa, Ala.;



QUALIFIED FIRESTOP CONTRACTOR PROGRAM AVAILABLE IN THE U.S. AND CANADA

UL and ULC voluntary third party accreditation of Firestop Installation Contractor Companies.

In the built environment, firestop systems are a critical safeguard against the spread of heat, fire or smoke through breaches in floors and walls. These gaps made during construction include joints, openings, or penetrations through a smoke barrier or a fire resistance-rated wall or floor. The expertise of a qualified firestop contractor is needed to select and install a code-compliant system to protect the continuity of fire-resistance-rated wall and horizontal assemblies in buildings.

For more information, please visit [UL.com/firestopcontractor](https://www.ul.com/firestopcontractor)

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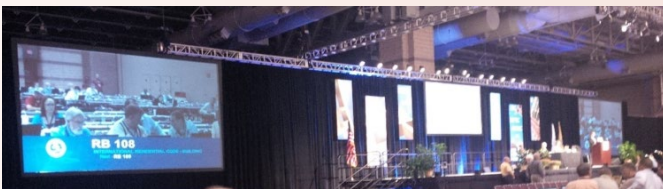
Brenda Thompson, Manager of Building Inspections for the Clark County, Nev.; Michael Wich, Department of Building and Fire Prevention for the South Central Planning and Development Commission in Houma, LA.; and Cindy Davis, Deputy Director of the Division of Building and Fire Regulations for the Virginia Department of Housing and Community Development. Shirley Ellis, Energy Code Specialist with the Energy System Laboratory at the Texas A&M University Experiment Station was elected for a two-year-term position on the ICC Board.

The following remain on the ICC Board of Directors, including: Immediate Past President Alex "Cash" Olszowy III, Building Inspector Manager, Lexington

Fayette Urban County Government, KY; William Jeff Bechtold, Senior Building Official, Kenton County, KY; James E. Morganson, Code Enforcement Officer, Fire Marshal, Zoning Administrator, Village of Lake Placid/Town of North Elba, NY; M. Donny Phipps, Director of Building Codes and Inspections, Richland County, SC; Greg Wheeler, Chief Building Official, Thornton, CO; Jim H. Brown, Deputy Building Official, Gillette, WY; Jerry Mallory, Building Official and Fire Marshal, Johnson County, KS; Stuart D. Tom, Fire Marshal, Glendale, CA; Richard C. Truitt, Sr., Deputy Code Director, Harford County, MD.

Congrats to all on their election to ICC's Board.

FCIA AT ICC'S PUBLIC COMMENT HEARINGS



The International Code Council held the 'Public Comment Hearings' in Kansas City Oct. 19-25. The hearings covered the International Energy Conservation Code, International Fire Code, International Residential

Code, International Building Code's Administrative section and more.

The Online Governmental Consensus Vote at ICC for the Group B *International Codes* was extended an extra week and concluded on Nov. 27. The demand from voters on the CDPAccess online voting system resulted in more than 162,000 votes cast by eligible ICC Voting Members during the three-week period.



Check out the full report for FCIA's efforts in the Code Corner.

FCIA AT ASTM

FCIA's Eric Keeton, Jay McGuire and Bill McHugh travelled to Orlando in late October to participate in the ASTM E06 Committee meetings focusing on firestopping. Discussions centered around inspection of firestopping, movement of penetrating items in

breaches of assemblies, exposure, aging, guide information and more. Representatives from the manufacturers and inspection agencies participate at ASTM E06 meetings.

NEW BUILDING RESILIENCE PARTNERSHIP

The International Code Council (ICC) announced the creation of the Alliance for National & Community Resilience (ANCR). Along with two founding partners—the Community & Regional Resilience Institute and the U.S. Resiliency Council—ICC is working with ANCR members from around the globe, including Target Corporation, the International City/County Management Association, Kaiser Permanente and the National Institute of Building Sciences to create the nation's first whole-community resilience benchmark.

"With its diverse makeup and expertise, this alliance clearly understands that communities are complex, interconnected systems that urgently need a way to comprehend what it means to be resilient," said ICC Board of Directors President M. Dwayne Garriss, who serves as the Georgia State Fire Marshal. "ANCR will give communities a single, transparent, usable and

easily understandable metric to gauge their cross-sector resilience efforts quickly."

What's this got to do with fire-resistance-rated construction? Fire-resistance protects the rest of the structure and critical components of a building—and community. It helps the building and community rebound from a fire or emergency event. Fire-resistance-rated construction can make the difference between being able to re-open and conduct business, education, healthcare services and more in a community. All parts of fire-resistance-rated construction provide great resilience to buildings and the people that work, live and play inside these structures.

FCIA'S FIC CHARLESTON A BIG SUCCESS



The FCIA Firestop Industry Conference & Trade Show (FIC) at Wild Dunes Resort in Isle of Palms, SC brought the largest crowd yet for an FCIA Conference.

FCIA Members can download the presentations at the Members Only section of www.FCIA.org. Not a member? Join now.



FCIA SPEAKS AT CAMPUS FIRE SAFETY



The Center for Campus Fire Safety's Forum is a great place for educational occupancy facility directors and staff to stay up to date on ways to reduce loss of life and property on- or off-campus. The Center has members in the US, Canada and Singapore. FCIA's Bill McHugh travelled to Phoenix to present an

executive summary session of the Barrier Management Symposium™. Attendees brought great questions, such as: how do we choose a contractor that can manage these fire-resistance rated barriers; what do we look for when surveying the barriers; and more. FCIA continues to work with all occupancies to keep buildings safe throughout the building's life cycle through improved barrier management.

FCIA BARRIER MANAGEMENT SYMPOSIUM™ FOR APPA



The Washington DC/Maryland Chapters and Eastern Region of the Association of Physical Plant Administrators (APPA), welcomed the Barrier Management Symposium™ faculty, including: Bill Koffel, Koffel Associates, representing FCIA on Barriers as described in the codes; Rich Walke, UL, on Fire-

Resistance testing; Bill McHugh, FCIA; Marc Sorge, Greenheck on Fire Dampers; and Paul Baillargeon, Door Safety & Security Foundation, on Fire Doors, supported by Don Murphy and Aedan Gleeson, members of the FCIA Barrier Management Task Force. The Barrier Management Symposium™ was developed by FCIA, The Joint Commission, UL and ASHE as a way to provide resources to address managing barriers as a system through education.

FM UPDATES DATA SHEETS

FM Approvals, the testing laboratory arm of FM Global, has updated its Data Sheets. The FM Data Sheets are updated periodically by FM Approvals. Although not vetted through an ANSI Standards Development Process, the Data Sheets are used widely in the roofing and construction industry. According to an Eblast by FM Approvals, many data sheets including DS 1-28 *Wind Design*, have been updated.

REVISED FM APPROVALS DATA SHEETS

- DS 1-6 *Cooling Towers*
- DS 1-20 *Protection Against Exterior Fire Exposure*

- DS 1-28 *Wind Design*
- DS 1-40 *Flood*
- DS 2-1 *Corrosion in Automatic Sprinkler Systems (title change)*
- DS 5-3 *Hydroelectric Power (title change)*
- DS 5-20 *Electrical Testing*
- DS 7-73 *Dust Collectors and Collection Systems*
- DS 10-2 *Emergency Response*
- DS 10-3 *Hot Work Management*
- DS 13-24 *Fans and Blowers*

For info, visit www.fmglobaldatasheets.com.

FREE SAFETY CONSULTING

OSHA's Free On-site Consultation Program offers free and confidential safety and occupational health advice to small and medium-sized businesses in all states across the country, with priority given to high-hazard


worksites. To locate the OSHA On-site Consultation Program nearest you, call 1-800-321-6742 (OSHA) or visit OSHA's site for consultation, <https://www.osha.gov/dcsp/smallbusiness/consult.html>. 🔥



AIA Master Agreements Are The Cure

Renegotiating contracts for each scope of service is time-consuming and results in project delays (and headaches!). AIA Master Agreements allow parties to agree on a predefined set of terms and conditions that will apply to multiple scopes of services, removing any renegotiation. Protect your project with AIA Contract Documents.

Get a free sample at www.aia.org/lifesafety

 **AIA** Document A121™ – 2014
Standard Form of Master Agreement Between Owner and Contractor where
Work is provided under multiple Work Orders

AGREEMENT made as of the _____ day of _____
in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address, and other information)

and the Contractor:
(Name, legal status, address, and other information)

AIA Contract Documents®
THE INDUSTRY STANDARD.

Learn more at www.aia.org/lifesafety

FCIA 2017 INDUSTRY CALENDAR

JANUARY 2017

January 9-12

Building Innovation
Conference & Expo
Washington, DC
www.NIBS.org

January 16-20

World of Concrete
Las Vegas, NV
www.worldofconcrete.com

January 22-24

Intersec
Dubai, UAE
www.intersecexpo.com

MARCH 2017

March 7-9

Association of General Contractors
Las Vegas, NV
www.AGC.org

March 12-15

ASHE Planning Design &
Construction Summit and Exhibition
Orlando, FL
www.ASHE.org

March 26-30

AWCI Annual Convention
& INTEX Expo
Las Vegas, NV
www.AWCI.org

APRIL 2017

April 4-6

International Facility Managers
Association (IFMA) Facility Fusion US
Las Vegas, NV
www.facilityfusion.ifma.org

April 18-20 (tentative)

FCIA FSB Firestop & Effective
Compartmentation 'DIIM'
Symposium and FM/UL testing
Doha, Qatar
www.fcia.org

April 23-25 (tentative)

FCIA IBC Firestop & Effective
Compartmentation 'DIIM'
Symposium and FM/UL testing
Dubai, UAE
www.fcia.org

April 27-29

AIA Convention
Orlando, FL
www.convention.aia.org

MAY 2017

May 2-5

FCIA Education and Committee
Action Conference
St. Louis, MO
www.fcia.org

May 10-12

DHL's National Conference Center
Phoenix, AZ
www.DHL.org

May 17-18

International Facility Managers
Association (IFMA)
Facility Fusion Canada
Toronto, ON
www.facilityfusion.ifma.org

May 24-28

Construction Specifications
Canada Conference
Kelowna, BC
www.CSC-DCC.ca

May 24-27

RAIC 2017 Festival of Architecture
Ottawa, ON
www.raic.org

JUNE 2017

June 4-8

NFPA Conference & Expo
Boston, MA
www.NFPA.org

June 24-27

BOMA International
Conference & Expo
Nashville, TN
www.BOMA.org

AUGUST 2017

August 6-9

ASHE Annual Conference and
Technical Exhibition
Indianapolis, IN
www.ASHE.org

SEPTEMBER 2017

September 14-15

CSI CONSTRUCT
Providence, RI
www.constructshow.com

September 17-19

Canadian Healthcare
Engineering Society (CHES)
Annual Conference
Niagara Falls, ON
www.CHES.org

September 20-22 (tentative)

FCIA Canadian Symposium
TBD location
www.fcia.org

OCTOBER 2017

October 18-20

International Facility Managers
Association (IFMA) World Workplace
Houston, TX
www.worldworkplace.ifma.org

October 22-23

ICC Annual Conference and Public
Comment Hearings
Columbus, OH
www.ICCSAFE.org

NOVEMBER 2017

November 6-10

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

November 29 - Dec. 1

CONSTRUCT Canada
Toronto, CA
www.constructcanada.com

THE ADVENTURES OF APEX THE FIRESTOPPER

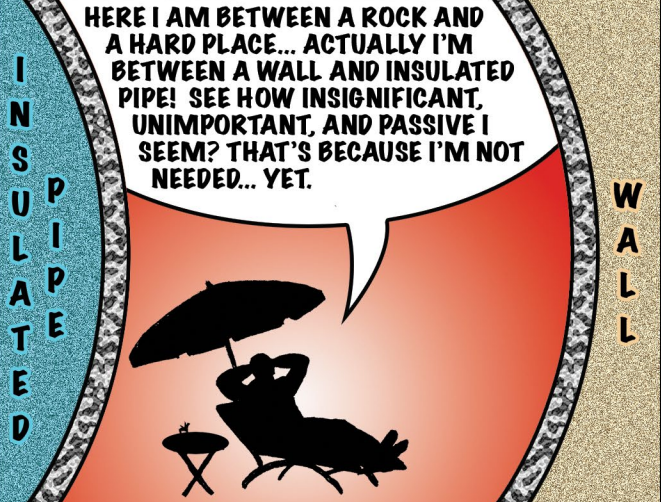
IN THIS ISSUE, APEX THE FIRESTOPPER TALKS ABOUT THE "INS AND OUTS" OF INTUMESCENT CAULK...

IN THE PAST YOU'VE HEARD ME TALK ABOUT SOME PRETTY BIG IDEAS... WELL I'M HERE TO TELL YOU THAT THE SMALL ONES CAN BE IMPORTANT TOO! CHECK OUT THIS INSULATED PIPE...



MC-1000 BY RECTORSEAL

... NOW, LET'S GO IN FOR A CLOSER LOOK! COME ON - FOLLOW ME!



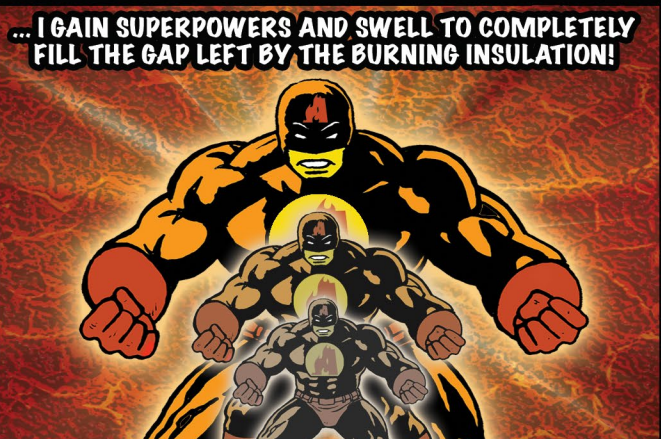
INSULATED

WALL

HERE I AM BETWEEN A ROCK AND A HARD PLACE... ACTUALLY I'M BETWEEN A WALL AND INSULATED PIPE! SEE HOW INSIGNIFICANT, UNIMPORTANT, AND PASSIVE I SEEM? THAT'S BECAUSE I'M NOT NEEDED... YET.



BUT AS SOON AS FLAMES APPEAR...



... I GAIN SUPERPOWERS AND SWELL TO COMPLETELY FILL THE GAP LEFT BY THE BURNING INSULATION!



IT'S A TIGHT FIT...



...SO, THE FIRE STOPS HERE!

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FM 4991 APPROVED
FIRESTOP CONTRACTOR



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An ISO9001 Company

GLOBAL FIRESTOP SOLUTIONS

FOR AN EVOLVING WORLD

CABLE TRAY - FIRESTOP MORTAR & PILLOWS

PLASTIC PIPE - FIRESTOP SEALANT

TOP OF WALL - SPEEDFLEX® & FIRESTOP SPRAY



EZ-Path
FIRE RATED PATHWAY



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