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The Magazine of Effective Compartmentation



Life Safety DIGEST

Inside this issue:

Prescription for Safety

**Fire-Rated Expansion Joints
Perform Many Tasks**

**Photoluminescent Emergency
Egress Systems**



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On the Cover: Ohio State University Stanley J. Aronoff Laboratory of Biological Sciences - Pilkington Pyrostop®: Fire-resistant glazing materials meet life safety requirements while allowing the transfer of daylight - TGP Photo

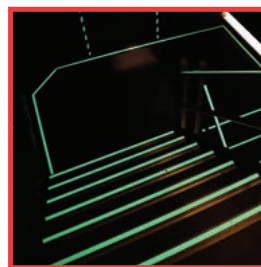
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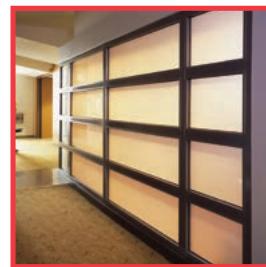
Contents



PG 6



PG 10



PG 13

Editor's Message.....5

**Fire-Rated Expansion Joints
Perform Many Tasks..... 6**

By Dennis Callahan

**Photoluminescent Emergency
Egress Systems..... 10**

By Jim Armor

**Prescription for Safety
Fire-Rated Glass Meets Unique Needs of Healthcare Occupancies 13**

By Jeff Razwick

**Fire-Resistive Gypsum Partitions for
Healthcare 17**

By Robert Grupe

**Life Safety Dampers
An Integral Part of Effective Compartmentation... and the IBC 19**

By Mark Belke

Industry News22
Code Corner
Industry Calendar

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Editor's Message

Compartmentation is Critical in Healthcare Occupancies.

Healthcare occupancies use compartmentation and fire resistance to protect people who are in buildings during surgery and sickness, who have weakened immune systems, and require a "healing" environment to get better, and get out of the facility. Other healthcare facilities house people who, sadly, may never be able to leave, and are very immobile.

It is in these critical structures that fire-resistance-rated and smoke-resistant compartmentation and structural fire resistance, sprinklers, detection and alarms, plus staff and occupant education means the likelihood of a safe building in an emergency.

It seems healthcare occupancies are highly regulated buildings. The Joint Commission, various state agencies including State Department of Public Health, and others have these important structures in their jurisdiction.

Healthcare structures are very important. And, the demand for them will continue to grow as baby boomers age, and start using a greater share of healthcare services ... in structures that need to be protected.

Read Life Safety Digest's articles on how fire-resistance-rated drywall construction methods can reduce costs, how fire-rated glazing fits into the mix, the technology of fire dampers, expansion joints, and more in this issue.

FCIA supports fire-resistance-rated and smoke-resistant

compartmentation – fire rated swinging and rolling doors, fire-rated glazing, fire dampers, fire-resistance-rated and smoke-resistant walls and floors – and works together to build and maintain safer buildings for students, and for all.

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Fire-Rated Expansion Joints Perform Many Tasks

By Dennis Callahan

Today's wall systems are being designed and constructed to perform a growing number of functions. Beyond simply separating rooms or enclosing a structure, they are expected to maintain thermal conditions, contain the spread of fire and/or smoke, suppress the transmission of sound, and seal out the intrusion of water and wind. But, as with any system, performance is only as good as its weakest link.

Expansion joints historically represent one of the weakest links in wall assemblies. Mandated to accommodate anticipated structural movement, expansion joints are literally a gap or break through the entire system. The ideal expansion joint filler would be one that will not only handle the gap's expansion and contraction, but also perform all other functions expected of the adjacent wall system.

Why an Expansion Joint

Building materials comprising floors, walls and ceilings move due to thermal expansion and contraction, structural shifts, and seismic activity. These forces mandate the need for purpose-designed gaps which permit the building materials to move independently of one another without damage. Smaller planned crack locations are considered control joints while other locations need to accommodate greater movement and therefore require larger gaps. These larger gaps need to be fitted with structural expansion joint fillers. It is important to fill these joints with a sealant or expansion joint system which preserves the attributes of the wall. These attributes may include a designated fire-resistance rating, smoke resistance, sound attenuation, watertightness, wind resistance, or a thermal rating. Many expansion joint systems on the market don't take into consideration the importance of these requirements and only function on an aesthetic level at best. The ideal solution would match the attributes of the expansion joint system to the requirements of the wall or, at the very least, ensure that the expansion joint material does not degrade any aspect of the wall assembly's performance.

Early in the design process, an assessment



Fire-resistance-rated expansion joints help keep fire in the compartment of origin. - EMSEAL Photo

should be made of what is required of the expansion joint system. The proper system should be carefully engineered and selected to best match all of the wall's properties while handling the expected movement. The wrong choice in an expansion joint can allow fire, smoke, moisture, heat and cold, sound, or other unwanted elements to pass through the wall at the location of the expansion joint gap. For example, metal-track-and-rubber-gland systems ("strip seal systems") which can fill the void and may handle the wall's movement may not effectively block the passage of sound or provide for watertightness, fire-spread prevention, or thermal insulation. Or, as is often done, fiberglass insulation is stuffed behind an expansion joint cover to help meet the wall's thermal rating. When movement occurs and the wall cycles at the joint gap, the insulation (which may have little memory) can be crushed and can no longer function as intended.

Precompressed Foam Solution

A solution to maintain the integrity of an interior or exterior wall system is a preformed, precompressed foam expansion joint. This product is constructed of fire-retardant-impregnated foam which is factory coated with an exterior sealant specifically chosen to handle the wall's environmental, occupancy, and aesthetic requirements. These single-unit expansion joints are manufactured and readily available in today's market. The exciting developments within this product design are advancements in composition of the foam, impregnation and the sealant technology that are keeping pace with the evolving performance expectations of the adjoining building assemblies.

Fire Rating and Life Safety

Building codes and concerns for life safety mandate that designated walls in buildings be fire-resistance-rated forming compartments in buildings to contain the spread of fire. Without a fire-resistance-rated wall system, fire can travel outside the building

compartments (floors and rooms) or through an outside wall where it can “leapfrog” back into a building a floor above. A joint gap, like an open door, is an ideal passage for flame and smoke. Any product being considered for specification in expansion joints should be tested using UL 2079, “Tests for Fire Resistance of Building Joint Systems” before accepted for use in fire and life safety situations. UL 2079 and ASTM E 1966, “Standard Test for Fire Resistive Joint Systems” are the test standards that are the suitability for use statements for expansion joint systems in fire-resistance-rated assemblies in buildings.

Preformed, precompressed expansion joints are now available with a fire-retardant impregnated foam and intumescent coating as well as with an additional watertight weathering surface. Versions of these materials have successfully endured the normal and seismic joint cycling, fire testing, and hose stream components of the UL 2079 testing, they are listed for up to a 2-hour fire ratings in walls and up to 3-hours in floor and deck applications.

The obvious benefit is having a single product with the ability to work as a firestop system, while still performing all of the thermal, sound, smoke, moisture and insulation functions normally expected of the entire wall assembly including the expansion joint.

Sound Attenuation

Interior and exterior walls are expected to block out sound transmissions from between rooms or from the outdoors to the inside of a building. An appropriate expansion joint should basically be able to maintain the sound suppression level of the wall. ASTM E413 (Classification for Rating Sound Insulation) and ASTM E90 (Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements) tests are used to determine the rating for interior noise transmission (STC – Sound Transmission Class) and exterior noise transmission (OITC – Outdoor-Indoor Transmission Class). Superior wall sound attenuation (STC 50 or higher and OITC 40 or higher) should be approximated or met by the expansion joint installed in the joint gap. If the joint rating falls much below the wall rating, then the sound suppression of the entire wall is compromised. Current precompressed foam sealant technology has proven successful in meeting these sound attenuation requirements due to its unique cellular composition which has the ability to baffle and suppress sound. The STC and OITC performance of an expansion joint should always be determined and matched to the wall as a principle criterion of selection.

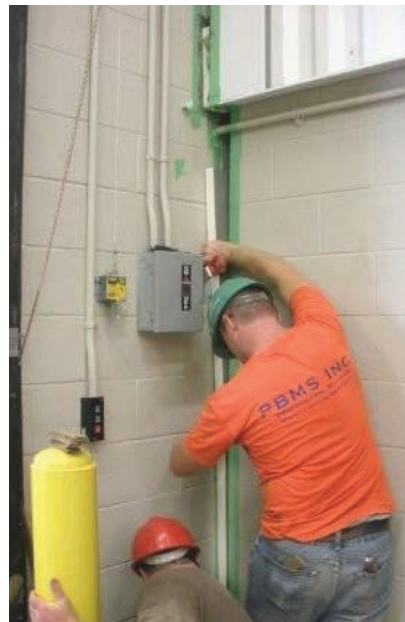
The Elements

Expansion joints should do more than

handle structural movement. They must also act as a seal to maintain the environmental conditions on both sides of the wall. Wind and water are often the downfall of expansion joints. There are several ways that the uncontrolled passage of air and/or water through wall assemblies can dramatically impact a buildings performance. Managing the comfort of the interior environment of a building hinges on the compartmentalization of HVAC air movement. Energy efficiency can be substantially enhanced by controlling of the infiltration and exfiltration of air through exterior walls as prescribed in air-barrier assembly design. Additionally, all structures are subjected at some time or another to high winds and wind-driven water from micro-bursts, tornados, or hurricanes.

ASTM (American Society of Testing Materials) prescribes several tests designed to prove the ability of a wall assembly to withstand the effects of air, wind and water from these various sources. Ironically, these tests can be performed and passed without the presence of an expansion joint within the wall assembly. Furthermore, seldom are these standards required in specifications of expansion joint sealants alone. It also may be good practice to specify materials that meet these standards and to require in the submittal package independent laboratory certification of testing and passage of ASTM E-330 (Structural Performance of Curtain Walls by Uniform Static Air Pressure Difference – Gust Loads), E-331 (Water Penetration of Curtain Walls by Uniform Static Air Pressure Difference), and E-283 (Rate of Air Leakage Through Curtain Walls).

Commonly specified expansion joint fillers like strip seals, extruded-rubber compression seals, and



Fire-resistance-rated expansion joints help keep fire in the compartment of origin. - EMSEAL Photo



A fire-rated expansion joint set in place which maintains the performance properties of the interior wall system. The watertight silicone outer seal of the precompressed, impregnated foam joint is manufactured to color coordinate with the tile and stone façade of the wall. - EMSEAL Photo

cover plates may not by design pass these tests without extra products used in the configuration.

Gaps in joints of the aluminum rails and plates, non-airtight interfaces between product components, as well as the undulations of typical substrates may prevent these technologies from sealing adequately under wind and wind-driven water conditions. A lack of resilience in the rubber glands of strip seals prevents this technology from resisting pressure loads.

Precompressed, preformed foam sealants with a factory-coated facing provide a primary seal capable of far exceeding the pass criteria of these ASTM tests. They possess the ability to move with structural or thermal shifts while maintaining a wind and watertight seal. The latest evolution of this time-tested technology is comprised of cellular polyurethane foam which is infused, or impregnated, with an acrylic-based polymer which is free of older wax or asphalt compounds. These older compounds can compromise movement and cause compression set. In the summer, when thermal expansion of walls causes expansion joints to close down in size, high heat conditions and compression occur that can result in these compounds bleeding onto or into substrates. Requiring independent lab certification through Fourier transform infrared (FTIR) spectroscopy and differential scanning calorimetry (DSC) analysis can ensure that the materials being submitted are free of wax or asphalt compounds.

Independent laboratory certification to ASTM E-330, E-331 and E-283 will provide assurance that the products being submitted have displayed no water leakage at pressures equal to winds above hurricane

force and wind loading that shows essentially no deflection at positive or negative pressures of up to 4950 Pascals (equal to 200mph wind loads). It is not unreasonable to expect an expansion joint sealant to perform to these standards as the technology exists to do so. It is reasonable to demand certification through independent testing that the product being tested has been proven to perform at the level expected of the wall assembly.

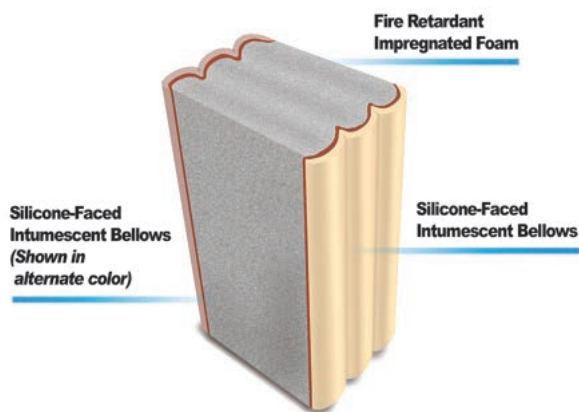
Non-Invasive Installation

When an expansion joint or joint system is installed, it has to be held in place in the expansion gap. Traditionally, mechanical or plated systems were anchored in place through intrusion of the substrate by screws or drilling which both could have damaged the wall and often compromised the seal. Precompressed, impregnated expansion joints offer a simpler solution -- they are held in place by the backpressure of the foam's compression and the pressure-sensitive adhesive nature of the impregnation. This non-invasive anchoring eliminates any damage to the joint surfaces or the adjacent walls. This method also permits the joints to be installed in corners and at turns that are impossible to seal with screw-anchored strip-seals where drill access is obstructed. It is also the easiest and most logical solution for retrofit applications where failed joints need to be removed and replaced. Of added importance is the quicker and cleaner installation which a foam product provides -- this dramatically reduces installation time and is ultimately more cost-effective.

Summary

Choosing the right expansion joint in today's design and building environment has evolved from demanding a traditional single-purpose product to a multi-purpose product.

Today's expansion joint seals are expected to eliminate the passage of air through wall assemblies, thereby minimizing energy use and loss and maintaining HVAC balance, while sealing interior space from exterior temperature conditions, wind and moisture. This seal should remain in place throughout a full range of environmental conditions such as driving rain, hurricane-force winds, and extreme hot and cold thermal conditions. Because sound attenuation is a key purpose of a wall system, the correct expansion joint should meet or exceed the sound transmission classes (STC and OITC) of the adjoining walls. There can be no compromise on the life-safety issue of compartmentalization to ensure fire containment and minimization of fire and smoke spread. Expansion joints are manufactured to stop the spread of fire and should be UL 2079 tested and listed, to prove their ability to do so while also being able to accommodate joint movement. UL certification additionally provides an annual (at least) audit of the manufacturer and their production process to ensure that the materials being sold meet the standards



The composition of a UL-certified fire-rated, preformed, precompressed, foam expansion joint is illustrated here. The single-unit design features a front and rear bellowed silicone facing which acts as a watertight seal and is available in a range of colors. Behind this is an intumescent layer to provide initial fire-proofing. These dual-sided layers surround fire-retardant impregnated foam. The design of this single piece expansion joint provides all of the features that can be installed with a multiple product system.- EMSEAL Photo

of manufacture and composition of the materials submitted for testing. In this way, and in contrast to testing by non-UL labs to UL standards, certification by Underwriters Laboratories provides a further level of assurance to the Specifier, building owner and manager, as well as building occupant, that life safety is being properly addressed.

Precompressed sealant expansion joint technology

has evolved to keep pace with advances in building science and design. It is possible today to get all of building assembly performance criteria in the single installation of a single technology and structures around the world are now benefiting from this advancement. As single-unit systems, this technology removes the need for separate materials and installation costs as well as eliminates substrate configuration compromises needed to accommodate multiple materials. They are even manufactured to color coordinate with the aesthetic aspect of modern wall systems. Specifiers can be assured that the final choice of an independent laboratory tested, precompressed, impregnated-foam expansion joint will allow you to "fill the gap" without sacrificing the structural, thermal, sound and life safety attributes expected of today's modern walls, floors and ceilings. 🔥

Dennis Callahan is the Director of Business Development at EMSEAL Joint Systems, Ltd. Located in Westborough, Mass. and Toronto, Ontario, EMSEAL has been manufacturing and supplying innovative and high quality expansion joint systems to the architectural and construction industries since 1979. Its current line of precompressed preformed sealants are engineered to today's changing structural and aesthetic requirements as seen in the EMSHIELD line of fire-rated products including WFR2, DFR2 and SecuritySeal. For more information visit www.emseal.com. Dennis can be reached at dcallahan@emseal.com



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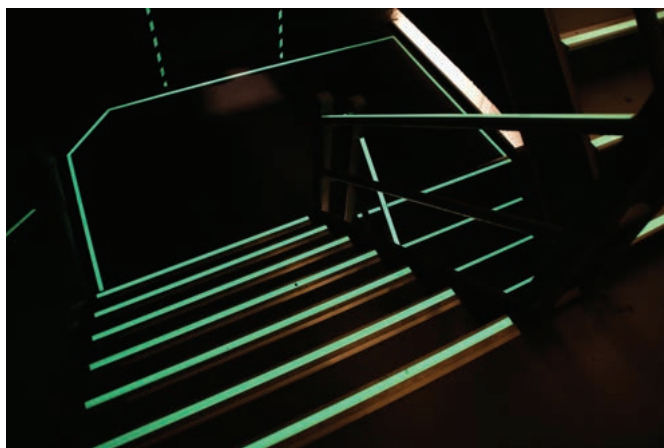
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Photoluminescent Emergency Egress Systems

By Jim Armor

The safety of all people in a facility depends on a clear egress plan and advance site preparation including clear marking of escape routes. NFPA, OSHA (1910.38) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) mandate a written plan and procedures, and recommend clear marking of all exits.

Other local codes (California, New York City Local Law 26, and Connecticut) may demand more. The National Institute of Standards and Technology in its final report investigating the World Trade Center Disaster (NIST NCSTAR 1-7 Occupant Behavior) cited three things most mentioned by survivors as assisting them in evacuation of the World Trade Center during the 9/11/2001 disaster; Co-Workers, First Responders



PL Markings in Stairwells. -BALCO Photo

and Photoluminescent Markings in the stairwells and corridors. Based on these findings, the 2009 International Building Code (IBC) / International Fire Code (IFC) and NFPA 101 require Photoluminescent Exit Path Markings in all **New and Existing** buildings over 75 ft in height measured from the lowest level of fire department access. And, there is a new requirement for the 2012 code that passed in May at the ICC Final Action Hearings. E91 09/10 passage means that Group R-1, including hotels, motels, boarding houses and congregate living facilities with transient occupants, now require floor level exit signs to be installed per UL 924 in new buildings. (See Code Corner for details)

With minimal first cost and low annual maintenance, future liabilities may be lowered, knowing preparation has been done so people are directed clearly and intuitively to safety if an emergency arises. Facility managers are also finding that Photoluminescent (PL) products can offer maintenance and energy savings for years to come.

PL Products come in two varieties, Exit Path Markings on stairs and floors, as well as Exit Signs, located either above or at the bottom of door, or wall.

Why Photoluminescent (PL) Systems?

Photoluminescent (PL) Exit Signs absorb and store energy from normal ambient light in the room, then release this energy in the form of light when the room is darkened. These PL Exit Signs require only one hour of exposure at 5 foot-candles to completely recharge. Photoluminescent markings are suitable even in hazardous environments, since they will not generate an electrical spark to set off an explosion. They are non-toxic and non-radioactive for environmentally friendly operation and disposal. This is very unlike the older Tritium signs, which are radioactive, considered hazardous material, and require expensive disposal.



PL Signs instruct in the dark. - BALCO Photo

Since PL markings require no electricity, they have lower installation costs (no-rewiring), and no operating costs (no electricity, batteries or light bulbs). They also save on future labor costs because they don't require frequent inspection for light bulb or battery replacement to ensure operational compliance.

What to Look For in PL Egress Systems

When choosing PL systems, look for components that have long life expectancies, high durability and are abuse resistant. Make sure they meet the 2009 IBC, IFC and the 2009 NFPA 101 code requirements for photoluminescent brightness performance and are listed with an accredited independent testing laboratory. Getting the best quality components for PL systems can give greater assurance of longer life. Compared to system component cost, there are greater costs in specifying, ordering and installation than in the signs themselves.

Is Your Building Prepared?

Planning and preparation is the best form of prevention. A well thought-out evacuation plan combined with clear egress path marking, can greatly improve the safety and wellbeing of the building's workforce in the event of an emergency. With minimal outlay and maintenance, building owners and managers will have occupants better prepared for



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an emergency situation by installing dependable low maintenance photoluminescent markings and signage so there's a clear path ... even without electric light. Building owners and managers can help ensure an orderly, efficient evacuation by putting the necessary information where it's needed in the facility...at the place of use by building occupants. PL Signs and Path Markings can be a critical component to get this done.

PL Marking and Sign Checklist

To evaluate the visibility and usefulness of the facility's signs in both lighted and darkened conditions, use the list below, and assess the current level of marking in each facility.

- Handrails and stair treads marked and visible stairwell identification signs within the exit enclosures
- Exit, emergency exit and non-exit doors clearly marked and identified
- Evacuation route maps at strategic locations.
- Egress route aisles, hallways and stairs marked clearly, even in darkness
- Low-level markings for evacuation in smoke-filled areas
- Fire fighting equipment, valves and hoses clearly marked, with directional signs located to help occupants find nearest equipment

- Emergency first aid equipment clearly marked with directional finding aids
- Electrical, chemical and physical hazards identified
- Critical shutdown procedures, switches and valves identified

Photoluminescent Emergency Exit Signs are non-radioactive, non-electric, conserve energy and require no wiring or batteries. They can be surface or ceiling mounted, for sign visibility at floors, ceilings, or anywhere in between. PL Signs and comply with requirements in the International Building Code, International Fire Code, NFPA 101 Life Safety Code, OSHA 1910, and are listed to UL 924, .

The key point is that these PL egress signs form part of the buildings' life safety egress system, building exit paths that are obvious and intuitive, with minimal building energy and operations staff to manage. When coupled with PL exit path markings, these systems turn dark into light in a big way. 🔥

Jim Armor is President of BALCO USA, Inc. Balco is a company that is involved in the construction industry through expansion joints and other construction related products for over fifty years. Jim can be reached at jima@balcousa.com.

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Prescription for Safety

Fire-Rated Glass Meets Unique Needs of Healthcare Occupancies

By Jeff Razwick

As part of well-rounded healthcare, doctors and nurses advocate multiple preventative measures. Why? Because protection provided by yearly checkups, screenings and immunizations can significantly reduce the chances of developing life-threatening conditions, as well as help reduce future medical costs.

This mindset should also extend to the design of healthcare facilities. Whether constructing new buildings or retrofitting existing ones, incorporating a range of fire-preventative and protective measures can help minimize injury and property damage in an emergency.

In addition to occupant education and installation of sprinklers, detection and alarms, building fire resistance rated and smoke resistant compartmentation is especially important in hospitals and other medical facilities given occupants' mobility limitations and the presence of flammable gases. This also is true for infectious disease control in buildings. In many modern healthcare facility designs, fire-rated glass supports compartmentation needs while meeting other goals such as improving patient well being with access to natural light.

Critical Role of Compartmentation in Hospitals

Hospitals and medical centers hold high volumes of people, often in contained areas for extended periods. Such facilities are frequently multi-story buildings, making it challenging for numerous individuals to funnel down and out in the frenzy of a fire. As such, it is necessary that the building design and construction protect people against fire and smoke for prolonged time spans, and provide areas of safety horizontally.

This concern is even more pointed in regards to severely ill patients. Individuals in intensive care, neonatal and recovery units, among others, are unable to perform self-preservation and in nearly all cases, require the assistance of staff members to safely exit the building. Further, because many of these patients rely on various life support devices, evacuation is often considered more dangerous than keeping them in place. As a result, many hospitals train staff members to remain with their patients until a fire is extinguished. If possible, staff can move patients down a corridor and behind a smoke barrier.



Ohio State University Stanley J. Aronoff Laboratory of Biological Sciences - Pilkington Pyrostop®: In healthcare centers, fire-rated glass helps ensure well-rounded safety plans around the clock - TGP Photo

To account for this, healthcare facility designs often take a defend-in-place stance and incorporate fire-rated materials that slow a fire's spread and allow adequate time for firefighters to arrive.

In a commentary on fire safety in healthcare occupancies, Daniel J. O'Connor, chair of the NFPA Technical Committee on Health Care Occupancies, underscored the need for in-hospital fire protection: "Because some occupants are incapable of movement or slow to evacuate, a healthcare facility resembles a ship at sea: it is better to keep the fire from the patient than to remove the patient from the fire.



Pilkington Pyrostop®: Fire-rated glazing provides effective building compartmentation for the unique needs of medical facilities - TGP Photo

Thus, occupants must be defended in place. As a result, healthcare facility design and operation must incorporate methods by which a fire can be detected early, contained, and fought rapidly and successfully."

Another unique aspect of healthcare facilities is the use of specialized equipment in oxygen-rich environments.

This practice increases the risk of high-intensity fires and gas explosions – especially for facilities hosting research labs. Fire-resistance-rated materials that become systems when applied to the laboratory design listing can help provide necessary protection for occupants who must remain inside when these unexpected situations occur. Such systems help prevent rapid fire development and can also play a key role in slowing the spread of smoke and fumes.

Beyond Building Compartmentation

In recent years, another key point of emphasis in healthcare facility design has been increasing the amount of daylight in interior spaces. This trend is backed by studies that show greater amounts of light help create environments in which patients heal faster.



Ohio State University Stanley J. Aronoff Laboratory of Biological Sciences - Pilkington Pyrostop®: Fire-resistant glazing materials meet life safety requirements while allowing the transfer of daylight - TGP Photo

For example, a 2004 Texas A&M University study states: “Patients in a room with higher daylighting levels had shorter stays than those with lower daylight levels.”

With improved healthcare on the line, hospital and other healthcare facility owners are increasingly seeking building designs that incorporate greater amounts of glazing. However, when working to meet building compartmentation codes, a point of contention arises: There are many different types of fire-resistance rated wall and floor systems that meet life safety code requirements, but relatively few that allow the transfer of daylight.

Due to advances in manufacturing, however, fire-rated glazing can now meet a range of design and performance needs, allowing daylight to penetrate deep into areas that previously had to incorporate concrete blocks or other dense, opaque materials to comply with fire codes.

For instance, transparent ceramic sheets can now be produced that look like ordinary window glass and are available in a range of make-ups, with fire ratings up to three hours and options for energy efficiency and sound reduction.

When impact safety is required, ceramic glass can be laminated or filmed. Such products can meet the highest standard of impact safety for glass – Category II of the Consumer Product Safety Commission (CPSC) Safety Standard for Architectural Glazing Materials (U.S. Code of Federal Regulations, Title 16, Part 1201). Glazing meeting this standard is an option for doors, sidelites and transoms in emergency rooms, busy corridors and lobbies where it may be impacted by fast moving people, gurneys or supply carts.

In areas with heat sensitive medical equipment and critical care units, as well as exit corridors and stairwells, glass fire resistance rated walls may be more appropriate. Glazing in this category is tested to the same standards as solid walls, with fire-ratings up to two hours. Glass fire resistance rated walls such as

Pilkington Pyrostop® block the transfer of radiant and conductive heat, as well as flames and smoke. These materials can be installed from floor to ceiling, increasing visibility and daylight while providing effective compartmentation. Such materials typically also provide high impact resistance.

Fire-rated glass floors are another option for allowing daylight deep into buildings. Advanced glazed floor systems are impact-resistant and fire-rated for up to two hours and can be used as a durable, non-slip walking surface, if desired. Depending on the system, they are available for both interior and exterior applications.

Conclusion

With an average of 1,600 structure fires in hospital or hospice facilities each year, according to NFPA, preventative care should not only be applied to patients, but to the facilities that make their care possible. As in other occupancies, building compartmentation is critical, and healthcare facilities present several special challenges for which fire-rated glazing can help advance building designs. 🔥

Jeff Razwick is a vice president for Technical Glass Products (TGP), a supplier of specialty architectural glazing products and fire-rated glass and framing systems. He writes frequently about the design and specification of glazing systems for institutional and commercial buildings. www.fireglass.com, (800) 426-0279

1 O'Connor, Daniel J., “NFPA Fire Protection Handbook,” 20th edition, Section 13, Chapter 8, Healthcare Occupancies, NFPA, 2008.

2 Choi, Joonho and Beltran, Liliana O., “Study of the Relationship between Patients’ Recovery and Indoor Daylight Environment of Patient Rooms in Healthcare Facilities,” Texas A&M University, 2004.

THE ADVENTURES OF APEX THE FIRESTOPPER

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Fire-Resistive Gypsum Partitions for Healthcare

By Robert Grupe, USG Corp.

The design and installation of fire-resistive gypsum partitions in the healthcare building segment has historically provided unique challenges. This is especially true for the general care hospital. These walls must be abuse-resistant while providing high levels of fire resistance and acoustical performance. Also, hospitals have special needs to accommodate utilities. The combination of multiple penetrations in the walls and high performance requirements for fire and acoustic can be very challenging. All this must be done while meeting very tight construction schedules, in concert with the ever present need to control moisture during the construction process.

One method that is gaining in practice and acceptance is a sequence process called “Top Down” construction. This process integrates the installation of mechanical, electrical and plumbing utilities (MEP) with fire-resistive wall construction. It enhances the probability of increasing efficiencies and quality. Top Down construction provides the best environment for the successful installation of through penetration fire stops. This practice also works well with smoke barriers and smoke partitions, as well as non-rated partitions.

Top Down construction starts with the metal stud framework. This includes the installation of runners to the structure and subsequent fitting of metal studs into the runners. The next step is to fasten the first course of gypsum panels to both sides of the framing with the long dimension parallel to and tight against the bottom of the floor deck at the head of the wall. At this point other trades, such as the MEP sub-contractors, are allowed to install their equipment and make their service runs. Typically these runs are installed above the ceiling plane and any penetrations in the wall occur up in this hidden area. Once that sequence is complete, the drywall contractor can come back and complete the rest of the gypsum panel installation.

To ensure the integrity of the fire-resistive wall, the specified tested assembly design must be able to accommodate the continuous horizontal gypsum panel joint. Also, this wall should accept these horizontal joints at a common elevation on both sides. Some proprietary fire test assembly designs allow for this. Those designs that do not require back-blocking added behind the joints, or the joint must be staggered from one side of the partition to the other. Figure 1 illustrates the condition. A metal deck is shown at the partition head. The first layer of gypsum board is installed tight, with allowance for building movement, to the structural deck. The gypsum panels are installed with the long dimension of the panel parallel to the deck. The sketch depicts an 8-foot-long panel. The ceiling plane will fall below the lowest horizontal joint.



Figure 1: Illustration of Top Down construction

This is to allow for potentially a square-edge to square-edge gypsum panel end condition. This condition is not an issue for fire resistance, but would be a concern for aesthetic reasons. The vertical joints of this first course

of gypsum panel should be staggered from one side of the framing to the other.

Controlling environmental conditions during the construction process is critical. In healthcare it is of paramount concern. Therefore good construction practices must be undertaken. Specifications should be written to stipulate that all gypsum panels should be installed in accordance with the environmental conditions found in ASTM C840 Standard Specification for Application and Finishing of Gypsum Board.

The following is taken from Section 4.0 of that document:

4.1 Room temperature shall be maintained at not less than 40 F during application of gypsum board except when adhesive is used for the attachment of the gypsum board.

4.1.1 When temporary heat source is used, the temperature shall not exceed 95° F in any given room or area.

4.1.2 Adequate ventilation shall be maintained in the work area during installation and curing period.

4.2 Gypsum board shall be protected from direct exposure to rain, snow, sunlight or other excessive weather conditions.

Additional important storage information can be found in MasterSpec®, an architectural master guide specification. This specification is written by ARCOM and is endorsed by the American Institute of Architects. Under Specification Section 092900, item 1.5, it reads:

A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes.

Do not install panels that are wet or moisture damaged, or those that are mold damaged. The best solution is to eliminate, at its source, excessive moisture and water. This is true throughout the life of the building.

As in any case, it is important to specify and install the appropriate type of gypsum panel. First the gypsum



Figure 2: Hospital corridor - Photo courtesy of Thorne Associates.

panel must meet the type and manufacturer as tested in the fire-resistive assembly. Second, the panel should have enhanced properties for moisture and mold resistance. For USG, the product should either be SHEETROCK Brand FIRECODE (or FIRECODE C) MoldTough Gypsum Panels. As an alternate, FIBEROCK Interior Aqua Tough panels or a cement board such as DUROCK Cement Board can be specified. However, in all cases, the specified panel must meet the requirements of the fire-resistive assembly.

Specific to Top Down construction, it is recommended that temporary protection such as tarps be provided, as required, to installed panels. The intent is to protect the gypsum panels installed in those areas that exhibit increased potential for impingement by water. Also gypsum products should be protected from cascading water. Finally, remove any materials if they exhibit physical or moisture related damaged.

Figure 2 shows one of the benefits of Top Down construction. This photograph is taken from a Midwestern U.S. hospital project and is of a corridor. Notice in the upper left hand corner how the copper piping is going through a pre-cut clean hole in the gypsum panel. The gypsum above the ceiling plane is complete without any panel joints. This is the way the through penetration is actually fire tested. In traditional sequencing the gypsum would have to be "pieced" around the pipe. There are no data to support "pieced" gypsum panel joints in through penetrations.

Another benefit of this type of construction can be seen in Figure 3. This is the same Midwestern hospital. The presence of the gypsum panels at the partition head permanently places the stud framing at its appropriate spacing. In fire-resistive testing and field installation it is important that the studs are not mechanically attached to the runner. As a result, the studs can move and are sometimes moved to facilitate the other trades. This condition can be mitigated if a proprietary head track is installed to accommodate excessive building movement. In the upper right hand side of the picture, a hole has been pre-cut in the gypsum panel. This is scheduled to receive a pipe running through the corridor wall.

Top Down construction calls for open communication



Figure 3: Hospital corridor – Photo courtesy of Thorne Associates

between all trades. It requires additional steps be taken for moisture and mold control. Further, it demands that a proprietary gypsum panel be specified and installed. The result is a more efficient execution that provides for the stringent life safety requirements of healthcare. 🔥

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Editors Note: Fire-Resistance Rated Fire Barriers, Smoke Barriers, and Smoke Partitions are used heavily in healthcare construction. All require penetrations to be treated with "approved agency" tested firestop systems to restore the fire resistance rating and smoke resistant properties of the wall. LSDigest

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Life Safety Dampers An Integral Part of Effective Compartmentation... and the IBC

By Mark A. Belke

Even when dampers are not required per the IBC due to the inclusion of sprinklers, it's advisable to add them for critical smoke control and enhanced overall protection.

The International Building and NFPA 101 Life Safety codes were based upon many years of knowledge gained from successful and unsuccessful construction methods, life safety improvements, and natural disasters. In addition, the impact of deadly fires, building collapses, hurricanes, and earthquakes all contributed to the extensive body of knowledge that is now contained within the IBC and NFPA Codes.

Today, in the International Code Council Code Development Process, two sets of hearings are attended by fire protection engineers, code officials, fire fighters, industry representatives, and government organizations. Proposed amendments and code corrections are discussed, debated, and then acted upon at Committee and / or Final Action with a goal of striking a balance between occupant safety and the cost of construction.

Maintaining Effective Compartmentation

The International Building Code (IBC) requirements help ensure life safety during a fire primarily through the concept of compartmentation in which a building is segmented into different compartments using fire-resistance-rated construction to minimize risk. This strategy is important in healthcare occupancies as occupants in surgery, recovery, or immobile for a variety of reasons need protection for horizontal evacuation. Once behind a fire or smoke barrier, occupants are safe for the period of time that it takes for fire fighters to extinguish the fire, or further evacuation occurs.

For many years, life safety dampers have proven to be a highly effective method for achieving compartmentation. However, in recent years, the IBC has expanded the size of compartments where sprinklers are present and reduced the hourly ratings of barriers where sprinklers are present, which ultimately reduces the number of openings required to be protected by dampers. Expanded compartments reduce the amount of concrete, firestop systems, and additional passive methods of preventing fire and smoke spread.

Healthcare occupancies are one of the most complex buildings in construction. With all the mechanical, electrical, plumbing, piping and cable services needed

for patient servicing and information distribution, it's no wonder that protection is required.

Although sprinklers are a very important and effective method of controlling fire and flame spread, they do not contain smoke which can continue to spread after the fire is extinguished. Direct exposure to lingering smoke can severely injure or kill occupants and firefighters.

Although IBC requirements have changed, it's still wise to continue to protect openings and ultimately provide effective compartmentation. Many life safety experts say the current code is too dependent on sprinklers and are concerned about sprinkler system failure. Although some of the latest data indicates sprinklers are effective 88% of the time, a terrible disaster could occur when the sprinkler system does not effectively contain the fire.

Selecting the Right Damper

Just like building codes, the relatively new fire, smoke, or fire and smoke, (also known as 'life safety') damper industry has responded to changing life safety needs. In less than 40 years, life safety dampers have become much more effective, reliable, and easier to install. New minimum testing requirements allow engineers to properly apply products from all manufacturers and for any sized opening with less research. In addition, there have been several installation improvements to help the contractor, including single-sided retaining angles, out-of-barrier fire dampers, and firestop systems installations without retaining angles, and adjoining breakaway connections.

Revisions in UL requirements have also prompted the development of a wider range of damper products. The UL-555 Fire Damper Standard is now in its seventh revision since 1968 for both static and dynamic dampers. Static dampers are intended for applications where the HVAC system is immediately shut down upon detection of smoke or fire. Dynamic dampers are rated to close when elevated temperatures, velocity, and pressure occur. They are either spring- or actuator-assisted for closure. Dynamic dampers can close immediately while overcoming existing airflow resulting from air movement shut-down lag.

Common questions to answer when deciding on the need for a certain damper type include: How long will it take for the air flow to be isolated? What if there is a fire or smoke detector failure? The entire air control



Smoke Dampers protect life safety. - Greenheck Photo



Combination fire and smoke dampers for smoke barriers. - Greenheck Photo



Curtain fire dampers close rapidly and slow fire spread. - Greenheck Photo

system does not need to be converted to dynamic for dynamic-rated fire dampers to be effective.

The UL-555S Smoke Damper Standard is in its fourth edition since 1983. Combination fire and smoke dampers are required to pass both UL-555(dynamic) and UL-555S testing protocols to meet code requirements and protect fire-resistance-rated smoke barriers.

Combination fire and smoke dampers are cycled 20,000 times and tested at

minimum elevated temperatures of 250F or 350F against a minimum of 2,000 fpm velocity @ 4-in. w.g. of pressure. Extended temperature, pressure, and velocity ratings can be classified in increments of 100F, 1,000 fpm velocity, and 2-in. w.g. Actuators are now designed to operate at these elevated temperatures versus ambient conditions.

Refer to the IBC Summary Requirements for Life Safety Dampers sidebar for damper selection criteria.

A Summary of IBC Requirements for Life Safety Dampers

The following damper requirements are based on Chapter 7 of the 2006 IBC *Fire Resistance Rated Construction*¹. You can see from this information how the use of sprinklers and expanded compartmentation areas has reduced the number of dampers required. These definitions can help you achieve proper building construction and compartmentation per IBC requirements and guide you in life safety damper applications. However, even when dampers are not required per the IBC due to the inclusion of sprinklers, it's advisable to add them for critical smoke control.

Fire Dampers are required to protect duct penetrations and air transfer openings in the following building elements:

- Fire Walls (no exceptions)
- Fire Barriers “ with the following exceptions:
 - Penetrations tested in accordance with ASTM E 119 as part of a fire-resistance rated assembly.
 - Ducts used as part of an approved smoke control system in accordance with Section 909.
 - Penetrations by ducted HVAC systems in fire barriers with a fire resistance rating of one hour or less in sprinklered buildings.
- Fire Partitions with the following exceptions:
 - Penetrations of rated corridor walls and tenant separations in a sprinklered building.
 - Duct penetrations where the duct area is less than 100 sq.in.

Smoke Dampers are required to protect duct penetrations and air transfer openings in the following building elements:

- Fire-rated corridor enclosures in sprinklered buildings that are also required to have draft and smoke control

doors in accordance with 715.3.3 with the following two exceptions:

- There is no opening in the duct serving the corridor
- Ducts used as part of an approved smoke control system in accordance with Section 909 and where the dampers are not necessary for the smoke control system to operate properly.
- Smoke Barriers with the following exception:
 - Where all duct openings occur within a single smoke compartment.

Combination Fire - Smoke Dampers are required to protect duct penetrations and air transfer openings in the following building elements:

- Shaft Enclosures with the following exceptions:
 - Fire dampers are not required when a duct penetrates a shaft and extends at least 22 in. upward and exhausts directly to the outside. (Figure 716.5.3.1 of the IBC commentary shows this exception.)
 - Fire dampers are not required to protect penetrations tested in accordance with ASTM E 119 as part of a fire-resistance rated assembly.
 - Fire dampers are not required to protect ducts used as part of an approved smoke control system in accordance with Section 909 and where the dampers are not necessary for the smoke control system to operate properly.
 - Fire dampers are not required to protect penetrations in parking garage shafts that are separated from other building shafts by at least two-hour fire resistant construction. (Figure 716.5.3.1 of the IBC commentary shows this exception.)
 - Smoke dampers are not required in sprinklered B occupancies to protect an opening for a bathroom exhaust duct that extends at least 22 in. up and directly outside.
 - Smoke dampers are not required in sprinklered B occupancies to protect duct openings that are part of an approved 909 smoke control system where the damper could interfere with the smoke control system's operation.
 - Smoke dampers are not required to protect penetrations in parking garage shafts that are separated from other building shafts by at least two-hour fire resistant construction. (Figure 716.5.3.1 of the IBC commentary shows this exception.)

The concept of effective compartmentation in which a building is segmented into different compartments using fire-resistance-rated construction to minimize risk is important to healthcare occupancies where occupant movement horizontally is critical to life safety. Life safety fire, smoke, fire – smoke dampers provide the continuity needed to protect us when it's needed most, during a fire. 🔥

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Industry News

Industry News

DHI Offers Fire Door Classes

The Door & Hardware Institute continues its Fire Door Assembly Inspection Program Education nationwide. Classes take place at DHI Chapters, and at the DHI Conference in Chicago, this September. Check out the Door Security & Safety Foundations' new website, <http://www.doorsecuritysafety.org> for info and class schedule. DHI's Fire Door Inspection Classes for Inspectors are well done too.



FCIA Existing Building Survey Standard Launched

FCIA's Ad-Hoc Committee has worked on several teleconferences to develop this new

FCIA Procedure for building surveyors. Visit <http://www.fcia.org>, members only, to view the document, and download. Hard copies are available upon request to FCIA Members in good standing. E-mail Angies@fcia.org.

New Gypsum Association Officers

The Gypsum Association announces the election of the following officers from the Board of Directors for 2010-2011. Visit <http://www.gypsum.org> to see the profiles of the industry's leaders. The officers were elected at the recent meeting of the association's Board of Directors in the Woodlands, Texas, and are one term.

Fire Dampers

The Air Movement and Control Association hosted some great relaxation and fun during the ICC Final Action Hearings in Dallas. Thanks to AMCA and Mark Belke, of Greenheck; Rick Cravy, of Ruskin; and consultant Vickie Lovell for hosting the great hospitality to many ICC Members during a long week of code hearings.

Fire Rated Glazing

The Top 50 Glaziers were recognized in Glass Magazine. These firms work worldwide. Check them out at <http://www.glassmagazine.com/files/Top50Glaziers2010.pdf>



FCIA Involved in CONSTRUCT2010

FCIA friend Karen Layng, Esq., Vedder Price, presented a program on legal liabilities in firestopping, with presentation input from FCIA. Check out the presentation at fcia.org.

FCIA at IAPMO Hearings

FCIA's Gary Hamilton attended the International Association of Plumbing and Mechanical Officials Code Development Hearings in Milwaukee just before FCIA's Education and Committee Action Conference. FCIA submitted code proposals to remove making ASME A 112.20.2 a mandatory requirement by the code through language in IAPMO's Uniform Plumbing Code, Chapter 3, Administration. IAPMO staff also submitted a similar code change that PASSED at the committee level. There are still several meetings left in the process before we have accomplished what we set out to after the 2009 Code Development Process.

FCIA at ASSE

An ASSE committee has taken responsibility for the ASME A 112.20.2 Standard for the Installation of Firestop System around Piping. It seems the plumbing industry is expanding the scope of this document to include inspection in addition to installers. ASSE is balloting its document now, with plans to complete sometime in 2010. FCIA and others, including manufacturers who are members of both FCIA and the International Firestop Council are participating.

FCIA Endorsed Insurance Program

The Phoenix Group has worked hard to get the insurance industry to understand firestopping contractors. Watch for a new exclusive program just for specialty firestop contractors with a major insurer. Need help: call Jim Venezia, 908-879-7224. He won't ask you what firestopping is!



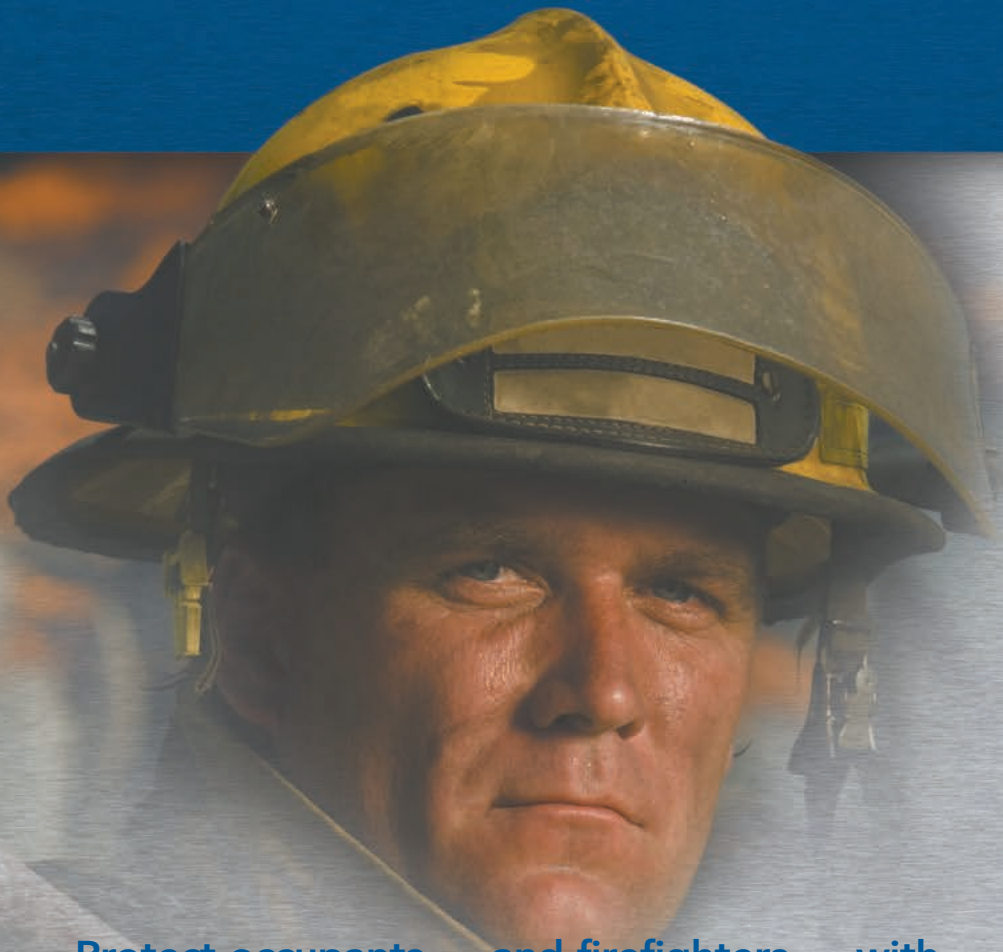
FCIA at UL Firestop Exams for DRI's

Take the first step to becoming a Underwriters Laboratories Qualified Firestop Contractor. The FCIA Exam Prep class and the UL Firestop Exam for DRI's takes place at UL's Melville, NY facility, July 22 from 9am – 5pm. Stay at the Marriot Hotel across the street. Contact Angies@fcia.org for details.

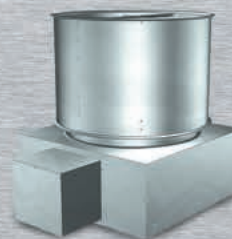
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Code Corner

International Code Council (ICC) Final Action Hearings

Several issues were debated and decided at the ICC Final Action Hearings in Dallas, Texas, in mid May. Full results are available at <http://www.iccsafe.org>, code development, 2009/2010 Cycle.

The ICC code development process is very transparent and well organized. Anyone – yes, anyone – can propose a change to a code. Committees comprise about 15 members, and are made up of industry and governmental members. These committees listen to debate about the proposals at ICC Committee Hearings, which are grouped by topic. Those hearings were completed November 2009 in Baltimore. Committees vote to APPROVE as SUBMITTED, MODIFIED, or DISAPPROVE the Code Development Proposals.

If someone disagrees with the APPROVED or DISAPPROVED decisions, a PUBLIC COMMENT can be proposed. A monograph is published with code proposals that had public comments, and then the issue is debated again at the Final Action Hearings sessions.

For any public comment to be successful, a 50% vote is required to overturn the committee. Then, a two-thirds vote of the voting building officials and/or fire marshals in attendance at the Final Action Hearings must be garnered to complete an action based on the public comment. Only governmental members can vote at these sessions. However, testimony is open to all.

These code proposals and those that passed and were not public commented from the ICC Committee Action Hearings in Baltimore last October, will become part of the ICC 2012 Family of Codes.

FCIA's items that were debated were all about the "I & I" part of the "DIIM" Strategy for the Firestopping Industry. The "Design, Install, Inspect, Manage" philosophy that FCIA launched years ago has gained much recognition by specifiers, building officials and fire marshals alike.

The issues we debated included contractor qualification (the first "I" in DIIM) and third party independent inspection of Firestopping, (the second "I" in DIIM).

On the first "I", although we had support from fire marshals, building officials, and others, the requirement for a contractor that is "qualified or approved by an approved agency," such as FM Approvals or Underwriters Laboratories, Inc., FS 72, was DISAPPROVED at the Committee Hearings in Baltimore and again at the Final Action Hearings. Positive testimony at the Committee Hearings even came from the National Fire Sprinkler Association. And, the vote was closer than years past.

The second "I," Inspection...was FCIA's Code Proposal that adds a requirement for both ASTM E 2174 and ASTM E 2393 to the International Building

Code's Special Inspections Chapter, Ch. 17, in proposal S127 & S128.

Both S127 & S128 were APPROVED by the committee and APPROVED at the Final Action Hearings. This means buildings 75 ft above the lowest vehicle access and Occupancy Type III and IV from table 1604.5, will be required to have Special Inspections per ASTM E 2174 & ASTM E 2393 Standards for the Inspection of Penetration and Joint Firestopping in the 2012 International Building Code, when adopted by a municipality.

This new requirement will impact our firestopping industry, and fire and life safety in a very positive way. With qualified inspection agencies, systems installed to the listing will be required of all trades, specialty contractors, and any others installing firestopping in new construction. Look for more about this at Future FCIA Conferences, and at <http://www.fcia.org>.

In proposal FS 74, FCIA presented a proposal to bring specific rules to engineering judgments similar to the language in other trades, but in Chapter 7. This was DISAPPROVED.

Although we won a big victory with G 118 at the Baltimore Committee Hearings, the Final Action Assembly overturned the committee, and the proposal was DISAPPROVED. FCIA's Bill Koffel wrote the justification for this proposal, submitted by the National Insulation Manufacturers Association and supported by the International Firestop Council. This would have brought hourly ratings back to occupancy separations in buildings.

Our long term view is that FCIA's first goal of working on the reliability of firestopping through quality submittals, installation companies, inspection and management, is moving along well. With Inspection – ASTM E 2174 & ASTM E 2393 and Management – International Fire Code 703.1 now part of the code, two of our four DIIM concepts are reality in the 2012 International Building and Fire Codes. We have one more proposal set for the fall ICC Final Action hearings, ADM 12, dealing with submittals to building officials of firestop systems. That would handle the third part, "D," for Design.

In Egress, the ICC Code Technology Committee's (CTC) E5, was APPROVED AS SUBMITTED. It was a very long code proposal, with many changes. Visit ICCSafe.org to see the proposal, as it very long.

Also in Egress, Photoluminescent signs were debated. Currently, the 2009 International Building Code (IBC)/International Fire Code (IFC) and NFPA 101 require Photoluminescent Exit Path Markings in all **New and Existing** buildings over 75 ft in height measured from the lowest level of fire department access.

In Egress (E) proposal E91 09/10, Occupancy Group R-1, including hotels, motels, boarding houses and congregate living facilities with transient

occupants, now require floor level exit signs to be installed per UL 924 in new buildings. Manny Muniz, formerly with the State of California State Fire Marshal's Office was the proponent.

ICC's Terrorism Resistant Building Committee (TRB) prevailed on several proposals, including G41, which kept the requirement for high density 1,000 psf Sprayed Fire Resistive Materials (SFRM-fireproofing) on structures greater than 420 ft high and 430 psf on structures between 75 ft and 420 ft in height. In G40, the TRB was successful approving a new requirement for stairwells to be capable of withstanding a 1.3PSI bomb blast.

TRB also was successful supporting the GSA's Dave Fribley in F25 09/10 for a new "Building Information Card" to be located in the Fire Command Center of High Rise Buildings, with important information. Some building owners and managers may choose to have an electronic version in addition to the card. They were unsuccessful with the video surveillance every fifth floor of high rise stairwells. This area is the most important part of a building, as it is the haven of safety for those exiting in emergencies.

In E 113, Thom Zarembo representing the Glazing Industry Code Committee, presented a proposal requiring a one-hour fire-resistance-rated corridor in school construction, which was DISAPPROVED. Supporting Thom were representatives from teachers organizations in Washington/Oregon.

In the "General" Category, proposals dealing with Height and Area were DISAPPROVED. Building officials mentioned that "we put this issue to bed last cycle" with the CTC's Features Subcommittee disbandment.

On a positive note, the International Firestop Council's FS 4 09/10 proposal that called for fire-resistance-rated glass and other assemblies to survive a fire test before being tested with a "water wash," was APPROVED AS MODIFIED. This means conceptually, the wall/floor must perform as a fire-resistance-rated assembly first... as intended, before any "sprinkler washing" is added.

FS 7 09/10 proposed by Valerie Loper, City of No. Las Vegas, brought professionalism to wall markings required in section 703.6 of the International Building Code, incorporating the following for the markings:

1. Be located in accessible concealed floor floor-ceiling or attic spaces;
2. Be located within 15 feet (4,572 mm) of the end of each wall and at intervals not exceeding 30 ft (9,144 mm) measured horizontally along the wall or partition; and
3. Included lettering not less than 3 inches (76 mm) in height with a minimum 3/8 inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording. "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS" or other wording.

There is an exception for R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space. Thanks Valerie, for bringing the key field input needed to make this practical for inspectors, inspection agencies, and all those who work on fire-resistance-rated walls in buildings

In FS36, FCIA partnered with AIA's Dave Collins, to IBC 708.8, penetrations to cover conditions that occur frequently in the field, yet were not in the code:

708.8 Penetrations. Penetrations in a shaft enclosure shall be protected in accordance with Section 713 as required for fire barriers. Structural elements, such as beams or joists, where they are protected in accordance with Section 713 shall be permitted to penetrate a shaft enclosure.

FCIA thanks Dave for starting the process to resolve an issue that develops frequently in the field, structural items penetrating fire-resistance-rated walls, which previously had no code language to allow this commonly occurring event.

CTC's FS 56, dealing with vertical openings in buildings, was APPROVED AS SUBMITTED. Many from the fire resistance industry including FCIA, the International Firestop Council, Alliance for Fire and Smoke Containment and Control, and others supported this change. Jay Hall, representing the Portland Cement Association at the time, did much of the proposal writing for this code proposal. Others, including Sarah Rice, of Preview Group; Greg Keith, of Professional heuristic Development; Ron Clements, of Chesterfield Cy. VA also participated, along with many others.

In FS 88, ASTM E 119 was added to the Perimeter Fire Containment Section as an alternative to ASTM E 2307. There was much discussion regarding this piece that allows the use of floor to ceiling glass in buildings where perimeter fire containment is needed. FCIA's position is that whichever system is used, it needs to be clear about suitability for use through testing, and accurately communicated to design professionals, building owners and managers, building officials and fire marshals.

There is one more ICC Final Action Hearing scheduled for late October. After that hearing, the next cycle will be the development of the 2015 International Family of Codes. In the meantime, FCIA and many others still participate in the NFPA 101 and 5000, plus the International Association of Plumbing and Mechanical Officials Code Development Process.



Life Safety Digest 2010 Industry Calendar

July 12 & 13

American Society of Healthcare Engineers
(ASHE) Conference, Tampa

July 22 to 24

National Association of State Fire
Marshals, Chicago

July 22

FCIA Education & UL Firestop Exams,
Melville, NY

Sept. 14 to 23

DHI's 35th Annual Conference &
Exposition, Chicago

Oct. 3 to 8

Society of Fire Protection Engineers Annual
Meeting, New Orleans

Oct. 18 to 20

Design Build Institute of America, Las Vegas

Oct. 25 to Nov. 1

ICC Annual Conference and Final Action
Hearings, Charlotte
(Visit iccsafe.org for schedule)

Oct. 27 to 29

International Facility Managers
Association, Atlanta

Nov. 9 to 12

FCIA Firestop Industry Conference &
Trade Show, Phoenix

Nov. 17 to 19

USGBC Greenbuild International
Conference, Chicago



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Abuse Resistant Drywall ?

"You can't replace an 8" concrete block with 1/2" of "abuse resistant" drywall unless you write ad copy for USG !"

-Charles Ostrander
Executive Director - Masonry Advisory Council

Any School Board or Hospital Board, which allows a construction manager to sell them on the idea of a guaranteed maximum project cost, should be required to visit previously constructed "guaranteed maximum" projects. Then everyone could see the extent of damage and associated increases in necessary repair costs. They would see a fortune in investments or limited health care fund disappearing in the name of "value engineering". Schools and medical facilities should be an investment in durability and quality. Skin deep abuse resistance does not belong in these facilities. Walls should be abuse resistant and mold resistant to their cores!

THEY SHOW YOU PRETTY ADS . . .

WE'LL SHOW YOU A REAL PROJECT. . .



Was this corner abuse resistant?

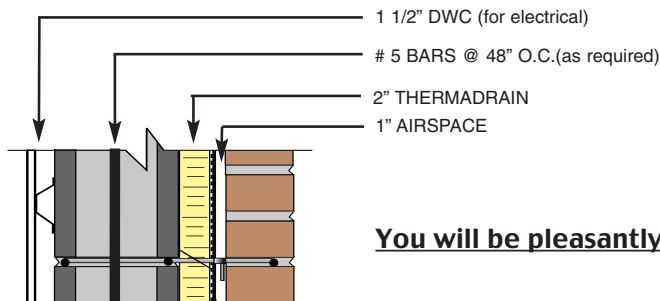


Why does this doorstop need a wood backing?

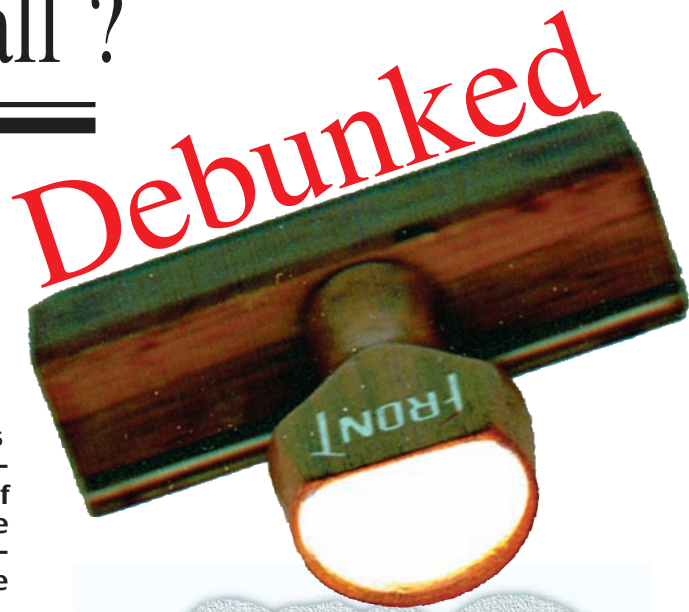
After you have been asked to value engineer out the CMU backup (supposedly for substantial initial dollar savings) and after you have properly designed a steel stud backup system with the following elements:

- Studs designed for 1/600 deflection limit.
- Double studs at windows and openings
- Dens Glas Gold exterior sheathing
- Building wrap
- Exterior closed cell rigid insulation with drainage mat
- No Batt insulation
- Special Brick ties

Also have the General Contractor bid, at the same time, the originally designed and desired wall system as follows:



You will be pleasantly surprised!



Why is there an extra wood protector (1x4) at the base of this gyp. wall & why have all the walls been repaired at desktop height?



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