

# Barrier Management

## **FCIA Webinar**

2016-04-14



52<sup>nd</sup>  
ASHE

Annual Conference &  
Technical Exhibition

2015

[ashe.org/annual](http://ashe.org/annual)

# Barrier Management Symposium

Improving Barriers Nation Wide



# Barrier Management Symposium

## Effective Compartmentation Features



# Barrier Management Symposium

- **World Travelled Faculty**

- Jonathan Flannery, ASHE Advocacy
- Anne Guglielmo, The Joint Commission
- Rich Walke, UL
- Bill Koffel, Koffel Associates
- Nestor Sanchez, USG Corp.
- Rich Walke, UL - Concrete Industry
- Bill McHugh, FCIA – Firestopping
- Paul Baillargeon, DHI – Fire Doors
- Marc Sorge, Greenheck – Fire & Smoke Dampers
- Tim Warren, TGP – Fire Rated Glazing
- Others.....

# Details – Jonathan Flannery

- Objective – YOU
- Speakers Volunteer



# Why is ASHE Educating with TJC?

- Identified Problem
- Passion for Patient Safety
- Trusted Industry Resource

## ASHE Mission

**Dedicated to optimizing the**

**health care physical environment**



**2015**

---

**BARRIER MANAGEMENT  
SYMPOSIUM**

**Anne Guglielmo, Engineer  
Department of Engineering  
The Joint Commission**

# Barrier Management Symposium



**Free Symposium**  
**Sept 5-6**  
**Steamboat Springs, CO**  
**Hosted By CAHED**



**Learn about**  
**Design, Installation,**  
**Inspection & Maintenance**  
**of Rated Barrier Systems in**  
**Healthcare Environments**



*The safety and  
welfare of patients  
depends on many  
things, including a  
healthcare  
environment  
that is fire safe.*





# BARRIER MANAGEMENT SYMPOSIUM



## Program Developers:

- Joint Commission
- Firestop Contractors International Association
- Underwriters Laboratories

## Participating Organizations:

- American Society for Healthcare Engineering
- Gypsum Association
- Fire Damper Industry
- Fire Rated Glazing Industry
- Door & Hardware Institute

# TOP SCORED STANDARDS

| Standard    | 2014 Non Compliance | 2013 Non Compliance |   |
|-------------|---------------------|---------------------|---|
| EC.02.06.01 | 56%                 | 39%                 | ↑ |
| EC.02.05.01 | 53%                 | 47%                 | ↑ |
| IC.02.02.01 | 52%                 | 46%                 |   |
| LS.02.01.20 | 50%                 | 52%                 | ↓ |
| RC.01.01.01 | 49%                 | 52%                 |   |
| EC.02.03.05 | 48%                 | 45%                 | ↑ |
| LS.02.01.10 | 46%                 | 48%                 | ↓ |
| LS.02.01.35 | 43%                 | 36%                 | ↑ |
| LS.02.01.30 | 43%                 | 45%                 | ↓ |
| EC.02.02.01 | 36%                 | 34%                 | ↑ |

# TOP SCORED STANDARDS

| Standard    | 2014 Non Compliance | 2013 Non Compliance |
|-------------|---------------------|---------------------|
| MM.03.01.01 | 35%                 | 35%                 |
| PC.01.03.01 | 33%                 | 27%                 |
| PC.02.01.03 | 29%                 | 18%                 |
| EC.02.05.09 | 27%                 | 21% ↑               |
| PC.03.01.03 | 26%                 | 20%                 |
| MM.04.01.01 | 25%                 | 22%                 |
| LD.01.03.01 | 23%                 | 19% ↑               |
| LD.04.01.05 | 22%                 | 14% ↑               |
| EC.02.05.07 | 21%                 | 23% ↓               |
| IC.02.01.01 | 20%                 | 13%                 |

# BARRIER MANAGEMENT SYMPOSIUM

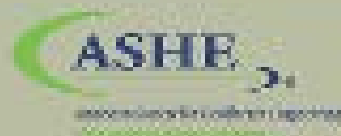
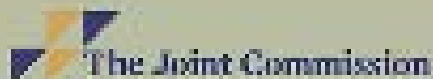
*...at no cost to the attendee...*

## Barrier Management Symposium

*Together we can make the Environment of Care  
a SAFE Environment of Care*

### Mission Statement


To provide concise, accurate education at no cost to the attendee,  
resulting in excellent barrier system management  
in healthcare buildings



## #4 LS.02.01.20

| EP | Assembly Affected     | Issue  |
|----|-----------------------|--|
| 1  | Door                  | Locking  |
| 2  | Door                  | Swing  |
| 3  | Horizontal exits      | Requirements   |
| 4  | Outside stair         | Building protection  |
| 5  | Horizontal exit: door | Requirements   |
| 6  | Horizontal exit       | Fire jump  |
| 8  | Exit                  | Discharge  |
| 9  | Stair doors           | Hold open  |
| 10 | Doors                 | New boiler rooms,<br>mechanical rooms,<br>and heater rooms |

# #7 LS.02.01.10



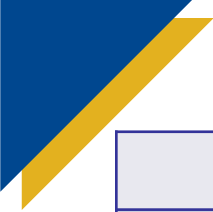
| <b>EP</b> | <b>Assembly Affected</b> | <b>Issue</b>      |
|-----------|--------------------------|-------------------|
| 1         | Building type            | Construction type |
| 3         | Rated walls              | Features          |
| 4         | Rated walls              | Openings          |
| 5         | Rated doors              | Features          |
| 6         | Doors                    | Protective plates |
| 7         | Doors                    | Coverings         |
| 8         | Ducts                    | Penetration       |
| 9         | Penetrations             | Firestopping      |

# #9 LS.02.01.30

| EP | Assembly Affected              | Issue                   |
|----|--------------------------------|-------------------------|
| 1  | Vertical openings              | Protection              |
| 2  | Hazardous areas                | Walls & doors           |
| 3  | Gift shop                      | Protection              |
| 6  | Corridor partitions            | Features                |
| 7  | Corridor walls, new            | Limit transfer of smoke |
| 8  | Fire windows in corridor walls | Features                |
| 9  | Corridor doors                 | Features                |
| 10 | Corridor doors                 | Plates                  |
| 11 | Corridor doors                 | Features                |

# #9 LS.02.01.30

| <b>EP</b> | <b>Assembly Affected</b>       | <b>Issue</b>             |
|-----------|--------------------------------|--------------------------|
| 12        | Corridor walls                 | Openings                 |
| 16        | Smoke barriers                 | Features                 |
| 18        | Smoke barriers                 | Features                 |
| 19        | Smoke barriers                 | Features                 |
| 20        | Smoke barriers                 | Duct penetrations        |
| 21        | Smoke barriers                 | Damper protection        |
| 22        | Smoke barriers;<br>smoke doors | Window opening<br>rating |
| 23        | Smoke barriers doors           | Features                 |
| 24        | Exit stair                     | Rating                   |





# LS.02.01.50

| <b>EP</b> | <b>Assembly Affected</b>                    | <b>Issue</b> |
|-----------|---|--------------|
| 8         | Linen & waste chute inlet doors             | Protection   |
| 9         | Linen & waste chute inlet & discharge doors | Features     |
| 10        | Linen & trash chutes discharge door         | Features     |
| 11        | Linen & waste chutes discharge              | Separation   |

# TOP 10 CITED STANDARDS: 2011 – 2014

| Standard                            | 2014 | 2013 | 2012 | 2011 |
|-------------------------------------|------|------|------|------|
| EC.02.06.01: Built Environment      | #1   | #8   | #7   | #11  |
| EC.02.05.01: Utility Systems Risks  | #2   | #4   | #10  | #13  |
| LS.02.01.20: Means of Egress        | #4   | #1   | #2   | #2   |
| EC.02.03.05: Fire Safety Systems    | #6   | #7   | #5   | #5   |
| LS.02.01.10: General Building Req's | #7   | #3   | #3   | #3   |
| LS.02.01.35: Extinguishment         | #8   | #9   | #9   | #10  |
| LS.02.01.30: Protection             | #9   | #6   | #6   | #4   |
| EC.02.02.01: Haz Materials & Waste  | #10  | #11  | #11  | #15  |

DEPARTMENT OF ENGINEERING  
630 792 5900



George Mills, MBA, FASHE, CEM, CHFM, CHSP, Green Belt  
Director

Anne Guglielmo, CFPS, CHFM, CHSP LEED, A.P.  
Engineer

John Maurer, SASHE, CHFM, CHSP  
Engineer

Kathy Tolomeo, CHEM  
Engineer

James Woodson, P.E., CHFM  
Engineer

# THE JOINT COMMISSION DISCLAIMER

- ▶ These slides are current as of 4/13/2015. The Joint Commission reserves the right to change the content of the information, as appropriate.
- ▶ These slides are only meant to be cue points, which were expounded upon verbally by the original presenter and are not meant to be comprehensive statements of standards interpretation or represent all the content of the presentation. Thus, care should be exercised in interpreting Joint Commission requirements based solely on the content of these slides.
- ▶ These slides are copyrighted and may not be further used, shared or distributed without permission of the original presenter or The Joint Commission.



# FIRE/SMOKE BARRIER FUNDAMENTALS FOR HEALTH CARE FACILITIES

Lennon Peake  
Koffel Associates, Inc.

[www.koffel.com](http://www.koffel.com)

[wkoffel@koffel.com](mailto:wkoffel@koffel.com)

# OBJECTIVE

- Identify the different types of barriers used in health care facilities
- Identify the key characteristics for each barrier
  - Continuity
  - Protection of openings
- List at least three strategies that can be used to improve a barrier management program

# TYPES OF WALL ASSEMBLIES

- Exterior walls
- Fire walls
- Fire barriers
- Fire partitions – No such assembly in NFPA
- Smoke barriers
- Smoke partitions

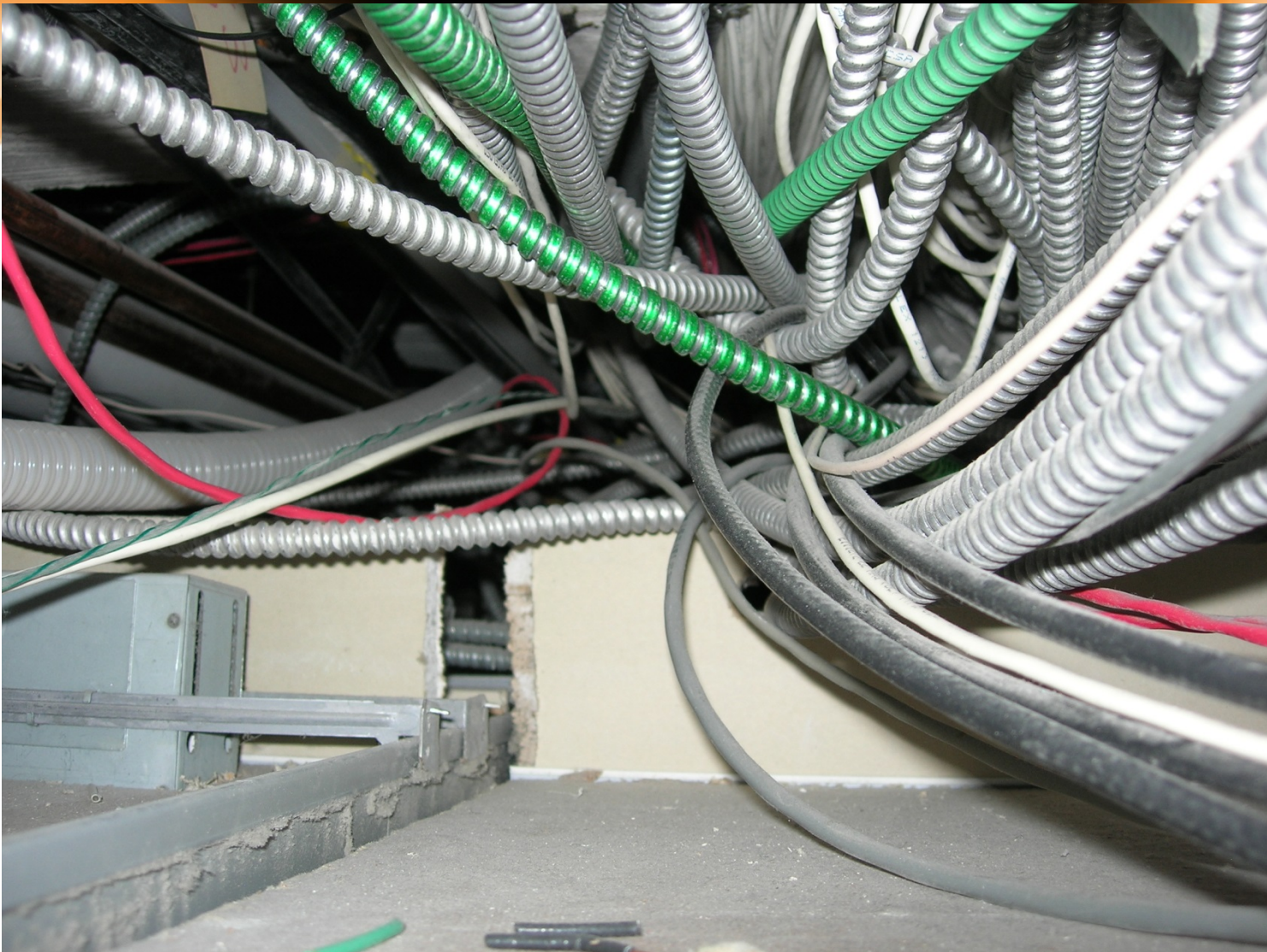
# FIRE TESTED WALL ASSEMBLIES

- In accordance with ASTM E119/UL263
- Resist passage of heat and hot gases
- Structural integrity during the test fire
- Have something left at the end of the test



# FIVE POINTS

- Required fire-resistance rating
- Continuity
- Openings and penetrations
- Types of materials
- Structural robustness



# FIRE BARRIERS

- Fire barriers are used in the following applications:
  - Fire area separations
  - Mixed occupancy separations
  - Incidental use areas
  - Hazardous area separations
  - Exit enclosures
  - Shaft enclosures
  - Horizontal exits
  - Corridor walls – NFPA only

# SUPPORT

- Supported by construction with the same fire-resistance rating as the fire barrier
- Some exceptions
  - Vary between NFPA and ICC

# SUMMARY OF FIRE BARRIERS

| Issue                           | Requirement  |
|---------------------------------|--|
| Required Fire-Resistance Rating | Depends upon specific use  |
| Required continuity             | Floor/ceiling below to deck above  |
| Openings                        | General: Aggregate glazing area (or width) <25% wall area/length;<br>maximum size 120 sf.<br>Specific: Rules based on use of barrier |
| Types of materials              | As required for the type of construction   |
| Robustness of structural system | If load bearing, fire tested with load   |

# SMOKE BARRIERS

- Smoke barriers are used in the following applications:
  - Group I-2
  - Group I-3
  - Areas or refuge
  - Other specific applications

# SUMMARY OF SMOKE BARRIERS

| Issue                           | Requirement  |
|---------------------------------|--|
| Required Fire-Resistance Rating | 1-hour with the exception that a construction of a minimum 0.1” thick steel in Group I-3 buildings is allowed  |
| Required continuity             | Horizontal: Outside wall to outside wall<br>Vertical: Floor to slab or deck above, continuous through interstitial spaces<br><br>Supporting construction may be required based upon the applicable codes |
| Openings                        | 20 minutes – but not a true fire door in NFPA 101<br>Smoke- and draft-controlled doors tested in accordance with UL 1784 – IBC only  |
| Types of materials              | As required for the type of construction   |
| Robustness of structural system | If load bearing, fire tested with load   |

# SMOKE PARTITIONS

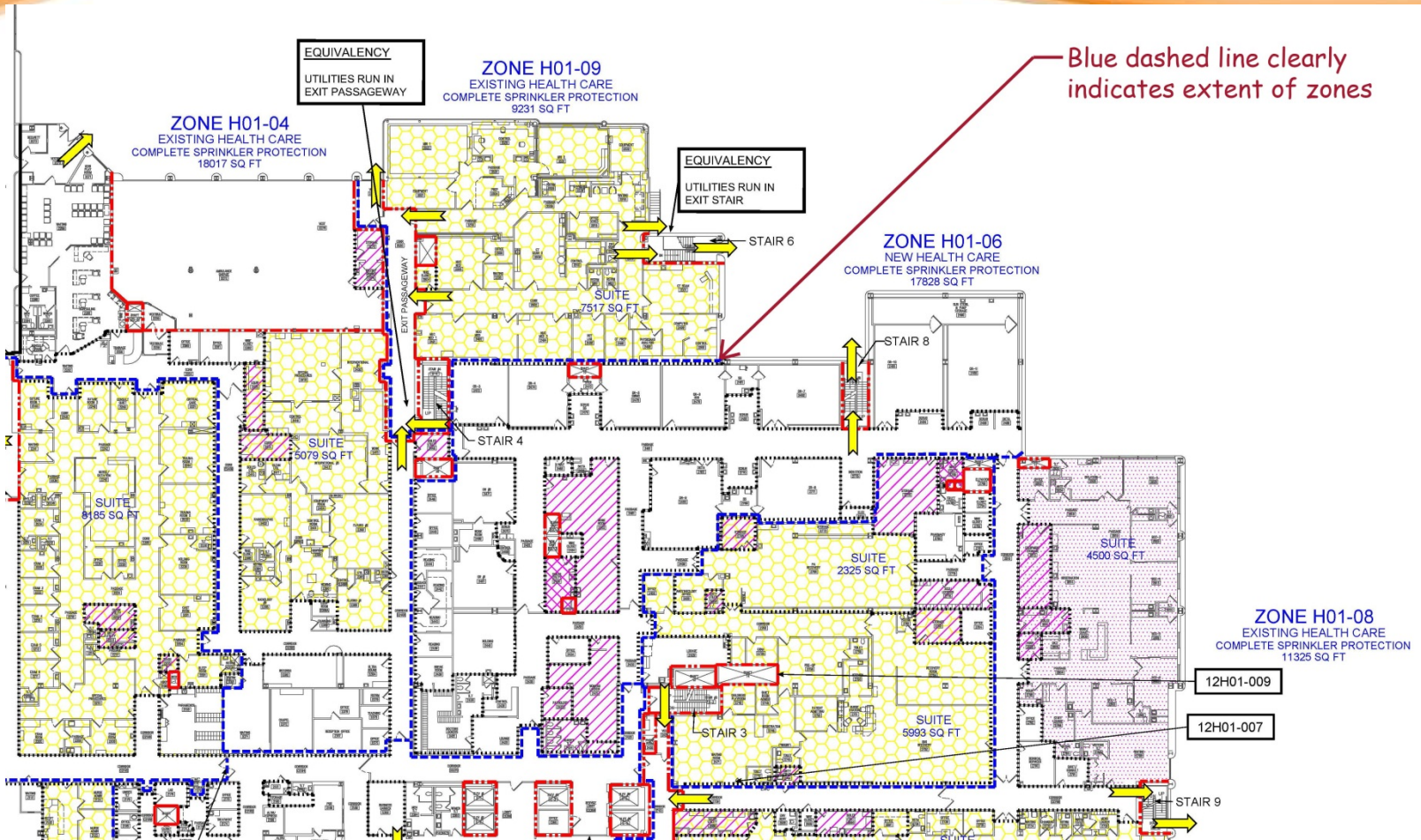
- Smoke partitions are used in the following applications:
  - Corridor walls in Group I-2 – IBC only
  - Sprinkler protected hazardous areas – NFPA



# SUMMARY OF SMOKE PARTITIONS

| Issue                           | Requirements  |
|---------------------------------|---|
| Required Fire-Resistance Rating | Not required (unless otherwise required)  |
| Required continuity             | Floor/ceiling below to deck above or tight to underside of ceiling membrane in ceiling membrane designed to limit passage of smoke<br>- Difference between NFPA/ICC for ceiling tiles |
| Openings                        | Windows: Sealed to resist free passage of smoke<br>Doors: No louvers<br>Air leakage rated (UL 1784) – IBC???<br>Self closing, or automatic closing by smoke detectors                 |
| Types of materials              | As required for the type of construction  |
| Robustness of structural system | If load bearing, fire tested with load  |

# LS DRAWING INFORMATION



# BUILD IT CORRECTLY!!



# SUCCESSFUL STRATEGIES

- **BUILD IT CORRECTLY**

- Thorough plan review process
- Contractor qualifications
- Commissioning systems and buildings
  - NFPA 3, NFPA 4, ASHE documents, pending ICC std.
- Complete SOC documentation while contractor still on site
- Use of certified inspectors or special inspectors





# FIRE/SMOKE BARRIER FUNDAMENTALS FOR HEALTH CARE FACILITIES

Lennon Peake  
Koffel Associates, Inc.

[www.koffel.com](http://www.koffel.com)

[wkoffel@koffel.com](mailto:wkoffel@koffel.com)

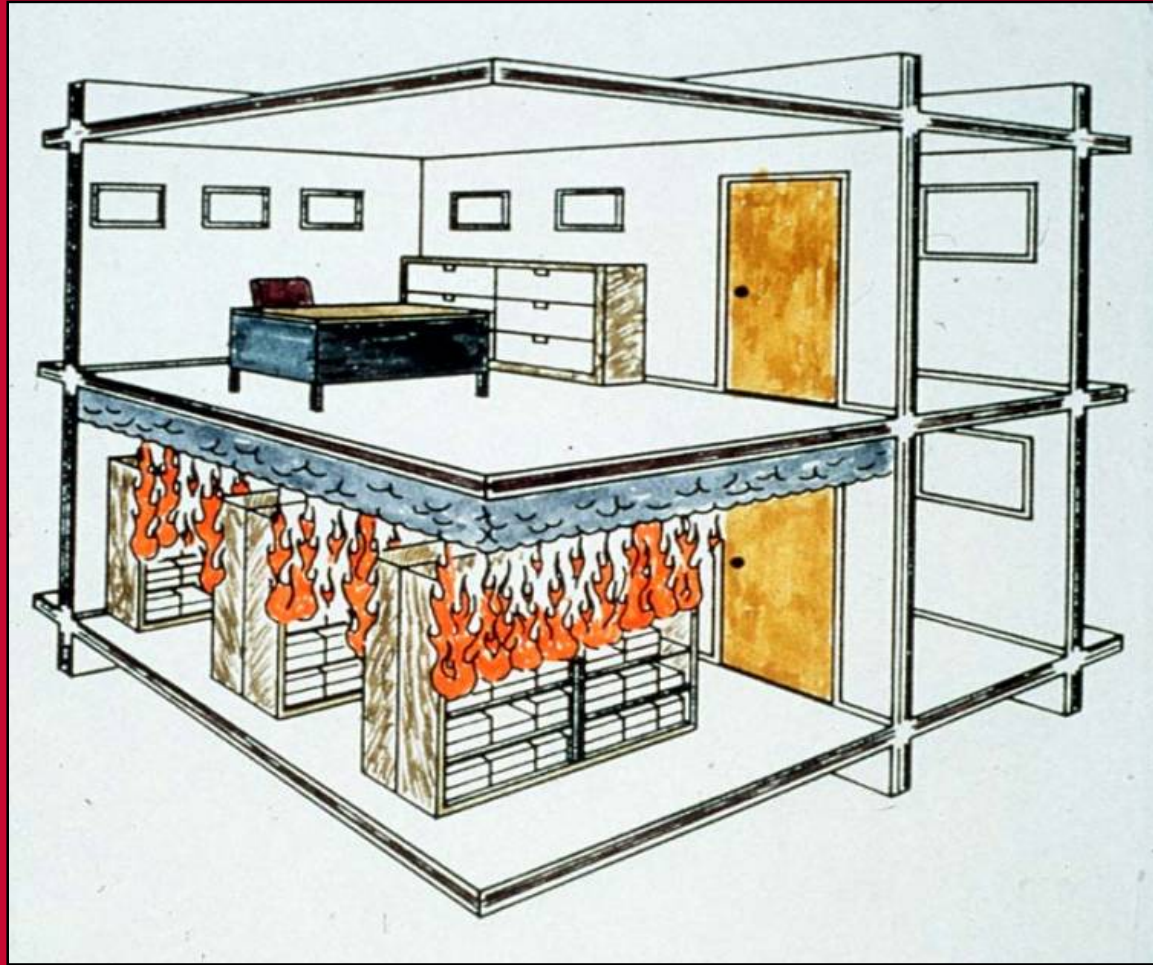
# Testing of Fire Resistance and Smoke Resistant Assemblies



Rich Walke

UL Codes and Advisory Services

# Fire-Resistance-Rated Construction



# Code Requirements

---

- IBC Section 703.2 – Fire-resistance ratings shall be determined in accordance with ANSI/UL 263 or ASTM E119
- LSC 8.2.3.1 – The fire resistance of structural elements and building assemblies shall be determined in accordance with test procedures set forth in NFPA 251 (i.e. ANSI/UL 263 or ASTM E119)





# Fire Resistance

---

- Expressed as an Hourly Time Period
- Ratings range from 1/2 to 4 hours
- Containment of Fire to Room or Floor of Origin

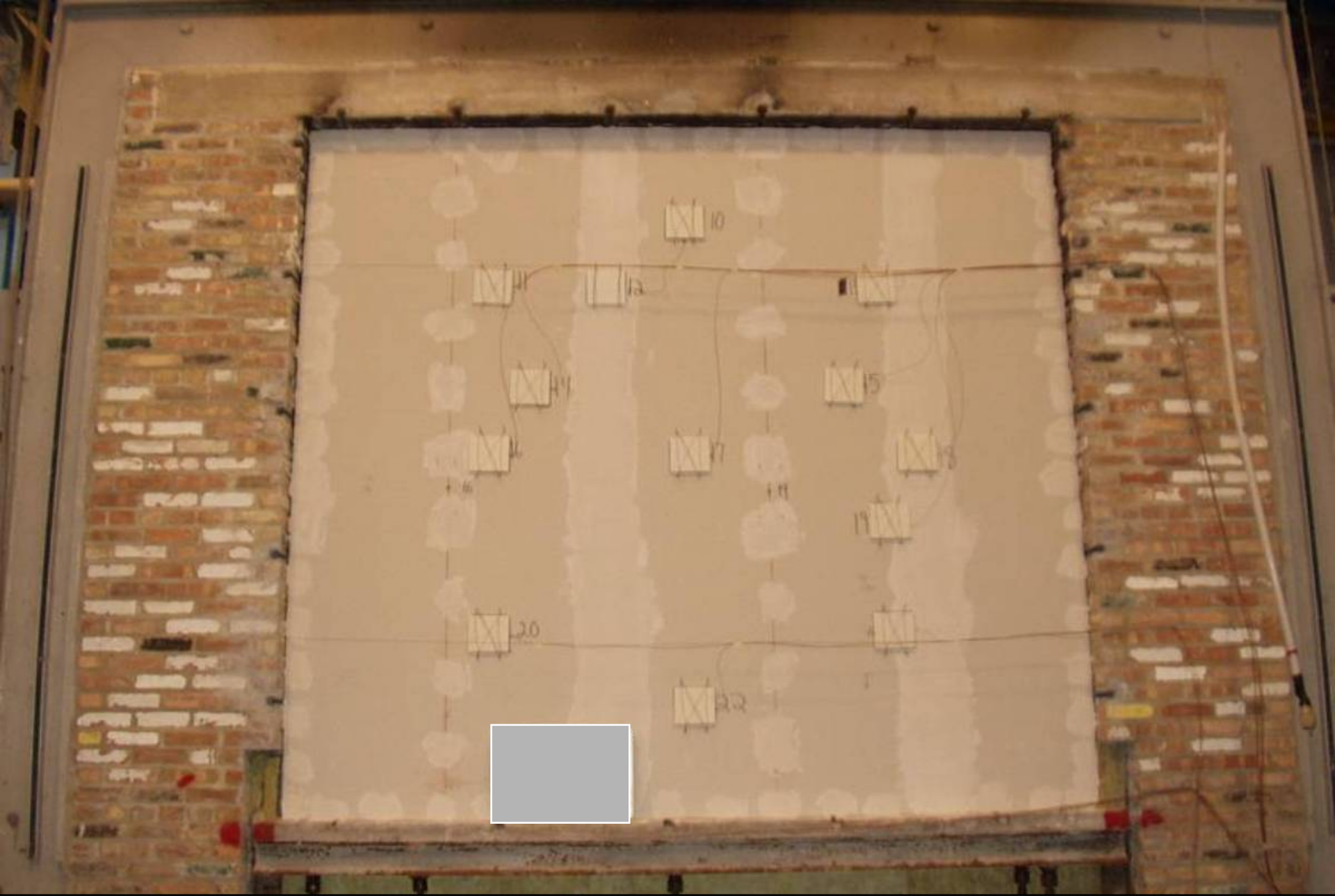
# Standards

---

- ANSI/UL 263
- ASTM E119
- NFPA 251 (Withdrawn)

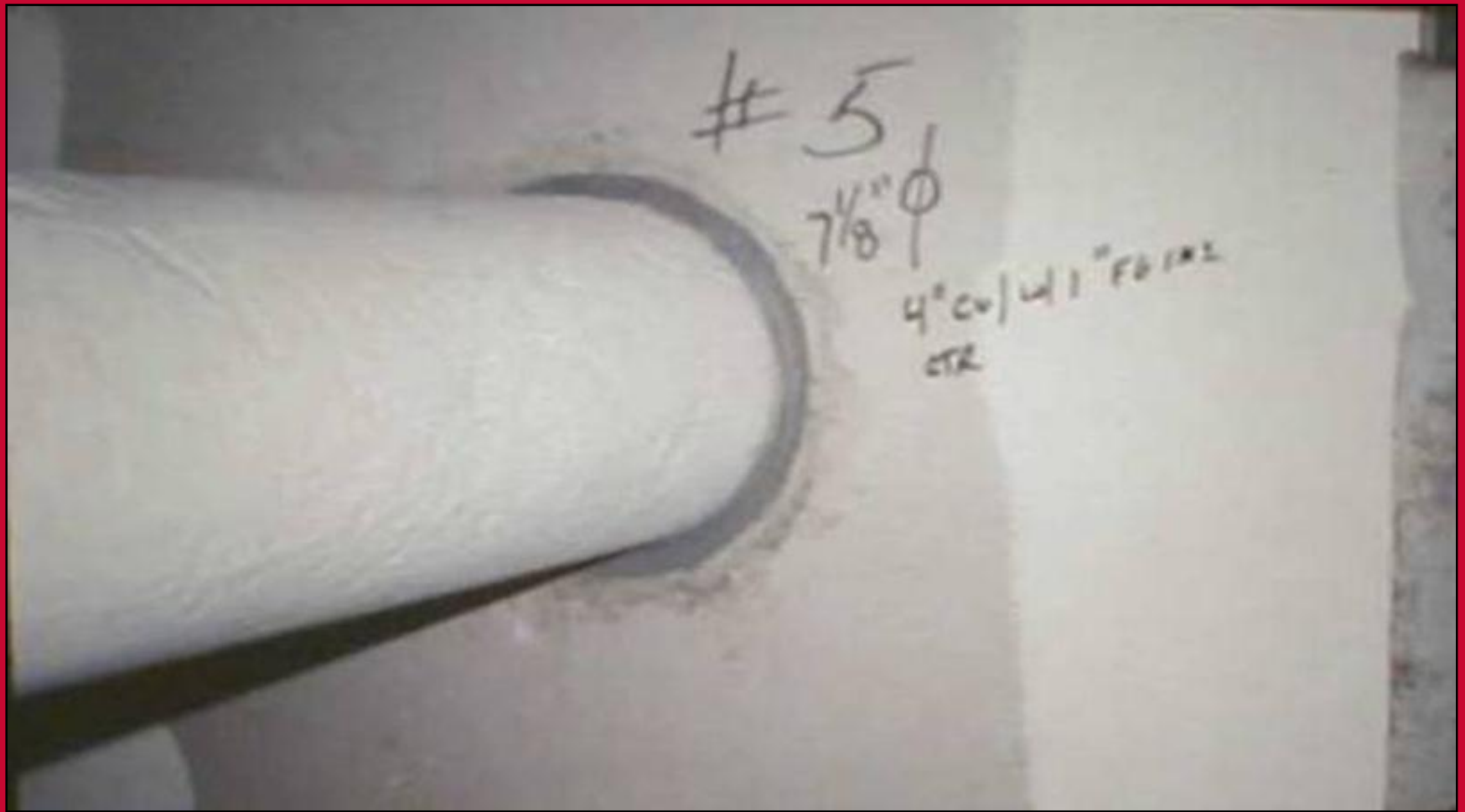








# Through- and Membrane-Penetration Firestop Systems



# Fire-Resistance-Rated Construction

---

Establishing  
an L Rating



# Opening Protectives

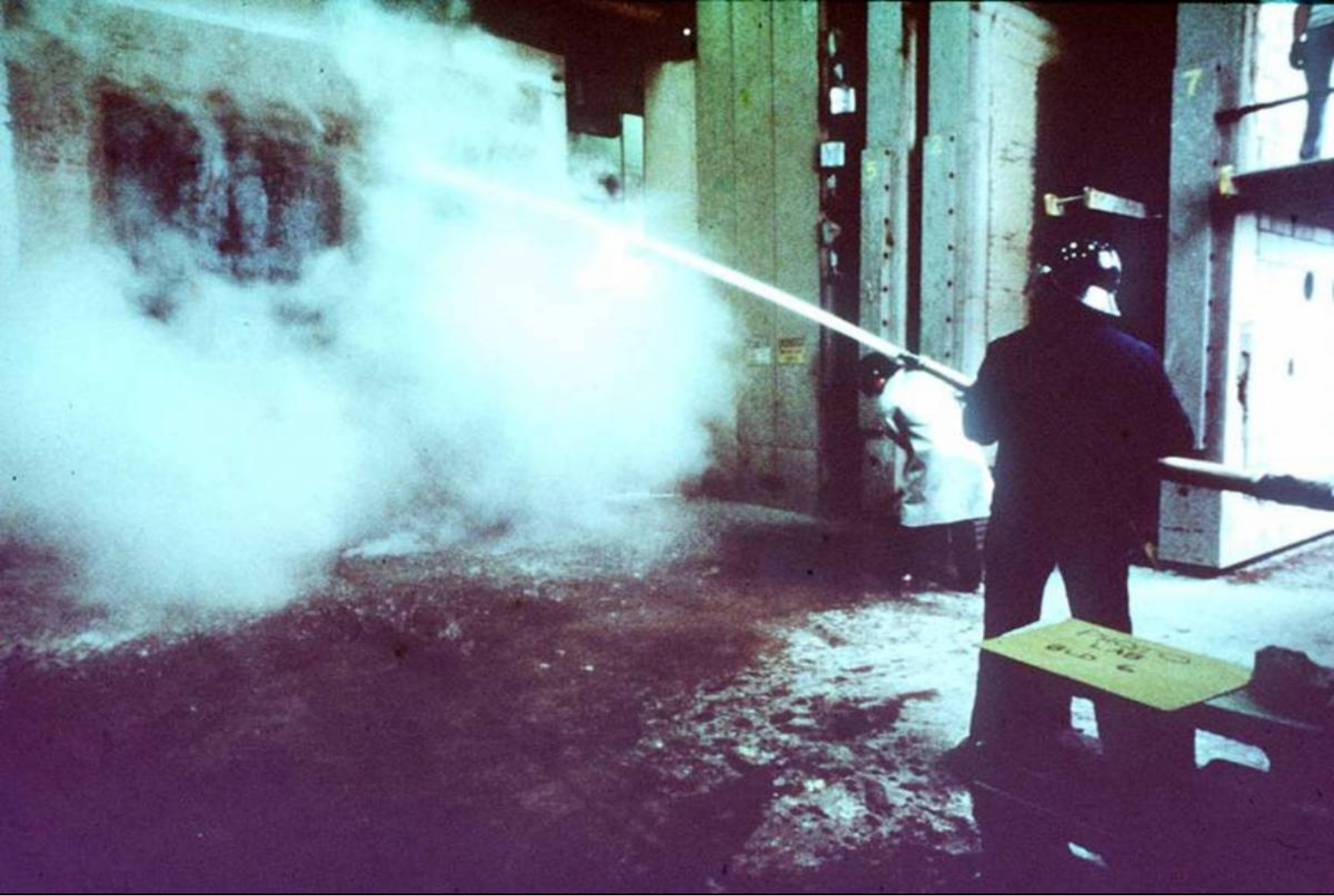
---

- Fire Door Assemblies
- Fire Window Assemblies









# Conditions of Acceptance – Walls

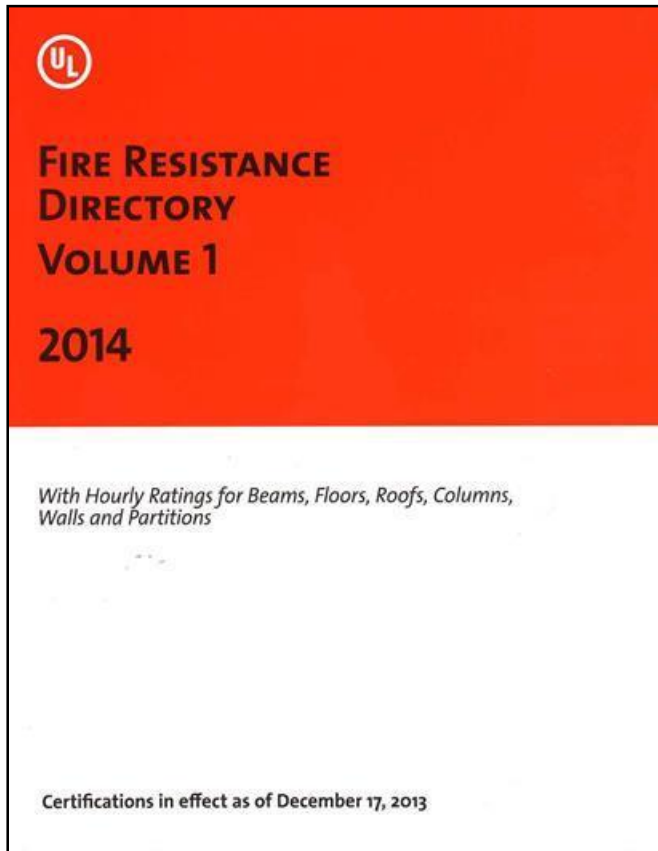
---

- Flame passage
- 250°F / 325°F
- Support load
- Hose stream



# Where Are Listings Found?

## Hard Copy



## CD-ROM



## Online

UL ONLINE CERTIFICATIONS DIRECTORY

Quick Guide Contact Us UL.com

**BEGIN A BASIC SEARCH**

To begin a search, please enter one or more search criteria in the parameters below.

Company Name

City

U.S. State

U.S. Zip Code

Country

Region

Postal Code (non-US)

UL Category Code

UL File Number

Keyword

SEARCH CLEAR

**ABOUT THE OCD**

You can use the UL Online Certification Directory to:

- Verify a UL Listing or Classification
- Verify a UL Listed product use
- Verify a product safety standard

Learn more with the [Quick Guide to the OCD](#)

**SPECIFIC SEARCHES**

**LINKS OF INTEREST**

[UL Online Directories](#)  
[Notice of Disclaimer](#)  
[Order Printed Directories](#)  
[Order Listing Cards](#)  
[Index of Tradenames & Trademarks](#)  
[Introduction: UL Listed and Classified Products](#)  
[Introduction: UL Recognized Components](#)  
[Introduction: Products Certified for Canada](#)

**FEATURED LINKS**



# **Barrier Management Symposium**

April 14, 2015

Nestor Sanchez, USG Corporation

# Learning Objectives

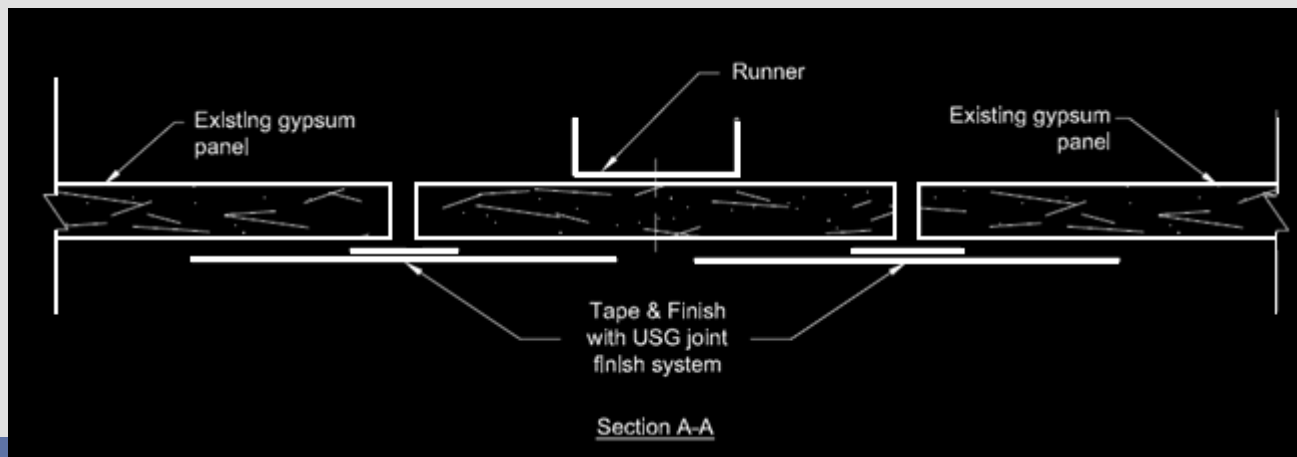
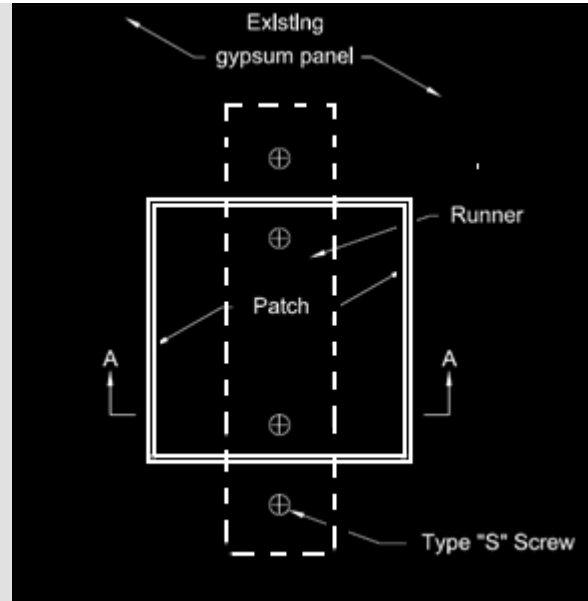
1. Explore the gypsum mineral and its impact on fire resistance in a systems basis
2. Understand the different types of gypsum core and their relation to fire resistance
3. Determine recognized methods for repair installed gypsum panels
4. Innovative Technology

# Gypsum Core Types

## Three (3) Types of Gypsum Cores

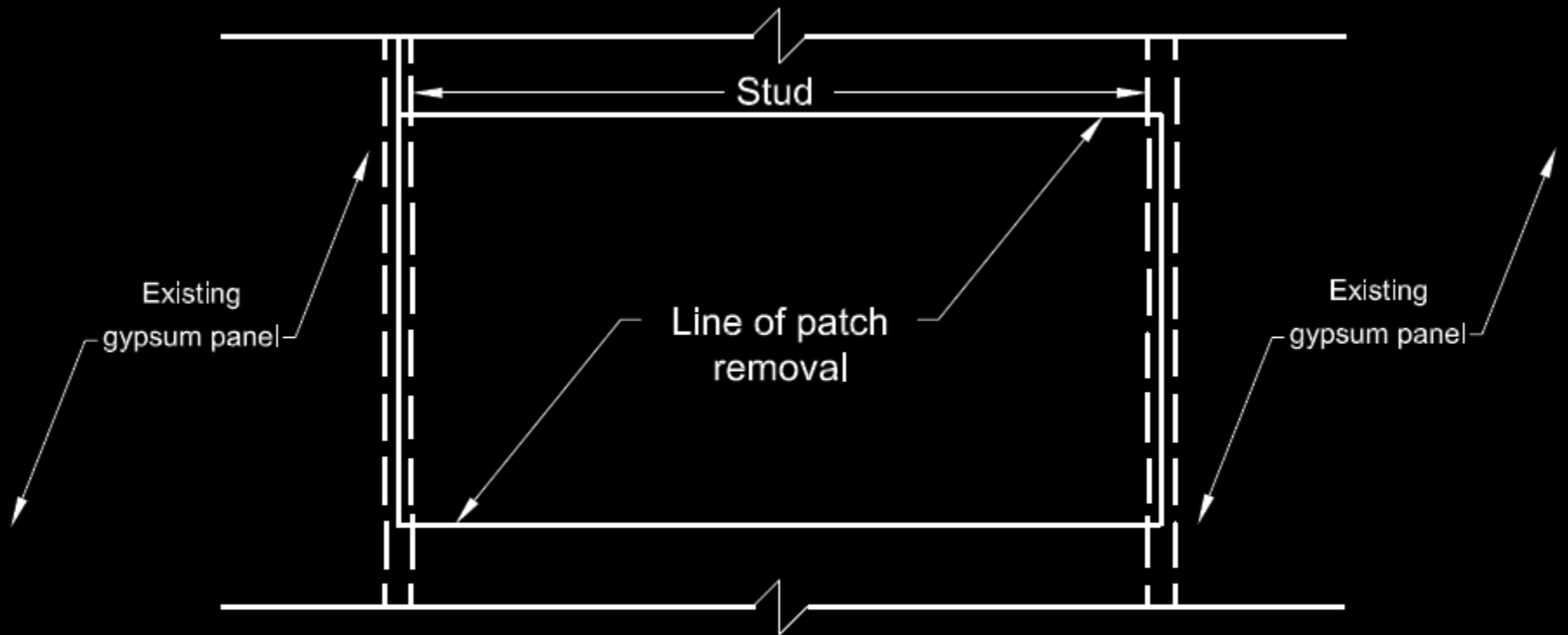
- Regular Core
- Type X
- Type C

# Repair Small Holes





# Repair Large Holes



Partial Elevation - 1



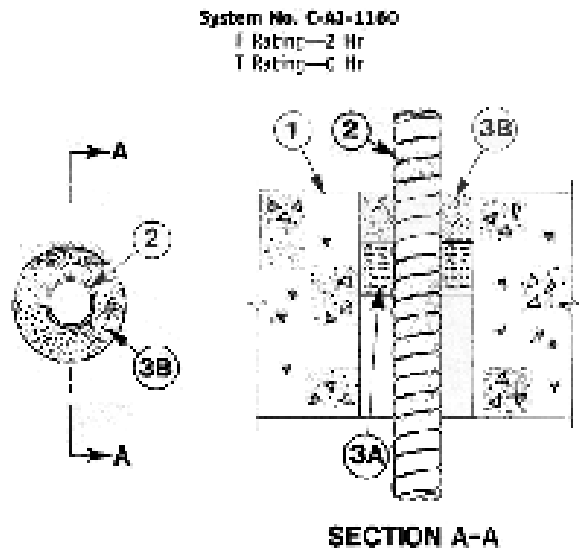
**Bill McHugh, Executive Director**

**Firestop Contractors International Association**

Hillside, IL – +1-708-202-1108 - office

Bill McHugh – **bill @ fcia.org**

# Firestopping for Continuity I – Systems

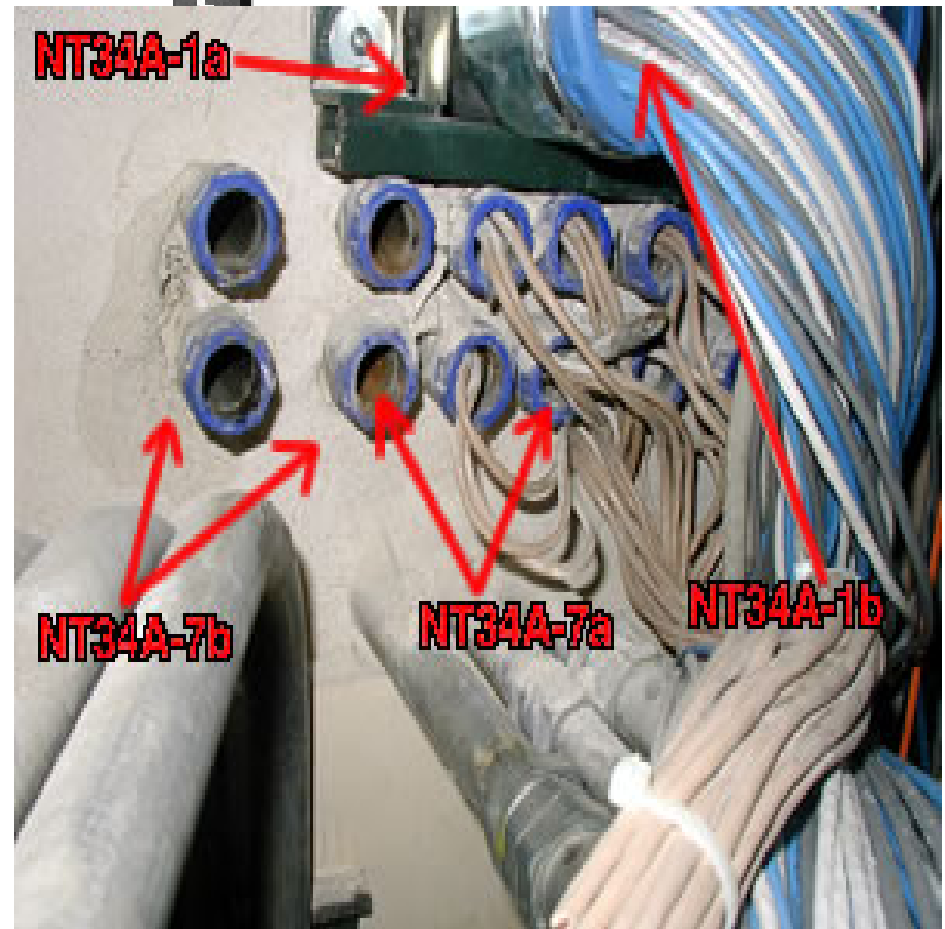


- Floor or Wall Assembly**—Min. 4-1/2 in. thick lightweight or normal weight (100 to 150 pcf) concrete. Will may also be constructed of any UL Classified Concrete Block\*. Size of circular through opening in floor or wall assembly to be 1/8 in. to 1-1/2 in. larger than diam. of flexible metal conduit (Item 2) installed in through opening. Max. diam. of opening is 6 in. See Concrete Block (LAC) category in the Fire Resistance Directory for names of manufacturers.
- Through Penetrating Product**\*—Max. 4 in. diam. (or smaller) pipe, or max. 3/4 in. diam. (or smaller) aluminum Flexible Metal Conduit. Max. one flexible metal conduit to be installed near center of circular through opening in floor or wall assembly. Flexible metal conduit to be rigidly supported on both sides of floor or wall assembly.  
 \*Alliance Cable Corp.
- Packing Material**—Max. 1 in. thickness of organic (polyimide silk) fiber Matul or mineral wool batt insulation. Insulation to be secured into 1 in. from top surface of floor or from both surfaces of wall.
- FILL Void or Cavity Material**\*—Gaultk—Applied to fill the annular space around the flexible metal conduit. In floors, a min. 2 in. depth of fill material to be installed flush with top surface of floor. In walls, a min. 1 in. depth of fill material to be installed flush with wall surface on both sides of wall assembly.

Minnesota Mining & Mfg. Co.—TF 2700B

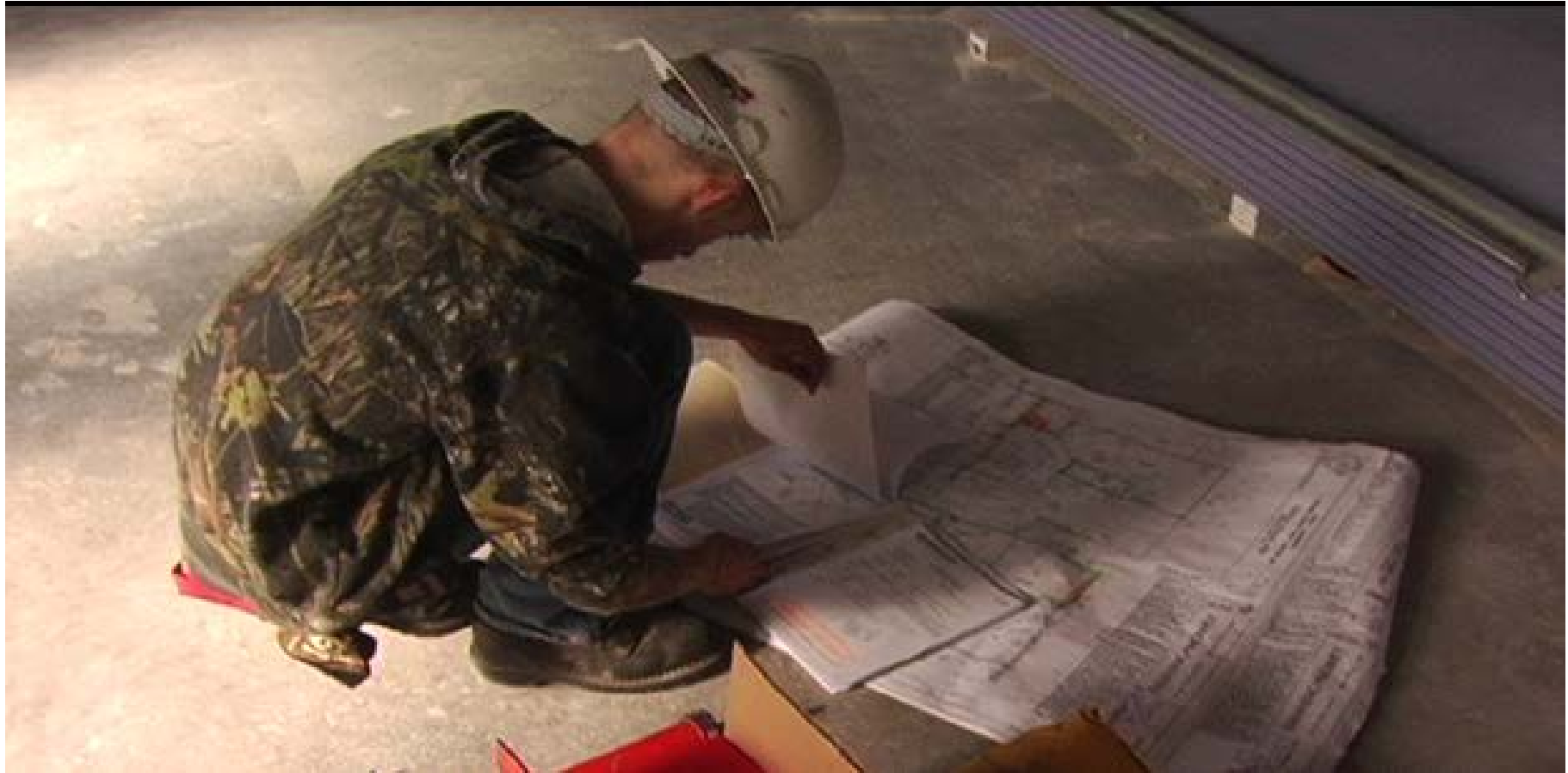
\*Bearing the UL Classification Marking

†Bearing the UL Listing Mark



# Firestopping for Continuity

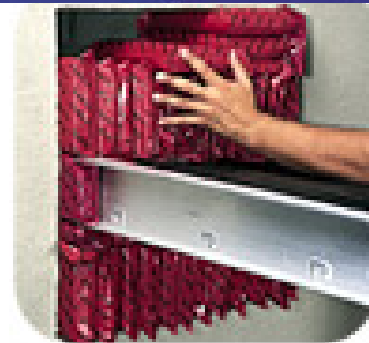
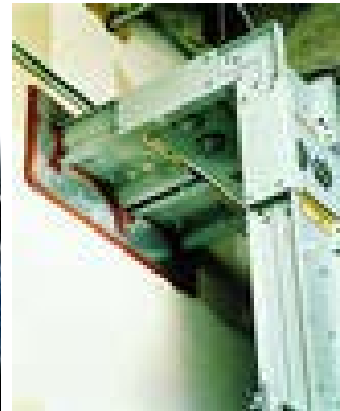
## I – Systems



# Firestopping for Continuity

## Firestop Products

- **Sealants**
  - Silicone, Latex, Intumescent
- **Wrap Strips**
  - “Thick, Thin, Wide, Less Wide”
- **Putties**
- **Pillows**
- **Composite Sheets**
- **Bricks / Plugs**
- **Pre Fabricated Kits**
- **Mortar**
- **Spray Products**



# Firestopping for Continuity

## Products become Systems

- What are Firestop *Systems*?
- ‘**Field Erected Construction...Tested to...**’
  - Standards - ASTM E814/UL 1479–UL 2079, ASTM E 1966, ASTM E 2307, ULC S-115
  - **F Rating - Flame**
  - T Rating – Temperature
  - H Rating – Hose (Always)
  - **L Rating – Smoke**
  - **W Rating – Water**



Graphics – 3M



# Products become Systems

## Hose Stream = Shock Test



**U.L. SYSTEM NO. CAJ1155**  
**METAL PIPE THROUGH A SLEEVE IN CONCRETE FLOOR OR WALL**

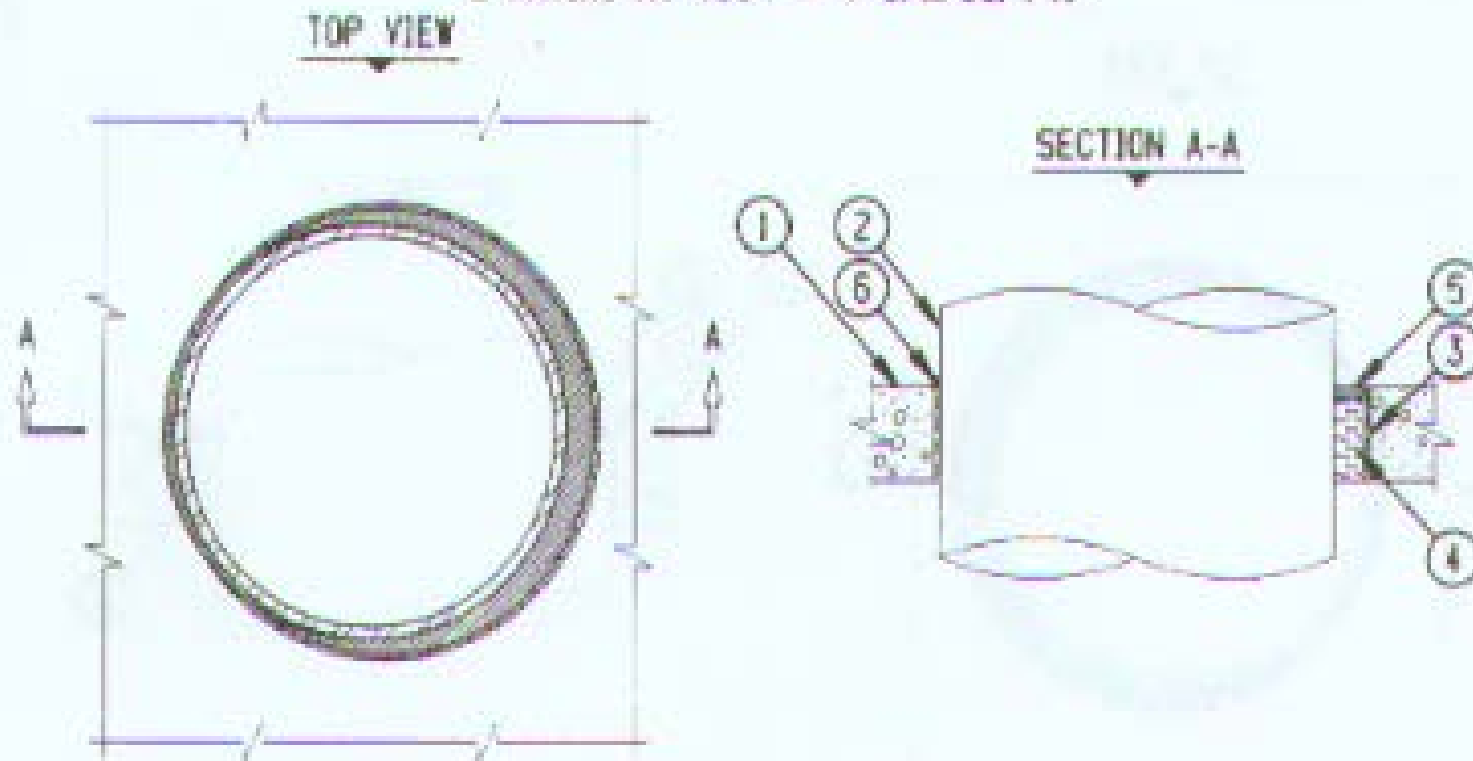
F RATING = 3-HR.

T RATING = 0-HR.

L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.

L RATING AT 400°F = 4 CFM/SQ. FT.

CAJ1155 11/07/94



**1. FLOOR OR WALL ASSEMBLY :**

A. MINIMUM 4-1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR.

B. U.L. CLASSIFIED CONCRETE BLOCK WALL (MINIMUM 8" BLOCK).

2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :



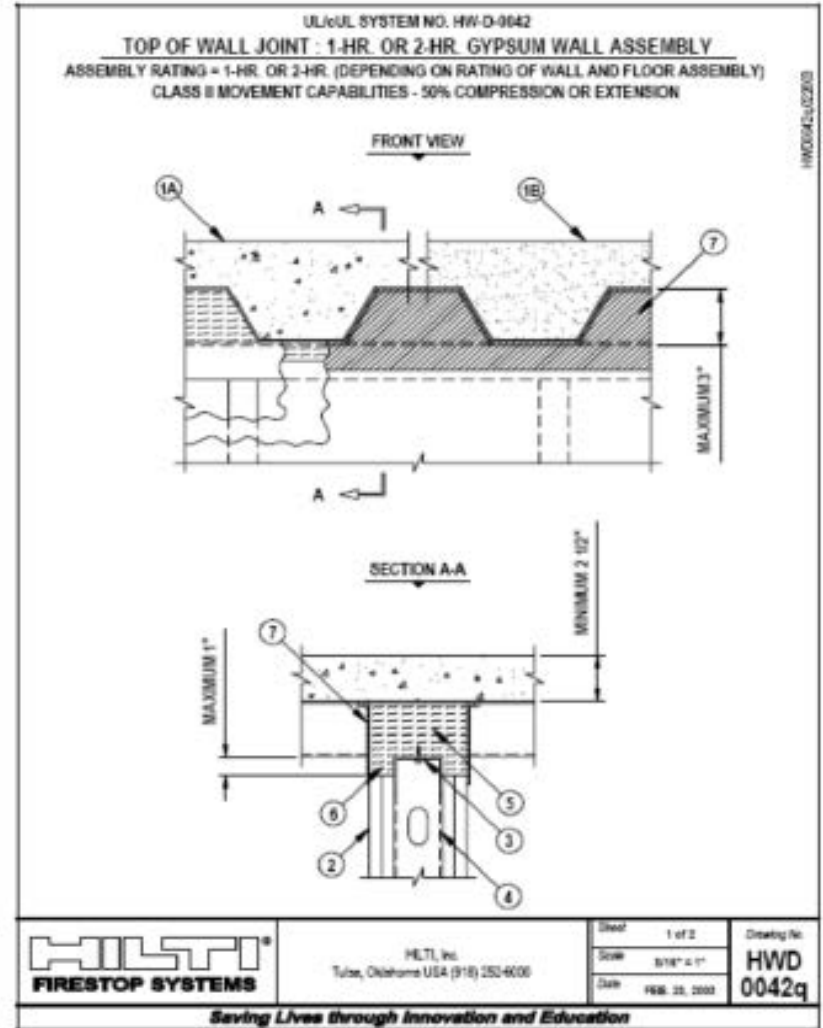


Fire Stop Technologies, Inc.



Fire Stop Technologies, Inc.

## Gypsum Wall assembly running up to concrete over metal deck





**IFC Guidelines for Evaluating Engineering Judgment  
Guidelines**

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

*‘As such, IFC developed Recommended IFC Guidelines for Evaluating FireStop Systems in Engineering Judgments.’*

# Fire/Smoke Dampers & Firestops

- Dampers are UL 555, 555S Listed *Systems*
  - Installed to manufacturer's written instructions (Systems
    - Angles...no sealants)
- Firestop sealants – UL 1479 –
  - Improper hole sizing or poor installation...

**Consult the Damper  
Manufacturer & the  
Authority Having  
Jurisdiction**

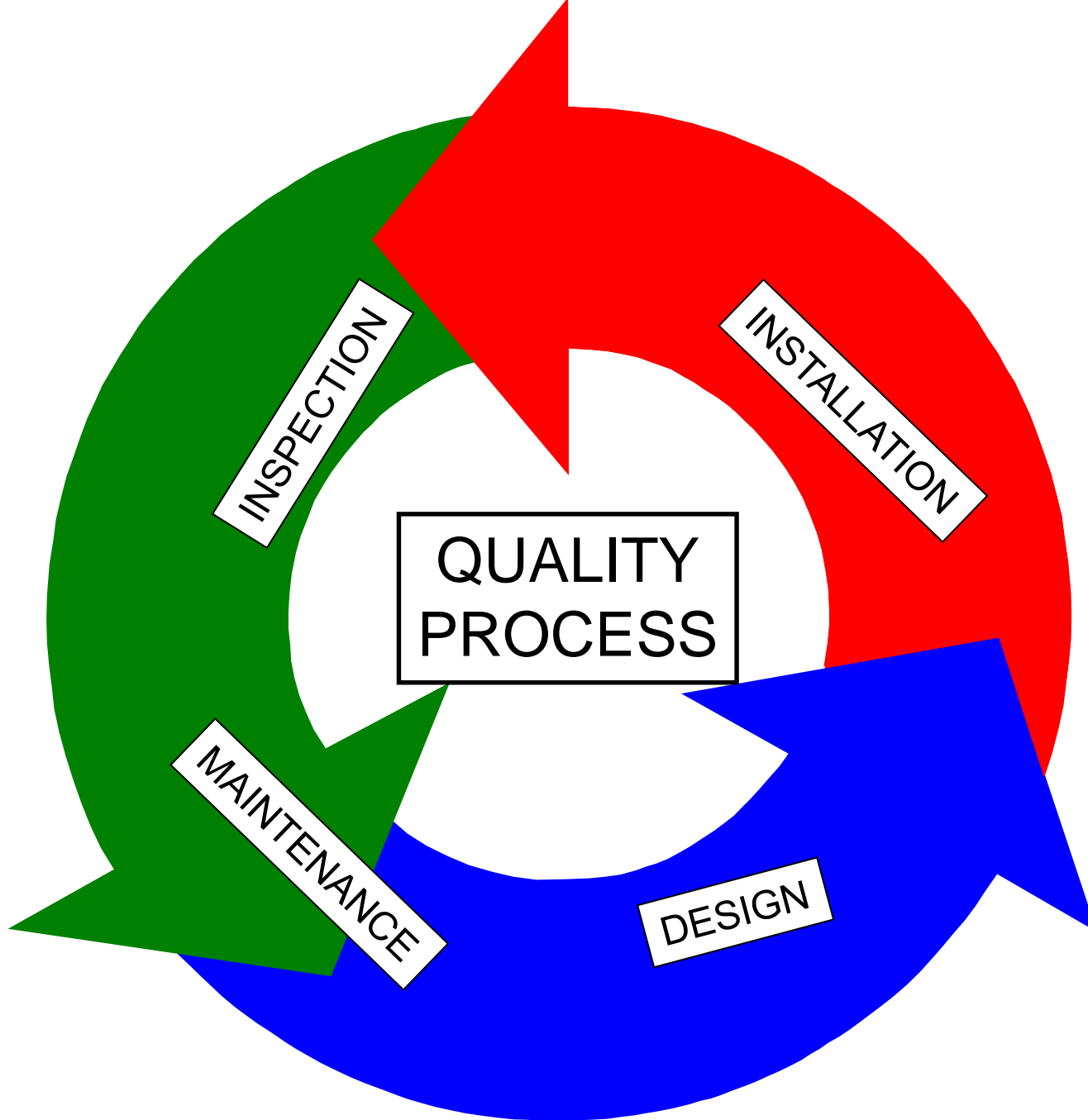
Graphics - Greenheck



# Firestop Materials, Systems & Physical Properties

- **Serve Building Needs**
  - Smoke
  - Germs
  - Chemical Resistance – Cleaning?
  - Chemical, Biological, Radiation?
- **Product Types**
  - Intumescent, Latex, Silicone
  - Ablative
  - Endothermic





# Firestop Contractor Qualifications

## FM & UL/ULC – 4 Components

1. Office Facility Quality Management System Audit
2. Field – Jobsite Audit
3. Employ a person
  - UL/FM Firestop Exam @ 80% or better
  - DRI if employed by Approved/Qualified Firm,
    - *Designated Responsible Individual (DRI)*
4. Annual Audit

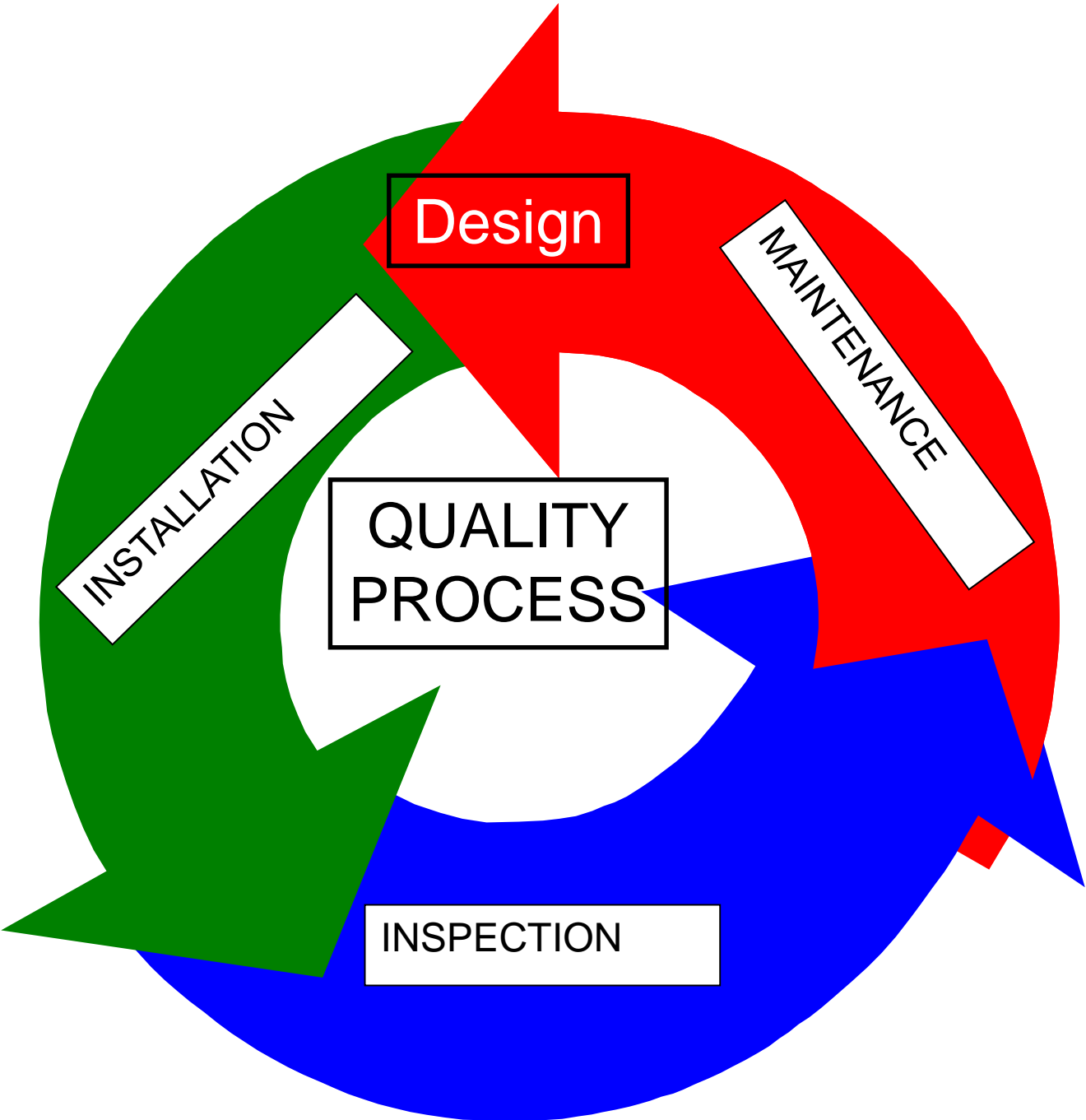


# Firestop Systems Inspection

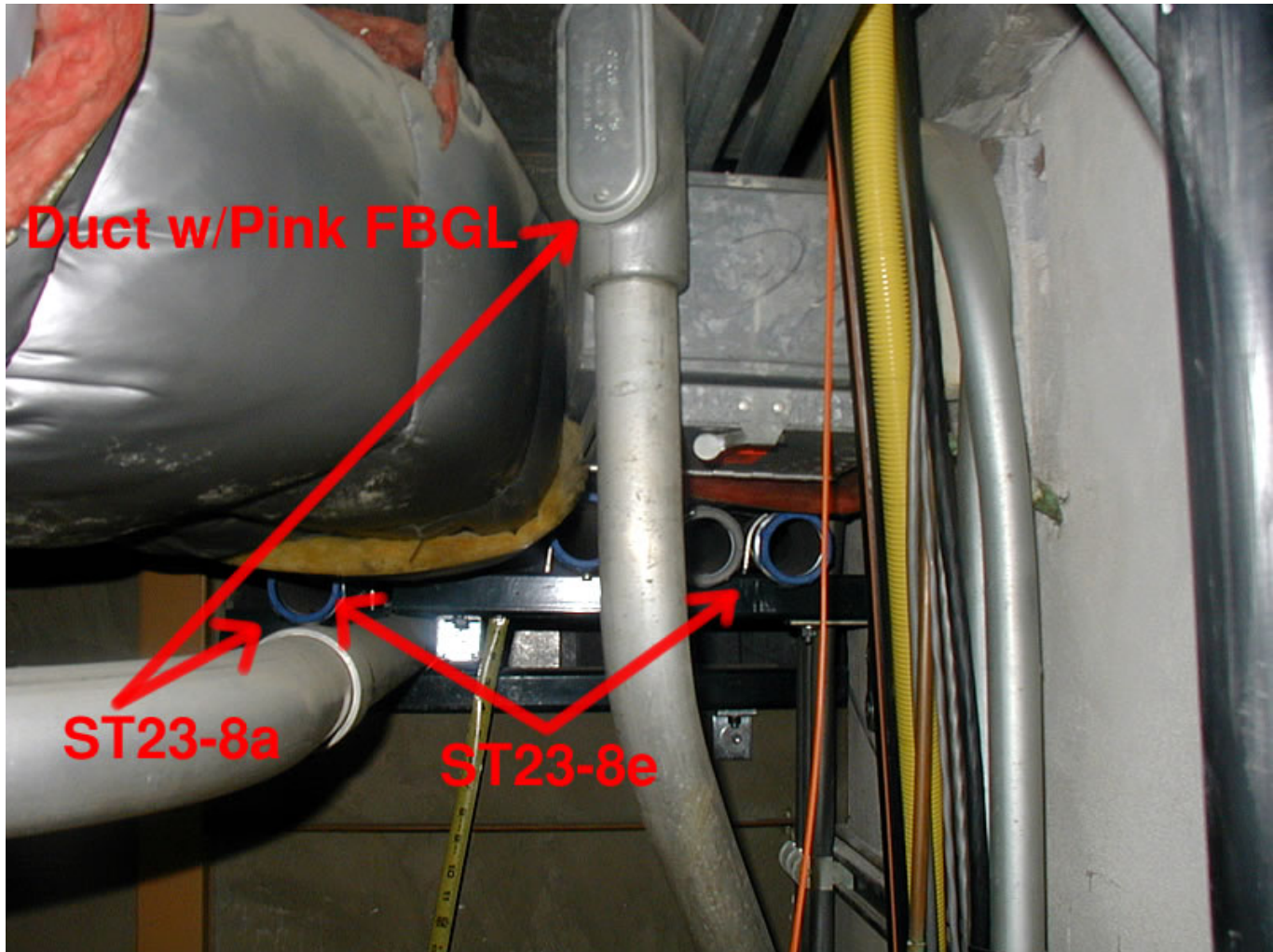
## ASTM E 2174 - ASTM E 2393

- “Standard Practice for On-Site Inspection of Installed Fire Stops – Penetrations - Joints”
  - Standard Inspection Procedure
  - Special Inspection Agency Companies
  - Other Qualified Firms
  - Report to Building Owner, Fire Marshals & Code Officials



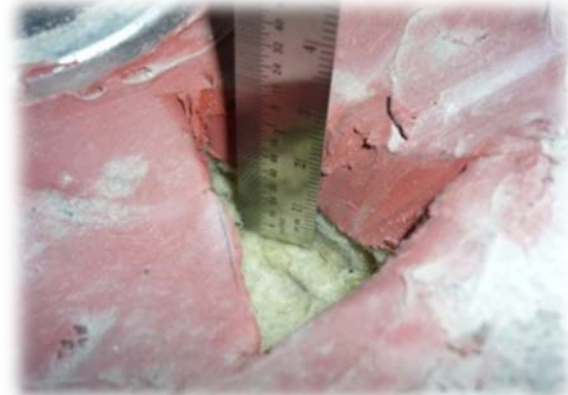


# Firestop Installation & Inspection



# Firestop Installation & Inspection

- ASTM E 2174/ ASTM E 2393 –



# I – Inspection – Code Requirements

**[A] 110.4 Inspection agencies.** The *building official* is authorized to accept reports of *approved* inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability. **[IBC 2015,110.4]**

**[A] 110.6 Approval required.** Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*....More. **[IBC 2015 110.6]**

# I – Inspection – Code Requirements

## Definitions

**APPROVED AGENCY.** An **established and recognized agency** regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved*.

**[IBC 2015, 202.2 Definitions]**

**APPROVED.** Acceptable to the *building official* or authority having jurisdiction.

**[IBC 2015, 202.2 Definitions]**

# I – Inspection – Code Requirements

**SPECIAL INSPECTOR.** A qualified person **employed or retained by an *approved* agency** and *approved* by the *building official* as having the competence necessary to inspect a particular type of construction requiring *special inspection*.

**[IBC 2015, 202.2 Definitions]**

# I – Inspection – Code Requirements

## **SECTION 1703 APPROVALS**

**1703.1 Approved agency.** *An approved agency shall provide all information as necessary for the building official to determine that the agency meets the applicable requirements.* [IBC 2015, 1703.1 ]

# I – Inspection – Code Requirements

**1703.1.1 Independence.** An approved agency shall be objective, competent and independent from the contractor responsible for the work being inspected. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed. **[IBC 2015, 1703.1.2]**

**1703.1.2 Equipment.** An approved agency shall have adequate equipment to perform required tests. The equipment shall be periodically calibrated.  
**[IBC 2015, 1703.1.2]**



# I – Inspection – Code Requirements

**1703.1.3 Personnel.** An approved agency shall employ experienced personnel educated in conducting, supervising and evaluating tests and/or inspections.

**[IBC 2015, 1703.1.3]**

# I – Inspection – Code Requirements

**1704.2 Special inspections.** Where application is made for construction as described in this section, **the owner or the registered design professional in responsible charge acting as the owner’s agent** shall employ one or more approved agencies to perform inspections during construction on the types of work listed under Section 1705. **These inspections are in addition to the inspections identified in Section 110.**

**[IBC 2015, 1704.2]**

# I – Inspection – Code Requirements

**1704.2.1 Special inspector qualifications.** The special inspector shall provide written documentation to the building official **demonstrating his or her competence** and relevant experience or training. **Experience or training shall be considered relevant** when the documented experience or **training is related in complexity to the same type of special inspection activities for projects of similar complexity and material qualities.** These qualifications are in addition to qualifications specified in other sections of this code. The **registered design professional in responsible charge** and engineers of record involved in the design of the project **are permitted to act as the approved agency and their personnel are permitted to act as the special inspector for the work designed by them, provided they qualify as special inspectors.**

**[IBC 2015, 1704.2.1 ]**

# I – Inspection – Code Requirements

**1705.16 Fire-resistant penetrations and joints.** In high-rise buildings or in buildings assigned to Risk Category III or IV in accordance with Section 1604.5, special inspections for through-penetrations, membrane penetration firestops, fire resistant joint systems, and perimeter fire barrier systems that are tested and listed in accordance with Sections 714.3.1.2, 714.4.1.2, 715.3 and 715.4 shall be in accordance with Section 1705.16.1 or 1705.16.2. **[IBC 2015, 1705.16 ]**

# Firestop Systems Inspection

## ASTM E 2174 - ASTM E 2393

- *“Standard Practice for On-Site Inspection of Installed Firestops*
  - Breaches by Penetrations (2174) and Joints (2393)
  - Standard Inspection Procedure
  - Inspection Agency Companies
  - Report to Contractor, Building Owner, (Authorizing Agency)

# Inspection - Qualifications

## ASTM E 2174 - ASTM E 2393

- Inspector **Personnel** meet at least one criteria.....
  - 2 years experience (Construction, Field), education, and credentials acceptable to AHJ
  - Accredited by AHJ
  - Meet ASTM E699
- **NEW Inspection Agency Company Qualification**
  - **IAS AC 291 – W/Individual Certs.**

# Inspection - Qualifications

## IAS AC 291 Accreditation

- Inspection Firm shall have at least one ...
  - PASS UL or FM Firestop Exam
  - 1 year Quality Assurance
  - Or...*
  - PASS UL/FM Firestop Exam, *and* PE, FPE, Registered Architect, or
  - PASS UL/FM Firestop Exam, *and* Education by Certified Agency

# IAS AC 291 Accredited Inspection Agencies

- **Specify IAS AC 291 –**
  - Quantified Qualifications
  - Helps AHJ with “Approved Agency”
  - Not in ASTM Standards, Code
- **Specify Individual Certifications**
  - 3<sup>rd</sup> Party, Independent Exams verify Knowledge
    - FM Firestop Exam
    - UL Firestop Exam



# Inspection Methods

## ASTM E 2174 - ASTM E 2393

- During Construction
  - Random witness, Each Floor
    - **10%, each type** of Penetration Firestop,
    - **5% of Total Lineal Feet** of Fire Resistance Rated Joint System, each type



Adler Photo

# Inspection Methods

## ASTM E 2174 - ASTM E 2393

- Post Construction - Destructive Testing
  - **Minimum 2% , no less** than 1, each type per 10,000 SF of floor area
  - **Minimum 1 / 500 LF** of Joint Area, mandatory
  - If 10% variance per firestop type
    - Inspection stops
    - Installer inspects, repairs
    - Inspector reinspects



# Inspection Methods

## ASTM E 2174 - ASTM E 2393

- Variances....
  - ASTM E 2174 & ASTM E 2393
    - One Day Notice after discovery to Contractor
  - International Building Code 1704.2.4
    - ‘Brought to IMMEDIATE attention of contractor’
    - ‘If not corrected, Building Official AND RDP... notified prior to completion of that phase’



Adler Photo

# Inspection Methods

## ASTM E 2174 - ASTM E 2393

- Both Methods...
  - If 10% variance per firestop type
    - Inspection stops
    - Installer inspects, repairs
    - Inspector reinspects
  - *Inspector Shall not Supervise Workers...*
  - Inspect @ Firestop Installation Start

# Inspection Forms

## ASTM E 2174 - ASTM E 2393

- One for each type of firestop
- Submit 1 day after Inspection to  
Authorizing Agency
- Numbered – Controlled
- Required – During/Post Construction  
Methods

# Inspection Reports - IBC

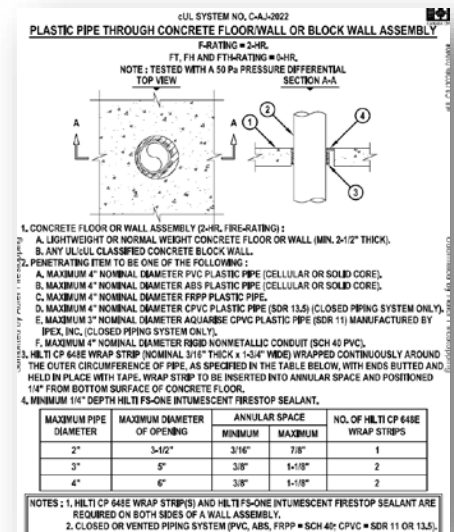
**1704.2.4 Report requirement.** Special inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the building official, and to the registered design professional in responsible charge. Reports shall indicate that work inspected was or was not completed in conformance to approved construction documents.

**Discrepancies shall be brought to the immediate attention of the contractor for correction.** If they are **not corrected**, the discrepancies shall be brought to the attention of the building official and to the registered design professional in responsible charge **prior to the completion of that phase of the work.** A final report documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon prior to the start of work by the applicant and the building official.

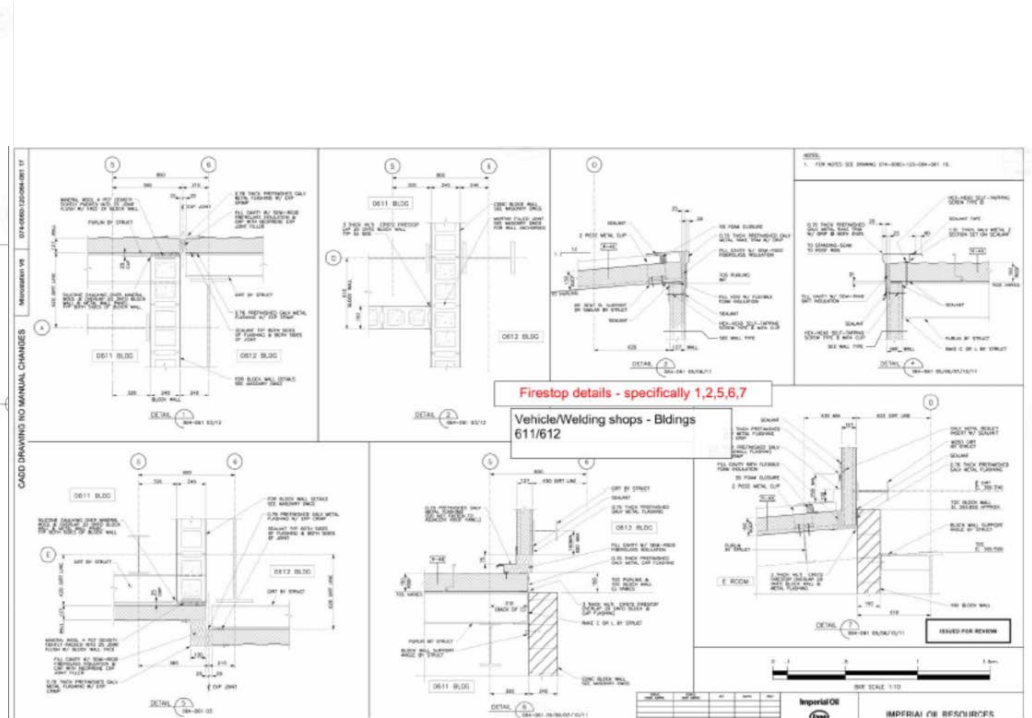
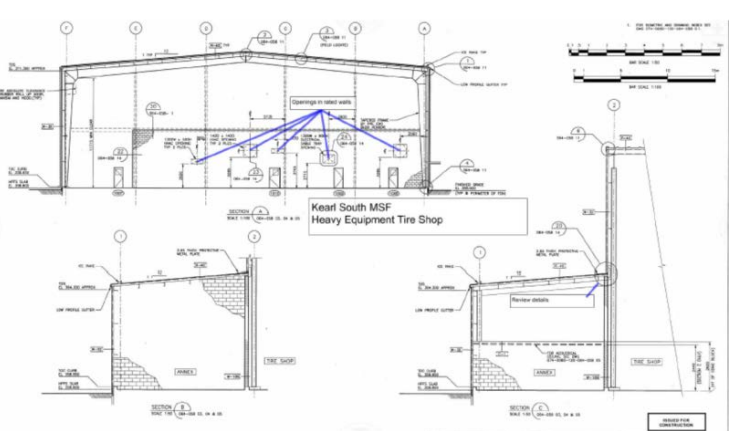
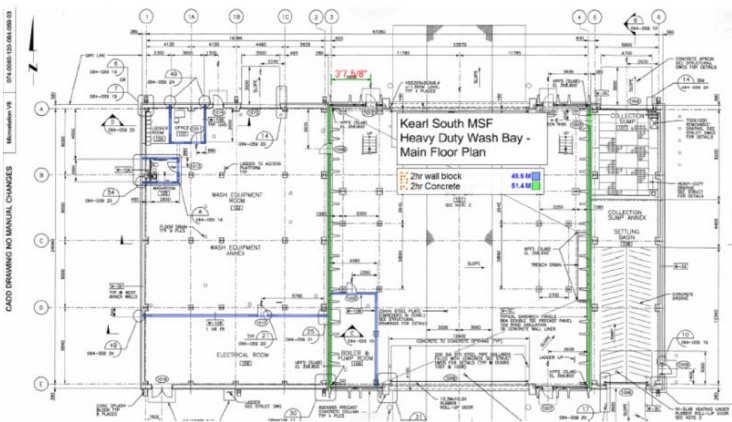
# Inspection Final Report

## ASTM E 2174 - ASTM E 2393

- Name, address, location – project, installer, inspector
- Type and quantity of firestops inspected
- Verification method
- Percentage Deviation
- Copies of all documents sent to Authorizing Agency



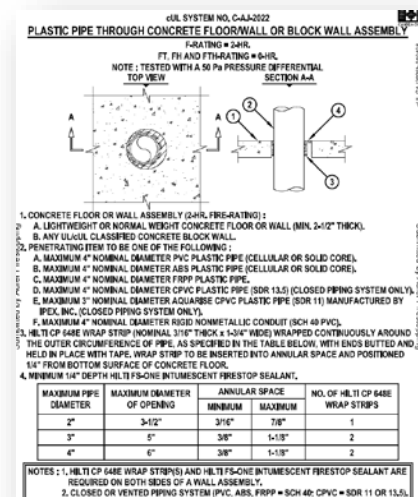
# Firestopping & Compartmentation for Safety





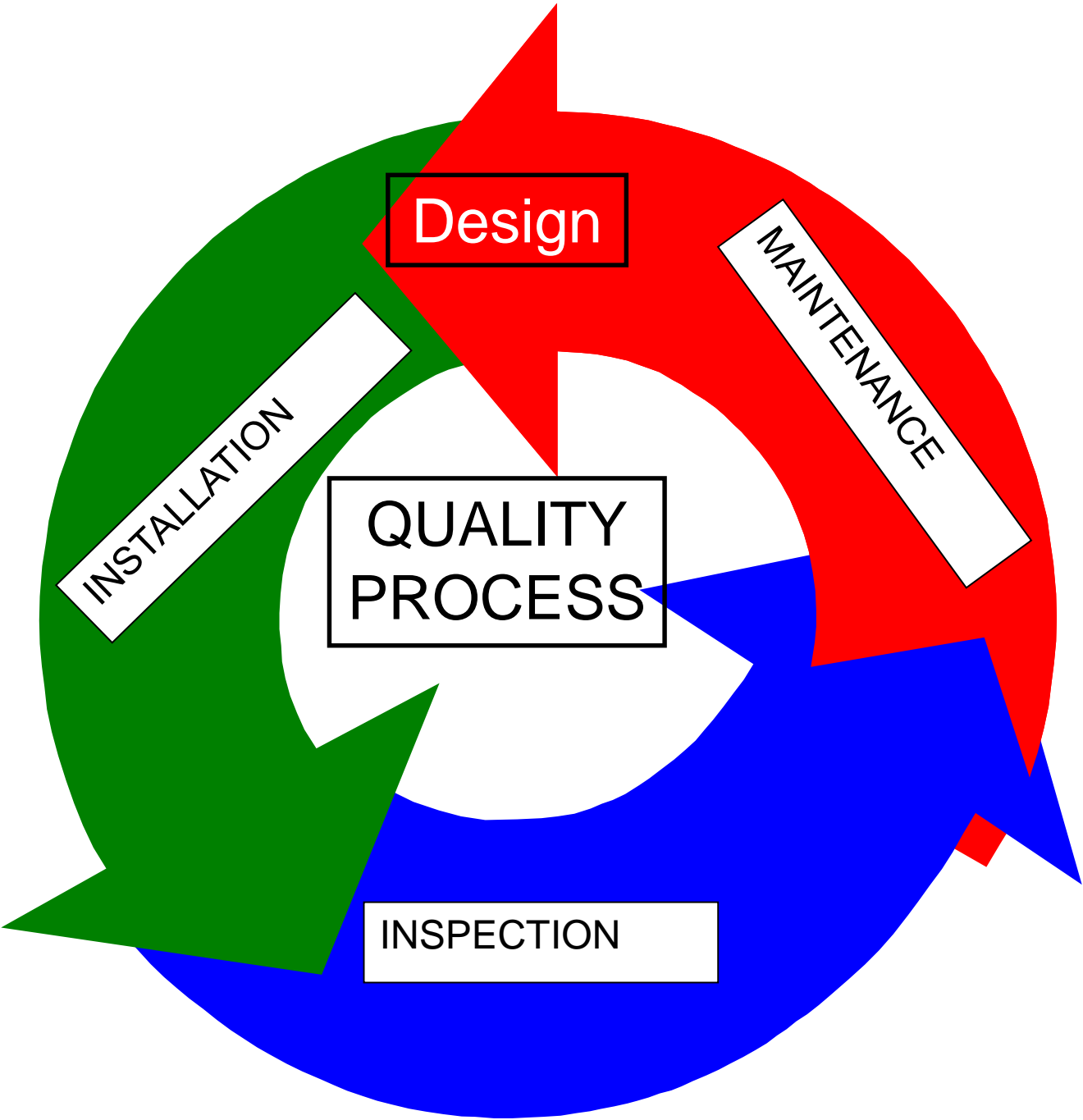
# Firestopping & Compartmentation for Safety

- Inspection Agency
  - Copies of all documents sent to Authorizing Agency
- Firestop Contractor
  - Product Data Sheets & Installation Instructions
  - ‘SYSTEMS’, Fire Resistance-Rated Assemblies As Built
  - Inspection Documents
  - Warranty Documents
  - Maintenance Requirements
  - Certificate of Compliance to Specs
  - FCIA Member in Good Standing Certificate



# Why Specify Inspection?

- **DIIM – ‘II’** of Quality Process
  - Install, **Inspect**
- Verify Field Installations
- **Specify Accredited Inspection Agencies**
  - IAS AC 291 – Accreditation Criteria for Special Inspection Agencies
- **Individuals Educated & Trained**
  - **3<sup>rd</sup> Party Exam, Approved Source**
  - **FM or UL Firestop Exam**



Design

MAINTENANCE

QUALITY  
PROCESS

INSPECTION

INSTALLATION

# 07-84-00 Specifications (FREE @ FCIA.org)

## **MasterFormat - 07 84 00 - Firestopping**

- **Part I** – FCIA Member, FM 4991 Approved or UL Qualified Firestop Installer/Contractor - Valid DRI, Test Standards
- **Part II – Firestop Products** – Testing, Physical Properties to protect breaches in fire resistance-rated and smoke resistant...
  - Penetrations & Fire Resistance Rated Joints –
  - Perimeter Fire Containment Joints
- **Part III, Execution, Quality Assurance (DIV 1 Reference)**
  - **ASTM E 2174 & ASTM E 2393 Inspection**
  - **IAS AC 291 Accredited Inspection Agency**
    - Individual on staff passed FM or UL Firestop Exam



# **Inspecting Swinging Fire Doors with Builders Hardware**

**A Practical Guide for  
AHJs and Facility Management Personnel  
Paul Baillargeon, DSSF/DHI**

# Top 10 Deficiencies Swinging Fire Doors

- Painted or missing fire door labels
- Poor clearance dimensions around the perimeter of the door in the closed position
- Kick down door holders
- Auxiliary hardware items that interfere with the intended function of the door
- Fire door blocked to stay in the open position
- Area surrounding the fire door assembly blocked by furniture, equipment, and/or boxes
- Broken, defective, or missing hardware items (e.g., latch bolts, strike plates, closer arms, cover plates, etc.)
- Fire exit hardware installed on doors that are not labeled for use with fire exit hardware
- Missing or incorrect fasteners
- Bottom flush bolts that do not project 1/2-inch into the strikes

# Care and Maintenance

- Replacing door frames, doors, and builders hardware
  - Meets the requirements for fire protection
  - Meets the requirements for new installations
  
- Replacing glass and glazing products
  - New glass and glazing products are required to be labeled
  - Existing glass and glazing products are permitted to be replaced with same (e.g., 1/4-inch wire glass can be replaced with same)

# Field Modifications

- NFPA 80, Chapter 5 contains provisions for field modifications
  - Contact the testing laboratory whose label is on the product being modified
  - Verify the proposed work does not compromise the integrity of the door assembly
  - Might not require field inspection by testing laboratory





# Safety Inspections of Fire Door Assemblies

- Inspections are required to be performed by a qualified person
  
- Qualified Person:
  - “A person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with the subject matter, the work, or the project.”
  
- ✓ *AHJs need to have confidence in the expertise of the persons performing NFPA 80's safety inspections*

# Index of Fire Door Assemblies

- Assign each fire door a unique identifier
  - Door number
  - Bar code

# Documentation

- Acceptance Testing
  - Initial installation
  - After maintenance work
  
- Safety Inspections
  - Annual safety inspections
  - Performance-based inspections

# Documentation

- Acceptance Testing records
  - Retained for life of installation
    - Before Certificate of Occupancy is issued
    - After maintenance work is performed
  - Format that survives the retention period
    - Digital (secured – can't be edited)
    - Paper
  - Signed by inspector(s) and kept for AHJ's review

# Documentation

## ➤ Safety Inspections

- Format that survives the retention period
- Minimum retention period of 3 years
- Signed by inspector and kept for the AHJ's review.

# Corrective Actions

- Inspection reports
  - Inspector's recommendations for repairing fire doors
  
- Minor corrective actions
  - Replacing and/or tightening fasteners
  - Adjusting doors and hardware
    - Shimming doors to correct excessive clearance gaps
    - Adjusting door closers
    - Aligning latching hardware with strike plates
  - Filling unused fastener holes

# Steel Door Frames

## 5.2.3.5.2(1)

### ➤ Frame Condition

- No unused fastener holes.
- Frame jamb extends to floor. No space between bottom of frame and floor.
- Fasteners installed in miters of knock down frames.



# Steel and Wood Doors 5.2.3.5.2(2)

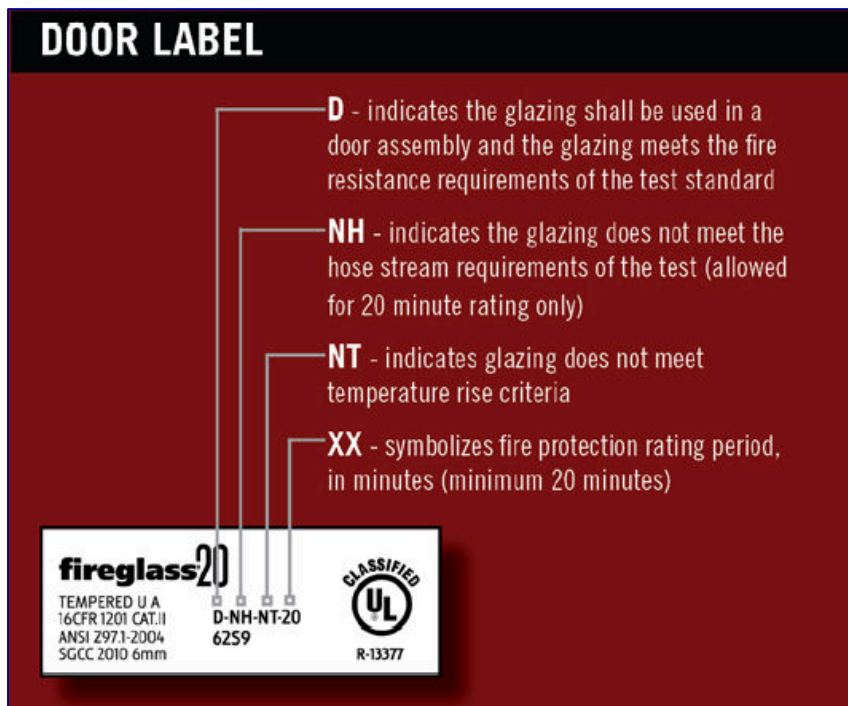
- No broken welds on rails or stiles of steel doors.
- No holes in faces and edges of steel doors.
- Verify face of door for delaminating of face skins from core of door.





# Glazing

## 4.4.1



- Glazing beads securely fastened/no missing fasteners.
- Labeled light kits secured fastened - no missing fasteners.
- Correctly sized fire rated glazing installed.

# Hinges, Continuous Hinges, Pivots

## 6.4.3.1



- Labeled or listed.
- Steel hinges and pivots.
- Ball Bearing hinges.
- Spring Hinges (must be labeled on fire doors)
- Door must fully close from an open position of 30 degrees with spring hinges.

# Fire Exit Hardware 6.4.4.2.1

- Must bear fire exit hardware label
- Latch bolt projects the required distance into the strike
  - 1/2-inch minimum or as required by the manufacturer
- No missing parts
  - lever, knob
  - end caps
  - Strikes
  - bottom rods
  - fire pin



# Blockage 5.2.3.5.2(10)



- Area around door must remain clear of any materials

# Door Wedges 5.2.3.5.2(10)

- Manual blocking open of doors is not permitted
  - Kick-down door holders
  - Friction door holders
  - Overhead door holders
  - Hold open arms on door closers
  - Furniture, trash cans, fire extinguishers, etc...



# Decorations 5.2.3.5.2(13)

- Decorations can cause premature door failure due to additional fuel added to fire loading of door



# Swinging Fire Door Assemblies

## 2 Basic Rules

### ➤ Rule #1

- All fire door assemblies shall consist of:
  - Labeled door frames
  - Labeled fire doors
  - Labeled or listed hardware & glazing

### ➤ Rule #2

- Any field modification to a labeled product must be approved by the testing laboratory that labeled or listed the product or component



# **Inspecting Swinging Fire Doors with Builders Hardware**

**A Practical Guide for  
AHJs and Facility Management Personnel  
Paul Baillargeon, DSSF/DHI**



# Marc Sorge, Mark Belke

## Fire Damper Agenda

- ▶ **Installation/Configuration**
  - Fire Dampers
  - Smoke Dampers
  - Combination Fire/Smoke Dampers
- ▶ **Operational Test/Inspection**
- ▶ **Periodic Test/Maintenance**

# What is it?

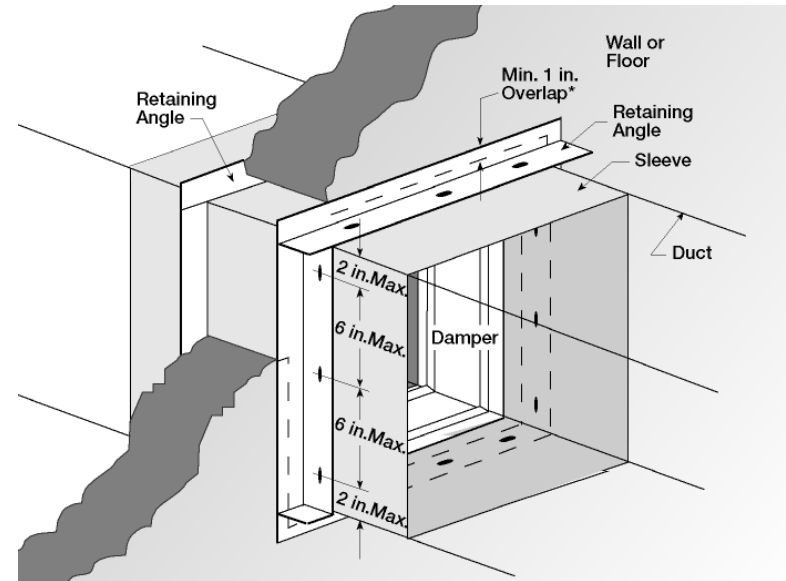
## ► Labels



# Fire Damper Installation

## ► Installed with sleeves

- factory or field mounted
- sleeve requirements



# Smoke Damper Construction

## ▶ Type

- multi-blade
- 3-V or airfoil blade

## ▶ Construction

- blade and jamb seals
- *always* with a UL-approved actuator



# Smoke Damper Actuators

## ▶ Mounting

- must be factory mounted
- internal or external

## ▶ Operation

- spring return
- two position or modulating



# Purpose of Fire/Smoke Damper

- ▶ Provide the same level of protection as individual fire and smoke dampers.
- ▶ Installation guidelines of fire and smoke dampers apply.



# Operational Test

## NFPA 80

### Standard for Fire Doors and Other Opening Protectives

#### Frequency

“After the installation of a damper is completed, an operational test shall be conducted.”

#### Test Method

“The damper shall fully close from the open position.”

“The operational test shall verify that there is full and unobstructed access to the fire damper and all listed components.”

“All indicating devices shall be verified to work and report to the intended location.”

“The operational test shall be conducted under non-fire HVAC airflow conditions as well as static flow conditions.”



# Operational Test

## NFPA 105

### Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives

#### Frequency

“An operational test shall be conducted after the building’s HVAC system has been balanced.”

#### Test Method

“The operational test shall be conducted under normal HVAC airflow conditions as well as static flow conditions. The damper shall fully close/seal under both test conditions.”

“All indicating devices shall be verified to work properly and report to the intended location.”

“Combination fire/smoke dampers shall also meet the testing requirements contained in NFPA 80.”





# Fire, Smoke, and Combination Fire Smoke Dampers



*2015*

---

---

# Barrier management Symposium

Anne Guglielmo, Engineer  
Department of Engineering  
The Joint Commission

# Barrier Management Program: Policy, Permit, Educate and Inspect

- ▶ Policy:
  - Define
    - Scope
    - Authority
    - Management process
  - Interim Life Safety Measures
  - Pre-construction Risk Assessment

# Deficiency Resolution

- ▶ Deficiency Resolution Options:
  - Correct it immediately
  - Correct it within 45 days
    - Management process that documents the deficiency and actions to resolve
    - ILSM must be considered
  - Plan For Improvement located in the Statement of Conditions™
    - Corrected within 6 months of the Projected Completion Date
    - ILSM must be considered

# Interim Life Safety Measures

- ▶ Order of Standards (LS.01.02.01)
  - EP 1 & 2 regardless of ILSM policy
  - EP 3 must clearly define the ILSM policy including
    - AFS 10 Process
    - When to implement
    - What to do to protect occupants
    - Both construction related and non-compliance with the LSC
  - EPs 4 – 14 align with policy and implementation strategies

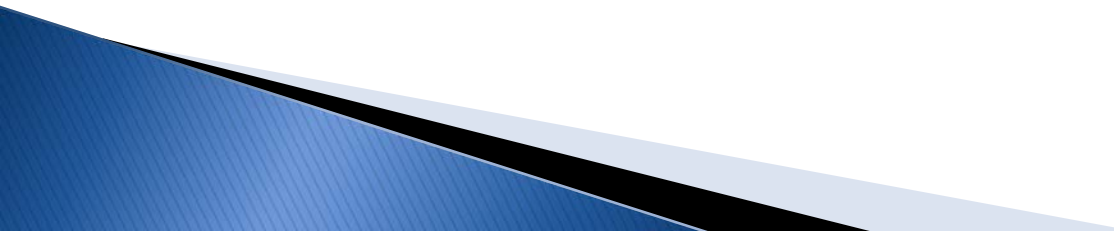
# PRA EC.02.06.05 EPs 2 & 3

Preconstruction Risk Assessment (PRA)  
Construction or renovation in occupied  
healthcare facilities can result in  
environmental problems such as:

- Noise
- Vibration
- Creation or spread of contaminants
- Disruption of essential services
- Emergency Procedures
- Air quality

# Barrier Management Program: Policy, Permit, Educate and Inspect

## ▶ Permit

- Follows policy
  - Define when permits are issued
  - Define criteria for awarding permits
  - Define permit display requirements
  - Define scope of permit: where the work is being done
  - Define time frame for the permit will expire
- 

# Barrier Management Program: Policy, Permit, Educate and Inspect

## ▶ Educate

- Facilities staff
  - Components of the Barrier System
  - Maintenance of the Components
- All other staff
  - Barrier System awareness
  - Permit awareness
- Contractors
  - Barrier Management expectations



# Barrier Management Program: Policy, Permit, Educate and Inspect

## ▶ Inspect

- Establish inspection frequencies
  - Hospital experience
  - Reliability Centered Maintenance
- Document inspection activities
- Management inspections
  - Verify quality
  - Modify program as needed

**Department of Engineering**  
**630 792 5900**

**George Mills, MBA, FASHE, CEM, CHFM, CHSP, Green Belt**  
**Director**

**Anne Guglielmo, CFPS, CHFM, CHSP, LEED, A.P.**  
**Engineer**

**John Maurer, CHFM, CHSP, SASHE**  
**Engineer**

**Kathy Tolomeo, CHEM**  
**Engineer**

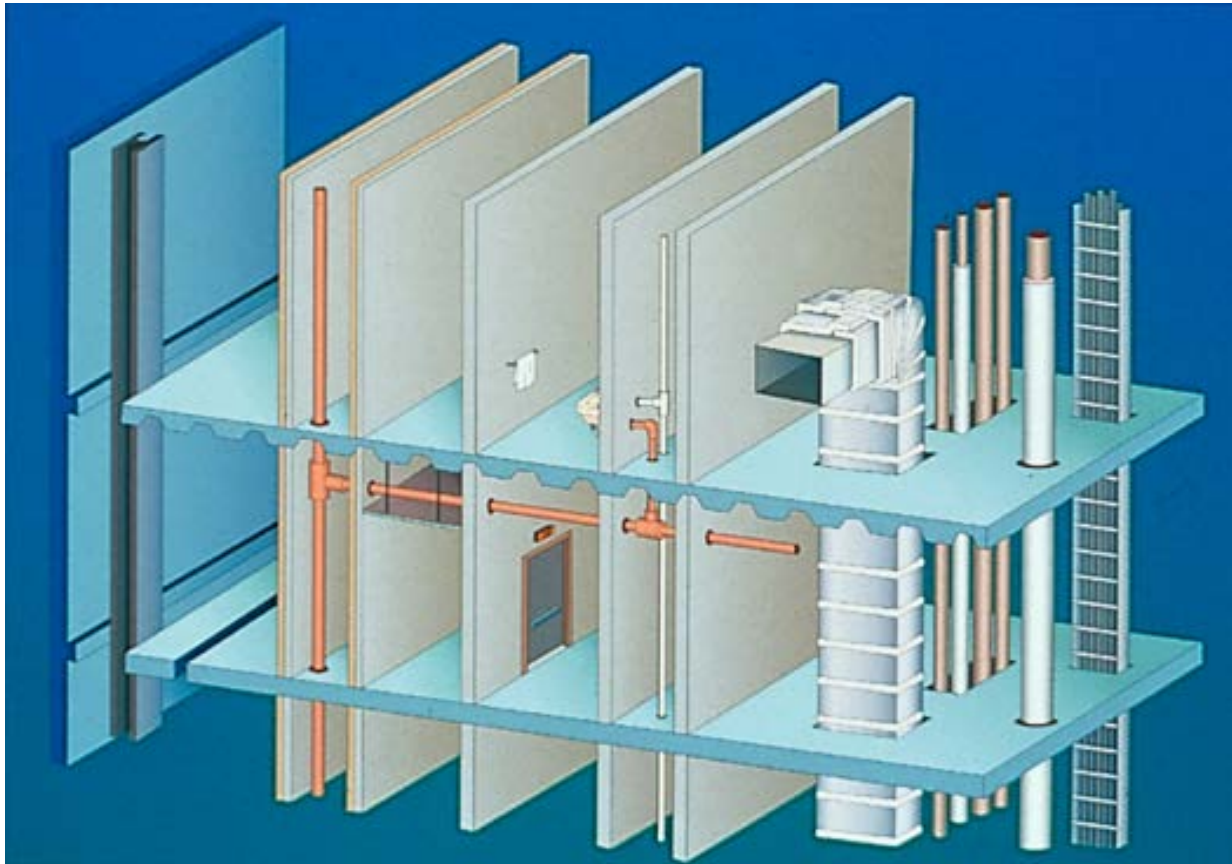
**James Woodson, P.E., CHFM**  
**Engineer**



# The Joint Commission Disclaimer

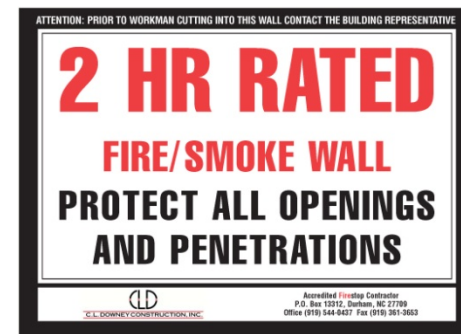
- ▶ These slides are current as of 4/13/2015. The Joint Commission reserves the right to change the content of the information, as appropriate.
- ▶ These slides are only meant to be cue points, which were expounded upon verbally by the original presenter and are not meant to be comprehensive statements of standards interpretation or represent all the content of the presentation. Thus, care should be exercised in interpreting Joint Commission requirements based solely on the content of these slides.
- ▶ These slides are copyrighted and may not be further used, shared or distributed without permission of the original presenter or The Joint Commission.

# M – Maintenance (& Management)



# Firestop Maintenance

- **Maintenance**
  - Code Required
  - How??
- **How to keep Track – Barrier Management Initiatives**
  - Paper
  - Software
  - Labeling



# 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]

# International Fire Code 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.**





# International Fire Code 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.



# International Fire Code 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.



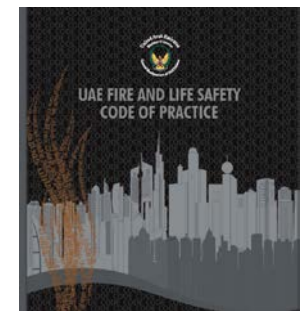
# UAE Fire and Life Safety Code of Practice

## 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

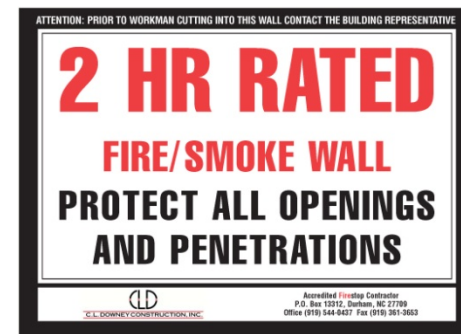
- *Division B – Part 2, Building and Occupant Fire Safety*  
**2.2.1.2 – Damage to Fire Separations** – where *fire separations* are damaged so as to affect their integrity, they shall be repaired so that the integrity of the *fire separation* is maintained...
- **FCIA Manual of Practice – Appendix, Maintenance, Marking & Identification Systems**  
FCIA recommends Barrier Management Systems and Identification/Marking Systems (Labels, Tags.) for Effective Compartmentation and Structural Protection



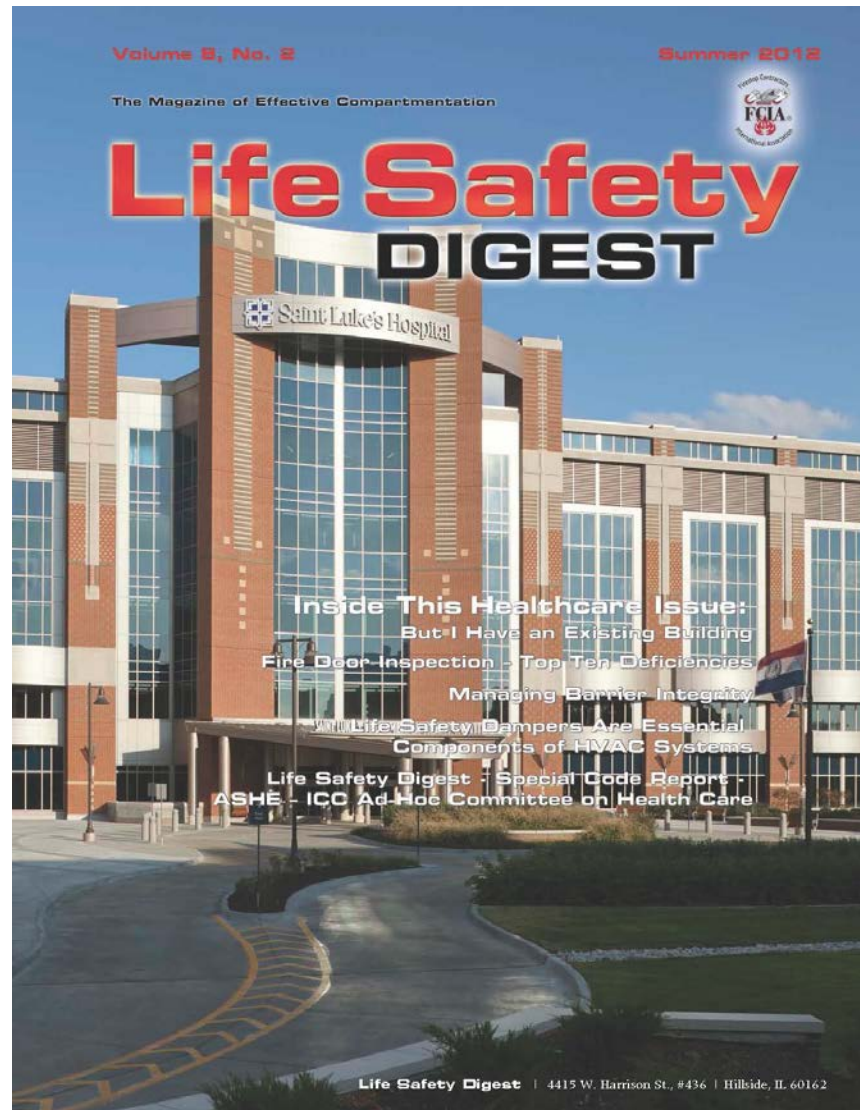
*Includes Fire Dampers, Fire Doors...and Continuity*

# Barrier Maintenance

- **Maintenance**
  - Code Required
  - How??
- **How to keep Track – Barrier Management Initiative**
  - Paper
  - Software
  - Labeling



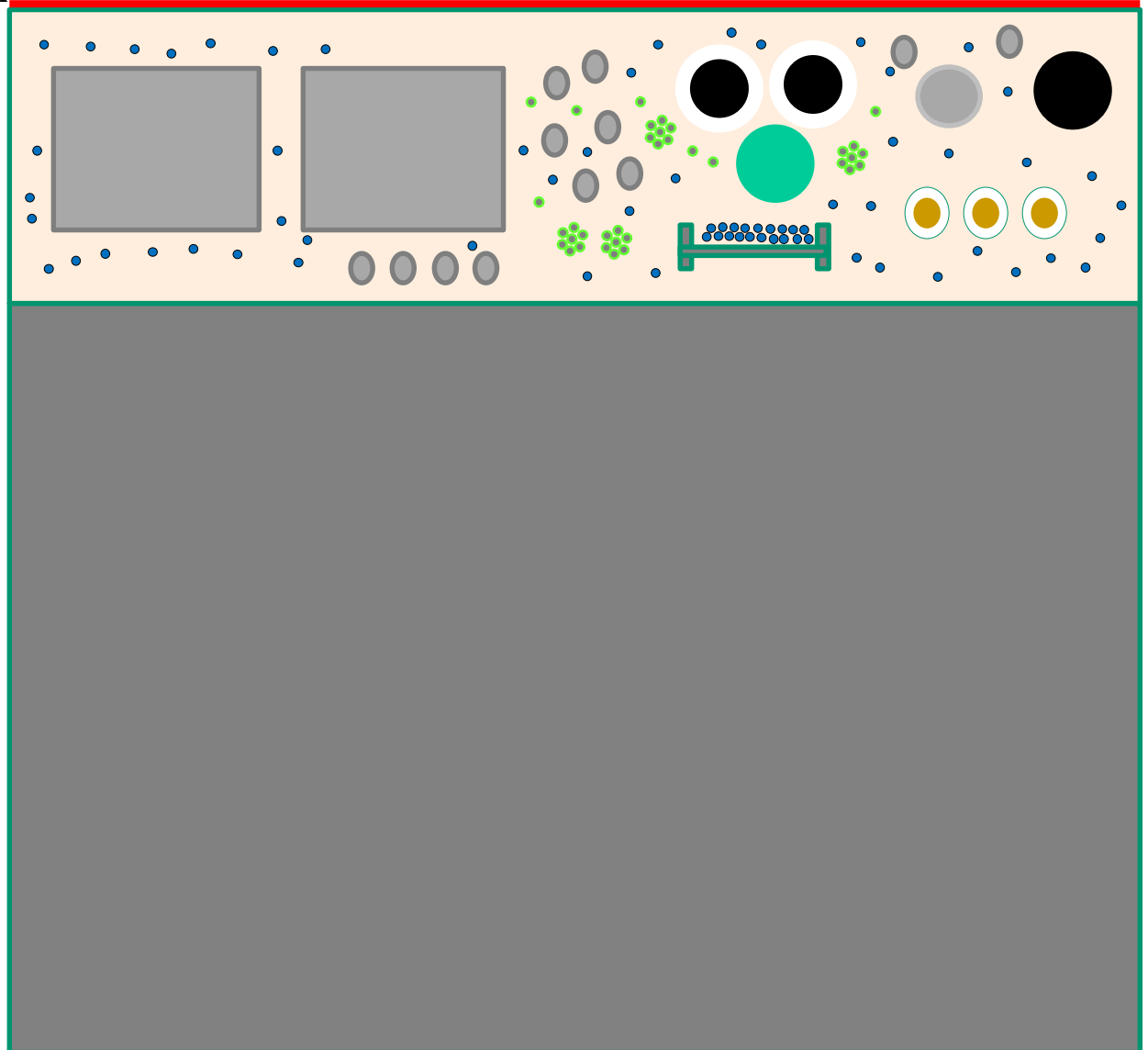
# Barrier Management Begins when new construction ends...



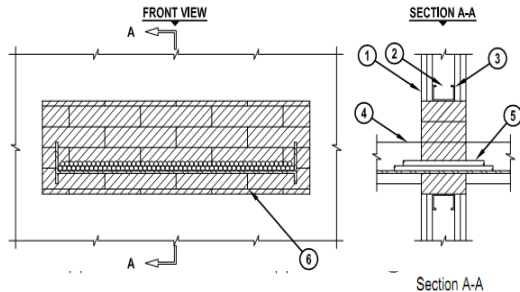


# WHAT NEEDS TO BE MAINTAINED?

- 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.





# Barrier Management

## Policy = Tool

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







Demo Hospital

Permit No.: 2011-005

Area (\*): 3C1/3L1

Side 1: 3C1

Side 2: 3L1

LSR ID: LST-B1-03-007

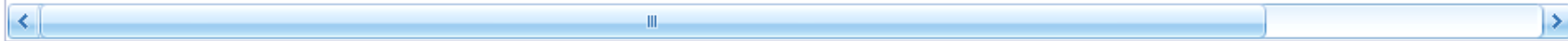
Compliance Status: ● Non-compliant

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       | <span style="color: red;">●</span> Non-com...  |              | Firestopping Through Wall Penetration - Firestop | Firestopping     | Through Wall Pe...  | WL      | 1000-1999 | 1         |       |
| 002         | <span style="color: green;">●</span> Compliant |              | Firestopping Through Wall Penetration - Firestop | Firestopping     | Through Wall Pe...  | WL      | 1000-1999 | 0         |       |
| 003         | <span style="color: green;">●</span> Compliant |              | Firestopping Through Wall Penetration - Firestop | Firestopping     | Through Wall Pe...  | WL      | 5000-5999 | 1         |       |
| 004         | <span style="color: green;">●</span> 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

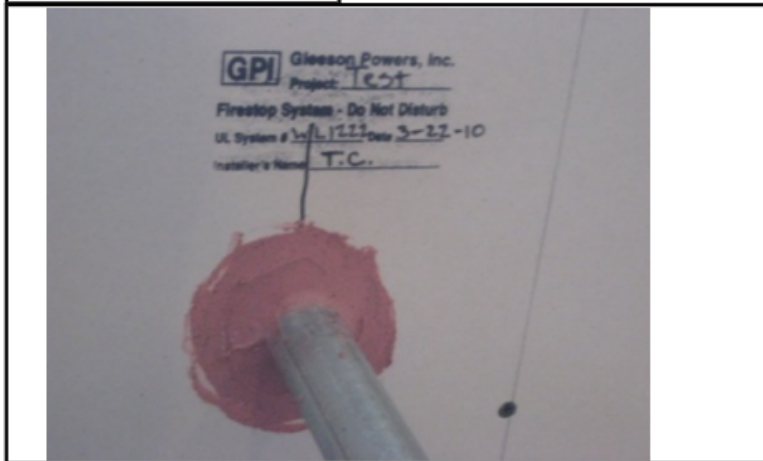
Survey Photo



Side: 2: 3L1

Photo ID: 37297

Corrective Action Photo

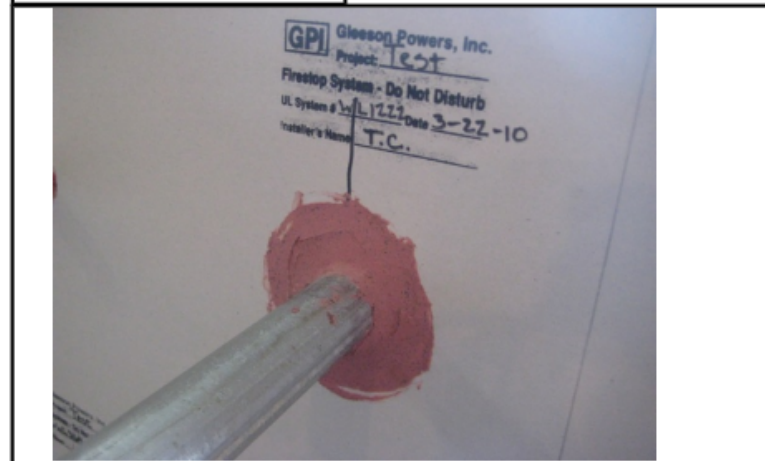


Side: 1: 3C1

Photo Notes:

Photo ID: 37298

Corrective Action Photo



Side: 2: 3L1

Photo Notes:

Photo ID: 37299

# **Barrier Management Policy Tool**

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

# **Barrier Management Policy Tool**

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

# M–Barrier Management Systems

- **Barrier Management**
  - **TJC # 1 & 2 Violations**
  - **Constant issues**
  - **Control?**
  - **Staff?**
  - **Attitude?**



# 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 YOU!**



# Why Barrier Hub is YOU?

- **YOU answer to...**
  - **The Joint Commission**
  - **CMS Inspectors**
  - **Building Official, Fire Marshal**
  - **Other AHJ's**
  - **C-Suite**
  - **Staff**
  - **Patients**

# M–Barrier Management Systems

- **Barrier Management Policy - Tool**
- **ASHE Member Healthcare Engineer & Director Communicates...**
  - **In House Construction & I-T Crews**
  - **Outside Contractors**

# Barrier Management

## Policy = Tool

- **ASHE Member Healthcare Engineer & Director 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

- **Methods to Control**
  - **Paper, Pictures & Files**
  - **Electronic Pictures & Files**
    - ‘Custom’
    - ‘Packages’

# M–Barrier Management Systems

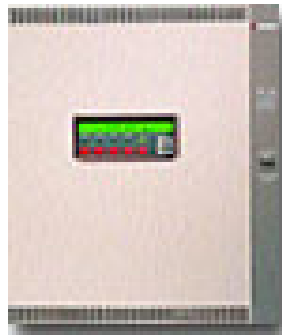
- **Common Elements**
  - **Life Safety Drawings**
  - **Existing Conditions Documented**
  - **Ongoing Survey Records**
  - **Deficiency Reports**
  - **Systems Documentation Control, Retrieval**

# 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**

# “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



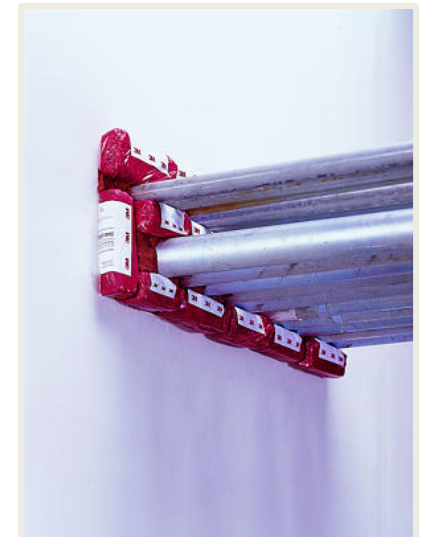


# Continuity

## Effective Compartmentation & Features



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



# Objective – Share Knowledge

- Barriers are for Safety – DIIM
  - Properly **Designed** and Specified
    - **Tested and Listed Systems** – Directories, Tables
    - *Specified*
  - Professional **Installation** Companies, Workforce
  - Properly **Inspected** – by Companies, Workforce
  - **Maintained** –
    - NFPA 101 - 2000 (TJC, CMS)
    - International Fire Code - IFC 2012 - Annually (Local)
- **Effective Compartmentation  
for Fire & Life Safety**

**Barrier Management Symposium – AGENDA**  
**Kahler Grand Hotel – 20W. 2<sup>nd</sup> Avenue – Rochester, MN 55902 - Heritage Hall**  
**April 14 & 15, 2015**

Casual Dress

|                     | Topic   | Speaker   |
|---------------------|---|---|
| <b>April 14</b>     | <b>MONDAY</b>   |   |
| 1:00 pm – 1:30 pm   | Welcome & Remarks                                       | <ul style="list-style-type: none"> <li>▪ ASHE Region, <b>Jonathan Flannery</b>, ASHE Advocacy</li> <li><b>Bill McHugh</b>, FCIA</li> </ul>  |
| 1:30 pm – 1:45 pm   | TJC Perspective 'Systems'                               | <ul style="list-style-type: none"> <li>▪ <b>Anne Guglielmo</b>, The Joint Commission</li> </ul>   |
| 1:45pm - 2:45pm     | Barrier Fundamentals & Systems                          | <ul style="list-style-type: none"> <li>▪ <b>Bill Koffel</b>, <b>Koffel Associates</b>, Representing FCIA</li> </ul>   |
| 2:45 pm – 3:00 pm   | BREAK   |   |
| 3:00 pm – 4:00 pm   | Testing for Fire Resistance and Smoke Resistant Systems | <ul style="list-style-type: none"> <li>▪ <b>Rich Walke</b>, <b>UL</b> – testing &amp; certification of all components of fire resistance rated assemblies including wall, ceiling and features for Fire &amp; Smoke Barrier Continuity</li> </ul> |
| 4:00 pm – 4:45 pm   | Gypsum Fire Resistance                                  | <ul style="list-style-type: none"> <li>▪ Gypsum Industry - <b>Nestor Sanchez</b>, <b>USG Corp.</b></li> </ul>   |
| 4:45 pm – 5:00 pm   | BREAK   |   |
| 5:00 pm – 5:30 pm   | Concrete & Masonry                                      | <ul style="list-style-type: none"> <li>• <b>Rich Walke</b>, <b>UL</b> – Fire Resistance Rated Assemblies and tested systems from directories, equivalent thicknesses from the International Building Code.</li> </ul>                             |
|                     |   |   |
| <b>April 15</b>     | <b>TUESDAY</b>  |   |
| 9:00 am – 9:15 am   | Welcome & Announcements                                 |   |
| 9:15 am – 10:30 am  | Firestopping – Penetrations and Joints                  | <ul style="list-style-type: none"> <li>▪ Firestop Industry - <b>Bill McHugh</b>, <b>Firestop Contractors International Association</b></li> </ul>   |
| 10:30 am – 10:45 am | BREAK   |   |
| 10:45 am – 12:00 pm | Swinging Fire Doors & Hardware                          | <ul style="list-style-type: none"> <li>▪ Swinging Door Industry - <b>Paul Baillargeon</b>, <b>Door and Hardware Institute's Door Safety &amp; Security Foundation</b></li> </ul>  |
| 12:00 pm – 1:00 pm  | LUNCH   |   |
| 1:00 pm – 2:00 pm   | Fire & Smoke Dampers                                    | <ul style="list-style-type: none"> <li>▪ Fire and Smoke Damper Industry - <b>Marc Sorge</b>, <b>GREENHECK, Inc.</b></li> </ul>  |
| 2:00 pm – 2:15 pm   | BREAK   |   |
| 2:15 pm – 3:00 pm   | Fire Rated Glazing                                      | <ul style="list-style-type: none"> <li>▪ Fire Rated Glazing Industry – <b>Tim Warren</b>, <b>Technical Glass Products</b></li> </ul>  |
| 3:00 pm – 3:45 pm   | Barrier Management Systems Options                      | <ul style="list-style-type: none"> <li>▪ <b>Anne Guglielmo</b>, The Joint Commission</li> <li><b>Bill McHugh</b>, FCIA</li> </ul>   |
| 3:45 pm – 4:00: pm  | Barrier Management Symposium Wrap-up                    | <ul style="list-style-type: none"> <li>▪ ASHE Region, <b>Jonathan Flannery</b>, ASHE</li> <li><b>Bill McHugh</b>, FCIA</li> </ul>   |



# Barrier Management

## FCIA Webinar

2016-04-14

