

FCIA & the 2018
ICC Fire Code
NFPA 101/5000
Development Process

Bill Koffel, FSFPE, Koffel Associates
Bill McHugh, FCIA



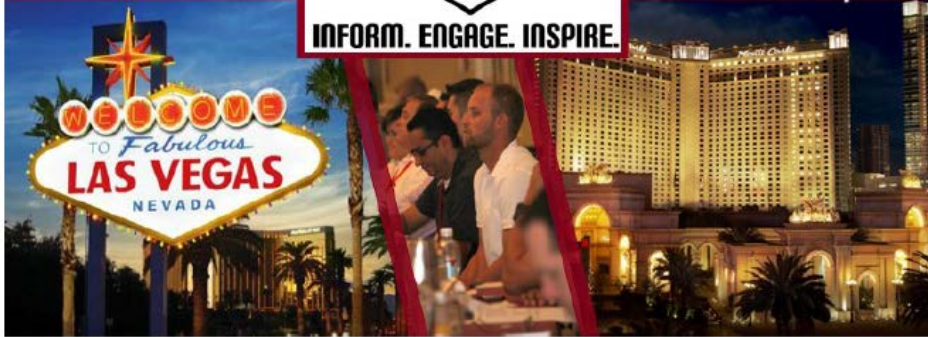
FCIA EDUCATION & COMMITTEE ACTION CONFERENCE



MAY 3-6



LAS VEGAS, NV



Monte Carlo Resort & Casino

Las Vegas, NV 89109

FCIA's Webinar Series Details

- **Certificates – 2 weeks**
- **How Many Hours? As long as we're on...**
- **Questions –**
 - Type them!
 - Answer at end or before.
 - Open Mike ... if time allows
- **PDF Presentation for Members, AHJ's, Specifiers with Design Firms - Request via email. FREE MOP too.**
- **FREE Life Safety Digest**
- **Not a Member? [Join FCIA](#) Today!**

Who is FCIA?

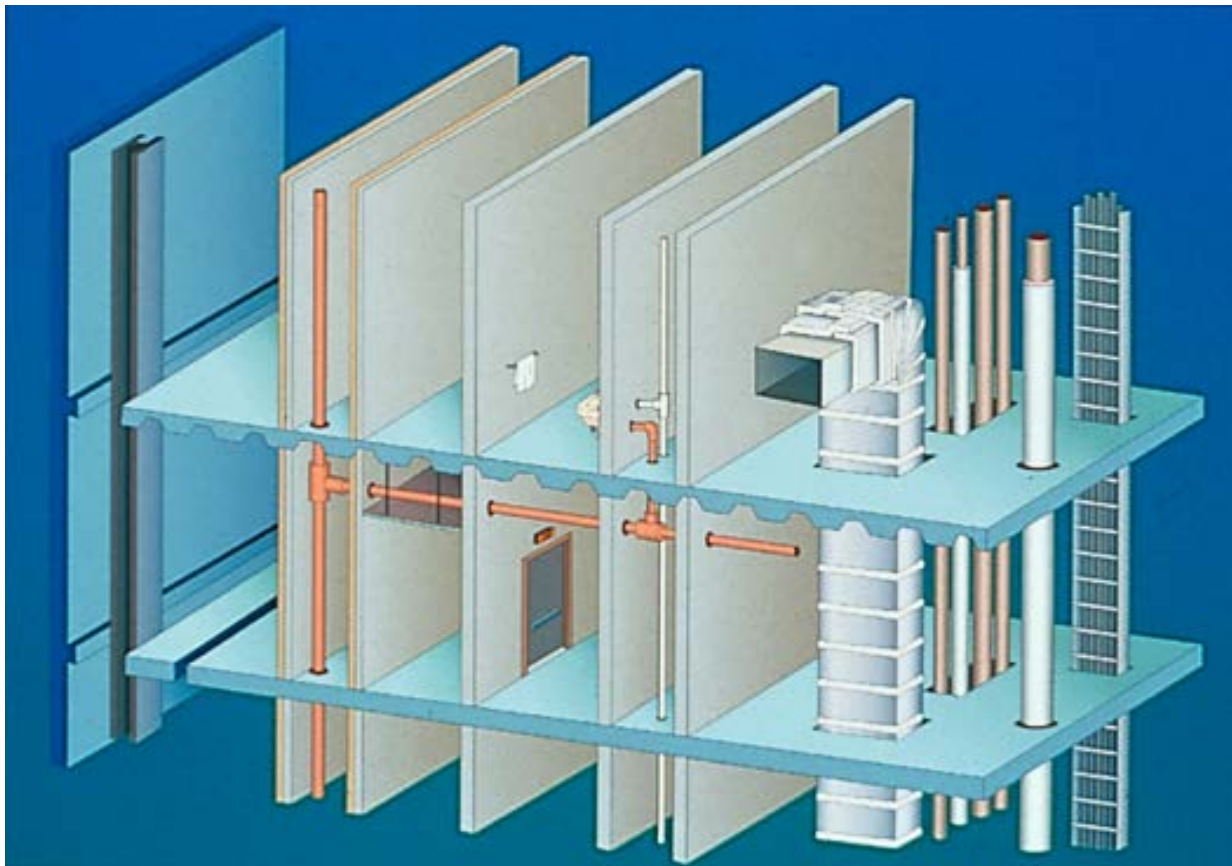
- Worldwide Trade Association
 - Contractors
 - Consultants – Voting/Non Voting
 - Manufacturers
 - Distributors
 - Manufacturers Reps
 - Friends



“DIIM”

- Firestopping for Safety – DIIM
 - Properly **Designed** and Specified Firestopping
 - FCIA - 07-84-00 – Specification
 - **Tested and Listed Systems** - ASTM E 814 / UL 1479 - UL 2079, ASTM E 1966, FM 4990, ULC-S-115, ASTM E2307
 - Professional **Installation** –
 - FCIA Member
 - FM 4991 Approved
 - UL Qualified Contractors
 - Properly **Inspected** –
 - ASTM E 2174 / 2393 Protocol I
 - IAS AC 291 Accredited Inspection Agencies
 - Inspectors who pass FM or UL Firestop Exam AND IFC Exam
 - **Maintained** - Annually - FCIA Members –
 - NFPA 101, International Fire Code, UAE Fire and Life Safety Code of Practice, National Fire Code of Canada

DIIM&M – Maintenance (& Management)



Firestop & Fire / Smoke Resistance Fire Code

- **What's required?**
- **Maintenance**
 - NFPA 101
 - IFC
 - 703.1 Requires
 - 703.1 Compliance??
 - FCAC Proposals



National Fire Protection Association - NFPA 101-2012

- **SECTION 4.5.8 Maintenance, Inspection, and Testing.**
- **4.5.8.1 Whenever or wherever any device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature **is required for compliance** with the provisions of this Code, **such device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature **shall thereafter be continuously maintained** in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the AHJ. [NFPA 101-2012:4.6.12.1]

National Fire Protection Association - NFPA 101-2012

- **4.5.8.2** **No existing life safety feature shall be removed or reduced** where such feature is a requirement for new construction. [101:4.6.12.2]
- **4.5.8.3*** **Existing life safety features **obvious to the public**, if not required by the Code, shall be either maintained or removed.** [101:4.6.12.3]
- **4.5.8.4** **Any device**, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature **requiring periodic testing, inspection, or operation** to ensure its maintenance **shall be tested, inspected, or operated** as specified elsewhere in this Code or as directed by the AHJ. [101:4.6.12.4]
- **4.5.8.5** **Maintenance, inspection, and testing shall be performed under the supervision of a responsible person who shall ensure** that testing, inspection, and maintenance **are made at specified intervals** in accordance with applicable NFPA standards or as directed by the AHJ. [NFPA 101-2012:4.6.12.5]

2015 International Fire Code

- Chapter 7 -

Fire and Smoke Protection Features

SECTION 703 - FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required *fire-resistance rating* of fire-resistance-rated construction, including, but not limited to, walls, firestops, shaft enclosures, partitions, *smoke barriers*, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, **shall be maintained.** Such elements **shall be visually inspected by the owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated.** **Records of inspections and repairs shall be maintained..**



Firestop & Fire / Smoke Resistance Maintenance – How?

- **Records of Inspections**
 - **Life Safety Drawings?**
 - **“Replaced when Damaged...”**
 - **Tested and Listed systems and manufacturers installation instructions?**
 - **Generic Materials?**

Firestop & Fire / Smoke Resistance Maintenance – How?

- **Records of Repairs**
 - Tested and Listed systems
 - Manufacturers installation instructions.
 - Contractor
 - Checklist
 - Electronic APPS
 - Paper
 - Spreadsheets

2015 International Fire Code

703.1 Maintenance

SECTION 703 - FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required *fire-resistance rating* of fire-resistance-rated construction, including, but not limited to, walls, firestops, shaft enclosures, partitions, *smoke barriers*, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, shall be maintained. Such elements **shall be visually inspected by the owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated.** **Records** of inspections and repairs shall be maintained..



2015 International Fire Code

703.1 Maintenance

SECTION 703 - FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. (continued) Where concealed, such elements shall not be required to be visually inspected by the *owner* unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason **shall be protected with *approved* methods** capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of *approved* construction meeting the fire protection requirements for the assembly.



2015 International Fire Code

703.1 Maintenance

SECTION 703 -FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. (continued) 703.1.1 Fireblocking and draftstopping. Required *Fireblocking* and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

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

703.1.3 Fire walls, fire barriers and fire partitions.

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



2015 International Fire Code

International Firestop Council's

ADM 75/76

IBC 107.2.2 Fire protection system shop drawings. Shop drawings for the ~~fire protection system(s)~~ fire protection systems shall be submitted to indicate conformance to this code and the ~~construction documents~~ construction documents and shall be ~~approved~~ approved prior to the start of system installation. Plans for buildings more than two stories in height of other than Group R-3 and Group U Occupancies shall indicate how required structural and fire resistive integrity will be maintained where a penetration will be made for electrical, mechanical, plumbing and communication conduits, pipes and similar systems. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9.

2015 International Fire Code

ADM 75/76

IEBC 106.2.2 106.2.2 Fire protection system(s) system shop drawings. Shop drawings for the fire protection system(s) ~~systems~~ shall be submitted to indicate conformance ~~with~~ to this code and the **construction documents** and shall be approved prior to the start of system installation. Plans for buildings more than two stories in height of other than Group R-3 and Group U Occupancies shall indicate how required structural and fire resistive integrity will be maintained where a penetration will be made for electrical, mechanical, plumbing and communication conduits, pipes and similar systems. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9 of the ~~International Building Code~~ International Fire Code.

2015 International Fire Code

ADM 75/76

Support

- **Tony Crimi - IFC - 'This is very doable to get penetrations and joints on drawings and locations on the plans. There are two inspection standards for firestop and this helps it get the inspector the documentation he needs.'**
- **Ed Goldhammer - HILTI - We get many last minute issues. This prevents it.**
- **Vickie Lovell - 3M and FSNA - 'This is easy for designers'. Put drawings where the penetrations are on the plans'.**

Opponents:

- **Chris Bridges, ICC Region 7 - "We don't know what the penetrating items are, how can we do this? Too many unknowns. This hamstring us from the start."**
- **Steve Winkle, AIA - Detail a specific assembly? These are specific, not generic. Layer on top? Details will no longer be valid after construction starts due to changes.**
- **Carol Pruitt, AIA, Consultant - "There is no 'Easy' in this.**

2015 International Fire Code

ADM 75/76

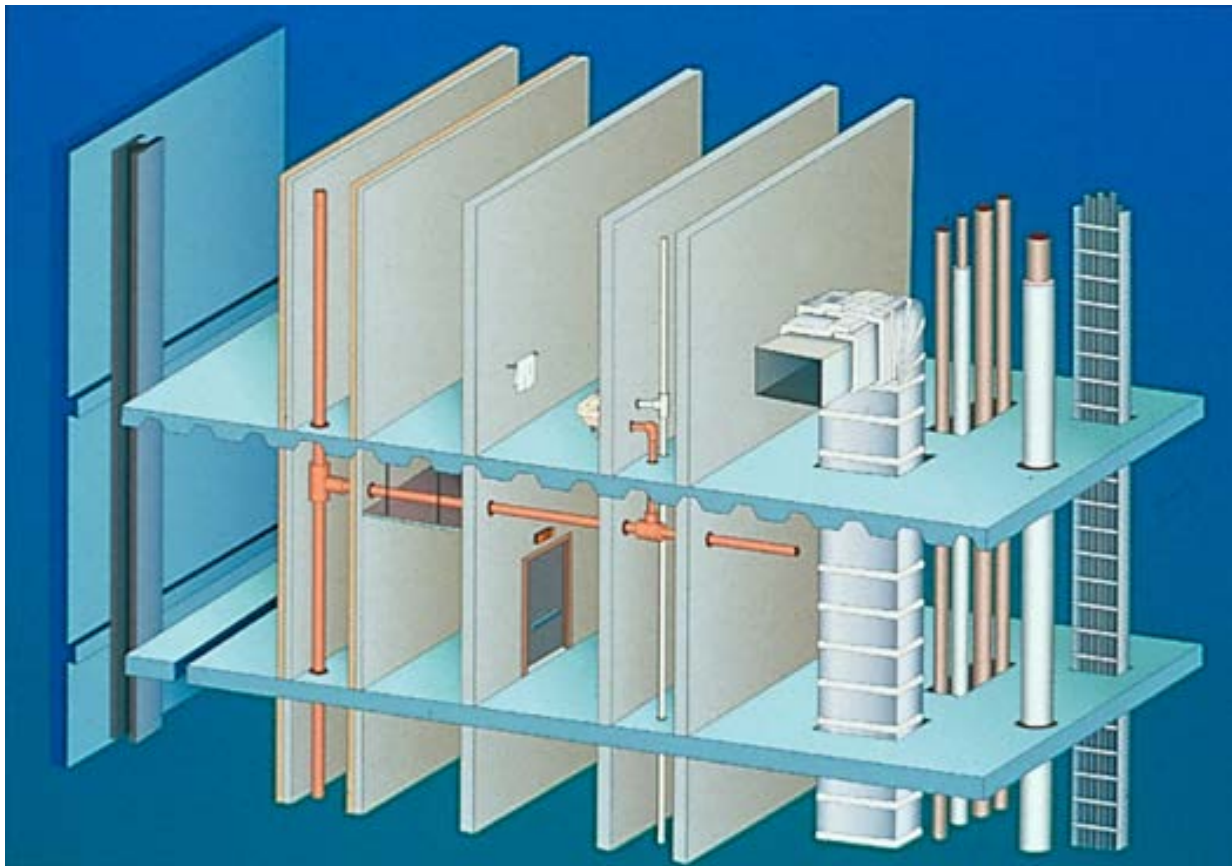
CONSTRUCTION DOCUMENTS. Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary **for obtaining a building permit.**

2015 Energy Conservation Code

CE66

- Table 402.1.3 – R Value Chart, complete Building Envelope...
- g. *R-value* of insulation to be measured at the lowest value from ASTM C 518 testing at 40°F, 75°F and 110°F.
- NEW STANDARD: ASTM C518-15 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

DIIM&M – Maintenance (& Management)



FCIA's Fire Resistance Rated
& Smoke Resistant Systems
FOR
Safety and Property Protection



Fire Code Action Committee

F113 Proposal

Fire Code Action Committee – Task Group

Howard Hopper, UL

Rich Walke, UL

Tony Crimi, International Firestop Council

Vickie Lovell

Fire Code Officials

Others.

FCIA Discovered Proposal

FCIA Requested Modifications

FCIA told to Provide it's own proposal.



Fire Code Action Committee

F113 Proposal

SECTION 701 -FIRE-RESISTANCE-RATED CONSTRUCTION

701.1 Scope. The provisions of this chapter shall govern the inspection and maintenance of the materials, systems and assemblies used for structural ~~fire resistance and fire-resistance-rated~~ fire resistance, fire-resistance-rated construction separation of adjacent spaces and smoke resistant construction to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings. New buildings shall comply with the *International Building Code*.



Fire Code Action Committee

F113 Proposal

701.2 Fire-resistance-rated construction. The *fire-resistance rating of the following fire-resistance-rated construction shall be maintained:*

- 1. Structural members.**
- 2. Exterior walls.**
- 3. Fire walls, fire barriers, fire partitions.**
- 4. Horizontal assemblies.**
- 5. Shaft enclosures**



Fire Code Action Committee

F113 Proposal

~~**703.1.3 Fire walls, fire barriers and fire partitions.**~~

~~**Required *fire walls, fire barriers and fire partitions***
shall be maintained to prevent the passage of fire.~~

~~*Openings protected with approved doors or fire dampers shall be maintained in accordance with NFPA 80.*~~



Fire Code Action Committee

F113 Proposal

701.3 Smoke barriers. The *fire-resistance rating and smoke resistant characteristics of smoke barriers shall be maintained.*



Fire Code Action Committee

F113 Proposal

~~703.1.2 Smoke barriers and smoke partitions.~~

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



Fire Code Action Committee

F113 Proposal

701.4 Smoke partitions. The smoke resistant characteristics of smoke partitions shall be maintained.

701.5 Maintaining protection. Materials, systems and devices used to repair or protect breaches and openings in fire-resistance-rated construction and smoke resistant construction shall be maintained in accordance with Sections 703 through 707.



Fire Code Action Committee

F113 Proposal

~~703.1~~ 701.6 Maintenance Owner's responsibility. ~~The required~~

Required ~~fire-resistance rating~~ fire-resistance-rated ~~of fire-resistance-rated~~ and smoke-resistant construction, including, but not limited to, walls, firestops, shaft enclosures, partitions, ~~smoke barriers, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems~~, shall be maintained. Such elements the construction included in Sections 703 through 707 shall be visually inspected by the *owner annually and* properly repaired, restored or replaced where damaged, altered, breached or penetrated.

Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the *owner unless the concealed space is accessible by the* removal or movement of a panel, access door, ceiling tile or similar movable entry to the space. ~~Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of approved construction meeting the fire~~ protection requirements for the assembly.



Fire Code Action Committee

F113 Proposal

~~701.2~~ **701.7 Unsafe conditions.** Where any components in this chapter are not **maintained and** do not function as intended or do not have the *fire resistance* **or the resistance to the passage of smoke** required by the code under which the building was constructed, remodeled or altered, such component(s) or portion thereof shall be deemed an unsafe condition, in accordance with Section 110.1.1. Components or portions thereof determined to be unsafe shall be repaired or replaced to conform to that code under which the building was constructed, remodeled, altered or this chapter, as deemed appropriate by the *fire code official*.

Where the extent of the conditions of components is such that any building, structure or portion thereof presents an imminent danger to the occupants of the building, structure or portion thereof, the *fire code official shall act in accordance with Section 110.2*.



Fire Code Action Committee

F113 FCIA MODIFICATION

701.6.1 Records Information. Records shall include a copy of the drawings indicating the location of fire resistance rated construction and smoke resistant construction elements and an inspection report indicating a thorough review of all elements required to be inspected in accordance with 701.6.

706.1.2 Repair Records Information. Where repairs are made with listed systems, the system listing and manufacturers installation instructions shall be provided to and maintained by the owner.

706.1.3 Repairs. Openings and breaches for penetrations, made therein for the passage of pipes, electrical conduit, wires, ducts air transfer openings, joints and holes made for any reason shall be protected with approved methods capable of resisting the passage of fire and smoke.



Fire Code Action Committee

F113 Proposal

703.1 Maintaining protection. Materials and firestop systems used to protect membrane- and through-penetrations in fire-resistance-rated construction and smoke resistant construction shall be maintained. **The materials and firestop systems shall be securely attached to or bonded to the construction being penetrated with no openings visible through or into the cavity of the construction.**



Fire Code Action Committee

F113 Proposal

703.2 Unprotected penetrations. All unprotected penetrations in fire-resistance-rated construction and smoke resistant construction shall be protected as required in the *International Building Code*.



Fire Code Action Committee

F113 Proposal

SECTION 704 JOINTS AND VOIDS

704.1 Maintaining protection. Where required when the building was originally constructed, materials and systems used to protect joints and voids installed in the following locations shall be maintained. The materials and systems shall be securely attached to or bonded to the adjacent construction, without openings visible through the construction.

⋮



Fire Code Action Committee

F113 Proposal

1. Joints in or between *fire-resistance-rated walls, floors or floor/ceiling assemblies and roof or roof/ceiling assemblies.*
2. Joints in *smoke barriers.*
3. Voids at the intersection of a horizontal floor assembly and an exterior curtain wall.
4. Voids at the intersection of a horizontal smoke barrier and an exterior curtain wall.
5. Voids at the intersection of a nonfire-resistance-rated floor assembly and an exterior curtain wall.
6. Voids at the intersection of a vertical fire barrier and an exterior curtain wall.
7. Voids at the intersection of a vertical *fire barrier and a nonfire-resistance-rated roof assembly.*

Exception: Unprotected joints and voids, do not need to be protected where such joints and voids were not required to be protected when the building was originally constructed

Fire Code Action Committee

F113 Proposal

705 Opening Protectives...

Doors

Windows

706.1 Duct and Air Transfer Openings



Fire Code Action Committee

F114 Proposal

701.3 Repair of Penetrations, Joint and Voids. Where materials used to protect membrane and through-penetrations, joints and voids have been damaged, they shall be replaced or repaired with materials and systems that comply with code requirements applicable at the time when the assembly was constructed, remodeled or altered.



Fire Code Action Committee

F114 Proposal

701.3 Repair of Penetrations, Joint and Voids.

Means repair with 'systems' rather than 'stuff' ONLY when the original construction code required it...



Fire Code Action Committee

F 115 – FCIA Proposal

Revise as follows:

703.1 Maintenance Maintaining Protection. ~~The Smoke resistant construction and the required *fire-resistance rating of fire-resistance-rated* construction, including, but not limited to, walls, ~~firestops~~ through penetration and membrane penetration firestop systems, shaft enclosures, partitions, ~~*smoke barriers*~~ smoke barriers, smoke partitions, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems, shall be maintained. ~~Such elements shall be visually inspected by the owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.~~ shall be maintained in accordance with NFPA 80.~~

Fire Code Action Committee

F 115 – FCIA Proposal

703.1.1 ~~Fireblocking and draftstopping~~ Inspection. ~~Required fire-blocking~~

Fire resistance-rated construction and ~~draftstopping in combustible concealed spaces~~ smoke resistant construction elements shall be maintained to provide visually inspected by the owner annually. The inspection shall verify that the continuity and integrity of such elements is maintained by approved methods. Where damaged, altered, breached, or penetrated by other than approved methods, the construction element shall be properly repaired, restored or replaced. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space.



Fire Code Action Committee

F 115 – FCIA Proposal

~~703.1.2 Smoke barriers and smoke partitions~~ Records maintenance. ~~Required smoke barriers~~ Records of inspections and smoke partitions repairs shall be maintained to prevent by the passage of smoke owner and shall be available to the code official upon request. ~~Openings protected with approved smoke barrier doors or smoke dampers~~ Such records shall be maintained in accordance with NFPA 105 for the life of the installation.

Add new text as follows:

703.1.2.1 Records information. Records shall include a copy of drawings indicating the location of fire resistance rated construction and smoke resistant construction elements and an inspection report indicating a thorough review of all elements required to be inspected in accordance with 703.1.

703.1.2.2 Repair records information. Where repairs are made with listed systems, the system listing and manufacturer's installation instructions shall be provided to and maintained by the owner.



Fire Code Action Committee

F 115 – FCIA Proposal

703.1.3 ~~Fire walls, fire barriers and fire partitions~~ Repairs. Required ~~fire walls, fire barriers~~

Openings and ~~fire partitions shall be maintained to prevent~~ breaches for penetrations, joints made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings ~~protected with approved doors or fire dampers through~~ fire resistance- rated assemblies shall be ~~maintained in accordance with NFPA 80~~ protected by self or automatic-closing doors of approved construction meeting the fire protection requirements or the assembly.



Fire Code Action Committee

F 115 – FCIA Proposal

703.1.4 Unprotected Penetrations. Unprotected penetrations in fire-resistance-rated construction and smoke resistant construction shall be protected with approved methods capable of resisting the passage of smoke and fire.

703.1.5 Fireblocking and draftstopping. Required fireblocking and draftstopping in combustibles concealed spaces shall be maintained to provide continuity and integrity of the construction.

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

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



Fire Code Action Committee

F 113 Mod, F5 – FCIA Proposal

Objections

“Building Owners don’t do this now, why should they start”
(REALLY)

“This means we’d have to document repairs. How do we document a gypsum repair?”

“For existing buildings without Life Safety Drawings, an architect will be required to draw”



Fire Code Action Committee

F 113 Mod, F5 – FCIA Proposal

Objections

“Document every system?”

“Smoke Resistant Construction” is not defined.” M. Hirschler

“Recordkeeping is already required.” J. Shapiro

“Records for the Life of the Installation? Alarms are only for 10 years”. D. Nichols

“This is heart surgery when a band aid is required” G. Keith



Fire Code Action Committee

F 113 Mod, F5 – FCIA Proposal

Objections

“Scope is too far, Life of the Installation? Thorough review?
Where are the cited problems?” D. Frable, GSA



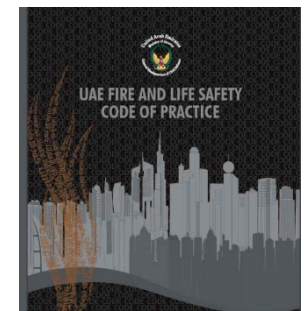
UAE Fire and Life Safety Code of Practice

Maintenance & Management

Chapter 1, SECTION 21 Firestopping

21.15.2 The required fire resistance rating of installed firestop systems shall be ***visually inspected by the owner or owner's inspection agency annually.*** Damaged, altered or breached firestop systems shall be properly repaired, restored or replaced to comply with applicable codes as per the guidelines of Civil defense.

21.15.3 Any new **Openings** made therein for the passage of through penetrants, **shall be protected with approved firestop system** to comply with applicable codes as per the guidelines of Civil defense.



National Fire Code of Canada

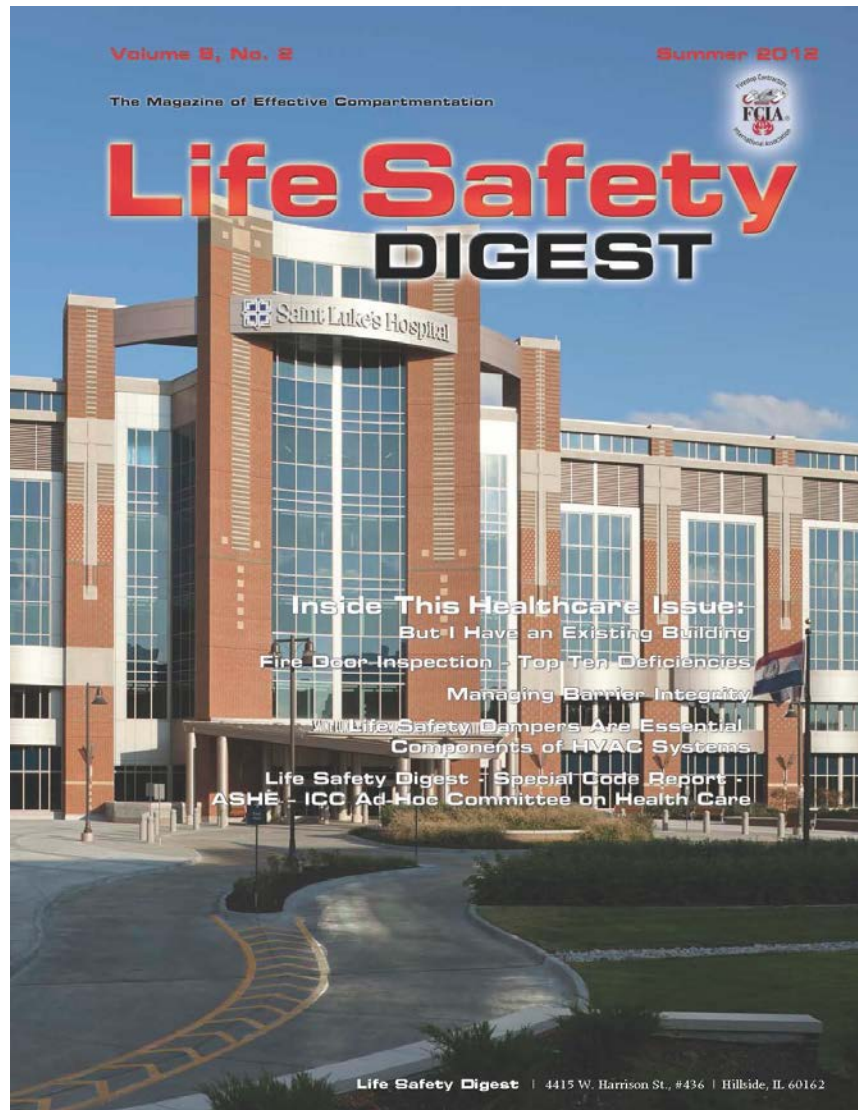
National Fire Code of Canada

- ***Division B – Part 2, Building and Occupant Fire Safety***
2.2.1.2 – Damage to Fire Separations – where *fire separations* are damaged so as to affect their integrity, they shall be repaired so that the integrity of the *fire separation* is maintained...
- **NBCC Process Just STARTING...FCIA Invited.**

Includes Fire Dampers, Fire Doors...and Continuity



Barrier Management Begins when new construction ends...



M–Barrier Management Systems

- **NEW Buildings – 07-84-00 Specs**
 - **SYSTEMS Expectations**
 - **As Built SYSTEMS**
 - **SYSTEMS from Testing Labs, MANUFACTURERS**
 - **Installation to SYSTEMS**
 - **Inspection to SYSTEMS**
- **AS BUILT DOCUMENTATION REQUIRED**

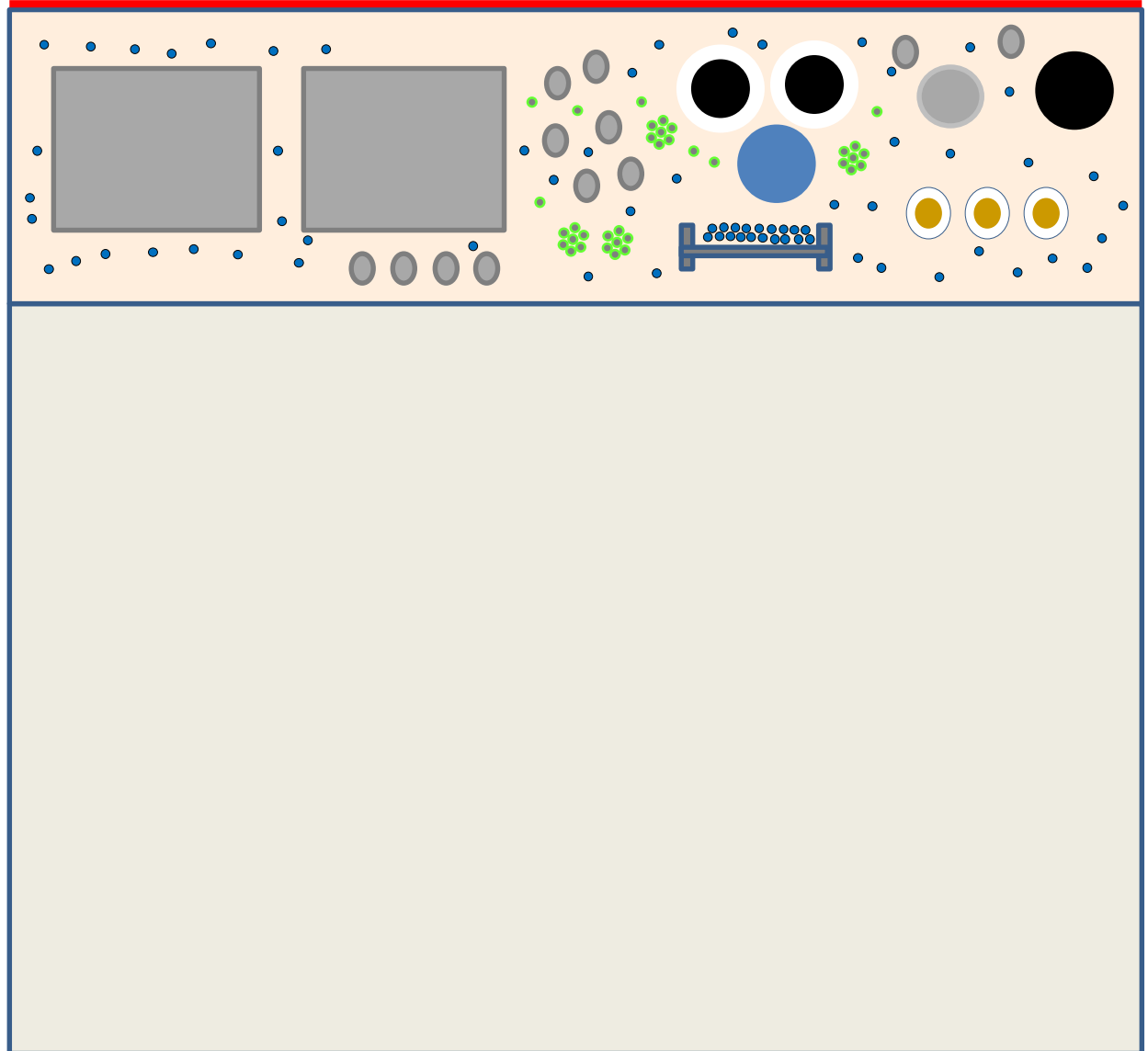
M-Barrier Management Systems

- Now it's your building....

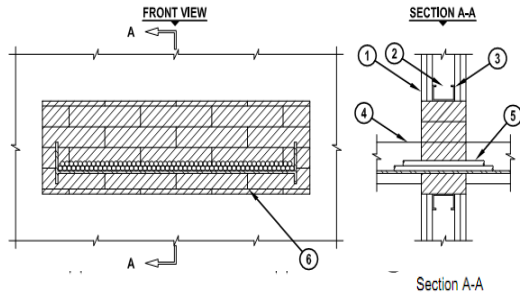


WHAT NEEDS TO BE MAINTAINED?

- Fire Resistive Wall Construction
- Fire Doors
- Fire Dampers
- Firestop Systems:
 - Joint Systems
 - Hot and Cold Water Piping
 - Laboratory Waste
 - Medigas Piping
 - Pneumatic Tubing
 - Sprinkler Piping
 - Rigid Electrical Conduits
 - Cable Trays
 - BX Cables
 - Low Voltage Cables
 - and More....
 - Low Voltage!!!!



UL/cUL SYSTEM NO. W-L-4011
CABLE TRAY THROUGH GYPSUM WALL ASSEMBLY
F-RATING = 1 AND 2-HR.
T-RATING = 0-HR.
L-RATING AT AMBIENT = 5 CFM/SQ. FT.
L-RATING AT 400°F = 2 CFM/SQ. FT.



M–Barrier Management Systems

- **Barrier Management SYSTEMS**
 - **TJC # 1 & 2 Violations - Healthcare**
 - Hospitals
 - Nursing Homes?
 - High Rise Construction?
 - Dorms & Educational Buildings?
 - Apartments and Condos?
 - Assembly?
 - **Control ‘Holemakers’?**

Barrier Management HUB

- **A HUB must control all Action**
 - C-Suite Execs
 - Construction – In House & Outside
 - I-T Department – In House & Outside
- **The HUB is**
 - Facility Director
 - Risk Management
- **Safer Buildings**
 - Purchaser/Renter of Space

M–Barrier Management Systems

- **Barrier Management Policy - Tool**
 - In House Construction & I-T Crews
 - Outside Contractors

Barrier Management

Policy = Tool

- **Facility Management Communicates...**
 - Rules of Engagement in Contracts
 - Internal Contracts
 - External Contracts
 - Pre Construction Meetings
 - Barrier Warnings - Markings
 - Violation Consequences
 - Ongoing Management
 - Staff Education & Incentives



Barrier Management Policy Tool

– Rules of Engagement in Contracts

- **Internal Contracts -**

- In House Departments similar to Outside Contractors

- **External Contracts**

- AIA Contract

- Marked Fire - Smoke Barrier Actions

- Barrier Permits

- Documentation

- Report

M–Barrier Management Systems

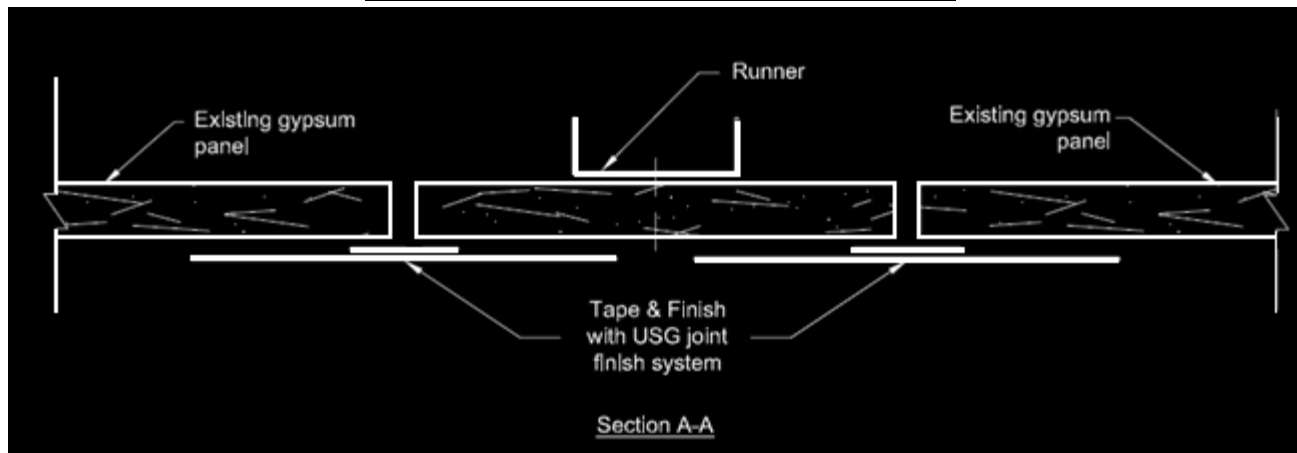
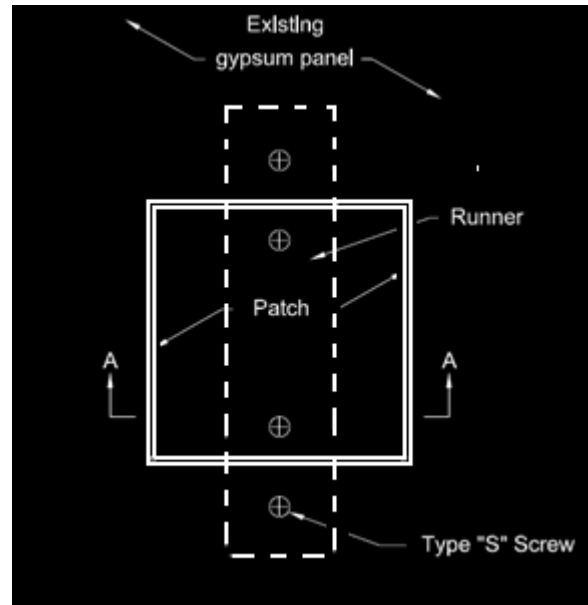
- **Common Elements**
 - **Life Safety Drawings**
 - **Existing Conditions Documented**
 - **Ongoing Survey Records**
 - **Deficiency Reports**
 - **Systems Documentation Control, Retrieval**

M–Barrier Management Systems

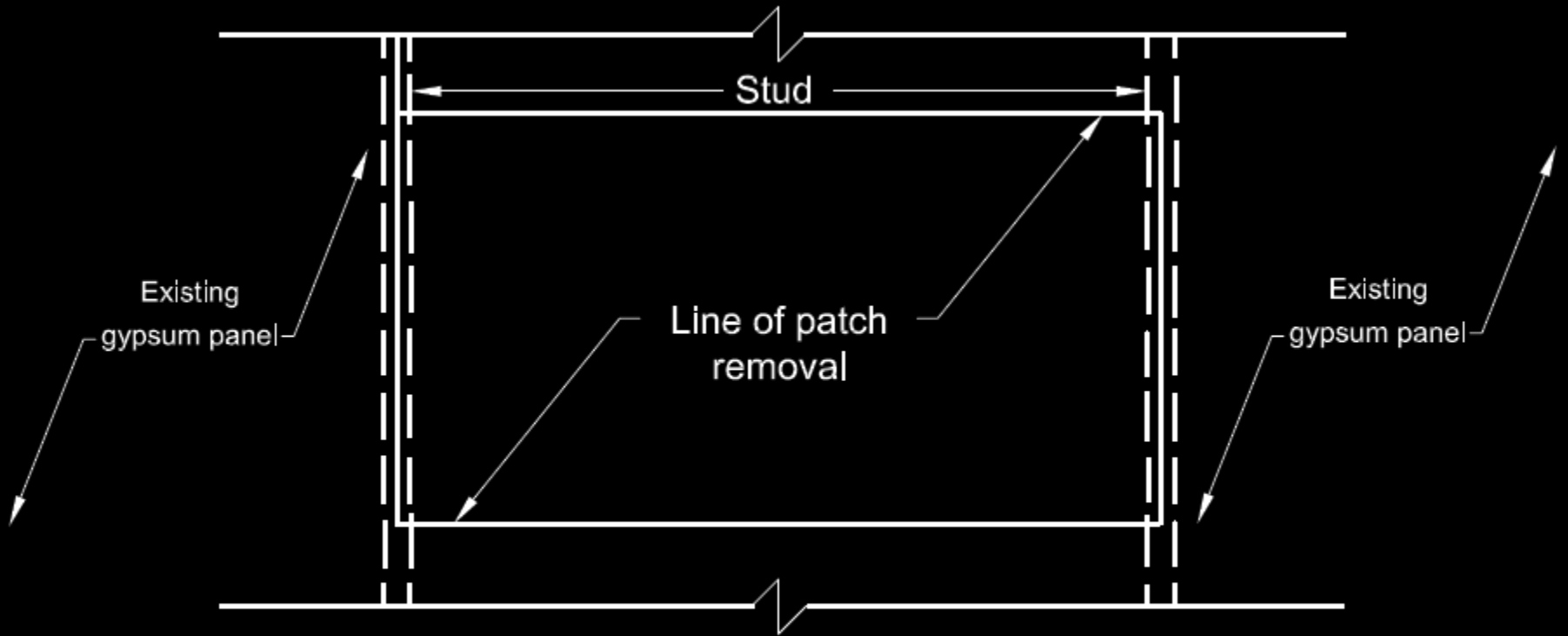
- **Document & Control**
- **Fire Resistance Rated & Smoke Resistant**
 - **Barrier Walls, Floors**
 - **Firestop Systems - Penetrations & Joints**
 - **Fire Doors – Rolling & Swinging**
 - **Fire Rated Glazing**
 - **Fire/Smoke, Combination Dampers**

Repair Small Holes

USG Photo



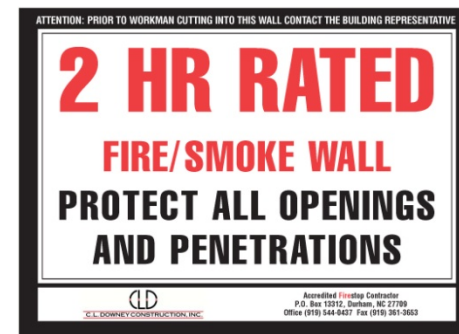
Repair Large Holes



Partial Elevation - 1

Firestop & Fire / Smoke Resistance Maintenance – How?

- **Tracking – Barrier Management Initiatives**
 - Paper – Files, pictures, manually track.
 - Software – Spreadsheets, Software Systems
 - APPS – Accessed by mobile
 - Labeling – Key to Barrier Management Systems

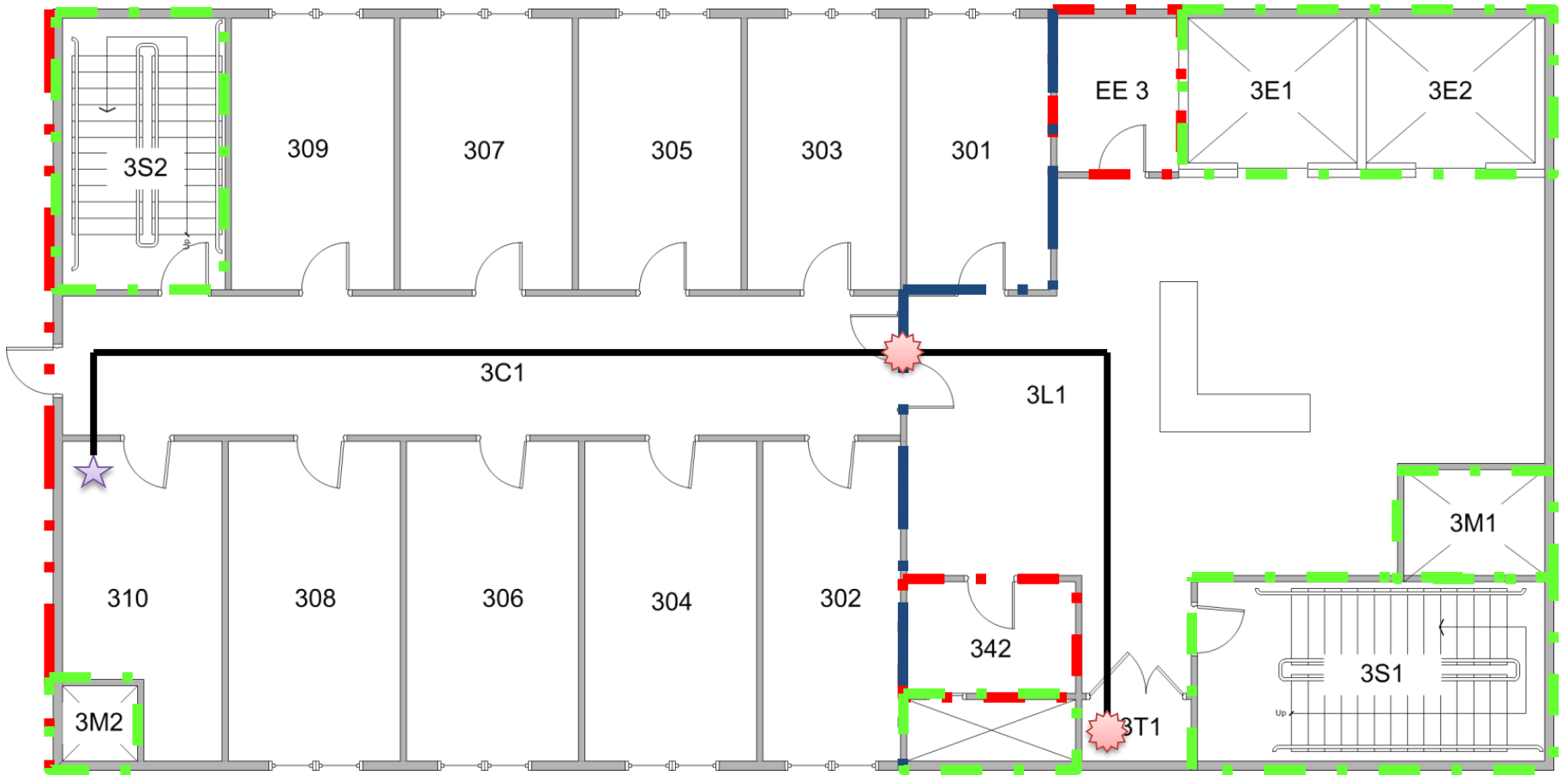


M–Barrier Management Systems

- **Electronic Best Practice Elements**
 - **Action Oriented**
 - **Projects - Specifications**
 - **Ongoing Surveys – FCIA RPPS 2010-1**
 - **Action Reminders**
 - **In Process Status**
 - **Record Retrieval**



Sample Permit – Area





Demo Hospital

Permit No.: 2011-005

Area (*): 3C1/3L1

Side 1: 3C1

Side 2: 3L1

LSR ID: LST-B1-03-007

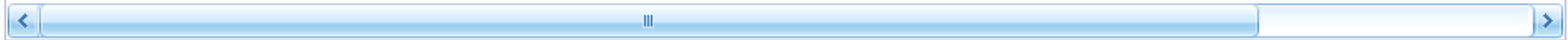
Compliance Status: ● Non-compliant

Survey ID:

LSR Group:

Life Safety Details | Surveys | Photos | Floor Plan Diagrams

LSR Deta...	Status	Latest Ph...	Detail Description	Life Safety T...	Life Safety Sub ...	Letters	Numbers	LSR Count	Notes
> 001	● Non-com...		Firestopping Through Wall Penetration - Firestop	Firestopping	Through Wall Pe...	WL	1000-1999	1	
002	● Compliant		Firestopping Through Wall Penetration - Firestop	Firestopping	Through Wall Pe...	WL	1000-1999	0	
003	● Compliant		Firestopping Through Wall Penetration - Firestop	Firestopping	Through Wall Pe...	WL	5000-5999	1	
004	● Compliant		Firestopping Through Wall Penetration - Firestop	Firestopping	Through Wall Pe...	WL	3000-3999	1	EZ Path



Add New Life Safety Detail Entry | Edit Selected Life Safety Detail Entry

Edit | Save | Save & Add Another | Save & Close | Delete Record | Cancel

Edit Selected Permit | Delete Selected Row | View/Print Permi | Close Form

Corrective Action Report

Building/Floor/Area:
Building 1 \ 3rd Floor \ 3C1/3L1

LSR # - Detail#:
LST-B1-03-007 - 001

Life Safety Type: Firestopping

Life Safety Sub Type: Through Wall Penetration - Firestop Systems

Penetration Type: EMT or Conduit

Penetration Size: Max 1"

Annular Space: MIN: 0 to .50", MAX:

Wall Rating Type:

Date Completed: May-02-2011

Classified System:

Survey #: Survey

Survey Date:

Deficiency Description: No firestopping

Suggested CA Notes: Install UL Listed Firestopping System at penetration/joint

Survey Notes:

CA Notes:

Survey Photo



Side: 37296

Photo ID: 37296

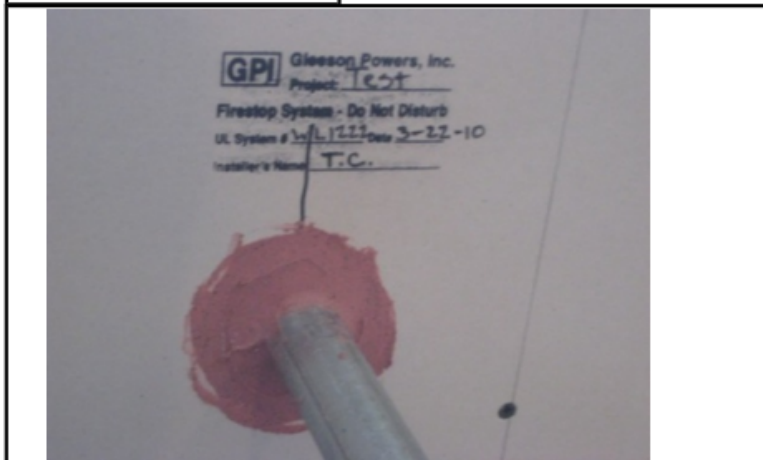
Survey Photo



Side: 2: 3L1

Photo ID: 37297

Corrective Action Photo

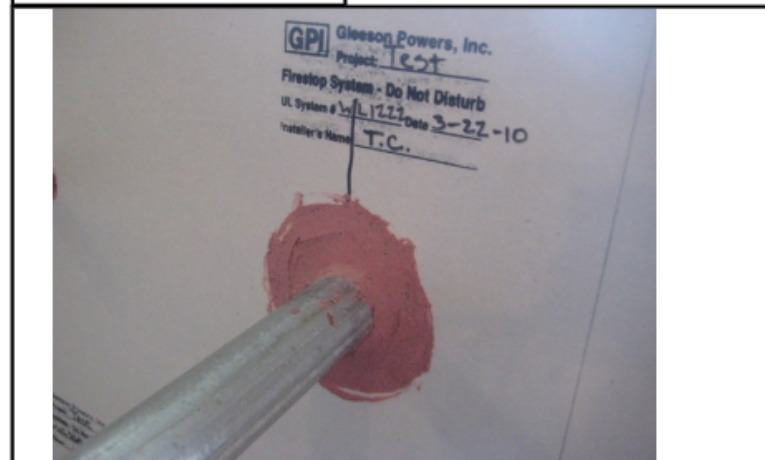


Side: 1: 3C1

Photo Notes:

Photo ID: 37298

Corrective Action Photo



Side: 2: 3L1

Photo Notes:

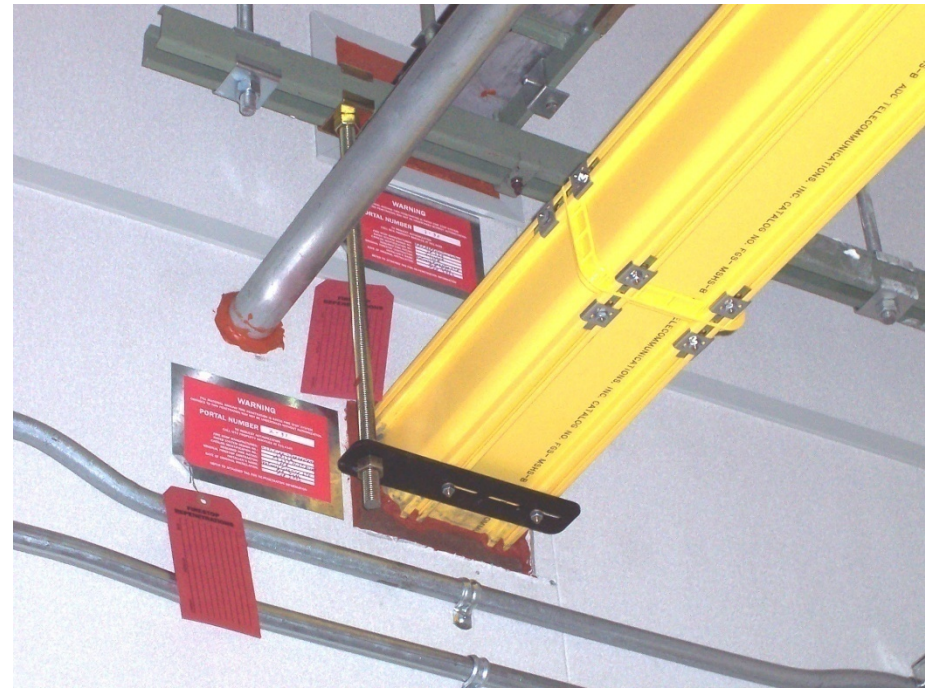
Photo ID: 37299

Barrier Management Policy Tool

- **Pre Construction Meetings - Education**
 - **Barrier Markings Mean...**
 - **Actions when at Barriers Required...**
 - **Permit required – Above Ceiling, Barrier Hole...**
 - **Infection Control Rules**
 - **Healthcare facility Rules**

Barrier Management Policy Tool

- Barrier Warnings on ASSEMBLIES
- International Building Code – 2009++



Barrier Management

Policy = Tool

703.7 Marking and identification. *Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall* required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. Such identification shall:

1. Be located in accessible concealed floor, floor-ceiling or *attic spaces*;
2. Be located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition; and
3. Include 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.

Exception: Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space.



Barrier Management Policy = Tool



Barrier Management Policy Tool

- **Violation Consequences**
 - **In House –**
 - **2 strikes & work reassignment to cleaning...**
 - **Others...**
 - **Outside Contractors**
 - **2 strikes & not allowed to work above ceilings**
 - **Others...**

Barrier Management Policy Tool

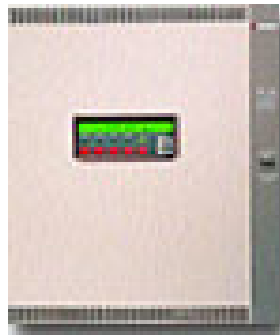
- **Ongoing Management**
 - **Engineering Staff Reviews**
 - **User Staff Reviews**
 - **Inside Construction**
 - **Outside Contractor**

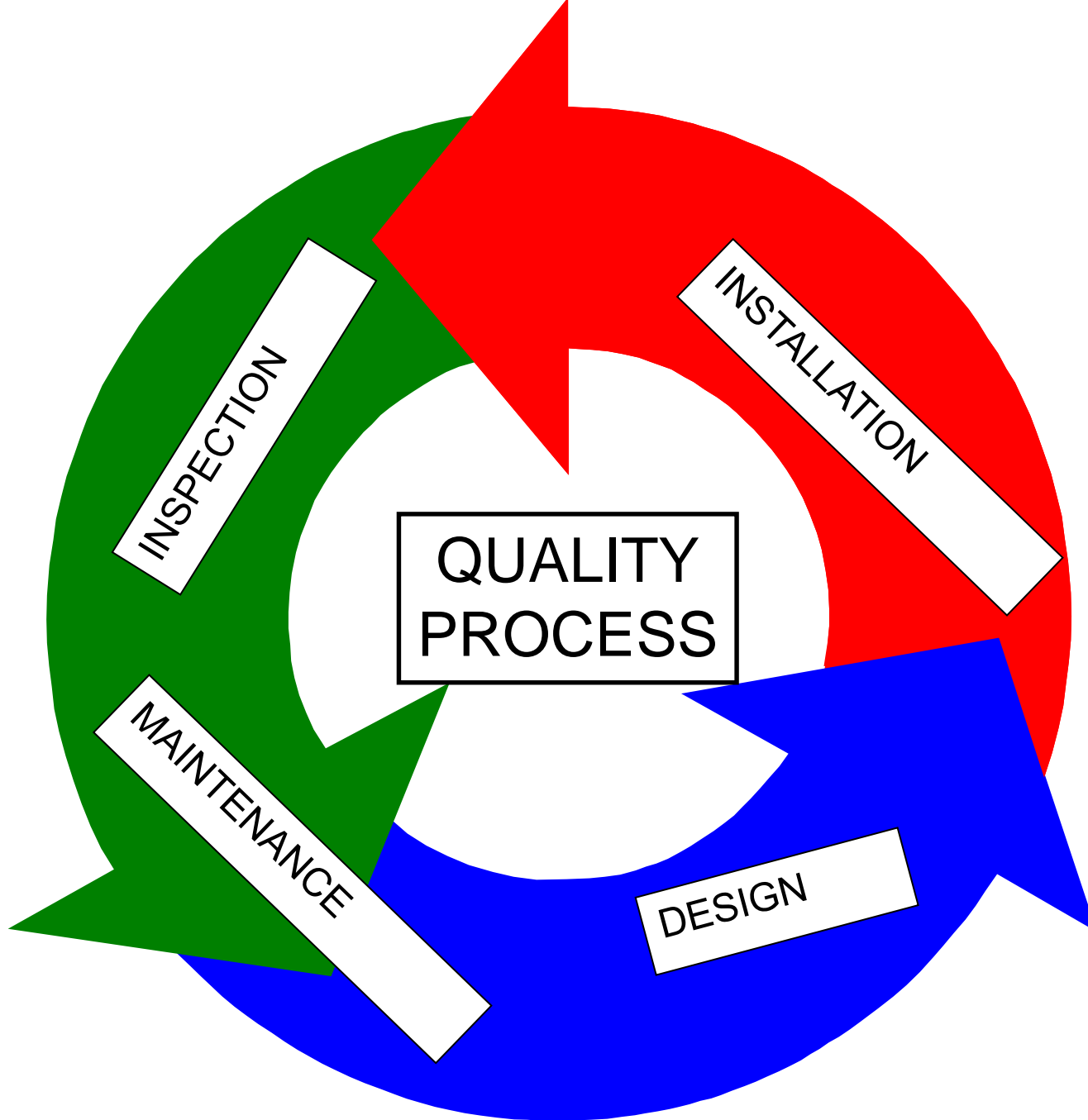
Barrier Management Policy Tool

- **Education - Healthcare Staff – Simple??**
 - **Fire Doors & Hardware – Simple things...**
 - **Close & Latch**
 - **Holes in Door**
 - **Ladder = ?? Permit Sticker?**
 - **Fire Rated Walls - Holes**
 - **Accidental**
 - **Workers**

“TOTAL FIRE PROTECTION”

- Effective Compartmentation
 - Fire Barriers, Fire Walls/Floors, Smoke Barriers
 - Firestopping, Fire Dampers, Swinging and Rolling Fire Doors, Fire Rated Glazing
- Detection & Alarm Systems
- Sprinkler Suppression Systems
- Education & Egress—
 - Building Owners & Managers, Building Occupants and Firefighters

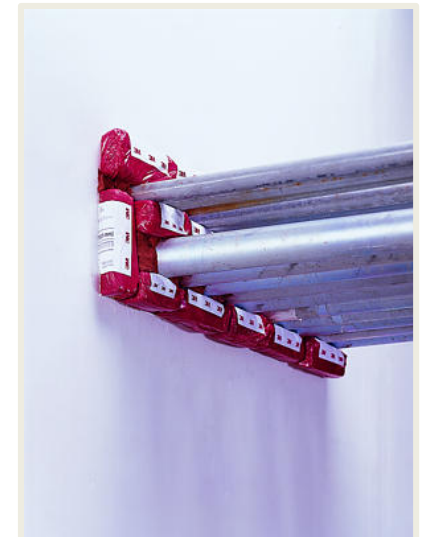




Effective Compartmentation is a SYSTEM

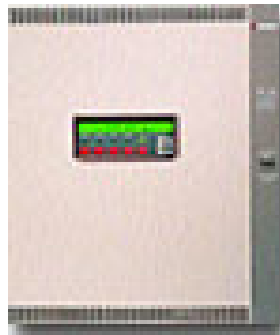
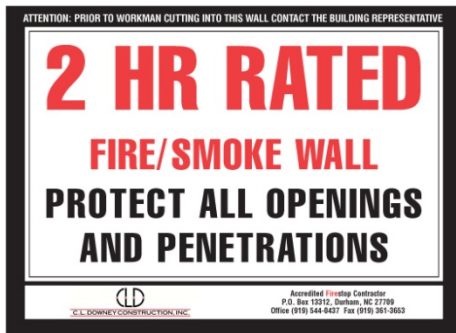


New UL test standards for Life Safety
Dampers will take effect in July 2002



“TOTAL FIRE PROTECTION”

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FCIA DIIM & Firestopping

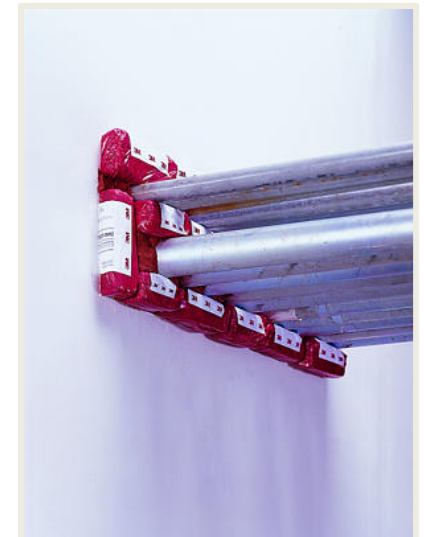
Proper '**DCIIM**' Means Reliable Systems...

- Properly **Designed** - A/E - Consultant
 - Tested and Listed Systems, FCIA Member Mfr's., Compartments to IBC, NFPA, NBC, Local Codes, SUBMITTALS....**Specified (CCS, CDT, RSW)**
- Properly **Coordinated & Installed**
 - FCIA Member, FM 4991, or UL *Qualified Contractors*
- Properly **Inspected**
 - ASTM E 2174 & ASTM E 2393,
 - *Inspectors, who Passed the FM or UL Firestop Exam, IFC*
 - *IAS AC 291 Accredited Inspection Firms*
- Properly **Maintained & Managed** –
 - FCIA Member, FM 4991, or UL-ULC Qualified Firms
 - Surveys by FCIA Member, FM, UL Qualified, IAS Accredited

Effective Compartmentation is a SYSTEM



New UL test standards for Life Safety
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FCIA's Fire Resistance Rated
& Smoke Resistant Systems
FOR
Safety and Property Protection

