



THE MAGAZINE OF EFFECTIVE COMPARTMENTATION

Life Safety DIGEST

FALL 2017

Some ABCs of Smoke Control

What Architects Can Learn From Firefighters

One-Size-Fits-All Engineering Judgments Don't Work

From Devastation Comes Inspiration

Maintenance and Management

© 2017 Technical Glass Products. FireLite is a registered trademark of Nippon Electric Glass Co., Ltd. UL and the UL logo are trademarks of UL LLC. Technical Glass Products, One Source, Many Solutions, Fireglass and ultraHD are registered trademarks of Technical Glass Products.

CLARITY BUILDS CONFIDENCE.

CRAFTSMANSHIP
COMES STANDARD.



You can trust **Technical Glass Products** to deliver quality crafted products, like **FireLite® fire-rated glass ceramic**. This groundbreaking glazing, and its clear **ultraHD® Technology**, will change how you look at fire-rated projects. It's UL classified & labeled, offers fire-ratings up to 3 hours, along with high impact-safety ratings. It's no wonder FireLite has been repeatedly awarded "product of the year" by industry experts.

Learn more at fireglass.com/firelite

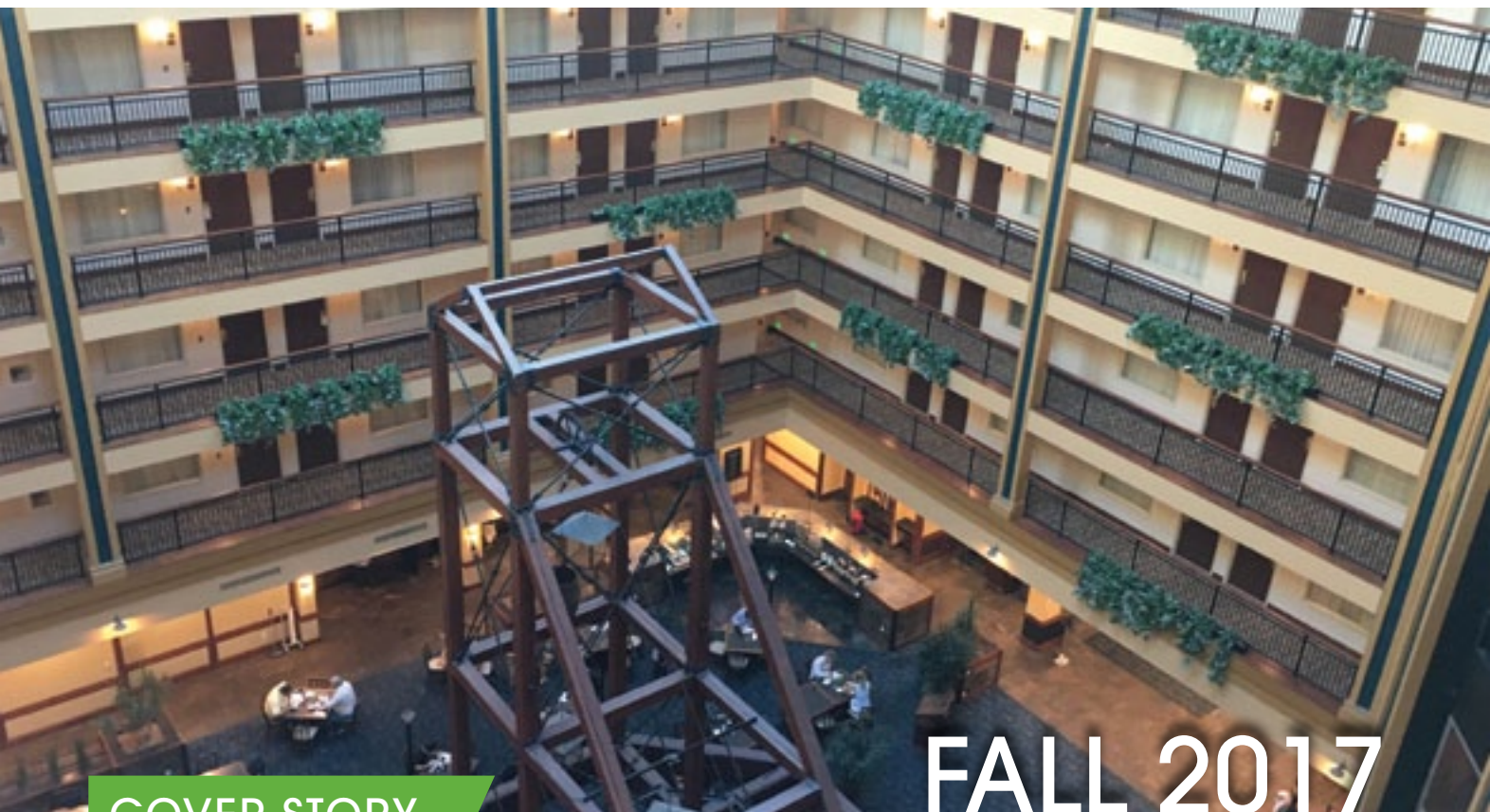
FireLite®
Family of Products

ultraHD®
TECHNOLOGY



TGP  **FIRE RATED**
one source. many solutions.®

fireglass.com | 800.426.0279



FALL 2017

SGH photo

COVER STORY

16 **Some ABCs of Smoke Control**

When we think of the dangers of a fire inside a building, we instinctively imagine the spread of flames and heat. However, the bigger threat is often the spread of smoke.

By Brian D. Kuhn Jr. & Qianru Guo

FEATURES:

6 **WHAT ARCHITECTS CAN LEARN FROM FIREFIGHTERS**

By Diana San Diego, SaffiFIRST

10 **ONE SIZE FITS ALL ENGINEERING JUDGMENTS DON'T WORK**

By Angela M. Ogino

14 **FROM DEVASTATION COMES INSPIRATION**

By Evan G. Bane, MA, CDT

21 **MAINTENANCE AND MANAGEMENT**

By Aedan Gleeson & Bill McHugh

DEPARTMENTS:

4 **EDITOR'S MESSAGE**

25 **BRIGHT IDEAS**

26 **CODE CORNER**

29 **INDUSTRY NEWS**

34 **INDUSTRY CALENDAR**



EDITOR'S MESSAGE

FCIA 2017 BOARD OF DIRECTORS

Mark Dietz, President
Superl, Inc., Lino Lakes, MN

Bryant Bickmore, Vice President - President Elect
Seal-Co, Inc., Albuquerque, NM

Don Murphy, Treasurer
PPMI Firestop, Inc., Indianapolis, IN

Eric Keeton, Secretary
Dalton Protection, Inc., Medway, OH

Aedan Gleeson, Director
Gleeson Powers, Inc., Franklin, MA

Bob Hastig, Director
Specialty Firestop Systems, Inc., Vancouver, WA

Jay McGuire, Director
Fire Stop Technologies, Inc., Taylorville, IL

Tracy Smith, Director
Firestop Southwest, Tempe, AZ

David White, Director
DW Firestopping, Inc., Lafayette, LA

Ken Slama, Past-President
National Firestop LTD, Winnipeg, MB, Canada

Gary Hamilton, Past-Past-President
Hamilton-Benchmark, Inc., St. Francis, WI

Bill McHugh, Executive Director
Firestop Contractors International Association
Hillside, IL

SUBSCRIPTION INFORMATION:

To subscribe, visit www.fcia.org, magazine, subscribe, or email info@fcia.org. For article submissions, information, contact FCIA at 708-202-1108 or e-mail info@fcia.org. To unsubscribe, email info@fcia.org, unsubscribe to Life Safety Digest.

LIFE SAFETY DIGEST

Life Safety Digest, Volume 13, No. 3, Fall, 2017 is published quarterly by the Firestop Contractors International Association. Information has been obtained from sources believed to be reliable. However, because of the possibility of human or mechanical error by our sources, the Firestop Contractors International Association does not guarantee the accuracy or completeness of any information and is not responsible for any errors or omissions of for the results obtained from use of such information. The publisher reserves the right to censor, review, edit, reject or cancel any materials not meeting the standards of Life Safety Digest.

EDITORIAL CONTRIBUTIONS:

You are invited to share your expertise and perspectives. Before writing, contact FCIA at lindsey@fcia.org for writing guidelines & policies.

ADVERTISING CONTACT:

Contact FCIA's Office for information. 708-202-1108; info@fcia.org
4415 W. Harrison St., #540, Hillside, IL 60162

REPRINTS:

Life Safety Digest Magazine limited quantity reprints are available from FCIA headquarters; 1-100 - \$.95/issue; 101-500 - \$.90/issue; 501-1000 - \$.80/issue; 1000+ - \$.70/issue. All shipments FOB 4415 W. Harrison St., Hillside, IL 60162.

ONLINE:

Archived Life Safety Digest available at <http://www.fcia.org/Magazine>.

ON THE COVER:

flatbox/bigstock.com

Copyright ©2017, FCIA, the Firestop Contractors International Association

This issue of *Life Safety Digest* is about High-Rise building occupancies and how fire-resistance-rated and smoke-resistant construction can help protect people, property and continuous building operations.

High-rise occupancies have requirements that are triggered for their building height and area. For instance, fire-resistance, sprinklers and alarm system requirements kick in. Photoluminescent marking requirements in emergency egress stairwells are then required. Exterior building panels have height limitations and become more restrictive for high-rise construction. Then, at buildings 420' and higher over lowest fire department access, many other requirements become mandatory, including: impact resistant emergency egress stairwells; separated, three instead of two stairwells; greater bond strength for Spray-Fire-Resistive-Materials; second sprinkler risers; special inspection for firestopping; and others.

From the areas where high-rise occupancies are common, there is a great thing happening for fire and life safety in buildings. According to various reports from the field, Firestop Contractors install the lions' share of the firestopping in these occupancies. Specifications in some cities for firestopping from the 07-84-00 section in MasterFormat specify, and then FM 4991 Approved or UL Qualified Firestop Contractors install, firestopping. Almost half of FCIA's Firestop Contractor Members have subjected themselves to a management system audit of their firestop operations by either FM Approvals or UL.

Read this issue of *Life Safety Digest* to learn more about some of the components of fire-resistance that are an integral part of high-rise buildings. They will help keep you safe in buildings. 🔥

FCIA LIFE SAFETY DIGEST COMMITTEE

Aedan Gleeson, Chair
Gleeson-Powers, Inc.

Scott Rankin
Insulation Contractors, Inc.

Don Murphy
PPMI Firestop, Inc.

Bill McHugh
FCIA Executive Director

FCIA Editorial Committee, Board Member and FCIA Past President, Don Murphy passed away Monday, Sept. 11, 2017. Don, President and founder of PPMI Firestop, Inc., Greenfield, IN, was a huge part of FCIA and did the work of many. He was a good friend to the FCIA and the industry. Don will be missed by all.



Utility Fans

Inline Fans

Roof Mounted Exhaust Fans

Smoke & Fire Smoke Dampers

go smoke-free

Greenheck's life-safety **air** products.

SMOKE CONTROL
WHY GREENHECK?
<ul style="list-style-type: none"> • Single source supplier • Design expertise • Industry's best Quick Build Program
PRODUCT CERTIFICATIONS
<ul style="list-style-type: none"> • AMCA Licensed • UL/cUL Listed
APPLICATIONS
<ul style="list-style-type: none"> • Smoke control • High temperatures up to 1000° F • Severe environments

A reliable emergency smoke management system is a life-saving component of any building's design. Clearing and blocking dangerous smoke from rooms, hallways and stairwells helps occupants breathe and see during evacuation procedures — and helps to safeguard emergency crews as they go about their work.

Greenheck offers a full line of smoke-control products licensed by AMCA and UL/cUL Listed, including centrifugal and propeller roof-top upblast fans, inline fans, mixed flow fans, and a complete line of smoke and fire dampers. These products can be integrated into a dedicated fire/smoke emergency system, or serve double-duty as components of your everyday ventilation system.

As the industry leader, Greenheck is able to meet whatever air movement and control challenges you face, from simple to complex.

Learn more from your Greenheck representative or at greenheck.com/4smoke

Fans | Energy Recovery | Packaged Ventilation | Make-up Air
Kitchen Ventilation | Lab Exhaust | Dampers | Louvers | Coils

715.359.6171
greenheck.com



WHAT ARCHITECTS CAN LEARN FROM FIREFIGHTERS ABOUT RADIANT HEAT



Firefighters run towards a burning building to rescue building occupants and contain/extinguish the fire.
Photo: Nejc Vesel/Shutterstock

It takes a tremendous amount of courage to be a firefighter. While most people will instinctively locate the nearest exit to escape a burning building, firefighters run towards it. In any firefighting operation, the first and foremost objective is to rescue building occupants. After rescue, or simultaneously with rescue, comes fire confinement, where firefighters use water or another extinguishing agent to confine the fire in one area. Stopping the fire's forward progress must be done first before it can be extinguished.¹

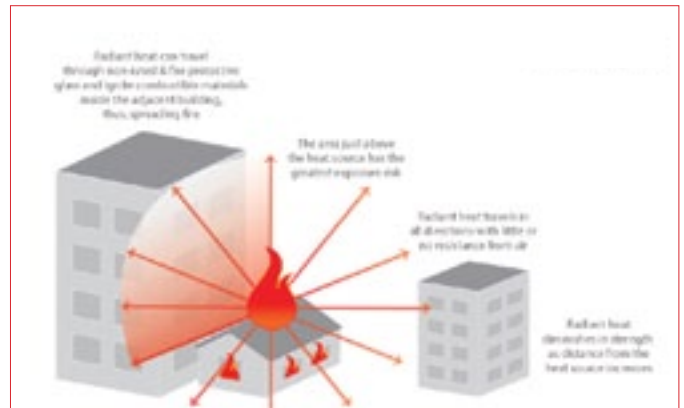
In carrying out both objectives, radiant heat is a major concern because not only does it prevent firefighters from getting to the building that is on fire, but it also contributes to the spread of fire. Structures near a fire building (exterior exposures) and parts of the building not yet involved (interior exposures) must be protected to minimize danger to their occupants, as well as to contain the fire.²

Radiant heat is also a major concern for architects because the buildings they design are occupied by people. In the event of a fire, a building's design and the materials chosen to build it can directly impact the occupants' ability to safely exit the building. The building's design and materials can also impact how effectively firefighters can rescue building occupants and confine, and eventually extinguish, a fire. This is why it is important for architects to understand radiant heat from the firefighter's perspective.

WHAT IS RADIANT HEAT?

Smoke and flames, the visual components of a fire, draw the most attention. However, there is also a third and invisible component called radiant heat that is just as dangerous to building occupants. If you've ever stood in front of a fire to keep yourself warm, then you've experienced radiant heat first hand. In small doses, it can be comforting and even nice. However, in large doses, such as a heat generated by a building fire, it can be extremely dangerous and even fatal.

Radiant heat is composed of invisible, extremely intense, electromagnetic waves that travel at the speed of light with little or no resistance from air. When these waves strike an object, they are absorbed and their energy is converted to heat. If the object is a combustible material, such as paper, fabric or wood, a fire will start when the material's ignition temperature is reached.



Radiant heat travels in straight lines, in all directions.
Photo: SAFTI FIRST

HOW RADIANT HEAT IMPACTS RESCUE

Radiant heat is extremely dangerous to building occupants since it can quickly reach a level that causes unbearable human pain, followed rapidly by second degree burns. The pain and burns sustained by building occupants from the uncontrolled passage of heat can be so intense that they are unable to exit the building safely. This is why the International Building Code requires horizontal exits (e.g. corridors) and vertical exits (e.g. stairwells) to be protected from smoke, flames and radiant heat for 1 or 2 hours. This gives building occupants a path of safe egress even before the fire department arrives at the scene. It can also provide a

safe haven where they can await rescue, which can be the case in hospitals, urgent care, long-term care and other healthcare facilities where immobile patients make evacuation difficult or impossible.

To ensure that building materials used in these exits can stop smoke, flames and limit radiant heat transmission, it must be tested to the criteria listed in ASTM E-119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, the fire-resistive wall and floor criteria. The ASTM E-119 test standard has a standard cellulosic fire burning with a wall assembly attached to the furnace. During the fire test, there is a measurement of the temperature rise for the side of the wall assembly that is not exposed to the fire. Taken from the ASTM E-119 test standard, the following are the conditions of acceptance for the wall, which includes a radiant heat limit:

ASTM E-119 Acceptance Criteria 8.3.4 *Conditions of Acceptance*-Regard the test as successful if the following conditions are met:

8.3.4.1 The test specimen has withstood the fire-resistance test without passage of flame or gases hot enough to ignite cotton waste, for a period equal to that for which classification is desired.

8.3.4.2 The test specimen has withstood the fire and hose stream test as specified in 7.6, without passage of flame, of gases hot enough to ignite cotton waste, or of passage of water from the hose stream. The test specimen shall be considered to have failed the hose stream test if an opening develops that permits a projection of water from the stream beyond the unexposed surface during the time of the hose stream test.

8.3.4.3 Transmission of heat through the wall or partition during the fire-resistance test shall not raise the temperature on its unexposed surface more than 250°F (139°C) above its initial temperature. [ASTM E-119-12a]

Gypsum wallboard and masonry are typically used to build walls that resist radiant heat, but when vision and transparency are desired, fire-resistive glass that also meets ASTM E-119 can be used. It functions as a 'transparent wall' and can be used up to the maximum size tested.

In some 1-hour fire-resistance-rated corridors, fire protective glass can be used in 20-minute door vision panels and 45-minute openings. But because fire protective glass does not protect against radiant heat or meet the ASTM E-119 criteria, the openings are limited to 25% of the wall area. To exceed 25% of the wall area, fire-resistive glazing must be used.

Fire protective glass is not allowed at all in 1-and 2-hour fire-resistance-rated stairwells and fire barrier walls, except for the 100 sq in vision panel in the 60- or 90-minute temperature rise doors. Again, to exceed 100 sq in in the door vision panel, fire-resistive glass must be used. For a complete reference on where fire protective and fire-resistive glazing are allowed in the International Building Code (IBC), refer to the Chapter 7 Tables in the 2012 and 2015 IBC.

Fire-resistive glazing used as wall assembly materials



To meet code and provide transparency and natural light, fire-resistive glass and frames were used in this 2-hour stairwell application. Project: University of Utah David Eccles School of Business. Architect: MHTN. Glazier: Mollerup Glass. Products: SuperLite II-XL 120 (wall) and SuperLite II-XL 90 (door) in GPX Architectural Series Framing Photo: SAFTI FIRST

in interior exit stairways in high-rise buildings might also need to meet structural integrity requirements according Section 403 of the 2009, 2012 and 2015 IBC and Section 403 of the 2014 New York City (NYC) Building Code. Where it applies, fire-resistive glazing must also meet or exceed Hard Body Impact Classification Level 3 tested in accordance with ASTM C1629/C1629M.

Introduced in the code as a result of the investigation on the September 11 World Trade Center Towers collapses, these requirements were added to ensure that exit stairways will remain intact, even after a significant impact to allow building occupants to escape the building safely. It also protects the firefighters who use the stairways carrying out their operations

HOW RADIANT HEAT IMPACTS FIRE CONFINEMENT

As mentioned earlier, the firefighters' secondary objective after rescue is fire confinement. Firefighters cannot effectively extinguish the fire if they cannot control how far it spreads - including to surrounding buildings due to intense radiant heat. As one firefighting training guide describes it:

Radiant heat moves away from the fire building in all directions; it is not affected by winds. Thus, fire may spread by radiation to any building near enough to the fire building to absorb sufficient heat... Radiant heat will also pass through transparent glass and ignite materials within a building. If the outside surface of a building is in danger of ignition from radiant heat, the areas within its windows constitute an equal hazard.³

Two of the most effective ways to prevent radiant heat transmission from one building to the next is by providing significant distance between the structures, or to have unpierced fire-resistance-rated exterior walls. However, that is not always the case. In densely

populated areas such as New York City, San Francisco, Chicago and Boston (to name a few), buildings are built close together. Sometimes building separations are either a few feet or right at the property line. And while the building code does allow windows or openings in exterior walls, there are restrictions to its use because, as stated above, radiant heat will pass through the glass and ignite the combustible materials behind it. Table 705.8 in the 2012 and 2015 IBC lay out the percentage of protected and unprotected openings and size limits allowed in exterior walls. Because fire protective glass does not protect against radiant heat, it is either limited in size or prohibited altogether, depending on the fire separation distance.

In fire-resistance-rated glazing assemblies, important components are the glazing type - fire-resistive or fire-protective, the framing and how it is attached to the rest of the fire-resistance-rated assembly.

However, these opening size limitations do not apply to fire-resistive glazing that has been tested to the ASTM E-119 fire test standard - as a wall. This is because these products are considered in the IBC Code as 'transparent walls' and not as openings or windows.

If an exterior fire wall incorporates fire-resistive glazing for vision or transparency, it is still considered as an unpierced fire wall. And as mentioned earlier, having unpierced fire walls is one of the best ways to prevent radiant heat from spreading from one building to the next - especially when there is very little distance between them. This is very important because again, only when a fire is confined can firefighters effectively extinguish it.

BUILDING MATERIALS ARE THE FIRST LINE OF DEFENSE

As architects continue to design buildings, some perspective can be gained from learning about the devastating effects of radiant heat on people and property from the brave firefighters who have experienced it first-hand.

In a way, the building materials that architects specify are the first line of defense when it comes to limiting radiant heat from fire in buildings or outside buildings to the inside. Limiting radiant heat offers significant assistance to firefighters in their rescue and fire confinement objectives.

Advanced life safety building products, like fire-resistive glazing systems that meet the ASTM E-119 temperature rise criteria required by the standard, enable architects to combine maximum fire protection with vision, transparency and all the aesthetic benefits that glass has to offer. 🔥



The west-facing elevation was in close proximity to the property line, so part of the curtain wall had to be fire rated. To maintain views and preserve the design intent, the architects specified ASTM E-119 rated, fire resistive glass and framing that matched the aesthetic of the adjacent non-rated system. The fire resistive curtain wall also met dynamic curtain wall testing, to ensure that it is air and water tight. Project: The Kengsington. Architect: TAT. Glazier: Cheviot. Products: SuperLite II-XL 60 insulated with Solarban 70XL in GPX Curtain Wall Framing. Photo: SAFTI FIRST

Diana San Diego has over 11 years of experience in the architectural glazing industry and over 13 years of experience in public relations and marketing. As the Vice President of Marketing at SAFTI FIRST, she oversees the advertising, content management, media relations, promotional activities and communication initiatives for the company. She is also involved in creating and promoting SAFTI FIRST's various educational programs, including the AIA-registered on-demand program "Designing with Fire Rated Glass." Diana can be reached at dianas@safti.com or 888.653.3333.

REFERENCES

1. "The Firefighter's Handbook: Essentials of Firefighting and Emergency Response (2nd Edition)," page 609. National Fire Academy Alumni Association.
2. "Engine Company Fireground Operations (2nd Edition)," page 97. Harold Richman.
3. "Engine Company Fireground Operations (2nd Edition)," pages 100-101. Harold Richman.

3M Science.
Applied to Life.™



Now, there's a better way.

A new method for protecting construction joints from fire, water, smoke and sound.

3M™ Fire and Water Barrier Tape
3M™ Smoke and Sound Tape

Put down the sprayer and get to work with instant fire, water, smoke and sound protection in convenient tape form. Use it on a variety of construction joints and through-penetration applications. Designed to meet the most stringent building codes and fire test requirements — and your high standards.



See the proof at [3M.com/firestop-tape](https://www.3m.com/firestop-tape).

© 3M 2017. All rights reserved. 3M is a trademark of 3M Company.

ONE-SIZE-FITS-ALL ENGINEERING JUDGMENTS DON'T WORK

THE SIX DESIGN CRITERIA OF PERIMETER FIRE BARRIER SYSTEMS

Thermafiber, Inc., a pioneer of the perimeter fire barrier system, has been testing exterior curtain wall conditions for over 45 years. Through this extensive testing, we have developed in-depth knowledge around the critical design components that are required in successfully containing fire at this complex area. The area is where a fire-resistance-rated horizontal floor assembly is separated from a non-rated wall structure.

Contrary to common perception, simply stuffing and spraying (installation of safining insulation with a smoke sealant applied) into the void between the floor and exterior wall, doesn't necessarily yield an effective fire and smoke barrier in curtain wall conditions. Therefore, the idea that the protection is based on the "performance of the joint system" doesn't mean that flame and hot gasses will be stopped at the interior joint, as is required by the code.

The perimeter fire barrier is a system, a compilation of installed materials, that when tested to the rigorous conditions of ASTM E 2307 (the Standard Test Method for Determining Fire-Resistance of Perimeter Fire Barriers Using the Intermediate-Scale, Multi-Story Test Apparatus) must remain securely in place for the time period equal to the fire-resistance-rating of the floor assembly.

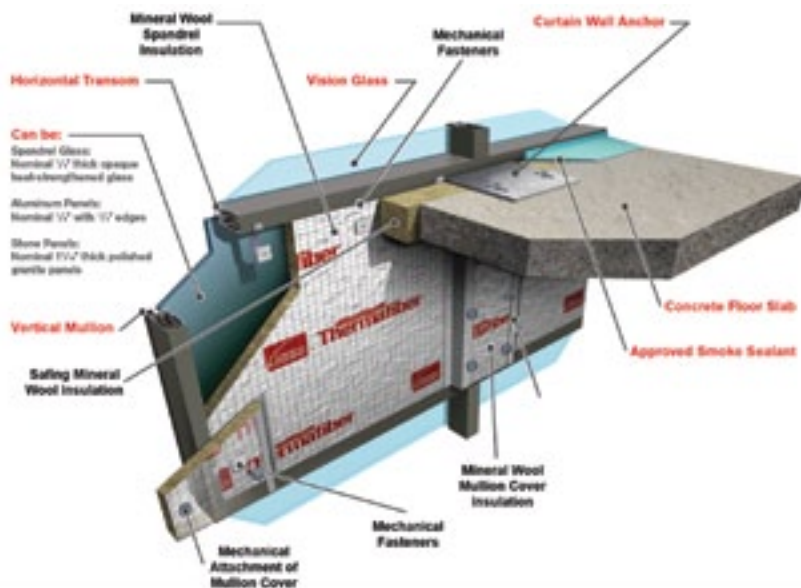
Although the joint is the subject area for determining whether the assembly passes or fails, longevity of the wall is critical for holding the joint materials in place during the duration of the fire test. Most curtain wall assemblies are designed around a tested and listed third-party system.

These systems, although diverse when it comes to exterior spandrel panels, heights and locations relative to the floor, all of them share a common denominator -- the six basic components that are required to successfully achieve the published hourly rating.

THESE SIX COMPONENTS ARE:

- 1. Install mineral wool as the insulation for the perimeter fire containment barrier,** both within the curtain wall spandrel AND the interior joint. Mineral wool insulation, at the required densities and thickness, is the only tested and proven material that will provide protection to the spandrel and interior joint.

- 2. Mechanical attachment of mineral wool curtain wall insulation.** There is no "one size fits all" when it comes to mechanical fasteners. Specific mechanical fastening methods, as per the tested assembly, must be installed to the manufacturers' installation instructions to assure that the system operates as designed under the duress of fire, thermal and structural movement consequential to the rigorous exposure of ASTM E 2307.
- 3. Provide backer reinforcement at the safe-off line.** Most listed systems reference either a 20-gauge steel T-Bar, L-Angle or hat channel. Other systems utilize other components to provide the required reinforcement of the curtain wall insulation. This detail is critical to prevent the spandrel insulation from bowing due to the force of compression at the safining joint. Again, the common factor is that all systems require some form of reinforcement behind the mineral wool spandrel insulation at the safe-off line. This is also critical for providing a tight seal at the interior joint. The lack of reinforcement causes the spandrel insulation to flex, creating even the smallest of gaps or seams which allows flame and hot gases to penetrate the safe-off opening and potentially engage combustibles on the floor above.



The illustration shows design criteria of perimeter fire barrier systems. Illustration provided by Owens Corning.

There is another common misconception that metal panels, such as aluminum or steel back pans, will provide the necessary reinforcement. Regardless of whether they are steel or aluminum, testing has proven these panels to be a failure point at the safing line if not properly reinforced.

4. **Compression-fit mineral wool safing insulation** within the void between the horizontal floor assembly and the exterior curtain wall insulation. The correct density and compression are required to be installed to establish the proper seal at the interior joint.
5. **Protect exposed vertical aluminum framing with mineral wool insulation mullion covers.** This a detail that is often removed from the system as it is perceived to be a minor contributor to the performance of the assembly, particularly when it obstructs interior finishes or window shade pockets. Again, another common error in design is to eliminate the element that covers and protects the mechanical fasteners that keep the spandrel insulation in place, as well as help to retain the exterior wall in position so that the safing joint materials continue to block fire and smoke. Elimination of this component results in a shorter fail rate of the exterior curtain wall element.
6. **Prevent the passage of smoke through the safe-off area.** Another critical component is needed to impede the passage of smoke is the application of an approved smoke sealant. The smoke sealant is applied over top of the safing insulation on the non-exposed side of the perimeter fire containment system.

In the perfect world, it would be nice if architects/designers could simply reference a third-party laboratory's fire-resistance directory and select a system that would match up exactly to their construction details.

However, due to ever-evolving architectural design, that is rarely, if ever, the case. Securing an engineering judgment, in many cases, is a very common occurrence in the submittal process. Just as important as making sure that the six design components are incorporated, it is important to make certain that the engineering judgment addresses every detail of the curtain wall construction to support the hourly fire-resistance judgment rendered. Not addressing or substantiating the variances in the actual construction when compared to an assembly chosen as the basis of design, could provide the potential for a disastrous outcome in the event of a fire.


THE CRITICAL COMPONENTS OF ENGINEERING JUDGMENTS FOR PERIMETER FIRE CONTAINMENT

Thermafiber, Inc., an Owens Corning company, has identified the following critical components when providing a quality engineering judgment for Perimeter Fire Containment:

1. The engineering judgment must be project specific and represent the project conditions being evaluated.
2. At least one third-party tested system (evaluated to test standard ASTM E 2307 or appropriate standard based on requirement of the applicable jurisdiction) that most closely represents the project construction details must be referenced as the basis of design in order to properly evaluate the hourly F-rating.

3. Engineering judgments must provide a complete description of the critical elements of the system and must include the tested and listed system's design criteria that are required to make the system work. The engineering judgment must be based on interpolation of previously tested perimeter fire barrier systems that are similar to the conditions upon which the judgment is given.
4. An engineering judgment is not to be used as a way to circumvent testing new fire containment assemblies. Engineering judgments that do not have data to interpolate and/or extrapolate, within the boundaries of good design practices of the condition in question, should initiate the need for fire testing.
5. An engineering judgment must state that it is such and is not a tested and listed system.

In addition to the critical components of engineering judgments highlighted above, we strongly abide by The International Firestop Council (IFC) provided recommendations on writing engineering judgments, titled "Recommended IFC Guidelines for Evaluating Firestop Systems in Engineering Judgments." Below is an outline of a few of the requirements (not all included here) for engineering judgments:

- All elements of a tested and listed firestop system, including the assembly into which the system is installed, constitutes a specific and inseparable engineered unit that must be utilized as such. Firestop system designs are tested and listed by independent testing agencies such as UL® and Intertek. The specific elements of each design become integral to the listing.
- According to the IFC, engineering judgments should be based upon interpolation of previously tested firestop systems that are either sufficiently **similar in nature or clearly bracket the conditions upon which the judgment is to be given.**
- Engineering judgments should be limited only to specific conditions and configurations upon which the engineering judgment was rendered, and should be based upon reasonable performance expectations for the recommended firestop system under those conditions.
- For more information, reference <http://www.firestop.org> http://www.firestop.org/uploads/2/4/5/4/24544763/ifc_engineering_judgment_guidelines_perimeter_fire_barrier_systems.pdf 

Angela M. Ogino is the Technical Services Leader for Thermafiber, Inc. (an Owens Corning Company). Angie has over 19 years of experience in the mineral wool and fire-stopping industry, providing engineering judgments and technical assistance on mineral wool product performance for architects, building officials and contractors in the fire containment area. She is also the developer and coordinator of all perimeter fire containment testing for Thermafiber at Underwriters Laboratories, Southwest Research and Intertek/Omega Point Laboratories, as well as is the developer of Thermafiber's educational programs on perimeter fire containment. Ms. Ogino has presented perimeter fire containment programs to audiences throughout North America. She can be reached at angela.ogino@owenscorning.com.

PROJECT PROFILE - THE SALESFORCE TOWER

The work done on the Salesforce Tower in San Francisco, California is a great example of how architects/designers and manufacturers can work together to ensure all the design criteria of fire barrier systems and components of the engineering judgment are incorporated as integral safety and design features of the building.

Project Highlight:

- Name: Salesforce Tower (AKA Transbay Tower)
- Location: San Francisco, CA
- Number of floors: 61
- Floor area: 1.4 million square feet
- Architecture Firm: Pelli Clarke Pelli Architects
- Target Completion Date: 2018
- Fun Fact: When complete, it will be the tallest building in San Francisco.

The technical team at Thermafiber, Inc. was asked to evaluate the curtain wall design for the implementation of a perimeter fire barrier system. This project required additional evaluation to address the variances, such as the wider spandrel opening, curved curtain wall and radius details at the corners of the building. To address these special conditions, Thermafiber drew from our extensive repository of test data that dates back to the 1960's, as well as our third-party and internal test data, specific to the special conditions. We confirmed our evaluation by running a parallel engineering analysis via a third-party engineering firm. This information provided the designers with the confidence that the perimeter fire barrier details and project variances were extensively reviewed and well-documented.

In the event of a multi-story building fire, the first line of defense for the occupants is the integrity of the building design and proper installation of the firestopping system for continuity of the fire-resistance. This responsibility places added pressure on the architects to design and specify, and then the firestop contractor to properly install, code-compliant fire containment solutions.

To reduce these concerns and potential liability, it is important for firestop contractors to collaborate with the manufacturer, who performs the testing and can provide the detailed technical support through all phases of construction. That is why expert engineering judgments should be recognized and implemented as the integral component of keeping building occupants' safe in the event of a fire.



The Salesforce Tower in Construction
Photo: Owens Corning

ENGINEERING JUDGEMENTS BY FCIA STAFF

In this article on engineering judgements (EJ's) for firestopping, Thermafiber has done a great job of addressing how they should be handled in perimeter fire barrier systems.

The International Firestop Council documents are also referenced. Reference to the International Firestop Council (IFC) document on engineering judgments, *Recommended IFC Guidelines for Evaluating FireStop Systems in Engineering Judgments*, is the basis for the article and a great choice.

There is one section of the EJ Guidelines that needs further clarification:

"Construction industry professionals, building officials, fire officials, firestop contractors and other stakeholders need appropriate guidelines for evaluating and using such judgments"

In addition to the EJ guideline statements, FCIA recommends that the firestop contractor request that the manufacturer also state,

"That the manufacturer believes that the engineering judgement at the project will pass when subjected to a fire test to the appropriate test standard for the application".

Many manufacturers already provide this on their EJ's and we applaud them for their stance on this.

One more point. Some in the industry use third-party engineers, and not the manufacturer, for engineering judgements. It is FCIA's opinion that the fire testing laboratory and manufacturer personnel know best the fire performance limits of the firestop products used in systems. The manufacturers' personnel know every detail about the chemistry, physical and fire performance of the systems; therefore, the manufacturer should be involved in the development of these EJs. And, since engineering judgements are statements about the product's capabilities, the judgement should come from the manufacturer.

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**.

FROM DEVASTATION COMES INSPIRATION IN THE WAKE OF 9/11, AN EARLY RISER MADE HISTORY WITH HIGH-RISE TECHNOLOGY

Al Shaw's memory of 9/11 is like that of most Americans. Where he was. What he was doing. What he was thinking. All of it clear as day. "I got home to witnessing people jumping out of the buildings," he says solemnly.

Shaw mourned alongside his countrymen and women. He shared in the nation's grief and despair. But before the sun had even set on that fateful day, he saw a glimmer of hope that few others could even imagine. For Shaw, the wheels were already in motion for a safer tomorrow.



Inpro Corporation Photo

"To see the people trapped in those fires devastated me like everybody else, but that's when I started really looking at what I could do in the construction business to help situations like that," Shaw said.

"I started researching high-rise fires while I was still a contractor. I found that there were some difficulties in the methods being used constructing buildings."

Shaw identified several shortcomings in the systems that limit the spread of fire, smoke and noxious chemicals. He set out to create a solution that would not only enhance the integrity of high-rise buildings, but also restore peace of mind for the people who live and work in them every day.



Inpro Corporation Photo



Inpro Corporation Photo

RISING TO THE CHALLENGE

What Shaw experienced was the profound sense that he could make a difference. As a construction contractor in New York City at the time of 9/11, he had a firm understanding of high-rise buildings and how they work. And while the rest of the world turned its attention to the aftermath – terrorism and war, religion and politics – Shaw remained focused on ground zero, determined to salvage inspiration from the structures that once stood.

A WAKEUP CALL

It was an autumn morning just two months after 9/11 that Shaw had his big breakthrough. This, too, he remembers clear as day. For it was at precisely 5:20 a.m. when he woke up with his first patent idea for fire protection.

That moment marked the birth of Fireline 520®, named for the very moment of Shaw's revelation. Since its inception, the company has specialized in the production of fire barriers for expansion joints, which is categorized as passive fire protection, or fire-resistance. Unlike active fire protection – which includes detection devices, alarms, sprinklers and other suppressors – passive technology is designed to compartmentalize a building to slow the spread of heat, fire and smoke, all through tested and listed systems.

Both are equally important for the safety of a building. In well-designed fire protection systems, the active and passive components work together so that occupants can recognize the threat of fire and evacuate safely.

"Fire is funny, because you don't know how it's going to react," Shaw said.

This realization was key in the development of Fireline 520 products. Predicting the behavior of fire was only half the battle. Understanding the behavior of buildings was instrumental.

Such is the philosophy behind the engineering of expansion joints, which are designed to help buildings stay in rhythm with the constant movements of Mother Nature. But until the fire barrier was invented, expansion joints were vulnerable to the volatile effects of fire – namely the devastating "chimney effect." In this phenomenon, fire produces enormous amounts of positive air pressure, causing smoke to spread rapidly throughout a building via vertical structures.

PATENT TRENDING

Throughout the history of high-rise buildings, fire and smoke have typically moved without being restricted by a barrier, such as fire-resistance-rated expansion joint systems. Only recently have there been significant improvements in fire protection – both active and passive. In addition, building codes were strengthened.



Inpro Corporation Photo

Today, Shaw's Fireline 520 series owns five different patents. One patent covers a fire barrier system including preassembled, one-piece, multi-directional fire barriers ready for inside mounting in multi-directional architectural expansion joints, custom barrier-specific installation tools and cover plate and/or spreader devices.

"Fire barriers need to be able to move and react in the different ways that buildings react," said Shaw.

Shaw was awarded four more patents in the last six years:

- Bottom-mount fire barrier systems including fire barrier/retainer structures and installation tools, 2011
- Fire barriers for the spaces formed by intersecting architectural expansion joints, 2012
- Moisture-impermeable fire barriers, 2013
- Fire barriers for straight-line and intersecting expansion spaces having male and female coupling ends, 2015

The patented Fireline 520 technology solves a number of key issues related to fire-resistance, or passive fire protection. It mitigates the dangers of moisture. It more effectively anticipates the trajectory of smoke.

Shaw also streamlined the installation process with the integration of male and female coupling ends. According to the patent, the single-piece, male/female units "eliminate on-site cutting and construction of barriers required for intersection spaces and provide easy, rapid, and safe one-step, drop-in installation and coupling."

A JOINT EFFORT

With patents secured, Fireline 520 steadily gained momentum, and the industry began to take notice. Shaw got in touch with Milwaukee-based Inpro®, a manufacturer of interior and exterior architectural products. Its mission is to "obsessively protect buildings and the people who use them," a sentiment compatible with Shaw's vision.

Arrangements were made for Inpro to acquire Fireline 520 in January of 2015, and it continues to pace the fire barrier industry. Shaw's enterprise has found a stable home in Inpro's JointMaster® division, which specializes in expansion joint systems.

"The main reason I chose Inpro was because of their quality and character," Shaw said. "The team here is knowledgeable and they really care deeply about the field and helping people find the best solutions for their buildings."

FIRELINE COMES FULL CIRCLE

Today, Fireline 520 products can be found in architectural wonders all over the world, from hotels to universities, stadiums to airports. They're installed in some of the most iconic destinations, like The Bellagio in Las Vegas and Yankee Stadium in New York City. And they enhance the safety of our most critical structures, from Air Force bases in Hawaii to hospitals in Taiwan.

For Shaw, it's a humbling experience to reflect on what Fireline 520 has become – and the opportunities that lie ahead. With the support of Inpro, Shaw continues to explore ways to fine-tune his technology. To better protect buildings and the people who use them. To help save more lives.

But no matter where Shaw's journey leads him next, there will always be a fitting resolution to the work he started more than 15 years ago. For his legacy now lives at the newly reconstructed World Trade Center, where towers 3 and 4 are reinforced with Fireline 520 fire barriers. 🔥

Evan Bane is Marketing Operations Manager for Inpro Corporation. Part of his role involves educating architects, specifiers and healthcare design professionals. He holds the Construction Document Technology (CDT) certification, and is a LEED Green Associate. Evan has 31 years of marketing communications, research and public relations experience in a variety of industries. He holds a bachelor's degree in economics from the University of Wisconsin - Milwaukee and a master's degree in communication from Marquette University. He can be reached at ebane@inprocorp.com.

SOME ABCS OF SMOKE CONTROL

When we think of the dangers of a fire inside a building, we instinctively imagine the spread of flames and heat. However, the bigger threat in a building fire is often the spread of smoke, which can incapacitate victims and prevent them from reaching otherwise accessible exits.¹

Because of these dangers, the code often requires a smoke control system for large-volume and high-occupant load spaces such as shopping malls, theaters, atriums, airport terminals and sports arenas. Smoke control systems are also typically required in specialized spaces such as smokeproof stair enclosures, underground buildings, laboratories, high-rise buildings and tunnels. As buildings become taller and more complex, with open floor plans and interconnected levels now the norm, the challenge of designing and installing a successful smoke control system has increased. Smoke control is a comprehensive system such that its design and implementation requires a strong collaboration among the design team and contractors. Due to the complexity, it is often beneficial to involve a fire protection engineer with proper knowledge of code requirements, system types and available analysis methods at the beginning of the design process.

In an effort to shed some light on these potentially confusing topics, this article discusses the various design methods available for smoke control systems, as well as some guidance on properly commissioning the systems once installed.

DESIGN

The 2015 edition of NFPA 92, Standard for Smoke Control Systems, includes two basic approaches to smoke control: smoke containment and smoke management.² Smoke containment refers to containing smoke to certain compartments through the use of building pressurization and passive compartmentation, while smoke management refers to the control of smoke within communicating large-volume spaces such as atriums. Knowledge of which design method is appropriate for what building conditions is fundamental toward creating a functional and efficient system. The following sections outline each method in more detail.



A Hotel Atrium, SGH photo

SMOKE CONTAINMENT SYSTEMS

This approach is used for zoned smoke control by pressurizing certain zones (stairwells, elevator shafts, vestibules, compartments adjacent to the fire compartment), while potentially depressurizing the compartment of origin. It works by creating pressure differences across smoke barrier walls to control the movement of smoke. The goal of this method is not to maintain a tenable environment in the compartment of origin, but rather to limit the spread, such that tenable conditions are maintained on the non-fire side of the barriers.³

The challenge is to develop minimum pressure differences that can limit smoke migration (0.05-in. water gauge is specified in the 2015 IBC for fully sprinklered buildings), while avoiding pressure differences so large that they interfere with the operation of egress doors (which are limited to a maximum door opening force). This is especially challenging in tall buildings due to stack effect. To this end, the computer modeling software CONTAM can be very useful. CONTAM is a multi-zone ventilation analysis program developed by NIST, which is used by fire protection engineers for the analysis of pressurization smoke control systems. The pressure differences across smoke control zone boundaries are predicted in the model by accounting for supply and exhaust fan sizes, leakage areas, temperature, wind and stack effect.

Even with the help of comprehensive computer modeling, sometimes the real-life pressure differences measured during testing are outside the specified



FIRE BARRIER

Pass inspection the first time
CS understands how critical it is for you to meet your project requirements, which is why we've created resources to help you along the way. With videos detailing how to properly install a fire barrier, concerns about passing inspection can be minimized. Before your next installation, watch our video on the RFX fire barrier floor to wall transition to see the process step-by-step. To view the video, visit csinc.bz/rfx-installation.



design range because of differences between design assumptions and the realities of construction. One way to address such issues is to specify variable drive fans and to adjust them to match the as-built conditions during commissioning. Balancing can also be achieved by adjusting the fan sheaves, undercutting doors and installing door-open devices, with a proper eye on maintaining fire and smoke-rated walls.

It should be noted that the pressurization method depends heavily on the proper functioning of the smoke barrier walls, floors and shafts, i.e. that these barriers do not have unprotected penetrations or openings that would affect the calculated pressure differences. Proper firestopping is always a critical life safety feature in buildings, but is especially so in buildings utilizing pressure differences for smoke control.

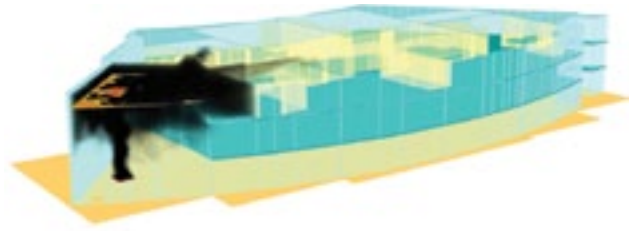
SMOKE MANAGEMENT SYSTEMS

The smoke management approach (also referred to as the exhaust method) has a wide application in large open spaces, such as arenas, atriums and malls. Smoke from fires in such spaces accumulates at the ceiling level and starts to descend as the fire burns. The basic strategy of the exhaust method is to maintain a tenable environment by keeping the smoke layer above a certain level (e.g. 6 feet above a walking surface as per 2015 IBC). This can be accomplished by strategically specifying smoke exhaust at the high points of the space, by creating a reservoir large enough for smoke to accumulate without reaching walking surfaces, by utilizing opposing airflow in communicating spaces or a combination of all the above.

NFPA 92 provides two basic ways to design the exhaust system: algebraic equations and computer modeling. Algebraic equations can be used to calculate the exhaust volumes needed to maintain a certain layer height, and can be very helpful at the early stage of the design process. However, these equations are most appropriate for simple rectilinear geometry (i.e. square boxes) with centrally located (axisymmetric) fires. The equations for balcony spill plumes can over predict the exhaust quantities. This conservatism can negatively impact the space arrangement and limit the architectural design.

In order to more accurately design the quantities and location of exhaust, as well as incorporate complex architectural features, computational fluid dynamics (CFD) computer models such as the NIST-developed Fire Dynamics Simulator (FDS) can be used. Such models represent a more realistic simulation of the smoke movement in the often times complex geometry of interconnected compartments and floor levels. The models can also incorporate specific exhaust and supply locations, as well as time-based functions, such as the opening or closing of doors, windows and vents. These models are used to evaluate the tenability criteria (typically visibility distance, temperature and

smoke toxicity) and establish whether occupants can reach safety prior to the onset of untenable conditions.



CFD Modeling of an Atrium

Besides specifying the supply and exhaust and geometric boundaries of the space, the other most important input is the design fire. The design fire quantifies the “load” for the smoke control system, and as such needs to be justified and documented. Fire test data is available and should be used for justification. Because the design fire is a key assumption and will limit the applicability of the smoke control system, the design team should work with the building owner to ensure that a wide enough range of design fires are evaluated in order to provide the owner with the desired flexibility for combustible items (displays, furniture, decorations) that may be present in the space – even on a seasonal basis!

DOCUMENTING THE DESIGN

Regardless of the type of system utilized, a rational analysis is required by code to support the smoke control system method to be used, the sequence of operations and the system equipment. The analysis must also cover the following topics per the 2015 IBC:

- Stack effect;
- Temperature effect on fire;
- Wind effect;
- HVAC systems;
- Climate;
- Duration of operation; and
- Commissioning/testing.

A well-organized rational analysis creates fluidity and continuity during design, construction and commissioning among the architect, contractors, fire protection engineers, mechanical engineers and building/fire officials.

COMMISSIONING

In addition to the typical inspection and test requirements that buildings are required to undergo, smoke control systems also require special inspection. Beyond the code-required special inspection, a comprehensive commissioning process has been shown to be beneficial to verify the proper functionality of the smoke control system in its final installed condition. Such a commissioning process is led by a commissioning

agent (CxA) and should follow NFPA 3, Recommended Practice for Commissioning of Fire Protection and Life Safety Systems.

The commissioning process should actually start during design. A commissioning team should be created as early in the project as possible, made up of:⁴

- Owner/owner's representative
- Registered design professional (RDP) for the smoke control system (typically the mechanical engineer)
- Architect
- Fire protection engineer
- Electrical engineer
- Commissioning agent (CxA)
- Contractor and relevant subs
- Building/fire official

Documentation needs to be produced including the rational analysis discussed earlier, a written commissioning plan including commissioning schedule and the associated drawings and specifications for the system. The overall commissioning process goes more smoothly when the commissioning team is active in developing the commissioning plan.

Commissioning happens in phases, not all at once, with some of it happening early, during construction. For example, the special inspections' provisions of the building code require duct pressure testing to be performed. Typically this needs to be performed before the ducts are closed-in so the contractor can fix any deficient conditions noted during the test. Large smoke control systems should have inspections throughout the construction phase to look at the installation of dampers and fans so issues like reversed dampers are identified before the walls are completed.

One item that is often overlooked is that raceway enclosures are required for all control wiring, including fire detection wiring for devices that initiate the smoke control system and BMS wiring if that system manages the smoke control. Architectural features requiring inspection include shaft integrity, firestopping, doors and closers, glazing and smoke partitions.



Example of a Fire/Smoke Damper
SGH photo

Several rounds of operational testing are typically necessary to ensure all devices function and the sequence of operations perform properly, prior to acceptance testing with the AHJ. The whole commissioning team needs to work coherently for this to happen. If done correctly, the approval testing should merely be a demonstration to the AHJ that the system functions as the design and rational analysis specify. Always check with the local AHJ to determine local requirements for acceptance testing.

CONCLUSION

Successful design and implementation of smoke control systems on a project requires collaboration among the project team, including the architect, fire protection engineer, mechanical engineer, electrical engineer, building ownership, contractors and commissioning agent. These discussions should start early in the project. The proper approach to the smoke control design should be selected for the building conditions at hand. Some computer modeling may be helpful to provide a level of refinement to the system design. During construction, the special inspections and commissioning process should be coordinated by a dedicated commissioning agent. With all these components in place, the team is more suited to meet the challenges that come with implementing a successful smoke control system. 🔥

Brian Kuhn is a practicing fire life safety codes consultant and licensed fire protection engineer at Simpson Gumpertz & Heger (SGH). He has 12 years of experience in the field. His areas of expertise include fire and smoke modeling, exterior wall fire safety, and building and fire codes compliance for projects of all types. He is a member of the National Fire Protection Association (NFPA) and Society of Fire Protection Engineers (SFPE). He can be reached at bdkuhn@sgh.com. Dr. Qianru Guo is a licensed fire protection engineer working at Simpson Gumpertz & Heger (SGH) New York City office. Her specialty lies in reliability-based structural fire engineering, performance-based fire protection design, fire and smoke modeling, and fire/life safety codes compliance analysis. She is a committee member of the ASCE SEI fire protection committee and a member of the Society of Fire Protection Engineers (SFPE). She can be reached at qguo@sgh.com.

REFERENCES

1. National Fire Protection Association (NFPA), 'A Reporter's Guide to Fire and the NFPA,' www.nfpa.org, 2016.
2. NFPA 92, Standard for Smoke Control Systems, NFPA, Quincy, MA 2015.
3. Klote, J.H. "Basics of Passive and Pressurization Systems," Handbook of Smoke Control Engineering, ASHRAE, 2012.4.
4. NFPA 3, Recommended Practice for Commissioning of Fire Protection and Life Safety Systems, NFPA, Quincy, MA 2015

IT'S MORE THAN SAFE.
IT'S ROXUL SAFE®.



Expanding on curtain wall safing and other fire-stopping applications, ROXUL SAFE® insulation is now available for residential party walls and exterior metal buildings. These products can withstand intense heat up to 2150°F (1177°C) without melting, producing smoke or propagating flames.

Make your projects ROXUL SAFE® - visit safe.roxul.com or contact us at 1-877-823-9790.



Part of the ROCKWOOL Group

MAINTENANCE AND MANAGEMENT

With the rash of building fires around the world from the past year, there has been a call to 'do something'.

The 'something' the Firestop Contractors International Association (FCIA) recommends is that all parts of Total Fire Protection be constantly, and continuously, maintained.

Sprinkler Systems and Alarm Systems are something that gets routinely maintained. Building owners and managers have budgets that pay for either in-house staff or outside contractors to maintain these key fire protection systems.

But, there are other key elements that are part of a total fire protection strategy. The compartmentation, structural and egress systems also need to be in order. Equally important, the occupants of buildings need to be educated about how to get out of the building safely...by knowing 2 ways out.

When it comes to effective compartmentation and fire-resistance, what does that mean? It's about the fire-resistance-rated and smoke-resistant barriers in buildings.



Penetrating items through breaches in Fire Barriers.
Photos: Gleeson Powers

intersec²⁰

January 21 – 23, 2018
Dubai, UAE

SAVE THE DATE


The leading trade fair for
Safety, Security and Fire Protection
with more than 1,300 exhibitors
and 35,000 visitors.

7 Show Sections

- Commercial Security
- Cyber / Information Security
- Fire & Rescue
- Safety & Health
- Homeland Security & Policing
- Smart Home & Building Automation
- Perimeter & Physical Security

Register now to avoid the queues upon arrival!

www.IntersecExpo.com/Fair

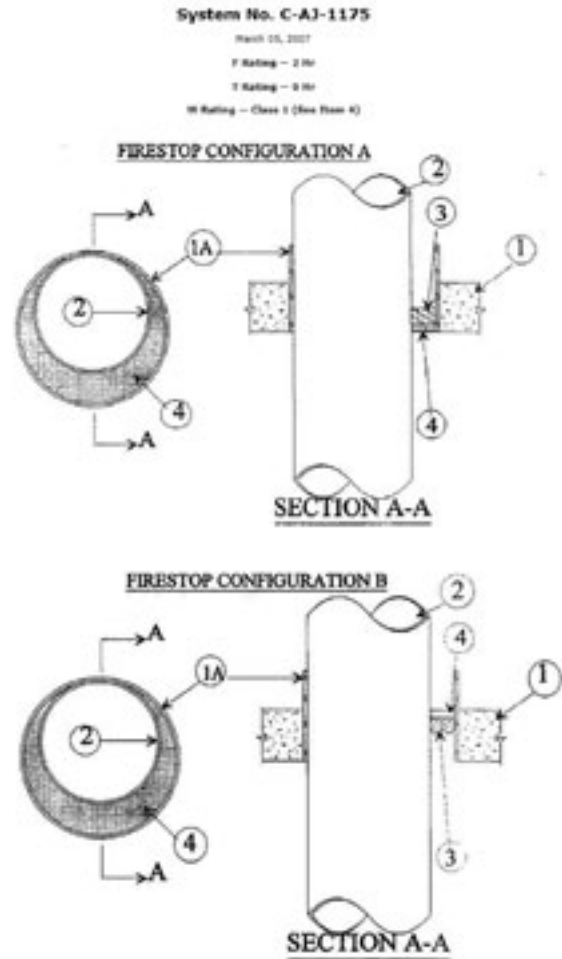
 messe frankfurt

Fire-resistance-rated fire and smoke barriers, fire and smoke partitions, fire walls, horizontal assemblies and exterior walls protect people from fire and smoke spread in buildings. They are exposed to damage from service worker carts, people, workers making retrofit holes for pipes, cables, etc. Since it is not easy to identify fire-resistance-rated assemblies, holes are made and then sometimes are not repaired properly. And, as with all building assemblies, these fire-resistance-rated assemblies need maintenance too.

Below are 5 suggested steps to take to understand maintenance needs and to keep fire-resistance-rated barriers safe:

- 1. Conduct a Visual Survey** - Find the life safety drawings and conduct a survey of the fire-resistance-rated and smoke-resistant assemblies. Make sure the surveyors know the testing laboratory listings from UL, FM or Intertek. The Listings and manufacturers installation instructions are key to inspection and survey, repair and reinstallation.
- 2. Inventory the fire-resistance-rated and smoke-resistant assemblies** - Create a database, be it electronic, paper or a custom software package, to know what's in the building. Mark up the life safety drawings with notations that clearly identify where deficiencies are located.
- 3. Inventory the features of fire-resistance-rated and smoke-resistant assemblies** - Firestopping, Fire Doors, Fire and Smoke Dampers and Fire-Rated Glazing are all features that protect the barriers that form the effective compartmentation. It is critical to know what's in the structure in order to understand the maintenance requirements. And, don't forget to check the structural fire-resistance items such as Spray Fire Resistive Materials (SFRM) or Intumescent Fire Resistive Materials (IFRM).
- 4. Repair** - Repair the barriers and features, including SFRM/IFRM, as needed, with the right listed systems and manufacturers' installation and repair instructions to keep the building safety system intact.
- 5. Inventory the Repairs** - The International Fire Code has a section that governs the maintenance of fire and life safety in buildings. Check out Section 703.1,

Is it this easy? Yes, the steps seem easy. The most critical component of this is the company and surveyor employees that perform the survey. If they do not know and/or are not familiar with the listings and manufacturers' requirements, then it's a waste of time and money.



Firestop Systems can look easy, until the details of the systems are read. Visit UL's Online Certifications Guide for the complete system. http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=XHEZ.C-AJ-1175&ccnshorttitle=Through-penetration+Firestop+Systems&objid=1074338482&cfgid=1073741824&version=versionless&parent_id=1073995580&sequence=1

Firestopping is a big part of keeping the continuity of the fire-resistance-rated and smoke-resistant assembly intact. Breaches, openings, gaps and voids are made to allow plumbing, electrical, HVAC, cabling and other service items to serve remote parts of buildings. Those openings are best protected with firestop systems to maintain the fire-resistance. Without protected openings, what these openings have in essence created is a superhighway for fire and smoke to travel through. The breaches in assemblies facilitate the spread of fire and smoke, resulting in an environment that endangers building occupants.

But, firestopping alone is not the only thing that needs attention. Fire-resistance-rated doors need to close and latch, all the time. The doors can't have holes in them, nor should they be covered with decorations. NFPA 80 has these requirements. Also, fire dampers

in the ductwork need to work when activated. And, holes in fire-resistance-rated or smoke-resistant walls and floors need to be protected through fire-resistance-rated patches and repairs.

Most buildings have a budget for smoke alarm and sprinkler maintenance, but does management have a Fire-Resistance budget? Not as many do.

The International Fire Code (IFC) and NFPA 101/NFPA 1 Codes have had requirements to maintain fire-resistance for years. This includes the barriers and features mentioned in this article. The International Fire Code states that an annual visual inspection is required and that, if required, repairs are to be made when the barriers are breached, damaged or penetrated. (Check out the Sidebar on this page)

In buildings, breaches, openings and holes may be made in walls and floors, either on purpose or accidentally. The repairs to these assemblies are to be specific to the assembly. Fire-resistance-rated doors, dampers, glazing, firestopping, fireproofing, fire barriers and smoke barriers all have specific technical aspects to the assemblies.

Facility management personnel can either train building operations staff to understand how to work with the listings and manufacturers products that make the assemblies and features, OR they can hire a FCIA Member, perhaps a(n) FM 4991 Approved or UL/ULC Qualified Firestop Contractor, that specializes in firestopping or barrier management.

When fire strikes, the building owner's risk management department will be thankful. That's why facilities need a line item in their budget for maintaining fire-resistance-rated walls and floors. 🔥

Aedan Gleeson is President, Gleeson Powers, Inc, and also a current FCIA Board Member and FCIA's 1st President. He can be reached at Aedan@gleesonpowers.com. Bill McHugh is FCIA Executive Director and can be reached at Bill@fcia.org.

THE INTERNATIONAL FIRE CODE

The International Fire Code provides requirements for building owners in the jurisdictions that adopt the code; however, it can also be referenced as a standard of care, developed by a consensus organization. Therefore, it sets a minimum bar for maintaining fire-resistance-rated construction.

Note the language...It is very specific about maintaining fire-resistance-rated and smoke-resistant construction assemblies as they were originally constructed. It also requires that records of repairs be maintained. These requirements have been part of the code for quite some time.

This is why building owners and managers should have a budget line item for fire-resistance-rated construction, just like they do for alarms, sprinklers and other safety items.

SECTION 703 FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required *fire-resistance rating* of fire-resistance-rated construction, including, but not limited to, walls, firestops, shaft enclosures, partitions, *smoke barriers*, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, shall be maintained. Such elements shall be visually inspected by the *owner* annually and properly repaired, restored or 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 movable entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with *approved* methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of *approved* construction meeting the fire protection requirements for the assembly.

703.1.1 Fireblocking and draftstopping. Required *fireblocking* and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

703.1.2 Smoke barriers and smoke partitions. Required *smoke barriers* and smoke partitions shall be maintained to prevent the passage of smoke. Openings protected with approved smoke barrier doors or smoke dampers shall be maintained in accordance with NFPA 105.

703.1.3 Fire walls, fire barriers and fire partitions. Required *fire walls*, *fire barriers* and *fire partitions* shall be maintained to prevent the passage of fire. Openings protected with *approved* doors or fire dampers shall be maintained in accordance with NFPA 80.

Section 703.1, 2015 International Fire Code - available from www.ICCSafe.org.

Engineered for optimal performance.
Specified to high standards.
Tested for quality.

Total systems for total confidence

With **Owens Corning® Enclosure Solutions** you can choose from a range of options for different construction types with customizable components that best fit your project, all supported by the expert advisors and technical resources of Owens Corning.

Architects and contractors worked with the Owens Corning Thermafiber Insolutions® technical services team to create custom solutions with innovative, high-performing and labor saving products that work together to achieve curtain wall and perimeter fire containment systems, without compromising design. The collaboration resulted in a smart, beautiful, code-compliant building worthy of the One World Trade Center name, using a Thermafiber® patented Impasse® perimeter fire containment assembly comprised of Thermafiber® FireSpan® curtain wall insulation, Safing fire containment insulation and Impasse® insulation hangers.

Learn more at owenscorning.com/enclosure

One World Trade Center, New York, NY

**OWENS CORNING®
ENCLOSURE SOLUTIONS**



Thermafiber®

OWENS CORNING INSULATING SYSTEMS, LLC
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO, USA 43659

1-800-GET-PINK®
www.owenscorning.com

Printed in U.S.A. 2017.
THE PINK PANTHER™ & © 1964–2017 Metro-Goldwyn-Mayer Studios Inc. All Rights Reserved. The color PINK is a registered trademark of Owens Corning. © 2016 Owens Corning. All Rights Reserved. © 2017 Thermafiber, Inc. All Rights Reserved.

#GREATMINDSTHINKPINK

BRIGHT IDEAS



SPECIFIED TECHNOLOGIES (STI) OFFERS SPECSEAL® CP100 FIRE PROTECTION FOR UNDERMOUNT CURTAIN WALL ANCHORS

CP100 is the go to solution for protecting underside mounted mullion brackets in curtain wall construction. Custom sized to your style of bracket, Connection Protection installs quickly with common job site tools. Learn more at www.stifirestop.com.

SAFTI FIRST FIRE RATED EXTERIOR WINDOW/WALLS UP TO 2 HOURS NOW IN CMAST

SAFTI FIRST, leading USA-manufacturer of advanced fire glass and framing systems, is pleased to announce that its SuperLite II-XL 45, 60-, 90- and 120-minute fire-resistive glazing and GPX Framing up to 2 hours have been approved by the National Fenestration Rating Council (NFRC) Component Modeling Approach (CMA) program and can now be downloaded as glazing and framing components in the Component Modeling Approach Software Tool (CMAST) database. This enables architects to simulate the U-factor, Solar Heat Gain Coefficient (SHGC) and Visual Light Transmission (VLT) of exterior fire resistive window/wall assemblies up to 2 hours using CMAST. To learn more, visit www.safti.com or call 888.653.3333.



TENMAT NOW OFFERS 1- AND 2-HOUR UL FIRE-RATED ENCLOSURES FOR LED LIGHTS



Incandescent, fluorescent or LED lights. The flexible and lightweight covers allow electrical contractors and builders to easily meet the building code without having carpenters build expensive and bulky drywall boxes. Learn more at www.TENMATUSA.com or call 302.653.3333. 🔥



CODES AND STANDARDS NEWS

INTUMESCENT FIREPROOFING EXPANSION

The National Fireproofing Contractors Association (NFCA) reports that they have had a number of questions about using IFRM - Intumescent Fire-Resistive Materials - for fireproofing to protect building elements. The question comes up when the space is limited and Spray Fire Resistive Materials (SFRM) Fireproofing cannot 'fit'. In the UL Fire Resistance Directory Guide Info, there is a great answer for this already.

When mastic and intumescent coatings are exposed to fire, they expand and form an insulating char. Unless otherwise detailed in the individual designs, mastic and intumescent coatings are tested without any covering adjacent to the tested member that might interfere

with the expansion of the coating. The effect on the fire-resistance-rating of steel members (beams, columns, etc.) caused by any covering that would interfere with the expansion of a mastic and intumescent coating during a fire has not been investigated. Contact the manufacturer for their required clearance around structural members protected with mastic and intumescent coatings.

Designers and contractors need to be sure that there is enough space for the IFRM to expand and form the proper thickness of insulating char as stated by the manufacturer, according to UL.

NFPA FIRE RISK ASSESSMENT TOOL

In light of a recent series of fires in high-rise buildings with combustible facades, including the Grenfell tower fire, the National Fire Protection Association (NFPA) has initiated a project to develop a fire risk assessment tool for these types of buildings to assist local authorities globally with fire safety in their communities. This project builds on previous NFPA work begun over the past few years, related to growing concerns about fire risks associated with combustible wall insulation components.

"NFPA is committed to helping communities respond to current fire threats," said Jim Pauley, NFPA president. "Given several recent tragic high-rise fires, this resource couldn't be more needed or timely." The risk assessment tool will help Authorities Having

Jurisdiction (AHJs) prioritize mitigation by incorporating a methodology that identifies key variables, such as wall materials, building fire protection systems, etc. The risk assessment tool helps characterize those variables in terms of risk or mitigation potential, and then it incorporates them into an engineering-based risk model. The project will be conducted by a global engineering team whose work will be overseen by an advisory panel of global stakeholders and experts. It is scheduled to be completed by the end of the year.

For more information on this project, contact research@nfpa.org.

CANADA CODES

Canada's Code Development Process for the National Building Code of Canada and National Fire Code of Canada is also underway. Canada is on a 5 year code development cycle with discussions about proposals

going on now for the 2020 versions of the codes. FCIA has several code proposals submitted that are being debated by different committees. Look for more on this in the next issue of Life Safety Digest.

NFPA 101 UPDATE

Several proposed changes regarding classroom security were being considered for the 2018 edition of NFPA 101, *The Life Safety Code*. This change/appeal as proposed states, "The releasing mechanism shall open the door leaf with not more than **two** releasing operations." This is a deviation from the current model codes where "one releasing operation" has been mandated for nearly three decades.

This proposed language would apply only to existing buildings and would not affect new buildings at this time. For the 2018 edition of NFPA 101, the three occupancy chapters where this language regarding two

operations would be inserted are Chapter 15 - Existing Educational Occupancies, Chapter 17 - Existing Day Care Occupancies and Chapter 39 - Existing Building Occupancies.

Per NFPA's statement dated August 31, 2017, "The Council has voted to deny the appeal", which means NFPA 101, *The Life Safety Code* will remain unchanged and only one operation is needed for release. Thanks to iDigHardware.com, The Door Security & Safety Foundation for the info. Look for more on the NFPA 101 and 5000 development process in future issues of Life Safety Digest. 🔥



Gleeson Powers
• Celebrating 25 Years •



Gleeson Powers is firmly committed to providing the best possible service and quality to its customers. We take a professional approach and insist on the highest standards of installation and customer service.



OFFERING THE FOLLOWING SPECIALTY SERVICES:

FIRESTOP SPECIALISTS ♦ SMOKESEAL SPECIALISTS

A FULL RANGE OF UL/FM FIRESTOP SYSTEMS ♦ AIR BARRIER

WATERPROOFING ♦ CURTAINWALL INSULATION ♦ BUILDING INSULATION



41 Dean Avenue
P.O. Box 305
Franklin, MA 02038



Phone: (508) 553 0800
Fax: (508) 553 0999
www.gleesonpowers.com




IFMA's World Workplace

Your Facility Conference & Expo

Oct. 18-20, 2017 | Houston, Texas, USA
George R. Brown Convention Center

We Are FM: A Universe of Possibilities



IFMA's World Workplace 2017 Conference & Expo takes place for the first time in Houston, Texas – the location of IFMA's original Service Center of Excellence.

Space. In our workplaces, we wrestle with the complexities of physical space every day – how to plan it, how to manage it, how to make

the most of it, how to make it more efficient, how to make it more attractive.

As our industry continues to explore ways to impact the built environment – seeking out new opportunities to transform and enhance our own spaces – Houston is the ideal venue for discussing and preparing for the universe of possibilities open to our profession.



Your Conference

- 
- ∞ **Explore** 100+ educational sessions, 300+ vendors in the expo hall and 1,000+ opportunities to connect with professional peers.
 - ∞ **Discover** how to apply products you're interested in to solve the problems you're wrestling with.
 - ∞ **Observe** creative problem-solving and efficient systems as you tour facilities.
 - ∞ **Engage** with colleagues, students and FM leaders at networking events.
 - ∞ **Refresh** your perspectives on leadership and teamwork in an inspiring closing keynote address by NASA astronauts and retired U.S. Navy captains Mark and Scott Kelly.
 - ∞ **Enjoy** a mini rodeo set in a LEED Gold certified urban park at the Welcome Reception.
 - ∞ **Inspire** the next generation of FMs at student-focused activities.
 - ∞ **Grow** your career with pre-conference credential courses and dynamic workshops.



**A universe of possibilities awaits you
this October – register at**

worldworkplace.ifma.org



INDUSTRY NEWS

FCIA MOURNS THE PASSING OF DON MURPHY



FCIA Past President Don Murphy passed away Monday, Sept. 11, 2017.

Don, President and founder of PPMI Firestop, Inc., Greenfield, IN, was a FCIA Steering Committee Member in 1998 during the Association formation. Over the last 20 years, he was a Director, Marketing Chair, Accreditation Committee Vice Chair, Code Committee Vice Chair, 2006 President and a good friend to many in the industry.

Don's passion for FCIA and the Firestopping Business was amazing. He traveled far and wide, working with FCIA leaders at The Joint Commission, Barrier Management Symposiums, ASHE and other organizations to advocate for the FCIA Firestop Specialist Concept. He worked many trade shows with us, wrote articles for Life Safety Digest and more.

Don was one of the most classy people you'd ever meet. He was always there at a FCIA Conference or event with a welcoming smile and genuine interest in everyone he met. Don is survived by two daughters, 4 grandchildren and his wife, Gay.

ICC PRESIDENT DWAYNE GARRISS RECEIVES NASFM PRESIDENT'S AWARD

The National Association of State Fire Marshals (NASFM) selected International Code Council Board of Directors President and Georgia State Fire Marshal M. Dwayne Garriss as the recipient of its 2017 President's Award, which recognizes outstanding efforts and leadership during the past year. Dwayne spoke at the FCIA Education and Committee Action Conference in New Orleans, LA about the importance of firestopping and effective compartmentation.

As President Garriss' term is ending, we applaud his

theme, 'Many Voices for One Purpose'. The ICC, through its committees, councils, Building Safety Month efforts and code development process, focuses on building safety. 'Many Voices for One Purpose'...Dwayne, we salute your service through active participation at the code development processes and service to the ICC. www.FireMarshals.org



NEW GYPSUM DOCUMENTS

The I - The Gypsum Association (GA) announces the revision of 11 technical documents pertaining to the application, finishing, handling and storage of gypsum panel products. Since December 2016, more than half of the GA's extensive catalogue of free technical guidance documents have been updated to reflect the most current

recommendations of technical experts within the gypsum industry.

One key document to get is the GA-225, Repair of Fire-Rated Gypsum Panel Product Systems. This is a must for those working in existing buildings. Check out the technical guide documents at the free download section of the GA Bookstore, www.Gypsum.org.



FCIA'S FIRESTOP INDUSTRY CONFERENCE & TRADE SHOW



The 19th annual FCIA Firestop Industry Conference & Trade Show - FIC 2017 - gets set to open in Palm Springs, CA at the Omni Rancho Las Palmas this November 7-10. The event is tailored to those interested in the development of the

firestopping and effective compartmentation industry, and features the FM & UL/ULC Firestop Exams, technical education sessions, the Firestop Industry Trade Show, networking and social events and more.

Attendees will hear from a number of dynamic speakers on a variety of topics like 'What Keeps Property Managers & General Contractors Awake at Night', 'Crash of the Fire and Energy Codes - High-Rise Façade Fires Worldwide', 'OSHA's New Silica Rule

and Other Safety Issues', 'How to Find, Train, Motivate and Retain Employees', 'The Seasons of Life - Change, Attitude, Perseverance - Your Personal and Professional Development is Key' and more.

Those interested in pursuing third-party accreditation can attend the FCIA Education for the Firestop Exams, then can write the FM or UL/ULC Firestop Exams. Plus, attendees can meet with Manufacturers, Distributors and others at the Firestop Industry Trade Show to learn about the newest technologies, services and products; as well as network and make new connections through various networking events, like the Ray Usher Memorial Golf Outing.

Early registration discounts apply until October 8. To learn more and to register, visit www.FCIA.org/articles/FIC_PalmSprings_2017.htm.

ICC AND THE PEC



ICC Photo. Participants at ICC's 2017 Inter-jurisdictional Regulatory Collaboration Meeting, including ICC CEO Dominic Sims

The International Code Council (ICC) signed an agreement with the Pakistan Engineering Council (PEC) to support their efforts to update the Building Code of Pakistan.

This agreement grants PEC the ability to use ICC's 2015 International Building Code, International Zoning Code and Performance Code for Buildings and Facilities to modernize Pakistan's building code.

The Code Council has similar partnerships with Colombia, Haiti, Mexico, Trinidad & Tobago, the United Arab Emirates and others to help communities worldwide establish the safest and most resilient buildings and communities

WHAT'S ACCREDITATION?

What is accreditation? This is one of the most frequently asked questions by people who have heard about accreditation, but never really understood what it meant.

Accreditation is a formal, independent verification that a program or institution meets established quality standards and is competent to carry out specific conformity assessment tasks. Conformity assessment tasks may include, but are not limited to, testing, inspection or certification.

Accreditation has been used for more than 50 years as the definitive means of evaluating organizations, and it is now utilized by all the world's major economies, as well as many developing economies. Organizations responsible for public safety and welfare, such as building departments, hospitals, schools and police and fire departments, special inspection agencies

and others seek accreditation to demonstrate their competence and reliability.

FCIA supports accreditation of organizations for efficiency and building and life safety. The FM 4991 Standard for the Approval of Firestop Contractors and the UL/ULC Qualified Firestop Contractor Program are both accreditation programs that require an audit of the contractor company management system, including how individual knowledge is assessed. It's much more than an individual certification. It assures quality. The quality process is something the construction industry is starting to embrace. FCIA got there almost 20 years ago and leads the industry with over 100 firestop contractor companies who are either FM 4991 Approved or UL/ULC Qualified.

Thanks to IAS' Sr. VP, Raj Nathan for excerpts from his article on accreditation

NIBS RECOMMENDATIONS FOR 45TH PRESIDENT

The U.S. Congress established the National Institute of Building Sciences (NIBS) in 1974 to serve as an authoritative source of information on building science and technology.

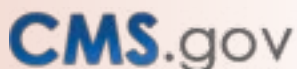
More than four decades later, this non-profit, non-governmental organization still brings the public and private sectors together to find solutions to make buildings better and safer, as well as buildings that are more economical places to live, work, play and learn.

From seismic safety to building information

modeling, members of the Institute's Councils and Committees—among them some of the most renowned experts in their respective fields—continue to address building-related issues. With those concerns in mind, the Institute offers the recommendations to the Trump Administration. Check them out at the bottom of this web page: www.nibs.org/cc.



CMS DEADLINE EXTENDED FOR COMPLIANCE OF INSPECTION/TESTING OF FIRE DOORS



The Centers for Medicare & Medicaid Services' (CMS) regulatory adoption of NFPA 101, Life Safety Code, 2012 edition, was originally July 5, 2016, and the required annual door inspections and testing were expected by July 6, 2017.

However, considering the level of reported misunderstanding for this requirement, CMS extended the compliance date for this requirement. Full compliance with the annual fire door assembly inspection and testing in accordance with 2010 NFPA 80 is required by Jan. 1, 2018.

<https://www.cms.gov/MedicareProvider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Survey-and-Cert-Letter-17-38-.pdf>

Below is the conclusion of the recent CMS notice on Fire Doors that was brought up during the recent ASHE Annual Conference by The Joint Commission's George Mills:

In health care occupancies, annual inspection and testing in accordance with the 2010 NFPA 80 is required for all fire door assemblies. Non-rated doors, including corridor doors to patient care rooms and smoke barrier doors, are not subject to the annual inspection and testing requirements of either NFPA 80 or NFPA 105. But, non-rated doors should be routinely inspected as part of the facility maintenance program as all required life safety features and systems must be maintained in proper working order. LSC deficiencies associated with the annual inspection and testing of fire doors should be cited under K211 - Means of Egress - General.

NEW LET'S FIX CONSTRUCTION

The CONSTRUCT Show and the Construction Specifications Institute (CSI) are known for linking thousands of industry leaders to procure real-world, practical knowledge for building success. This goal is the basis for the partner

ship between CONSTRUCT and Let's Fix Construction. Check out LFC's blog at www.LetsFixConstruction.com.

Watch for more from this group in the future.

ASHE ANNUAL CONFERENCE BREAKS RECORDS

ASHE's 2017 Annual Conference was the largest ever. More than 4,000 attendees were in Indianapolis for the conference, breaking last year's attendance record. The conference also featured the largest exhibit hall of any ASHE conference.

FCIA's Booth at the ASHE Annual Convention had great traffic. FCIA Board Member Don Murphy and Executive Director Bill McHugh enjoyed seeing new and old friends while advocating the 'DIIM' of Firestopping and the FCIA/UL/TJC/ASHE Barrier Management Symposiums.

At the convention's plenary sessions, The Joint Commission's George Mills reported that the Barrier Management Symposiums have helped facility engineers across the country get better at managing the fire-resistance-rated and smoke-resistant assemblies for fire and life safety. He also reported that audit violations keep coming up in this area, and he cited the Barrier Management Symposiums as a resource.



AIA UPDATES CONTRACT DOCUMENTS

Every 10 years, AIA's Documents Committee updates the A201 family of documents. This year's release includes the AIA new A102 *Standard Form of Agreement Between Owner and Contractor, where the basis of payment is the Cost of the Work Plus a Fee*

with a Guaranteed Maximum Price, and A104 Standard Abbreviated Form of Agreement Between Owner and Contractor. This document replaces the A107 document.

Check out the new documents at <https://www.aiacontracts.org>. The documents are available for a fee.

KEY CODE DEVELOPMENT ORGANIZATIONS PANEL AT NASFM

National Fire Protection Association (NFPA) President and CEO Jim Pauley, NFPA Operations VP Don Bliss, International Code Council (ICC) CEO Dominic Sims, ICC Board President M. Dwayne Garriss and ICC Sr. VP Mike Pfeiffer participated in a panel on the code development process on July 31 during the National Association of State Fire Marshals 2017 Annual

Conference in Charleston, S.C.

The panel provided ICC an opportunity to discuss two important issues facing the associations, which also affect Authorities Having Jurisdiction (AHJs) and State Fire Marshals across the United States: technology and innovation in the built environment and the length of code cycles.

FIRES IN UNDER-CONSTRUCTION, WOOD-FRAMED BUILDINGS

A recent article in the Wall Street Journal raised questions about the use of wood frame buildings instead of higher cost steel buildings. Fire safety officials say wood-frame buildings are generally safe once they are completed, but are particularly vulnerable to blazes before they are outfitted with walls and safety features, such as sprinklers.

FCIA notes that in these and all buildings, it is imperative to have effective compartmentation protected with firestopping, fire-rated doors, fire-rated glazing and fire dampers.

It takes years to learn a craft in construction, including fire-resistance and firestopping. Insist on contractor

and inspection companies that understand what the complex listings are and how to follow them. FCIA's Firestop Containment Worker Education Program helps firestop contractor companies train their employees. Not a FCIA Member? Join FCIA today to get the documents.

<https://www.wsj.com/articles/apartment-fires-are-tied-to-cheaper-wood-based-construction-1502988893?mg=prod/accounts-wsj>

FCIA BARRIER MANAGEMENT SYMPOSIUMS

Thanks to the Central Arizona ASHE Chapter for hosting a well-attended Barrier Management Symposium. Over 175 attended the session and learned about why it makes sense for the facility to build budget

into maintaining the existing fire-resistance-rated and smoke-resistant assemblies in these structures.

OSHA SILICA STANDARD COMING

New regulations to the OSHA Silica Standard take effect Sept. 23, 2017. Contractors need to have a plan to mitigate the risks through an initial assessment of the employee's exposures. They also need to have a plan for managing the exposures to below the limits. <https://www.osha.gov/silica/>. Key points of the new regulation include:

- Reduces the permissible exposure limit (PEL) for respirable crystalline silica to 50 micrograms per cubic meter of air, averaged over an 8-hour shift.
- Requires employers to: use engineering controls (such as water or ventilation) to limit worker

exposure to the PEL; provide respirators when engineering controls cannot adequately limit exposure; limit worker access to high exposure areas; develop a written exposure control plan; offer medical exams to highly exposed workers; and train workers on silica risks and how to limit exposures.

- Provides medical exams to monitor highly exposed workers and gives them information about their lung health.
- Provides flexibility to help employers – especially small businesses – protect workers from silica exposure.

Many industries are working with testing laboratories to measure the risk to employees. From firestopping to fireproofing and the rest of the fire-resistance industries, employers are working hard to be sure they

comply before the deadlines.

Visit <https://www.osha.gov/silica/> for details on the regulations.

NFPA FIRE PROTECTION WEEK

NFPA Fire Protection Week is celebrated in October each year. While it focuses a lot on residential fires and child fire safety, there's a lot for adults too.

Take a look at the theme, "Every Second Counts: Plan 2 Ways Out!". How many of us plan two ways out of our workplace? Shopping Mall? Movie Theater? Restaurant? Do we walk to the emergency exits in hotels then see where it goes? Speaking of exits, that was a fire-rated door assembly that provided access to the stairwell. The walls are fire-resistance-rated to provide safe egress. Firestop systems were used to keep the fire from spreading into the stairwells.

We at FCIA celebrate Fire Protection Week and share NFPA's call to action to protect people in buildings and help them get out when fire threatens...through effective compartmentation and firestopping. 🔥



Efficient Design and Quality Construction makes Albion the only choice for Professional Firestop Tools

- Bulk, sausage and cartridge guns
- Metal and plastic nozzles
- Follow plates, loading sleeves and parts

380ml Twin Cartridge For 3M FIP 1-STEP

Request our 96 page catalog

Manufacturers of manual, battery, and air-powered dispensing tools and accessories for the most demanding professional and industrial applications.

Albion ALBION Engineering
 1250 N. Church Street
 Moorestown, NJ 08057-1102
 856-235-6688 FAX: 800-841-7132
 www.albioneng.com E-MAIL: service@albioneng.com

**FCIA
 FIRESTOP INDUSTRY
 CONFERENCE &
 TRADE SHOW**

**NOVEMBER 7-10, 2017
 OMNI RANCHO LAS PALMAS
 PALM SPRINGS, CA**

www.fcia.org/articles/FIC_PalmSprings_2017.htm

FCIA INDUSTRY CALENDAR

SEPTEMBER

September 17-19

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

September 20-21

FCIA Canada Symposium
Toronto, ON
www.fcia.org

OCTOBER

October 9-11

Oman Fire, Safety & Security Expo (OFSEC)
Musca, Sultanate of Oman
www.muscat-expo.com/ofsec/

October 18-20

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

October 22-23

ICC Annual Conference
Columbus, OH
www.ICCSAFE.org

NOVEMBER

November 7-10

FCIA Firestop Industry Conference & Trade Show
Palm Springs, CA
www.fcia.org

November 29 - Dec. 1

CONSTRUCT Canada
Toronto, Canada
www.constructcanada.com



Protecting Life and Property Through Unprecedented Precision



Complimentary surveying of rated barriers



Pre/Post-Joint Commission (JCAHO), CMS, and other accreditation boards' inspection barrier assessments



Cost efficient barrier management solutions and programs



Design assistance and engineering judgements



Timely and thorough reporting

TIGHT SPACE.

RIGHT SOLUTION.



New FyreWrap® DPS Insulation for clothes dryer vents.



Recent FEMA 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 clothes dryer ventilation ducts in multi-family residences have been difficult to achieve in real-world conditions – until now.

Half-inch, flexible, code-compliant duct wrap designed to fit tight spaces.

FyreWrap® DPS Insulation is an innovative duct wrap that provides a safe and cost-effective means to achieve a 1-hour fire resistance-rated, zero clearance enclosure for routing dryer ductwork as prescribed by the International Building and Mechanical Codes. It utilizes a lightweight, high temperature, bio-soluble fiber blanket specifically designed, UL tested and certified for this critical application. 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.

More information on FyreWrap DPS and our complete line of FyreWrap products is available at www.arccat.com and www.unifrax.com or by calling 716-768-6500.

UNIFRAX

www.unifrax.com

FyreWrap





Who says you can't fit a *square peg* in a *round hole*.

EZ-Path® is engineered to be easy. Just drill a round hole, insert the device, screw on the plates, and it's compliant. **No putty, no sealant, no twisting, no turning.**

The choice is obvious. **EZ-Path®** pays for itself. More cables in less space, maintenance-free after installation, and compliant right out of the box.

There's really only one logical choice—EZ-Path.®

EZ-Path®
FIRE RATED PATHWAY

See for yourself — go to vimeo.com/specifiedtechnologies/ezp



Specified Technologies Inc. stifirestop.com

Or scan to
see the video

