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Life Safety DIGEST

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Keynote Address

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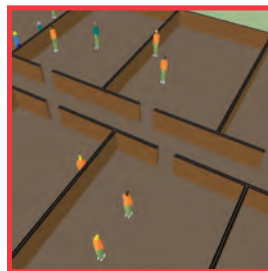
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Editor's Message

This issue of Life Safety Digest has a very unique mix of articles. Egress is huge in multi-family structures as that's where we sleep, eat, study and spend a lot of time relaxed and less alert than if we were in an office building. From Dr. Steven Gwynne's article on building evacuee behavior to Bill Koffel on The Code Development Process, Lori Greene on Doors and a detailed article about the UL Guide Information for Firestopping, this issue delivers. It delivers critical information on not just egress, but also fire-resistance-rated and smoke-resistant construction.

This Winter issue specifically focuses on residential construction. Residential construction can be high-rise, low-rise and mid-rise in height. Therefore, these buildings function differently than a home, and may possibly have the same construction components as can be found in commercial, institutional and industrial structures.

FCIA believes all buildings are safer due to the 'DIIM' of Firestopping, Structural Fire-Resistance and Effective Compartmentation. The proper Design, Installation, Inspection, and Maintenance/Management of these structures brings safety to all.

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

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FCIA's Abu Dhabi Symposium Keynote Address

Editors Note: FCIA's Abu Dhabi International Building Code (ADIBC) Fire and Smoke Protection Symposium enjoyed a very special Keynote Address from Eng. Yasmeen Sami Saadah, Division Director, Abu Dhabi Department of Municipal Affairs. We were honored to have her address the FCIA delegates as we started our Symposium.

Eng. Yasmeen has a lot of responsibilities as Division Director, as you'll see from her remarks below. FCIA values the relationships we have developed throughout the world with all we meet. We are always amazed by the talent and passion from those we encounter regardless of occupation—Governmental, Architecture, Specifier, Fire Protection Engineer, Contractors, Manufacturers, Distributors and Consultants. For these relationships, we are grateful.



Eng. Yasmeen Sami Saadah, Division Director, Abu Dhabi Department of Municipal Affairs, FCIA Photo

Eng. Yasmeen's remarks start below:

Good Morning and Welcome to Abu Dhabi, United Arab Emirates. Thank you for inviting me once more this year to address you and your 2015 FCIA Symposium in Abu Dhabi.

My friend Bill, it is indeed wonderful to see you here as we share the same values, vision in trying to educate the architects, engineers and contractors of the Emirate on the importance of having a complete set of code and standards—as we all strive to create a safer Abu Dhabi!

Allow me please to introduce part of my team who are present today:

- Eng. Fahad Al Seiri, Senior Chief Engineer and Head of the Building Code Team
- Eng. Thuraya Al Adawi, Chief Engineer
- Eng. Mouza Al Qubaisi, Coordinator, Project Management
- Eng. Imad Yaha Eldurubi, Building Code Advisor

Now, as you are all well aware, on July 31, 2013, the Abu Dhabi Executive Council has passed a resolution mandating the use of the Abu Dhabi International Codes including:

- Abu Dhabi International Building Code
- Abu Dhabi International Energy Conservation Code
- Abu Dhabi International Fuel Gas Code
- Abu Dhabi International Mechanical Code
- Abu Dhabi International Private Sewage Disposal Code
- Abu Dhabi International Property Maintenance Code
- Abu Dhabi International Accessibility Standards
- Abu Dhabi International Amendments to ACI 318, (Appendix L of the International Building Code)
- In addition to the newly amended Executive Regulations—Building Law No. 4, 1983 regulating Building and Construction in the Emirate of Abu Dhabi.

The above mentioned codes, standards and regulations are the 'Law of the Land' in regards to design, plan review, construction and inspections on all government projects and government funded projects as of October 1, 2014.



FCIA Attendees listen to Eng. Yasmeen Sami Saadah's Keynote Address. FCIA Photo

To assist both the private and public sectors in the Emirate of Abu Dhabi, my administration took on several projects that I would like to share with you today—outlining our successes and challenges:

1. Most importantly, we were able to team up with the Higher Colleges of Technology to provide trainers from the United States and abroad to help the architects and engineers at the Abu Dhabi City Municipality, Al Ain City Municipality and Western Region Municipality to assist in raising the level of knowledge of the International Building Codes.
2. We were successful in hiring four International Experts on my team to help my division technically—providing support to the Department of Municipal Affairs and the three municipalities.
3. Through the Outsource Project, we are able to hire five experienced Architectural Plan Reviewers and Structural Plan Reviewers with our direct cooperation with KEO International and Qualiconsult International to assist the Building Permit Departments at the Municipalities.
4. We continue to participate in the National UAE Unified Building Code Committee.
5. We continue to participate effectively in the Gulf Cooperating Countries (GCC) Unified Building Codes, and as we Chair the GCC International Property Maintenance Code and the Plumbing Code. Furthermore, we were able to convince the GCC Building Code Committee to use our Abu Dhabi International Building Code as the base for the future GCC Unified Building Code.
6. We are almost done in developing and maintaining the Unified Building Code Checklists for code compliance for plan reviewers and consultants in the Emirate.
7. We are diligently trying to coordinate with the Civil Defence, identifying the roles and responsibilities, (Life Safety Provisions of the Codes).
8. We work on developing and implementing training programs for the private sectors.
9. We continue to coordinate with our strategic partners and stakeholders on all aspects pertaining to the building industry in the Emirate.
10. I am also delighted to share with you that the Department of Municipal Affairs has entered in an agreement to initiate an intensive training program involving up to 100 engineers and architects of the Municipal System for the next five years. Two of my engineers have already started the program.

11. Other projects include:
 - a. Limited Plan Review Program for specific consultants.
 - b. Special Inspection Program.
 - c. Improvements of commercial front elevations.
 - d. Private Villa Manual.
 - e. Commercial Villa Manual.
 - f. Manual for Commercial Establishments.
 - g. Abu Dhabi Swimming Pool and Spa Code.
 - h. Abu Dhabi Landscape Irrigation Sprinkler and Emitter Standards.
 - i. Guide for Health and Food consumptions establishments.
 - j. Regulations and registering the professional engineers and architects and the design and engineering firms in the Emirate of Abu Dhabi.
12. The above is on the local and national level. However, on the International Building Code Activities, to name a few...
 - a. We have been participating with the International Building Code Conference since 2010—including a good sized Abu Dhabi delegation annually.
 - b. Members of my team, including myself, serve on different International Code Council Committees—IAS Committees and Global Membership Council.
 - c. We participate with the World Organization of Building Officials as we chaired the organization for two three year terms.
 - d. My team members meet and communicate with building code officials worldwide to stay up with the industry.

Well, I hope I was able to shed some light on what we do at the Municipal Regulations Division at the Abu Dhabi Department of Municipal Affairs. I urge all of you to reach out to my staff for any inquiries you may have; we are here to serve the community. One more time, thank you again for giving me the opportunity to address you today. I wish you all a successful and productive conference. Thank you. 🌟

Editors Note: Eng. Yasmeen Sami Saadah, we at FCIA thank you for your passion to serve the Emiratis through effective regulations managed efficiently through leadership—at Emirates, Gulf and International Levels—to protect fire and life safety.

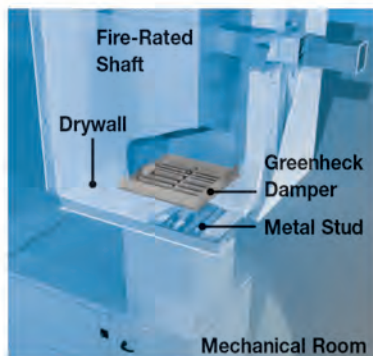


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ANSI UL 1479—What Does the UL Guide Information Say for Through-Penetration Firestop Systems?

Editor's Note: This is part two of the series on UL's Guide Information for Through Penetration Firestop Systems. The information below is copied directly from the UL Guide Information found at www.UL.com under Online Certifications Directory, Fire Resistance. In Italics under some paragraphs, will be editors notes highlighting certain issues. There is a lot more to this UL Guide Information, which we'll cover in the next several issues of Life Safety Digest.

This information, plus the manufacturers installation instructions, product data and safety data sheets complete the package of information needed to understand the complete process of installing firestop materials that become firestop systems after installation to the tested and listed system. Some of this information is new for 2015.

Materials used in the firestop systems are intended to be installed in accordance with the manufacturer's instructions provided with the materials. The structural integrity of the floor or wall assembly needs to be investigated when providing openings for the penetrating items. The Fill, Void or Cavity material thickness published in the fire-resistance designs is measured wet and may be susceptible to a percentage of shrinkage during the curing process. Firestop systems are investigated after the Fill, Void or Cavity materials are fully cured. Refer to the individual Classifications under Fill, Void or Cavity Materials (XHHW) for the investigated percentage of shrinkage.

Editor's Note: The "Fill, Void or Cavity material" is what UL calls the firestop product used over the packing/ backing/damming material. Fill materials can be sealants, sprays, putty, mortar, sealbags, etc. Note that the thickness of firestop fill material is measured wet after application. Inspection of the firestop system Fill, Void or Cavity material may not take place until long after the firestop is installed. All liquid products will shrink to some extent, depending on the product chemistry. The manufacturer's product data sheets should have shrinkage data for review and calculation of the thickness that was applied before the product had shrinkage.

The minimum and/or maximum annular space referenced in the firestop system must be maintained in order to achieve the hourly rating of the system. The annular space of a penetrating item through a rectangular opening is determined by measuring the distance from the closest point of the penetrating item to a point perpendicular to each of the four sides of the opening. The diagonal dimension is not intended to represent the annular space of a rectangular opening. The annular space between multiple penetrating items within a rectangular opening is determined by measuring the closest point of one penetrating item to the closest point of the adjacent penetrating item.



Intumescent firestop sealant fill, void or cavity materials installed over backing/damming. FCIA Photo



Firestop bags used as fill, void or cavity material. FCIA Photo

Editor's Note: The annular space is what is causing the breach in the fire-resistance rated assembly. The annular space size is critical for maintaining fire-resistance of the wall or floor assembly. This paragraph just set the rules for how to measure the annular space.

There is also a term used in firestopping called, 'point of contact'. The point of contact may be continuous even though it is not stated as such in the UL Directory, according to UL.

ANSI/NFPA 90A, "Installation of Air-Conditioning and Ventilating Systems," contains requirements on the use of fire dampers in conjunction with ventilation ducts. Unless specifically indicated as part of the classification of the damper, the annular space around the damper sleeve should not be firestopped with the materials described herein.



Greenheck Photo

Editor's Note: Firestopping around Fire Dampers are a common question posed to firestop contractors. Many of the Fire Damper manufacturers have tested firestop systems with their Fire Dampers to prove suitability for use in the specific application. The installation of a firestop system around a damper may also be less expensive than installing welded metal angles on both sides of the assembly. Clips are installed on one side, angles on the other.

The systems covered under this category are Classified with respect to (1) installation in a wall only, (2) installation in a floor only or (3) installation in either a wall or a floor. Unless otherwise indicated in the systems, the ratings for firestop systems installed in walls apply when either face of the wall is exposed to fire. The ratings for firestop systems installed in a floor apply when the underside or ceiling surface is exposed to fire.

The hourly fire-endurance rating of the walls and floors incorporating these systems are not indicated. Volume 1 of the Fire-Resistance Directory covers the hourly fire-endurance ratings of floor and wall assemblies. Firestop systems that specify installation in concrete floors may include installation in floors consisting of fluted or corrugated steel deck topped with structural concrete, provided that (1) the concrete topping thickness measured above the top plane of the steel deck is equal to or greater than the minimum concrete thickness specified in the system, and (2) the firestop system does not require any portion of the forming material or fill material to extend below the bottom plane of the floor.

Editor's Note: The UL Directory Guide Information here clears up the testing for concrete assemblies. If the concrete topping thickness meets minimum requirements, and a firestop system is able to be installed in the thickness of concrete, then the presence of a metal deck may not be a reason to disqualify a firestop system that does not show a metal deck used.

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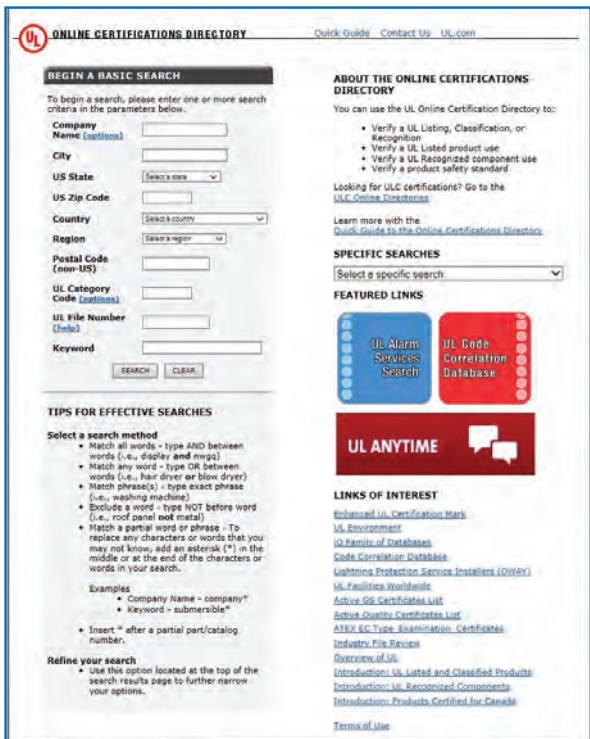
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Some firestop systems specify the use of hollow-core precast concrete unit floor assemblies. Where not specified, firestop systems utilizing caulk, sealant, putty or spray materials installed over a mineral wool or ceramic blanket may be installed in hollow-core floors, provided that (1) the thickness of the hollow-core floor is equal to or greater than the minimum concrete thickness specified in the system, (2) the maximum size of the opening is 7 in. diameter or 7 in. by 7 in., and (3) any cores of the precast concrete units penetrated as a result of the firestop system are sealed with a minimum 4 in. depth of either firmly packed minimum 4 pcf mineral wool or ceramic fiber blanket, or concrete, grout or mortar. Additionally, firestop systems utilizing a firestop device or wrap strips/steel collar installed around the penetrant beneath the floor may be installed in hollow-core floors, provided that (1) the thickness of the hollow-core floor is equal to or greater than the minimum concrete thickness specified in the system, and (2) the maximum size of the opening is 7 in. diameter or 7 in. by 7 in.

Editor's Note: The Hollow core pre-cast concrete has holes in the center of the assembly. Those holes sometimes cause the firestop system to need extra treatment. This clears up questions about whether firestop systems tested in solid concrete floors and walls can be used in hollow core concrete assemblies.



UL's Online Fire Resistance Directory provides tested and listed firestop systems.

Editor's Note: The UL Online Fire Resistance Directory has over 9,000 tested and listed systems to provide fire resistance for breaches in fire resistance rated and smoke resistant assemblies in buildings.

The purpose of all firestop systems, no matter how they are installed, is to maintain continuity of the fire-resistance-rated assembly where a breach in the assembly occurs. The penetrating item must match the tested and listed system to complete the firestop assembly.

The true function of firestop systems is to maintain fire-resistance and smoke resistant properties at the breach—and not treat the penetrating item.

ANSI/NFPA 70, "National Electrical Code" (NEC), contains requirements for permissible installation and percentages of electrical conductor fill for conduit, cable trays and other electrical conductor raceways.

Authorities Having Jurisdiction should be consulted as to the particular requirements covering the installation and use of these Classified systems. 🔥

Editor's Note: This is the second article in a series of articles from the UL Guide Information for Firestops.

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Decoded: Fair Housing Act

By Lori Green, AHC

The Fair Housing Act was first adopted in 1968 and was amended in 1988. The law is enforced by the United States Department of Housing and Urban Development (HUD), and requires all covered multi-family dwellings ready for first occupancy after March 13, 1991 to be accessible and usable by people with disabilities. Covered multifamily dwellings include dwelling units in buildings containing four or more units if the building has an elevator, or all ground floor units if the building does not have an elevator.

The Fair Housing Act covers many issues affecting discrimination in housing, but this article will focus on the door-related aspects of the law. There are seven basic access requirements of the Fair Housing Act:

1. An accessible building entrance on an accessible route.
2. Accessible common and public use areas.
3. Usable doors (usable by a person in a wheelchair).
4. Accessible route into and through the dwelling unit.
5. Light switches, electrical outlets, thermostats and other environmental controls in accessible locations.
6. Reinforced walls in bathrooms for later installation of grab bars.
7. Usable kitchens and bathrooms.

There are 10 “safe harbors” or sets of guidelines which can be used to design and build multi-family housing that meets the Fair Housing Act requirements—including various editions of the International Building Code (IBC), ICC A117.1—Accessible and Usable Buildings and Facilities, the Fair Housing Accessibility Guidelines published by HUD, and others. The requirements may vary slightly depending on which set of guidelines is used.

All residential occupancies covered by the Fair Housing Act are required to have public areas that are accessible to people with disabilities, and all dwelling units must have an accessible route into and through the unit. If a building with four or more units has no elevator, these requirements would apply only to ground floor units.

According to the HUD guidelines, accessible doors are doors in public and common use areas, as well as the public side of dwelling unit entrance doors. Accessible doors must meet the accessibility standards for doors on an accessible route, including:

- A clear opening width of at least 32 inches, measured between the face of the door open to 90 degrees and the stop on the strike jamb.
- A threshold that is limited in height and slope (refer to the design guidelines for specifics).
- The required amount of maneuvering clearance depending on the direction of approach.

A common misconception is that the Fair Housing Act applies only to federally-funded housing projects, but according to the US Department of Housing and Urban Development,

“The Fair Housing Act requires all ‘covered multifamily dwellings’ designed and constructed for first occupancy after March 13, 1991 to be accessible to and usable by people with disabilities. Covered multifamily dwellings are all dwelling units in buildings containing four or more units with one or more elevators, and all ground floor units in buildings containing four or more units, without an elevator.”

- A maximum of 5 pounds of force to open an interior non-fire-rated door (8.5 pounds maximum for exterior doors if the 1986 edition of A117.1 is used—no specific requirement for exterior doors if other standards are used).
- A minimum closing speed of 5 seconds for the door to move from 90 degrees to 12 degrees if equipped with a closer (doors with spring hinges are allowed to close more quickly).
- Sliding doors must provide at least 32 inches of clear width, and hardware must be exposed and usable from both sides of the door.
- Operable hardware that is “easy to grasp with one hand and does not require tight grasping, pinching, or twisting of the wrist to operate,” mounted within the allowable range—either less than 48 inches above the floor, or between 34 inches and 48 inches above the floor depending on which standard is used.

Usable doors are doors within the interior of the dwelling unit, as well as secondary exterior doors to decks, patios, or balconies. These doors are subject to less stringent requirements, but must provide at least 32 inches (nominal) clear opening width and have a low threshold or no threshold. Hardware for sliding doors should be exposed and usable from both sides of the door.

The International Building Code reflects the Fair Housing Act requirements, by stating in Chapter 11 that some units must be Accessible or Type A units (quantity varies by occupancy type), and all of the other units must be Type B units. With regard to the dwelling unit entrance door hardware, the requirements for Accessible, Type A, and Type B units are the same—they must be operable with no tight grasping, pinching, or twisting of the wrist. The IBC references ICC A117.1 for the detailed requirements that apply to these units.

According to ICC A117.1—Accessible and Usable Buildings and Facilities (2009 edition):

- Accessible (fully accessible) and Type A (easily adaptable) units are required to have doors and hardware that meet the requirements of Section 404, at the primary entrance door and all other doors intended for user passage.
- Type B (partially adaptable) units are required to have doors and hardware that meet the requirements of section 404 on the primary entrance door.

- Type C (visitable) units are not required to have an entrance door that meets A117.1 section 404. However, there is no reference to Type C units in the 2015 IBC (or any prior edition), so currently all units would have to be Type B at minimum (some units would be Accessible and Type A units).

More resources on the Fair Housing Act are available at HUD.gov (search Fair Housing Act). In addition to the requirements of the referenced standards, the guidelines include many recommendations for elements that will make housing accessible and usable for all occupants, so refer to the HUD documents for detailed information. 🔥

Lori Greene is Manager—Codes and Resources with Allegion. She has worked in the door and hardware industry for more than 25 years. In her role at Allegion, she provides support and education on the code requirements that pertain to doors and hardware, as well as working in code development. She can be contacted at lori.greene@allegion.com.

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Understanding and Quantifying Evacuee Performance

By Dr. S.M.V.Gwynne

The Evacuee Response—Panic or Process?

On the surface, evacuee performance is often seen as random, unpredictable and beyond understanding. Indeed, until relatively recently the expectation was that an evacuee would panic in the face of an incident—with their response being insensitive, selfish, competitive and potentially irrational.

Now, though, it is widely accepted that an evacuee's response is typically not dominated by panic, but instead their response is more nuanced. The evacuee builds a picture in their mind of the incident—influenced by their perceived risk, their experiences and the social setting—and this picture then informs their response. Evacuees are sensitive to the conditions faced and the information provided to them. Evacuees may revisit information and reassess it given changing conditions. They will take into account their own abilities and their capacity to respond.

This new understanding of evacuee response has enormous implications for those of us directly interested in understanding evacuee behaviour, but it also serves as critical information for the broader fire-safety community. It provides a better explanation of evacuee response, more avenues to influence this response and forms the basis upon which we can quantify evacuee performance.

A Model of Evacuee Behaviour

We all have models of evacuee behaviour. Here, a model is a collection of assumptions, information, theory and data that we employ to understand or forecast evacuee response. This simplification of reality might be informed by research, anecdotal evidence or from the media. This last influence is particularly important given the vast extent of our exposure to it and given that the media typically simplifies the complexities of evacuee response into stereotypical categories; e.g. stampeding herds, heroic interventions, etc.

While this may make for a more entertaining story, it is likely to misrepresent or ignore the facts by treating complex social and cognitive processes as an instinctive response. This misrepresentation might only be of interest to a select band of researchers if it did not have enormous implications on the design of buildings, on the effectiveness of the emergency procedures in place and on the technical measures that we introduce to mitigate the impact of fire—including those that limit smoke movement.

Let us assume two models of evacuee behaviour:

The first model assumes that people panic in response to an incident. A safety manager adopting this thought process will be enormously reluctant to set off an alarm in response to an incident for fear of starting an uncontrollable, hysterical response. Indeed, the alarm system itself will be simplified as this model assumes that people are not receptive to information—so why provide it? Therefore, the notification might

be delayed, include limited information and will not include information other than the existence of the incident (e.g. a traditional bell).

In contrast, the second model assumes that people are receptive to information and then make use of this information in order to get to a place of safety. In this instance, emergency situations will lead to prompt notification as people need information and as much time as possible to process it. An alarm message designed to reach and inform the intended audience will be promptly dispatched, thereby credibly conveying the severity of the situation and the required evacuee response in a timely manner. For instance, the message might include an announcement by an authoritative figure telling occupants to evacuate and use a particular route given the incident that has occurred.

Selecting a Behaviour Model to Use

So we have a critical decision to make: which model of evacuee behaviour do we adopt? The consequence of the decision is not academic, carrying enormous practical implications. But how do we decide which behaviour model to adopt? What factors affect this decision?

An important influence on evacuee performance and well-being is smoke—the component of fire effluent likely to travel the furthest and fastest, and hence the influence most likely to impact the most people. Smoke influences people in a number of different ways:

- Smoke influences evacuee **HEALTH**—increasing temperature levels and carrying toxic products that can irritate and incapacitate.
- Smoke influences **PERCEPTION**—both in terms of an evacuee's perception of the threat posed by an incident and their ability to receive visual information given that smoke obscures and reduces visibility.
- Smoke influences **PHYSICAL MOVEMENT**—by reducing visibility, smoke reduces the evacuee's achievable travel speed and makes their movement erratic.
- Smoke influences the apparent **ATTRACTIVENESS OF AVAILABLE ROUTES**—a heavily smoke-logged route may appear dangerous to an evacuee or may completely preclude the use of a route; however, the precise impact of smoke on route selection is contextual. For instance, if no other routes exist or if an evacuee is very familiar with a route then the existence of smoke may not always guarantee that a route is not used.

The impact of smoke on evacuee performance is complex; however, it is widely understood and this understanding should inform our model of evacuee performance.

Simulating Safety—Strengths and Limitations

Over the last 30 years, computational simulation tools have appeared that allow us to *quantify* evacuee performance; e.g. forecast the time to reach a place of safety. As with all attempts to regulate and assess evacuation, these tools are only as good as the model of evacuee behavior on which they are based. There is nothing special about the fact that computational tools can occasionally produce pretty graphics—this can belie an inaccurate, discredited view of evacuee behaviour that is assumed within the tool. However, the same logic can also be applied to other ‘models’—building codes, engineering calculations, evacuation drills—all of which also make a set of assumptions forming a simplified evacuee behavioral model.

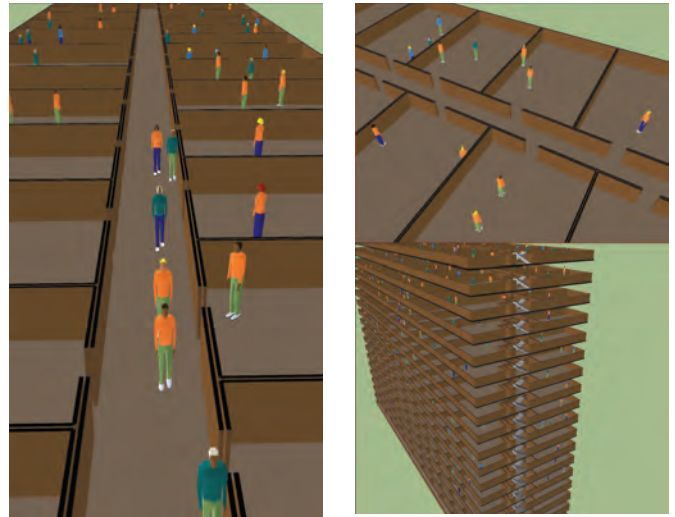
All of these models are imperfect and their limitations need to be understood. A computational simulation tool based on a reasonable model of evacuee behavior can quantify performance given the scenario represented, but the credibility of the results will be dependent on the model employed, the expertise of the user and the relevance of the scenario represented to the real-world situation of interest.

For example, a scenario might be formed from a number of factors—a representation of the building, the evacuation procedure employed, the evacuee population, the environmental conditions and then the evacuee response. The user poses questions of the model by manipulating these factors. For instance, how long will it take to evacuate a particular building? What happens if we lose a staircase given the spread of smoke or through structural damage? What happens if there are twice as many people in this building? What happens if we change the alarm system? How long does it take to evacuate the third floor given the presence of a population who have movement impairments?

These simulation tools provide a virtual experiment to test the impact of different scenarios on the outcome of an incident. Most importantly, though, they can then allow the user to compare scenarios where a single factor has been changed. For instance, what impact does using firestop system A have, as opposed to using firestop system B? The use of each system produces different smoke patterns throughout the building. The simulation tool can be used to determine the exposure levels and potentially the impact of these levels on the evacuation and then allow the impact of these systems on the outcome to be inferred. This information may be of great interest to a number of different parties:

- A fire engineer assessing whether the structure is evacuated before conditions become untenable;
- A firestop designer wishing to enhance a design;
- Sales staff demonstrating the relative merits of a design;
- A client assessing the respective benefits of different technologies;
- A regulator determining the safety levels afforded by a building given likely incident scenarios.

Therefore, although such simulation tools may be rooted in the behavioral sciences, their benefits extend far beyond providing invaluable theoretical and practical insights. These tools provide insights into the effectiveness of a design given the scenarios faced. They provide an additional metric by which to discriminate



Computer simulated building evacuation

between fire-safety (e.g. smoke management) systems. For instance, rather than halting at the effectiveness of systems to limit smoke movement, these tools allow us to examine the impact of the resultant smoke movement on the evacuating population.

However, these tools are no panacea—they do not provide a solution. They provide data that can be interpreted by expert practitioners and then used to reach a solution. The credibility of this evidence directly relies on the appropriateness of the assumptions made regarding evacuee behavior. Any results and conclusions should always be presented alongside the assumptions made regarding evacuee behavior, but this requirement should not be reserved for simulation tools alone.

Simulated Insight and Impact

Simulation tools allow us to apply our understanding of evacuee performance to a range of scenarios. The examination of these scenarios may well be beyond other means of analysis (such as experimental work) given issues of cost, time and ethical concerns. Therefore, not only do simulation tools provide a means to quantify performance, in some circumstances they may be one of the few tools available to do so. Given that limitations are acknowledged, simulation tools can allow the expert user to pose questions and develop results that better informs our understanding of evacuee performance. These results might also form a metric to differentiate between the effectiveness of procedural measures —systems including smoke management systems. 🔥

Dr. Steven Gwynne, Ph.D. has worked in the field of evacuation and pedestrian dynamics, modeling, and human behavior in fire for nearly 20 years. He has been involved in developing and applying theoretical/computational models to people movement scenarios in aviation, maritime, rail and the built environment, along with urban-scale scenarios. His work has addressed issues related to life safety, security, circulation, procedural/structural design, incident investigation, procedural design, and product design. Dr. Gwynne can be reached at Steven.Gwynne@nrc-cnrc.gc.ca.

2018 Edition of the IBC

By William E. Koffel, P.E, FSFPE

Editor's Note: This article is a companion piece to the Life Safety Digest Code Corner

It is hard to imagine that we can already discuss the content of the 2018 Editions of the codes that will be used to regulate building design and construction several years from now. However, with respect to the International Codes many of the provisions that impact fire-resistance-rated construction have already been determined. With respect to *NFPA 101*, the process is about 50% complete and the Public Comment period will start in 2016. As such, this article will primarily focus on the International Code Council's (ICC) Code

Development Process

Many of the 2018 Editions of the Codes have already been determined.

Most of the fire-resistance-rated construction requirements for new construction are addressed in what is referred to as the Group A changes in the ICC Code Development Process. Public Proposals were due in January 2015, all submitted through the new ICC cdpACCESS and the Committee Hearings were held in April, 2015.

After the remote voting session was completed, the Public Comment period started with a deadline for comments to be submitted by July 17, 2015.

The Public Comment Hearings (formerly known as the Final Action Hearings) were held in Long Beach, CA in late September and early October.



Public Comment Hearings. FCIA Photo

The ICC process now includes a remote voting period open to all voting members of the ICC after the Public Comment Hearings. The remote voting has not yet been completed, in part due to a complication with the voting devices used during the Long Beach hearings. This complication will be discussed further when FS 1 and FS 2 are discussed.

FCIA Submitted Proposals

The FCIA submitted a public proposal to permit security system wiring, when installed in an electrical raceway, to penetrate exit stair enclosures when the penetrations are properly protected (E112-15). During the Public Comment

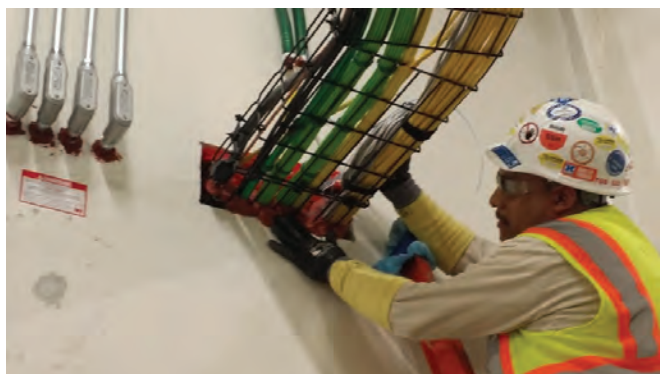
Hearings, the proposal was modified to include exit passageways and the final action is Approval as Modified by the FCIA Public Comment. This action is subject to the remote voting process, through the cdpACCESS Program.

cdpACCESS is now live



The FCIA also submitted proposals to include a reference to installation in accordance with manufacturer's installation instructions for both listed penetration systems and listed joint systems. In addition, subjective language that referred to "dislodge or loosen" and "securely" was proposed to be deleted. Both of these items (FS 55-15 and FS 70-15) were approved as modified, consistent with the final recommendations of the FCIA Code Committee.

A requirement to "mark" penetration and joint firestop systems with specific information about the system used was voted for disapproval by the Committee (FS 5-15). Due to the opposing testimony and Committee comments, the FCIA chose not to submit a Public Comment to overturn the recommendation for disapproval. The opposing testimony raised issues such as cost, where the mark should be placed, how to deal with multiple penetrations, and the durability of the marking systems. A Committee member also raised concern about the electronic system which was included as an option.



Markings mean permanent system and material identification for installed firestop systems for maintenance and repairs. FCIA Photo

The FCIA's ongoing attempts to require "qualified" contractors for certain projects was addressed by FS 54-15 which proposed such a requirement for buildings of Group I-2, health care structures. While the health care industry did not testify on the item, opposing testimony was provided by representatives for other occupancies as well as several code officials. Several participants indicated that the issue is better addressed

by state licensure requirements. The Committee Recommendation for the proposal was Disapproval and again, no public comments were submitted to overturn the Committee Recommendation.

The last FCIA proposal involved requiring floor penetrations that are protected with non-listed systems as permitted by the Code to only be permitted if within a concealed space (FS 60-15). The rationale for the change was that such traditional protection methods do not provide the same protection as would be provided with a listed system with a T-rating. While the Committee Recommendation was for Disapproval and no Public Comments were submitted, this is an item that may warrant consideration for a future code change cycle.

Ad Hoc Healthcare Committee Proposals

Although disapproved in this Code Development Cycle, the FCIA proposal requiring non-listed system floor penetrations be contained to concealed spaces is critical enough to be revisited at a future code change cycle.

During the revision cycles resulting in the 2015 Editions of the International codes, many changes were submitted by the Ad Hoc Healthcare Committee to achieve greater coordination between the I-codes and NFPA 101. There were some remaining items that were submitted, or in some cases re-submitted, in the current revision cycle. One item that was approved for the 2015 Edition resulted in an increase in the permitted area for smoke compartments in hospitals to 40,000 square feet. One of the limiting factors included in the 2015 Edition is that the 200 foot travel distance to smoke barrier doors was retained. As such, the application of the 40,000 square foot limit will be reduced due to the travel distance requirement.

Several Public Proposals and Public Comments were submitted in the current revision cycle. The final action, subject to the remote voting, will be to retain the 40,000 square foot area but the increased area may only be used in smoke compartments containing patient sleeping rooms when the rooms are suites or single patient sleeping rooms. During the Public Comment Hearings, some testimony indicated that the issue will continue to be evaluated to determine if the increase is appropriate and if the 40,000 square foot area is truly the appropriate area. The hospital industry has based their position, in part, on the increased area requirements contained in newer editions of the Facility Guidelines.

Other Proposals

Two other proposals that have been discussed in multiple code revision cycles involve the requirements for elevator lobbies and the potential use of automatic sprinklers to wet glass assemblies as an option to installing one- and two-hour-rated fire barriers.

With respect to elevator lobbies, attempts to eliminate or reduce the need for elevator lobbies were disapproved by the committee. After considerable debate during the Public Comment hearings, the ICC membership voted to retain the current requirements for elevator lobbies.

Years ago there was an evaluation report that indicated that a glazed assembly protected with automatic sprinklers in a specific manner could be considered as a two-hour fire barrier. In response to this, language was added to the IBC indicating that automatic sprinklers should not be used as a means to achieve a fire-resistance-rating for a wall assembly. During the current revision cycle, an attempt was made to modify the existing language and an attempt was made to delete the existing language (FS 1-15 and FS 2-15). Both proposals were recommended for Disapproval by the Committee and both were subject to final action based upon Public Comments.

While the vote to overturn the Committee Recommendation for FS 1-15 and revise the current language appeared to have failed to achieve the required 2/3's majority, it was later determined that the results recorded by the polling devices were not accurate. Due to how close the vote was, the ICC has provided the membership who were able to vote during the Public Comment Hearings, an opportunity to cast their vote again to "duplicate" the voting during the Public Comment Hearings. Once those votes are taken, the item will then be subject to the normal remote voting based upon the outcome of the "duplicate" voting. This process has not yet been completed which is why the normal remote voting process has not yet commenced.

Looking Forward

As mentioned above, the FCIA will re-evaluate the proposal to require marking of listed penetration and joint systems. It is believed that this will improve the quality of installation, will be helpful to code officials and special inspectors, and will provide building owners with information that will be helpful during the useful life of the building. The FCIA Code Committee will also be re-evaluating the proposed change that items penetrating floor assemblies protected with non-listed methods should be located in concealed spaces since the traditional protection methods do not have a T-rating.

The FCIA will also be looking at proposals that were submitted by others that did not result in approved revisions to the IBC. Two topics that are currently high on the list for consideration is a new definition of joints that require protection with listed joint systems and clarification of what is meant by the phrase "non-communicating stud cavities." If you have thoughts with respect to any of these issues, you are encouraged to contact a member of the FCIA Code Committee.

Lastly, many of the items that the FCIA have proposed in this cycle or previous cycles might be better addressed in an installation standard. The organization will continue to evaluate the need for such an installation standard, such as exists for fire doors with NFPA 80. 🔥

William E. Koffel is President, Koffel Associates, Inc., a Fire Protection Engineering firm with clients worldwide. Mr. Koffel has been FCIA's Code Consultant for over 15 years. He can be reached at wkoffel@koffel.com.



Code Corner

FCIA at ICC Expo and the IAS Annual Board Meeting—September brought interested “code techies” to Long Beach, CA for the International Code Council’s (ICC) Building Safety & Design Expo (New), Annual Conference and Group A Public Comment Hearings. The IAS, International Accreditation Services, Board of Directors Meetings were also held there during the same time.

FCIA exhibited at the two-day ICC Building Safety and Design Expo. This event brings together exhibitors and professionals from the built-environment interested in finding new and improved ways to keep buildings safe, as well as ways to meet and maintain compliance with accepted codes and standards. FCIA also had great circulation of *Life Safety Digest* with Publication Bins at the Long Beach Convention Center. We also understand that *Life Safety Digest* was used for supporting information at the hearings during debates about elevator lobbies.

For a summary of some key proposals that were heard at the Public Comment Hearings, check out Bill Koffel’s article in this issue of *Life Safety Digest*.

While in Long Beach, FCIA spent time with our many ICC Member Friends at the ICC Expo and Annual Business Meeting and IAS Board of Directors Meetings. It was great to hear from ICC’s CEO Dominic Sims that the ICC is healthy—both financially and operationally—as an organization. From the reports received from ICC Senior Management, it seems that the ICC is laying the groundwork for a great and solid future.

At the FCIA Booth, there was a lot of traffic from visitors who offered positive comments and feedback. Among the topics that were talked about: *Life Safety Digest* and FCIA’s code initiatives.

“Thanks for Life Safety Digest...it’s the best educator for passive fire protection. The articles are educational and timely.”

“Congrats to FCIA for the success you’ve had with the Building Codes, especially the Special Inspection requirement for Firestopping in Chapter 17 of the IBC.”

But we can’t take all the credit for everything at FCIA! Since 1999, FCIA has had great members, volunteer committee members, supporters, manufacturer partners, friends and staff—not to mention FCIA’s Code Consultant, Bill Koffel—all working hard to get things done.

IAS Presentations at ICC Expo Promote Accreditation- The 2015 International Code Council Annual Conference offered a comprehensive Education Program to develop code knowledge and provide attendees with valuable solutions to the most critical challenges in the code profession.



IAS President,
Chuck Ramani

One such program was the Special Inspections, Building Departments & Accreditation session. Presented by IAS President, Chuck Ramani, who teamed with Building Code Officials, the session covered Special Inspection Agency, Building Department and other Accreditation Programs. Attendance during this session was strong as Building Code Officials and Fire

Marshals were quite interested in learning more about IAS AC 291 Special Inspection Agency Accreditation and Building Department Accreditation.

The latest push for Accredited Organizations—similar to the FM 4991 Standard for the Approval of Firestop Contractors and UL/ULC Qualified Firestop Contractor Programs—means further wide-spread acceptance of 3rd-party Audited, Approved or Qualified Contractors and Special Inspection Agencies around the world employing qualified Special Inspectors and Contractor personnel.

Cleveland Fire Dept. & IAFF’s Sean DeCrane Speaks at ICC—At the ICC Expo, Sean DeCrane, Cleveland Fire Department, provided a four-hour program on Firefighter Safety and research that changes firefighter tactics. His program focused on testing done at UL and other labs on the fire performance of construction elements and the effect on firefighting—with a special focus on Firefighter safety.

Lithium-ion batteries, Wood floor, vinyl siding, insulation, steel beam construction structural strength when exposed to fire and more were all part of this amazing presentation. We applaud Sean and UL for asking tough questions about materials, firefighting strategies and safety and more. It is aimed at saving lives in fires—both occupants and firefighters—because where safety is concerned, there is no such thing as too much research.



Significant changes to the 2015 IFC—An addition to Section 607.6 of the 2015 *International Fire Code* (IFC)—Protection of Fire Service Access Elevators and Occupant Evacuation Elevators—has been made. The addition is a new requirement to ensure that devices designed to prevent water from infiltrating into fire service access elevator hoistways and occupant evacuation elevator

hoistways are properly maintained. (This information is excerpted from the *Significant Changes to the 2015 International Fire Code*, International Code Council.)

This addition is critical as there is a trade off available where a third stairwell is not required in buildings with occupied floors over 420’ above lowest fire department access where a fire service access and occupant

evacuation elevator is provided. When this elevator is needed, it must work. This code update helps make that happen. Need more info? Find a free view only version of the International Fire Code at www.ICCSAFE.org.



Insulation Test Standard Debates—

Construction Canada had an article in its magazine, *Construction Canada*, about the measurement of R-Values using ASTM C518, “The Theory of R-value Relativity: The Impact of Thermal Conductivity on Building Enclosure Durability”. This debate is quite timely in both Canada and the US as we get ready for the January cold to hit parts of North America. Check out the article and comments at http://www.constructioncanada.net/the-theory-of-r-value-relativity-the-impact-of-thermal-conductivity-on-building-enclosure-durability/?en_click=1

Why is this important to the fire-resistance industry? It is pertinent because R-Values are important in wall construction. Additionally, there have been several fires in high rise buildings in the Middle East. While foam insulation is not the cause of the fires, it may have been a factor in the fire spread. In the US, the NFPA 285 requirement has helped by testing the wall assembly as a system, together. The result is a safer building envelope. If R-values of insulation are measured at temperatures expected, then performance variances narrow and fire-resistant insulations may become more competitive than currently. Watch this debate closely as the industry discussion continues. CSI and CSC are great places to watch industry debates take place.

Calculating Flame Spread and Smoke Developed ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials—

How is “flame spread” measured and calculated? Through the windows of the 25-foot-long Steiner Tunnel test furnace, scientists observe the traveling flame front and plot it in feet (ft) versus time. They determine the total area under the flame spread distance-time curve, ignoring any flame front recession. If this total area is less than or equal to 97.5 feet per minute, the flame spread is 0.515 times the total area. If the total area is greater than 97.5 feet per minute, the flame spread is 4,900, divided by the difference of 195 minus the total area. For reporting, the calculated flame spread is rounded to the nearest 5.

How is “smoke developed” measured and calculated? Throughout the 10 minute test, percent light absorption data is collected using a photocell in the vent pipe of the test furnace. This data is plotted versus time, and the area under the resulting light absorption percent-time curve is determined. Then, one must divide this area by the area under the curve for red oak (determined from test furnace calibration) and multiply it by 100. For reporting, the calculated smoke developed is rounded to the nearest 5, unless it is greater than 200, then it is rounded to the nearest 50.

For reference, cement board has a nominal flame spread of 0, smoke developed of 0. Red oak has a nominal flame spread of 100, smoke developed of 100. As materials with established values, they are utilized periodically to calibrate the test furnace.

This information is excerpted from NGC Testing Services blog, <http://ngctestingservices.com/newsletter>.

NRC’s Fire Research Facility—FCIA’s Canada Symposium attendees took a tour of the National Research Council of Canada’s Almonte Fire Test Facility. This the only research tower of its type in North America. The NRC manages Canada’s Code Development process with its Canadian Commission on Building and Fire Codes. FCIA looks forward to participating in the code development process for the 2020 National Building and Fire Codes.



FCIA Canadian Symposium attendees tour the NRC Almonte Fire Test Facility. FCIA Photo

NFPA on The Great Chicago Fire—NFPA’s Casey Grant produced a video for Sparky Schoolhouse on lessons learned from the 1871 fire attributed to “Mrs. O’Leary’s Cow”. Mrs. O’Leary’s cow may not have been the initiator of the fire and more legend than fact. However, the fire did start close to the O’Leary barn.... The video is meant for school-age children and explains that spacing between buildings, fire-resistant exteriors and confining fire to the building of origin are all important to preventing fire spread from building to building. Regardless of age, these lessons are important for all. Check out the videos at www.SPARKYSCHOOLHOUSE.org.

In Chicago, fire safety goes even further. Fire-resistance-rated construction is rated for longer durations for high-rise buildings than is required by national codes. Fire-resistance-rated corridors are still required in schools.

Education of high-rise occupants also took place as a result of another downtown Chicago fire, the Cook County Building Fire. As a result, the LaSalle Bank building fire had a well-organized evacuation. For more about egress, check out Dr. Steven Gwynne’s article in this issue of *Life Safety Digest*.

FCIA has a great respect for those who research, fight and advocate for safe buildings—NFPA, NIST, cities nationwide, ICC and others. Thanks for all you do. 🔥

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Disaster.**



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Industry News



FCIA Firestop Industry Conference and Trade Show Biggest Yet—FCIA's FIC Conference at the Talking Stick Resort November 3-6, 2015 was a big success. Highlights included:

- FM and UL/ULC Firestop Exams produced people ready to be appointed DRI's.
- FCIA Code Consultant Bill Koffel's Update gave the group ideas for future proposals for better fire and life safety.
- UL's Luke Woods, Pam Blanchette and Matt Schumann brought further Fire-Resistance Technical details giving firestop contractor attendees the knowledge edge they need to be safe, competitive and excellent.
- ASHE's Jonathan Flannery's Change Management Program challenged us to work through a constantly changing environment.
- The Joint Commission's Anne Guglielmo gave some numbers showing improvements in healthcare facility audit scores, which gives credibility to the statement that the FCIA, UL, TJC and ASHE Barrier Management Symposium curriculum is working.
- The National Research Council of Canada's Dr. Steven Gwynne brought a very interesting program that covered the relationship between psychological behavior and fire-resistance-ratings in buildings and beyond.
- FM Approvals and UL announced growth in the FM 4991 Approved and UL Qualified Firestop Contractor Program with more plans for a bigger 2016.
- Intertek and the International Firestop Council announced their new individual inspector education and exam programs.
- FCIA's Board of Directors met with the FCIA Member Manufacturers who lead the International Firestop Council.
- DHI's Paul Baillargeon brought great knowledge on Fire Doors.
- City of Phoenix's Joe McElveny brought the Sheraton Phoenix Fire story to us and showed where FCIA can make a difference in the Codes.

FCIA 2015 President Gary Hamilton led the Awards Luncheon with well-deserved recognition. The Presidential Award went to Don Murphy and Eric Keeton, Advocates of the Year to Anne Guglielmo of the Joint Commission and Jonathan Flannery of ASHE. The outstanding service award was presented to Scott Rankin in recognition of 12 years of service on the Board and to Jim Smiley for his advancement of FCIA Membership throughout Canada.

Barrier Management Symposia—FCIA, UL, The Joint Commission and ASHE's Partnership and 6 symposia over two years have produced great results.

One result is that the violations are decreasing for fire- and smoke-resistance-rated barriers and their features. Why? Education is getting to those that need it, the ASHE Healthcare Engineers and their staff. Both George Mills and Anne Guglielmo have reported that the number of violations due to barriers has decreased significantly since the education program started. "Education works", stated George Mills, TJC's Director of Engineering, at the ASHE Annual Conference.

We had a great symposium in late November at Wellmont Bristol Regional Medical Center, Bristol, TN. ASHE Region 3 Director and the folks at Wellmont pulled all the stops providing both a great venue and audience.



ASHE Region 3 Barrier Management Symposium, Bristol, TN. FCIA Photo.

We're thankful for the opportunity to work with TJC, ASHE, UL, and the various industries with this successful program. Watch for the 2016 Symposium Dates at <http://fcia.org/barriermanagementsymposium.htm>.

FCIA at CONSTRUCT 2015—Architects, Specifiers, Engineers, Contractors and more all came together in St. Louis. Educational opportunities and real-world product and service solutions for success were all at The Construction Specification Institute's (CSI) CONSTRUCT 2015!



FCIA CONSTRUCT Booth, St. Louis, MO. FCIA Photo.

FCIA's Booth was well attended and *Life Safety Digest* at CONSTRUCT's Publication Bins provided resources for attendees.

FCIA and CSI (and CSC) have a very long history of partnership for the industry. The 'DIIM' Strategy—proper Design, Installation, Inspection and Maintenance/

Management of firestopping—was born as a result of CSI's comments and discussions at CSI and Construction Specifications Canada Chapters before and since FCIA started.

FCIA Members Support Special Inspection for Firestop Systems—FCIA was the proponent at the International Code Council to require inspection for firestops. Additionally, we chair the ASTM Task Group for ASTM E 2174 and E 2393, the standards that are required by code.



In order for the I-Inspection part of the 'DIIM' strategy to work, we need the best, most accurate inspection reflecting the firestop system as shown in the testing lab directory and manufacturer installation

instructions. An IAS AC 291 Accredited special inspection organization with competent inspectors is critical to meeting this goal.



FM Approvals and UL both have a Firestop Exam that inspectors can take to prove their worth. The International Firestop Council (IFC) has an exam for inspectors as well. An individual passing an exam is one part of showing competence. The company has to buy in to the 'systems concept' that is critical to firestopping and other fire- and smoke-resistance-rated systems like fire dampers, fire doors and the walls and floors. That's where the IAS AC 291 Accreditation makes sense. It provides proof that the company has the culture of quality through a documented management system to get the firestopping inspected right the first time. Visit www.FCIA.org to find IAS Accredited Special Inspection Agencies.

FCIA's MOP Gaining Circulation—This living document, now in its 6th Edition, is the industry handbook of accepted firestop knowledge. Most recently the manual underwent an update to include more information about systems by firestop product. *In this 6th Edition, there are 22 product groups discussed generically, including advantages, disadvantages, limitations of each and much more.*



As a service to the industry, FCIA identified several critical individuals who should be equipped with the knowledge contained in the MOP. This group includes:

- Architects with Design Firms
- Specifiers with Design Firms
- Engineers with Design Firms
- Building Code Officials
- Fire Marshals and Fire Officials
- Members of the Department of Municipal Affairs
- Members of the Department of Civil Defence
- Government Officials
- And Facility Management Engineers at Healthcare or Educational Facilities

For those who can prove eligibility through one of the aforementioned categories, FCIA provides a PDF of the MOP FREE of charge.

Need an FCIA Firestop MOP? Email lindsey@fcia.org to see if you qualify for a free MOP.

FCIA's New Board Announced—The annual FCIA Board of Directors election took place at FCIA's Firestop Industry Conference and Trade Show in Scottsdale, AZ.

The group recognized Gary Hamilton for his service as 2015 Board President, and then applauded Ken Slama as he received the symbolic gavel as the incoming 2016 President.

FCIA's New Board of Directors was also announced as members elected David White, D.W. Firestopping, to the Board and recognized Scott Rankin, Insulation Contractors, as he rolls off the Board serving for 12 of the 16 years FCIA has existed.



FCIA's New 2016 Board of Directors

Serving three-year terms, Board Members are elected annually and volunteer their time and talent to the industry through oversight of FCIA. New board members elected include Don Murphy, Tracy Smith, Bob Hasting and David White.

FCIA Receives Warm Welcomes in the Middle East—FCIA Executive Director, Bill McHugh, recently traveled to Doha, Qatar and Abu Dhabi, United Arab Emirates for the FCIA Middle East Symposiums.

Doha welcomed FCIA with strong attendance for the FCIA Fire & Smoke Barrier Firestop & Effective Compartmentation 'DIIM' Symposium Oct. 13. Many familiar faces were present, as well as some new member representatives. Many members of the Department of Civil Defence and Department of Municipal Affairs showed up and supported the event as well. FCIA education covering the 'DIIM' of Firestopping, then the FM and UL Firestop Exams and Education were also administered Oct. 14 & 15.



FCIA Code Consultant Bill Koffel at FCIA Doha Symposium. FCIA Photo.

Attendees were fully engaged during presentations by Koffel Associates' Bill Koffel, Tony Abou-Rjeily, Abhishek Chhabra, Sajid Raza and Bill McHugh.

"Separation, time and distance are critical parts of a safe building," said Tom Scheidel, Koffel Associates, during his presentation on day two during the education for FM & UL Firestop Exams.

One of the key points the Symposium focused on is the fact that well-maintained fire- and smoke-barriers are important to safety and service to people in buildings worldwide.

After the conclusion of the FCIA FSB 'DIIM' Symposium in Doha, FCIA travelled to Abu Dhabi for the FCIA Abu Dhabi International Building Code (ADIBC) Fire & Smoke Protection Symposium on October 18. The FM and UL Firestop Exams and FCIA Education for the Firestop Exams were conducted for interested Firestop Contractors and Special Inspectors in the region on October 19-20 as well.





FCIA's Symposium Delegates in Abu Dhabi, United Arab Emirates. FCIA Photo

We were also greeted by Eng. Yasmeen Sami Saadah's colleague, Mr. Fahad Al Seiri, at the symposium.



FCIA welcomed by Fahad Al Seiri, Abu Dhabi Department of Municipal Affairs at FCIA's Education for FM and UL Firestop Exams, FCIA Photo

Thanks to Eng. Yasmeen Sami Saadah of the Abu Dhabi Department of Municipal Affairs (see special report), Specified Technologies' Tony Abou-Rjeily, Abhishek Chhabra of Thomas Bell-Wright Consulting, Sajid Raza for rounding out the program in Abu Dhabi.

FCIA Contractor Members had a strong showing for the event, as well as honored members of the Department of Municipal Affairs and other guests. As a result, FCIA's Abu Dhabi delegate attendees had a great Symposium. Thanks to Eng. Yasmeen and FCIA's committed members, the passion for fire- and life-safety continues through firestopping and effective compartmentation—properly Designed, Installed, Inspected and Maintained.

FCIA's Education to prepare people for the FM and UL Firestop Exams also had great attendance. Over 20 people took the exams, the initial step towards accreditation to FM 4991 Standard for the Approval of Firestop Contractors or UL's Qualified Firestop Contractor Program.

FCIA Symposiums and Education Sessions provide education for the Firestop industry, Department of Municipal Affairs, Building Owners and Managers, Specifiers and Fire Protection Engineers in the region. We look forward to returning in 2016 and beyond.



FCIA Education for FM & UL Firestop Exams. FCIA Photo.



FCIA Members taking FM & UL Firestop Exams, Abu Dhabi, UAE & Doha, Qatar. FCIA Photo.

Resilient Construction—The Portland Cement Association has been promoting “Resilient Construction: Build Better with Concrete” with a complete set of initiatives aimed at incorporating concrete to make projects “more durable and disaster resistant”.

“Communities built to last start with comprehensive planning, including stricter building codes that produce robust structures with long service lives. More durable buildings with high-performance features including better disaster resistance, help promote community continuity, making cities and towns stronger, and better able to successfully weather any challenge,” states PCA.

Gypsum Association—The 20th edition of the Gypsum Association's Fire Resistance Design Manual (GA-600), depicts over 600 systems that may



be used for fire-rated walls and partitions, floor/ceiling systems, roof/ceiling systems, as well as systems to protect columns, beams, and girders. Covering 230 pages, the Design Guide has a lot of good info on fire-resistance-rated assemblies using gypsum. It's free to view at www.gypsum.org, and can be ordered from the Association. Another publication, *Recommendations for Assessing, Repairing Gypsum Boards and Panels*, a must for those repairing barriers and managing facilities, can also be found on the site.

The Gypsum Association also announced it hired Michael Schmeida as Technical Director. At AWCI, longtime friend Bob Grupe is now Director of Technical Services. Congrats to both.



National Institute of Building Sciences Building Innovation Conference—The

Plenary Symposium: *Achieving a Resilient Future*, to be held Friday, January 15, 2016, during Building Innovation 2016, will cover two of the key outcomes expected from the Conference agenda—an examination of what it takes to achieve a resilient future

and a vision on how all the information presented throughout the week comes together to achieve high-performance buildings and communities.

Gain valuable insights into what works for achieving resilience during a session on *High Performance from Design to Operations: A Discussion with the Dunbar High School Project Team*. Founded in 1870 as the Preparatory High School for Colored Youth, Dunbar High School, located in Washington, D.C., was the country's first public high school for African Americans. A new award-winning campus opened in 2013 to replace a 1970's building that didn't meet the prestige of its influential alumni.

Representatives from numerous disciplines on the project will present lessons learned during the design, construction and operations of this LEED Platinum project.

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Properly sealing fire walls and other time-related partitions can slow or prevent the spread of fire, smoke, toxic gas and water. That's why National Gypsum developed Quick Set FS-90, a setting/hardening type compound designed to provide protection in fire-stopping penetrations through fire rated partitions or assemblies in both new and retrofit construction.

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During the second session of the Plenary Symposium, the Institute's President Henry L. Green will present *Achieving a Resilient Future: A Report from the Cutting Edge* to give attendees a recap of the week's program and present the Institute's vision on how an industry-wide collaboration can work to successfully achieve high-performance buildings and communities.

NFCA Symposium in New York—The National Fireproofing Contractors Association held its first Fire Resistance Symposium in New York. Building Code Officials, Fire Service and Specifiers, Fireproofing Contractors and Manufacturers all heard from speakers covering fire-resistance-rated constructions' base standard—ASTM E 119 and UL 263, how it is used in code requirements and results in fireproofing installed to the tested and listed system designs. Thanks to NFCA Member Jonathan Wohl and the Construction Advancement Institute of Westchester and Mid-Hudson for organizing a great program. Watch for another symposium in 2016. www.NFCA-online.org.



Carboline's Sean Younger presents to attendees at NFCA's Symposium in New York. FCIA Photo.

Door & Hardware Institute's an Active Place to Swing for Education—DHI, through its Door Security and Safety Foundation, has participated in the Barrier Management Symposiums, providing a very effective presentation on fire resistance rated doors and builders hardware. DHI also provides great education for fire doors and other topics. Check out DHI's Education page for info on swinging fire doors, hardware and more. www.DHI.org/education/EducationHome.php.



New AMCA Leadership—The Air Movement and Control Association (AMCA) International announced that Mark Stevens has been promoted to Executive Director the AMCA Board of Directors. Stevens had previously held the role of Deputy Executive Director. He holds an MBA from the University of Chicago and a BS in aeronautical engineering from Purdue University. AMCA also announced that Wade Smith was named as the Association's Director of Public Policy.

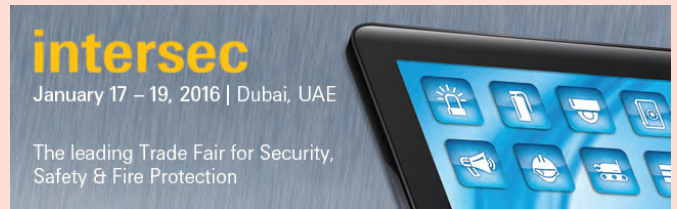
Intersec 2016 Opening in Dubai—Intersec, the world's leading trade show for the security, safety and fire-protection industries, heads to Dubai, UAE this January 17-19, 2016.

More than 1200 exhibitors from 54 countries participate at the three-day event, which returns stacked with new features that reflect a constantly evolving regional and international security landscape.

New developments include a Smart Home and Building automation section, as well as the core sections of Commercial Security, Information Security, Fire & Rescue, Safety & Health and Homeland Security & Policing.

For more information, visit <http://www.intersecexpo.com>.

IFMA Facility Fusion Plans Events in US and Canada for 2016—The International Facility Management Association (IFMA) is bringing their successful IFMA Facility Fusion event to the US and Canada again this year. The show will open in Indianapolis, IN this April 12-14, 2016, and then will head to Montreal, QC for the event May 4-5, 2016.



IFMA Facility Fusion is all about focus—on your unique needs as a facility manager, on your concerns in supporting particular facility types and on your career goals and objectives. Here you will find:

- In-depth education focused on your unique FM needs
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To learn more, visit <https://facilityfusion.ifma.org/>.



Life Safety Digest

2016 Industry Calendar

January 11-15

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

January 17-19

Intersec
Dubai, UAE
www.intersecexpo.com

February 1-5

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

March 9-11

Association of General Contractors
San Antonio, TX
www.AGC.org

March 20-23

ASHE Planning Design & Construction Summit and Exhibition
San Diego, CA
www.ASHE.org

April 10-17

DHI's National Conference Center
Lansdowne, VA
www.DHI.org

April 12-14

International Facility Managers Association (IFMA) Facility Fusion US
Indianapolis, IN
www.facilityfusion.ifma.org/indianapolis/home

April 10-13

ASTM E06
San Antonio, TX
www.ASTM.org

April 15-19

AWCI Annual Convention & INTEX Expo
New Orleans, LA
www.AWCI.org

April 16-27

ICC Committee Action Hearings—Cycle B
Louisville, KY
www.ICCSAFE.org

May 3-6

FCIA Education and Committee Action Conference
Las Vegas, NV
www.FCIA.org

May 4-5

International Facility Managers Association (IFMA) Facility Fusion Canada
Montreal, QC
www.facilityfusion.ifma.org/montreal/home

May 19-21

AIA Convention
Philadelphia, PA
www.http://convention.aia.org/event/homepage.aspx

May 25-29

Construction Specifications Canada Conference
Halifax, NS
www.CSC-DSS.ca

June 8-11

2016 Festival of Architecture
Vancouver Island/Nanaimo, BC
www.RAIC.org

June 13-16

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

June 25-28

BOMA International Conference & Expo
Washington, DC
www.BOMA.org

July 10-13

ASHE Annual Conference and Technical Exhibition
Denver, CO
www.ASHE.org

September 5-7

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

September 7-9

CSI CONSTRUCT
Austin, TX
www.constructshow.com

September 11-13

Canadian Healthcare Engineering Society (CHES) Annual Conference
Vancouver, BC
www.CHES.org

October 5-7

International Facility Managers Association (IFMA) World Workplace
San Diego, CA
www.worldworkplace.ifma.org

October 15-25

ICC Annual Conference and Public Comment Hearings
Kansas City, MO
www.ICCSAFE.org

October 26

ASTM E06 Meetings
Orlando, FL
www.ASTM.org

November 1-3

Campus Fire Safety Forum
Mesa, AZ
www.campusfiresafety.org

November 7-11

FCIA Firestop Industry Conference & Trade Show
To Be Determined
www.FCIA.org

November 30-Dec. 2

CONSTRUCT Canada
Toronto, CA
www.constructcanada.com

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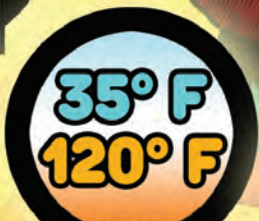
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PLASTIC PIPE - FIRESTOP SEALANT

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