

Welcome to the

2018 Annual Conference Educational Sessions

**Session: Fire & Smoke Protection Features &
the New 2018 International Fire Code 701 Requirements**

Sponsored by

ORACLE®

FCIA at ICC

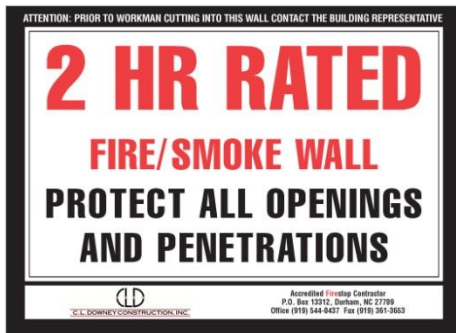
NEW Fire Code Requirements & Fire-Resistance/Compartmentation

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“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



FCIA – Firestop Contractors International Association

- FCIA Members
 - Firestop Contractors
 - Firestop Manufacturers
 - Firestop Consultants
 - Firestop Distributors, Reps, Friends
- FREE MOP/Spec - Specifiers @ AE, Independent
- FREE Life Safety Digest
- 3rd Party Contractor/Inspection Company Accreditation Programs
- Chair, ASTM Inspection Standards
- Tools for Specifiers



Building & Fire Code Requirements

- NFPA 5000 – 101- Chapter 8
- National Building Code – Canada
- UAE Fire and Life Safety Code – Chapter
- International Codes –
 - New and Existing Buildings International Building Code – Chapter 7
 - International Fire Code – Chapter 7
- *Minimum requirements - Construction & Maintenance*

Building & Fire Code Requirements

- Compartmentation Codes – US –
 - **Fire Resistance** – Time, in minutes or hours that materials or assemblies have withstood a fire exposure as determined by tests, methods based on tests, or this code NFPA, Ch 8. **ICC adds... “*Systems*”**

Building & Fire Code Requirements

- Structural Members – Building Elements
 - Beams, Columns, Horizontal Assemblies
- Exterior walls
- Fire walls
- Fire barriers
- Fire partitions – No such assembly in NFPA
- Smoke barriers
- Smoke partitions

Building & Fire Code Requirements

- Structural Members – Building Elements
 - Beams, Columns, Horizontal Assemblies
 - Fire-Resistance, Flame Exposure
 - Temperature Limits
 - Support Loads

Building & Fire Code Requirements

- Fire & Smoke Resistance,
- Compartmentation Codes
 - *Continuity*
 - *Openings & Penetrations*
 - *Robustness*
 - *Supporting Construction*

Building & Fire Code Requirements

- Fire Barriers
 - Fire Area Separations
 - Mixed Use Occupancies
 - Incidental Uses
 - Hazardous Area Separations
 - Exit Enclosures
 - Shaft enclosures
 - Horizontal Exits
 - Corridor Walls - NFPA

Building & Fire Code Requirements

- Smoke Barriers
 - Healthcare
 - Other Occupancies
- NFPA 101 – Smoke Resistance & Firestops
 - Ch. 8 NEW Addition
 - NOT in Occupancy Chapters yet
- IBC – Ch. 7
 - Quantified L Rating for Firestops

Building & Fire Code Requirements

- Compartmentation Codes – US
 - Smoke Barrier – **Firestopping** for Continuity
 - IBC – Hourly Rated, “L” Rating
 - <5cfm/sf (IBC 2006)
 - < 50 cfm, 100sf of Wall Area (IBC 2009)
 - NFPA – ... ‘restricting the passage of smoke’...
no quantified “L” Rating ... YET
 - Continuous, Barrier to Barrier, ... through concealed spaces,
 - Not always fire-resistance-rated.
 - Smoke Partition
 - IBC – Continuous barrier, not rated...’retard’.
 - NFPA – Continuous membrane that is designed to form a barrier to *limit the transfer of smoke*....

Building & Fire Code Requirements

- *Build it Right = Management Attainable*
 - **Walls / Horizontal Assemblies – Continuity**
 - Firestop Products Become Firestop Systems
 - Penetrations
 - Joints – Head /Bottom of Wall – Perimeter Joints
 - Fire & Smoke Damper Duct Systems
 - Fire Doors and Hardware Systems
 - Rolling & Swinging
 - Fire Rated Glazing

Continuity

Effective Compartmentation Features



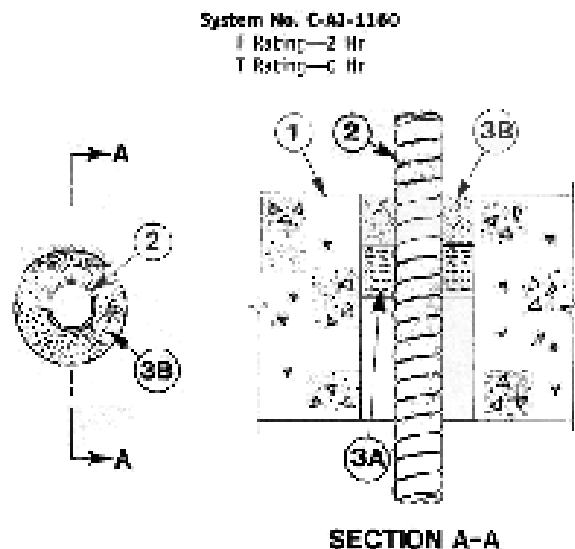
Barrier Continuity SYSTEMS

- **Products Become Systems – Spec References**
 - **Fire & Smoke Barriers** - ASTM E 119, UL 263
 - **Firestopping** - ASTM E 814 / UL 1479, ULC-S-115, UL 2079, E1966, E2307, **E2837**, ...test method...”
 - **Fire/Smoke Dampers** - UL 555, UL 555S
 - **Swing/Rolling Fire Doors** - UL 10B, 10C
 - **Fire Rated Glazing** - UL 9
- **SYSTEM Testing = Suitability statement for use of a product in a specific system application**



Firestopping for Continuity

I – Classified Systems

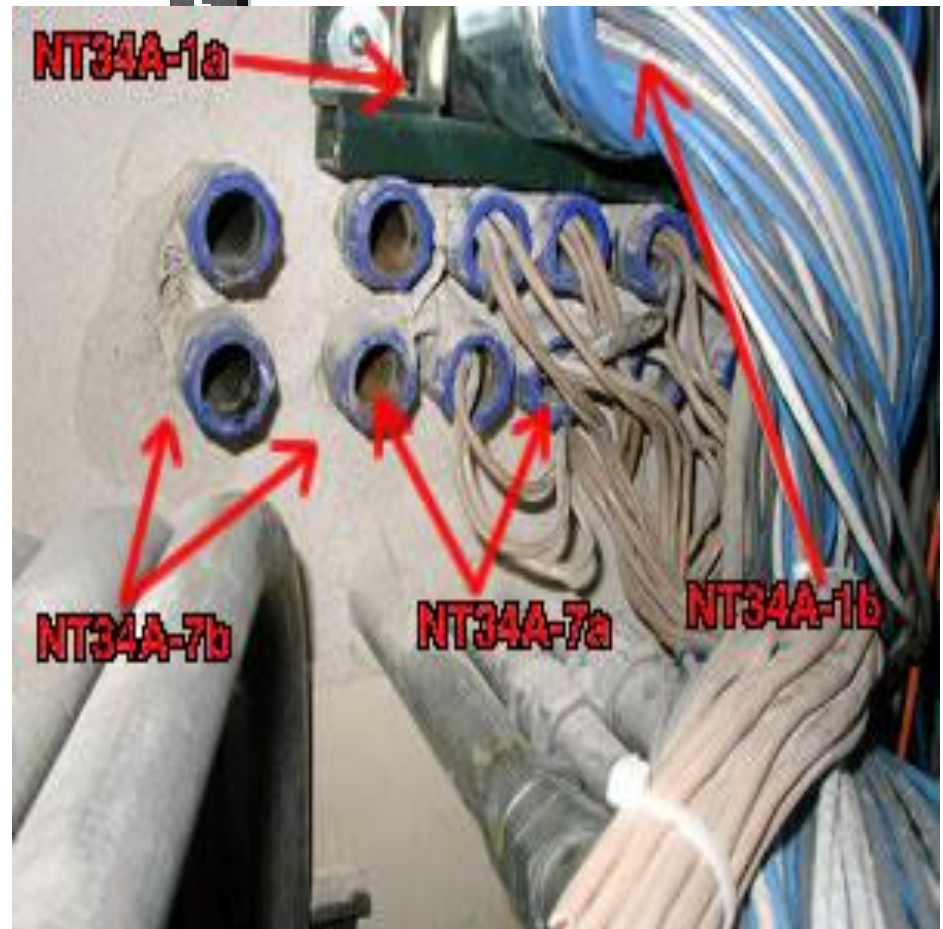


1. Floor or Wall Assembly—Min. 4-1/2 in. thick lightweight or normal weight (100 to 150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Block*. Base of circular through opening in floor or wall assembly to be 1/4 in. to 1-1/2 in. larger than diam of flexible metal conduit (item 2) installed in through opening. Max diam of opening is 6 in. See Concrete Block (CAI) category in the Fire Resistance Directory for names of manufacturers.
2. Through Penetrating Product**—Max 4 in. diam (or smaller) pipe, or max 3/4 in. diam (or smaller) aluminum Flexible Metal Conduit. Also 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.
3. Packing Material—Max 1 in. thickness of organic (plum tree slice) fiber Mat or mineral wool batt insulation firmly packed into opening as a permanent foam. Packing material to be removed min. 1 in. from top surface of floor or from both surfaces of wall.
4. FILL Void or Cavity Material***—Caulk—Applied to fill the annular space around the flexible metal conduit. In floors, a min 3 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.—17 27000

**Bearing the UL Classified Mark

***Bearing the UL Listing Mark



Firestopping for Continuity

Products become SYSTEMS

- After Installation...
- **‘Field Erected Construction...Tested to...’**
 - Standards - ASTM E814/UL 1479–UL 2079, ASTM E 1966, ASTM E 2307, ULC S-115, FM 4990
 - **F Rating - Flame**
 - T Rating – Temperature
 - H Rating – Hose
 - **L Rating – Smoke**
 - **W Rating – Water**



Graphics – 3M



Products become Systems

Hose Stream = Shock Test

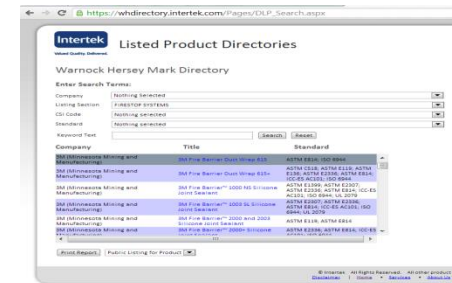


Barrier Continuity

Products become SYSTEMS

- **Fire Rated Systems Directories –**
 - FM Approvals
 - Intertek
 - UL Fire Resistance Directory

Systems Selection & Analysis...Not as easy as it looks...



Engineering Judgments/EFRRRA

- Variances to Systems at Site ? – Now What...
 - **First Action in Process**
 - Find another system – Same Manufacturer
 - Find another system – Different Manufacturer
 - If no system exists in either case....
 - **Second Action –**
 - *Engineering Judgment* – “EJ”
 - *Equivalent Fire Resistance Rated Assembly* – “EFRRRA”
 - *Based on engineering, IFC Protocol*

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*.

IFC EJ Guidelines - Engineering Judgments for firestop systems should:

- 1. Not be used in lieu of tested systems when available;**
- 2. Be issued only by a firestop manufacturer's qualified technical personnel or in concert with the manufacturer by a knowledgeable registered Professional Engineer, Fire Protection Engineer, or an independent testing agency that provides listing services for firestop systems;**
- 3. Be based upon interpolation of previously tested firestop systems that are either sufficiently similar in nature or clearly bracket the conditions upon which the judgment is to be given.**
Additional knowledge and technical interpretations based upon accepted engineering principles, fire science and fire testing guidelines (e.g. ASTM E 2032 – Standard Guide for Extension of Data from Fire Endurance Tests, ULC Subject C263E – Criteria for Use in Extension of Data from Fire Endurance Tests, or ASTM E2750 – Standard Guide for Extensions of Data for Penetration Seals) may also be used as further support data;

IFC EJ Presentation Guidelines – What's Seen?

f• Continuity Head-of-Wall Joints

- Joint Width, (installed width, nominal)*
- Movement Capability*
- Movement Class – (thermal, wind sway, seismic)*
- Accessory Item(s) (i.e. insulation type, thickness, compression, etc.)*

IFC recommends that these guidelines be considered when evaluating whether any firestop system engineering judgment meets minimal requirements. Questions concerning the EJ request should be addressed to the initiator of the judgment.

INSTALL FIRESTOP SYSTEM

Firestop Sealant, MW installation to Tested and Listed System Limits = Firestop System



Pack

1



Apply Sealant

2



Tool/Smooth

3

Walls - BOTH SIDES

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**



Graphics, STI, 3M, AD, HILTI, Nelson

Firestop Materials, Systems

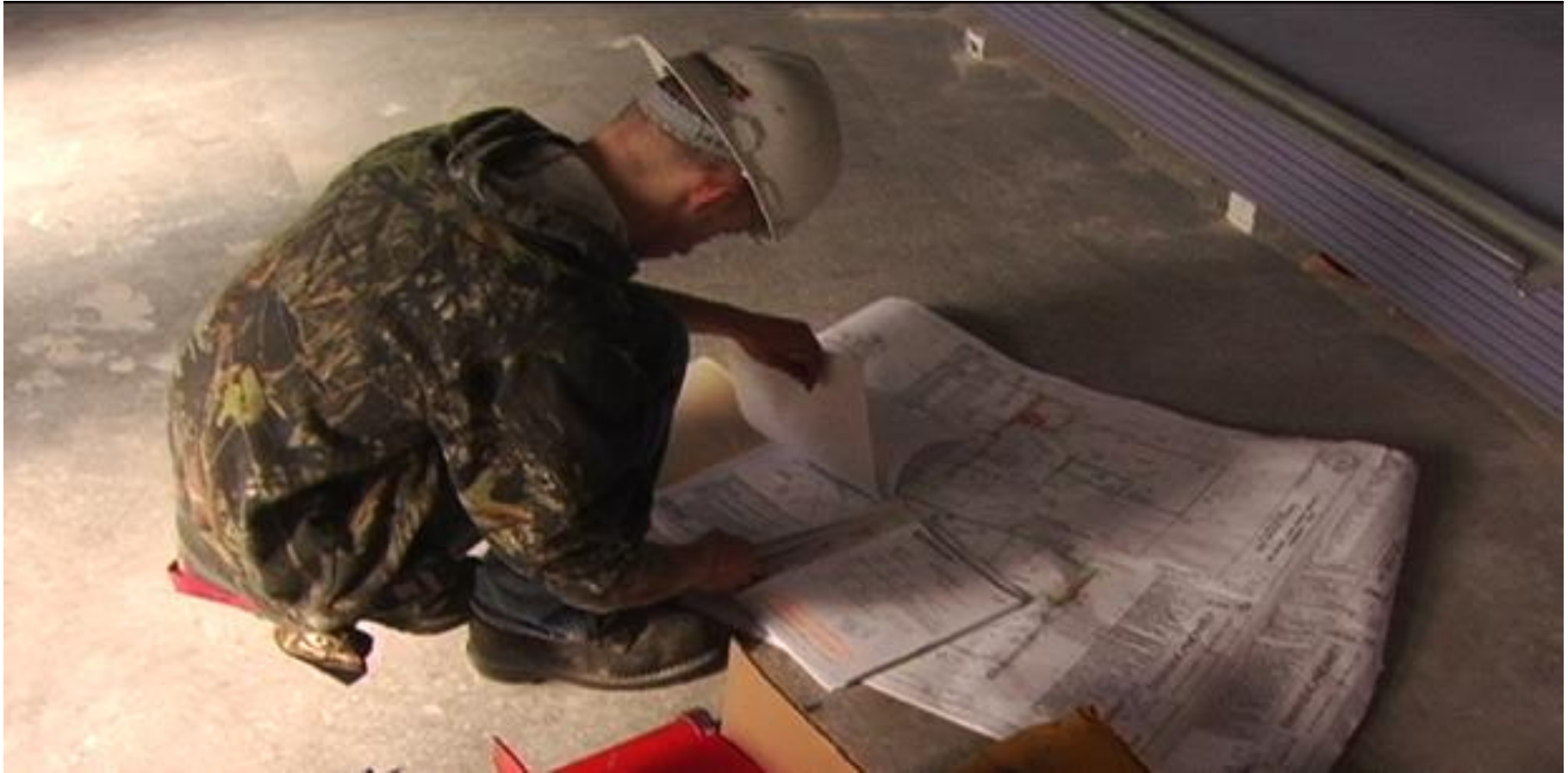
Spec Physical Properties Needed

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



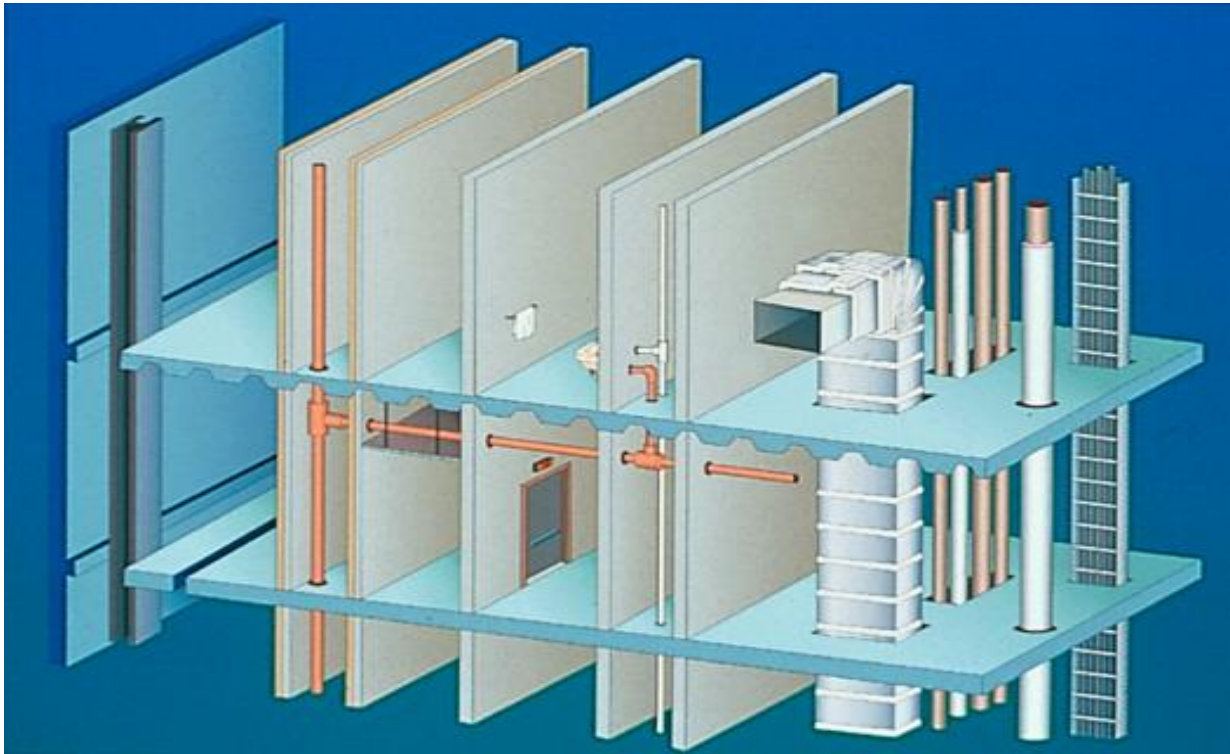
Barrier Continuity

I – Installation – Listed Systems



I- Installation

Who's Responsible, How to Choose???



Graphics – STI

Spec Contractor Qualifications

- **FM 4991 – Standard for the Approval of Firestop Contractors**
- **UL Qualified Firestop Contractors**
- **Other Industries???**
- ***FM 4991/UL-ULC CONTRACTORS
UNDERSTAND SYSTEMS &
DOCUMENTATION***

Contractor Qualifications

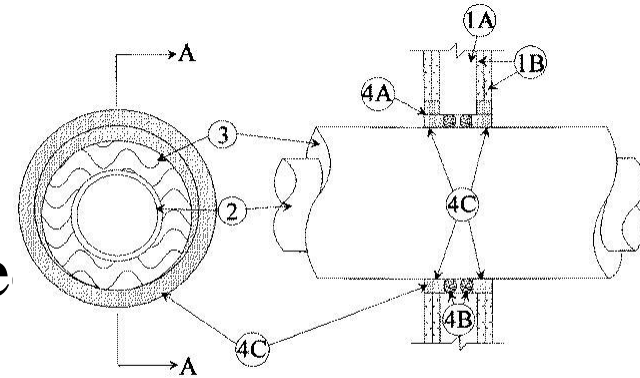
FM & UL/ULC – 4 Components

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



1. FM, UL/ULC Company Audit Processes – Management System

- Employee Training & Education
- Systems Selection
- Communicate systems to Field
- Material Controls
- Systems installation “protocol”
- Labeling
- Record keeping - Variance Proce
- Non-Conformances
- Documentation
- Project closeout



CONFIGURATION A

2. Company MS Jobsite Audit **by ULC, FM or UL**

- Verification of firestop systems Processes
- Verify Management System Works
- Verify Company “communication”
 - Office to field, field to office
- “Culture of Quality...”

»

Adler Photo



3. **DRI** – Company Appoints DRI ifPerson has Knowledge

- **Pass Rigorous Firestop Examination**
 - FCIA Firestop Manual of Practice
 - Firestop Systems Selection & Protocol
 - Management System Knowledge
- Keep CEU's – 6 FM, 10 UL, ea. 3 yrs.
- Retested every 3 years (FM Only)
- One DRI per Approved Contractor Location



4. Annual Audit

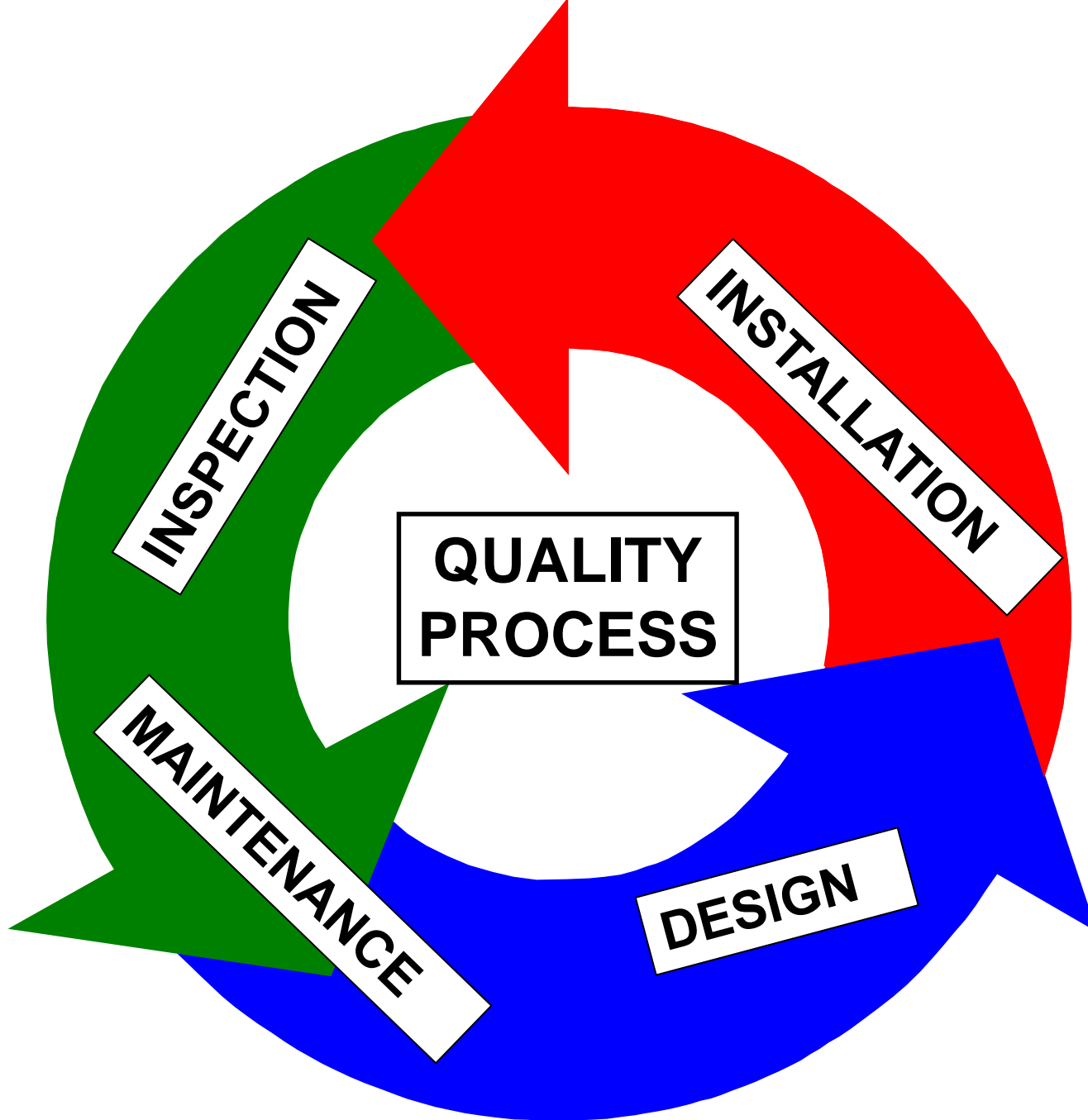
FM 4991 UL / ULC

Contractor Company Personnel

- Continued satisfactory performance
 - Quality Manual Implementation
- Documented - Archived record keeping
- Employee Training Documentation
- Jobsite Visit
- DRI CEU Verification
- **Find @www.fcia.org**

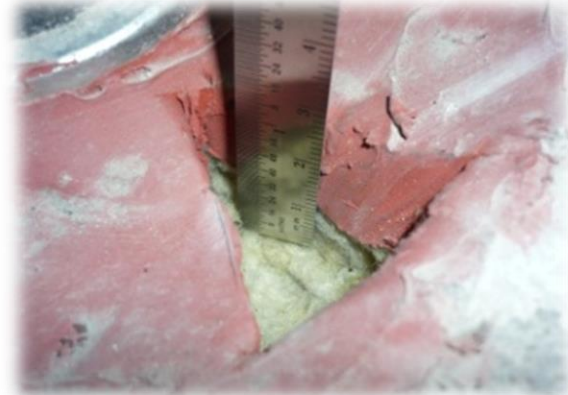
Why Contractor Qualifications?

- **Built right the first time...**
- **Documentation**
- **SYSTEMS Selection, Analysis, As-Builts**
 - **F, T, L, W Rated Systems**
 - **Tolerances - Annular Space Sizes, Angles**
 - **Gap Sizes - Undercuts - Framing**
 - **Anchors - Spacing – Hardware**
 - **Closers - Activation Sensors, more...**



Firestop Installation & Inspection

- ASTM E 2174/ ASTM E 2393 –



I – Inspection – Options

- **Contractor Self Inspection**
 - Verify Management System validity
- **Manufacturer Inspection?**
 - Does not exist ... Survey, maybe
- **Special Inspection/Commissioning**
 - Independent 3rd Party
 - Destructive, Non Destructive
 - Specified Frequency
 - Inspection Agency Accreditation – IAS AC 291

I – Inspection – Code Requirements

[A] 110.3 Required inspections. The *building official*, upon notification, shall make the inspections set forth in Sections 110.3.1 through 110.3.10.

[A] 110.3.6 Fire- and smoke-resistant penetrations. Protection of joints and penetrations in fire-resistance rated assemblies, *smoke barriers* and smoke partitions shall not be concealed from view until inspected and *approved*.

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

Inspection in Codes

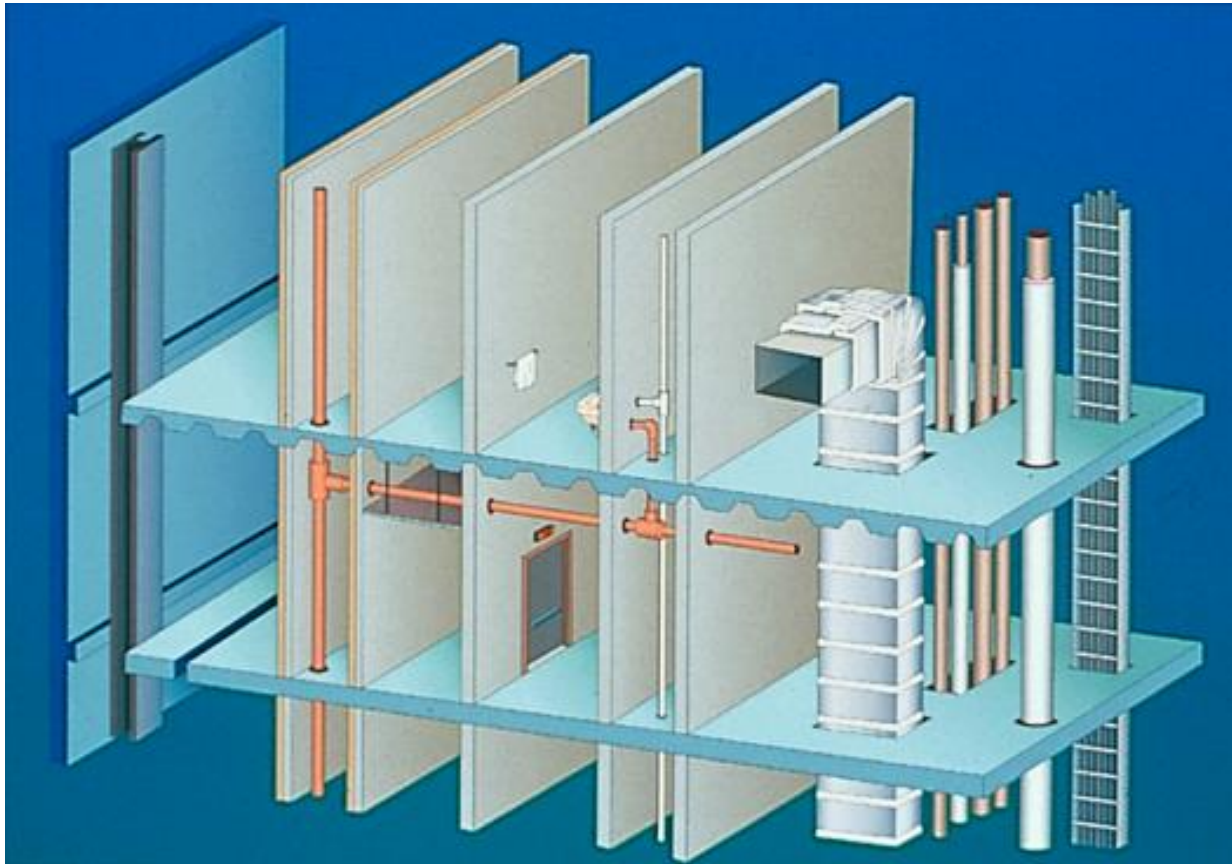
ASTM E 2174 - ASTM E 2393

- NFPA 101 / 5000 - Chapter 8 - Annex
- 2012 International Building Code
 - CH 17 – Special Inspections
 - Buildings 75' & higher above Fire Department Access
 - Occupancy Type III, IV, Chapter 16 Table 1604.5
- Abu Dhabi International Building Code

I – Inspection – Scope

- **ASTM E 2174 & ASTM E 2393 –**
 - Firestopping
- **Other...**
 - Walls, Horizontal Assemblies
 - Fire Dampers
 - Fire Rated Glazing
 - Fire Doors
 - **Fireproofing**
 - **ASTM Work Item – Fireproofing**
 - **ASTM E 605 – ASTM E 736**

M – Maintenance (& Management)



Fire Code Requires Fire & Smoke Resistance Maintenance

- **International Fire Code**
- **NFPA 101**
- **National Building Code of Canada**
- **UAE Fire and Life Safety Code of Practice**
- **Minimum Requirements Stated**
- **Frequency**

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. [101:4.6.12.1]

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. [101:4.6.12.5]

2009 International Fire Code Maintenance



SECTION 703 FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required fire resistance rating of fire-resistance rated construction (including walls, fire stops, shaft enclosures, partitions, smoke barriers, floors, fire resistive coatings and sprayed fire resistant materials applied to structural members and fire resistive joint systems) shall be maintained. Such elements shall be visually inspected by the owner annually and properly repaired, restored or replaced when damaged, altered, breached or penetrated.

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.

2015 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..**



2015 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.



2015 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.



M–Barrier Management Systems

2018 International Fire Code

- **701.6 Owner's responsibility.** The **owner** **shall maintain an inventory of all** **required** *fire-resistance-rated and smoke resistant* construction, and the construction included in Sections 703 through 707 and such construction shall be visually inspected by the *owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated.*

M–Barrier Management Systems

2018 International Fire Code

- **701.6, Continued...**
- **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.*

M–Barrier Management Systems

2018 International Fire Code

- **703.1 Maintaining protection. Materials and firestop systems used to protect membrane- and through-penetrations in fireresistance- rated construction and construction installed to resist the passage of smoke shall be maintained.**

M–Barrier Management Systems

2018 International Fire Code

- **703.1 ... Continued.**

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. Where the system design number is known, the system shall be inspected to the listing criteria and manufacturer's installation instruction.

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**
FCIA recommends Barrier Management for Effective Compartmentation and Structural Protection



Firestop Maintenance

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



M–Barrier Management Systems

- **Why Manage Barriers?**
- **International Fire Code**
- **International Property Maintenance Code**

M–Barrier Management Systems

ICC's IPMC

IPMC SECTION 703

[F] 703.1 Fire-resistance-rated assemblies. The required fire-resistance rating of fire-resistance-rated walls, fire stops, shaft enclosures, partitions and floors shall be maintained.

[F] 703.2 Opening protectives. Required opening protectives shall be maintained in an operative condition. Fire and smokestop doors shall be maintained in operable condition. Fire doors and smoke barrier doors shall not be blocked or obstructed or otherwise made inoperable.

International Existing Building Code

M–Barrier Management Systems Policies

- **Barrier Management Policy**
 - **Inventory**
 - **Monitor**
 - **Permits**
 - **Management**
 - **Facility Needs Budget to Meet Code Requirements**
 - **Implement Maintenance**
 - **In House (Rules)**
 - **Outside Contractor (Rules)**

M–Barrier Management Systems Policies

- **Barrier Management Policy**
 - **Inventory - Items to Survey**
 - **Fire-Resistance-Rated Walls and Floors**
 - Breaches for Penetrations, Joints, Doors, etc.
 - Wall not completed at new construction?
 - Wall removed above ceiling?
 - **FCIA Recommended Professional Practice, Survey**
 - **Survey Not Inspection**

M–Barrier Management Systems Policies

- “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.***
- **[IFC 2015, 703.1]**

M–Barrier Management Systems Starts with CONSTRUCTION

- **Fire-Resistance-Rated Walls & Floors**
 - Walls - U, V 400, 900 Designs
 - Floors – P Designs
 - Calculated Fire Resistance
 - Code Defined Fire Resistance - 720
 - Firestop Systems
 - Fire & Smoke Dampers
 - Fire Rated Rolling & Swinging Doors
 - Fire Rated Glazing

M–Barrier Management Systems Operations

- **Items to Survey**
- **Fire-Rated Doors – Annually – NFPA 80**
 - **Close and Latch**
 - **Holes**
 - **Attach at Frame**
 - **Undercut & Astragals**
 - **Labels Legible**
 - **Labels recertified, requirements of 3rd party certification agency**

M–Barrier Management Systems Operations

- **Firestop Systems – Not Concealed Only**
- **Through & Membrane Penetrations**
 - **Joints**
 - **Wall to Wall**
 - **Floor to Floor**
 - **Head – Bottom of Wall**
 - **Continuity Head of Wall**
 - **Perimeter Fire Containment**

M–Barrier Management Systems Operations

- **Firestopping – SYSTEMS**
 - Visibly Comply with System
 - Visibly ‘sealed’
 - Without openings
 - Firestop Materials & Systems
 - Securely Attached

M–Barrier Management Systems

Items to Survey

Fire & Smoke, Ceiling, Radiation Dampers

- **NFPA 80 –**
- **Initial Installation**
- **At 1 year, each 4 years,**
- **6 years *Hospitals Only***
 - **Fire Dampers**
 - **Smoke Dampers**
 - **Combination Fire/Smoke Dampers**
 - **Ceiling Dampers**

M–Barrier Management Systems

Items to Survey

- **Fire Rated Glazing**
 - Verify it's still fire rated
 - Glazing / Frame Attachment
 - Frame attached to wall
 - Glazing Marking as Built

M–Barrier Management Systems

Items to Survey

- **Fire Resistance Inventory Systems**
 - Paper & Files
 - Spreadsheets
 - Software

M–Barrier Management Systems Building Operational

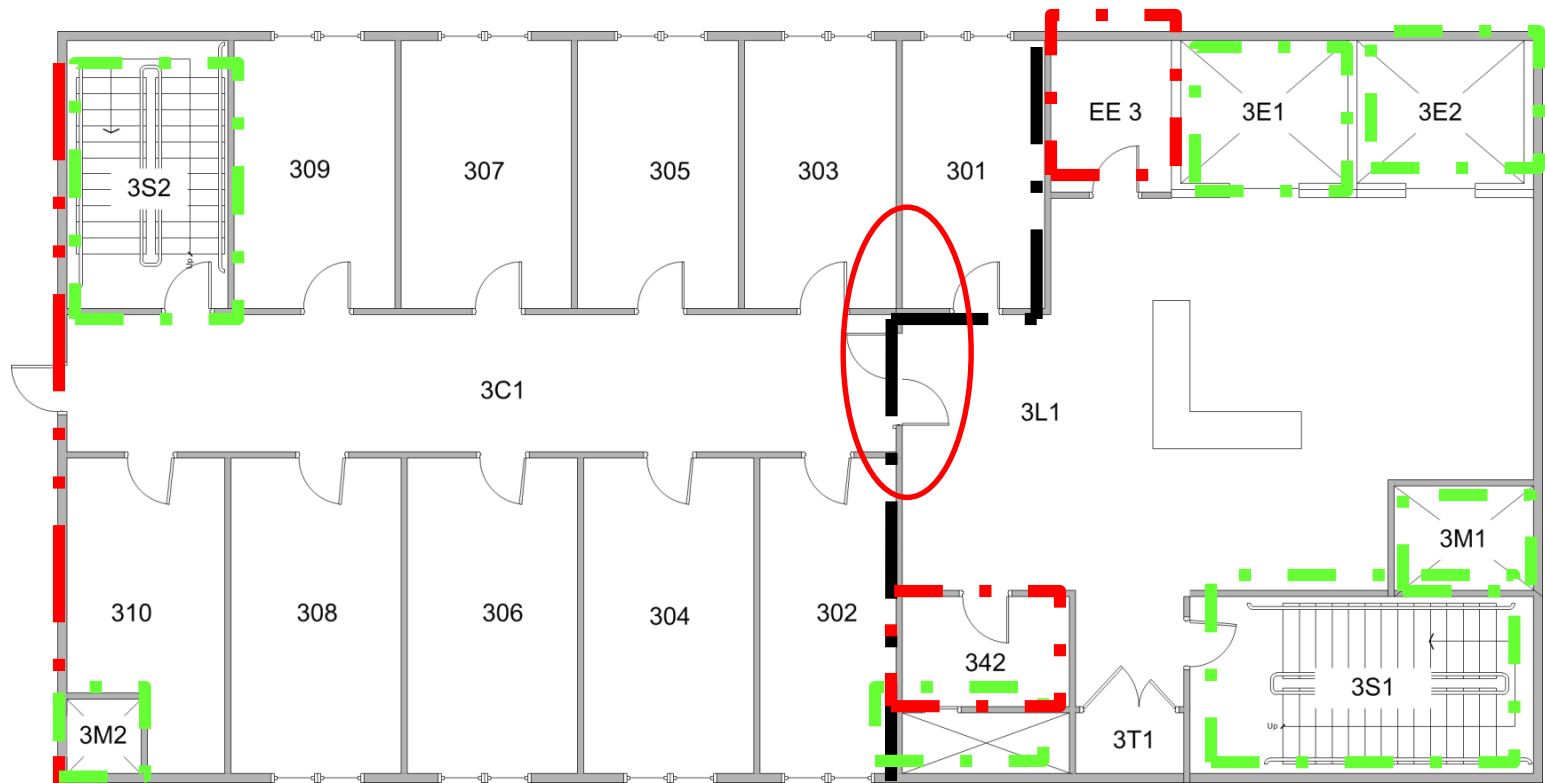
- **Barrier Management Policy**

- **Repairs**

- As originally permitted and *approved*
 - *As required by Fire Code, Existing Building Code*
 - If SYSTEMS required, **SYSTEMS REPAIRS**
 - If no Systems, original materials.
 - Fire Official
 - Insurance Company

M-Barrier Management Systems

- **Now it's your building....**



- **Gleeson Powers Graphic**

M–Barrier Management Systems

- **Barrier Management**
 - **Issues...Budget???**
 - **Other Occupancies---Big Problem**
 - **Constant issues**
 - **Control?**
 - **Staff?**
 - **Manage?**

Barrier Management HUB

- **The HUB is Facility Director & AHJ!**
- **HUB Controls Actions**
 - **C-Suite Execs – Budgeted Yearly**
 - **Construction –**
 - **In House Crews**
 - **Outside Contractors**
 - **I-T Department –**
 - **In House Crews & Outside Contractors**

Barrier Management Policy Contents

- *Annual Line Item Budget*
- **Rules of Engagement in Contracts**
 - Internal Contracts
 - External Contracts
- **Pre Construction Meetings**
- **Barrier Warnings - Markings**
- **Violation Consequences**
- **Ongoing Management**
- **Staff - Occupant Education**



Barrier Management Policy Tool

- **Contracts = Rules**
 - **Internal Contracts -**
 - **In House Departments similar to Outside Contractors**
 - **External Contracts**
 - **AIA Contract**
 - **Marked Fire - Smoke Barrier Actions**
 - **Barrier Permits**
 - **Documentation Systems**
 - **Report**

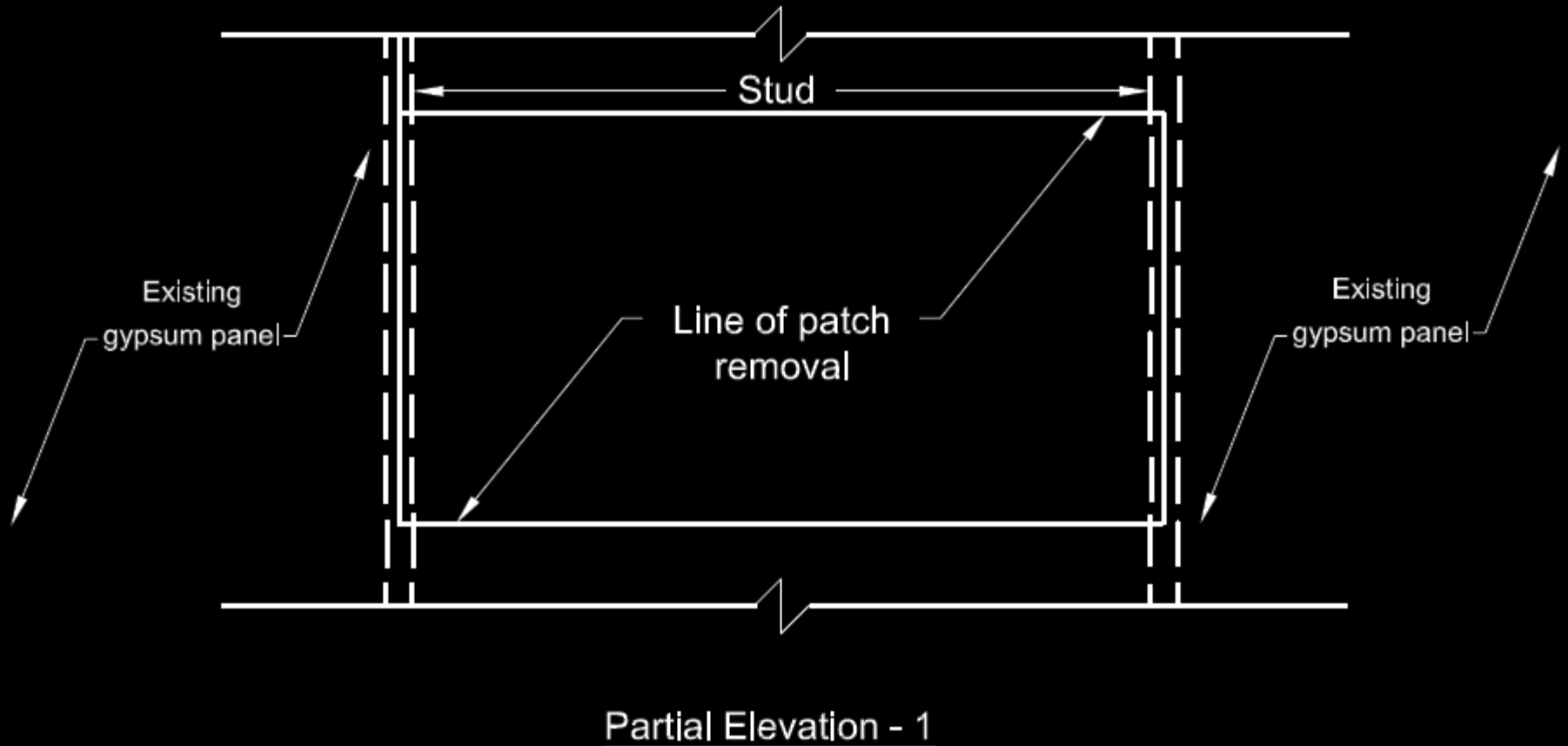
M–Barrier Management Systems

- **Barrier Inventory Elements**
 - Life Safety Drawings
 - Existing Conditions Documented
 - Ongoing Survey Records
 - Deficiency Reports
 - Systems Documentation Control, Retrieval
- **ALL FIRE PROTECTION FEATURES**

M–Barrier Management Systems

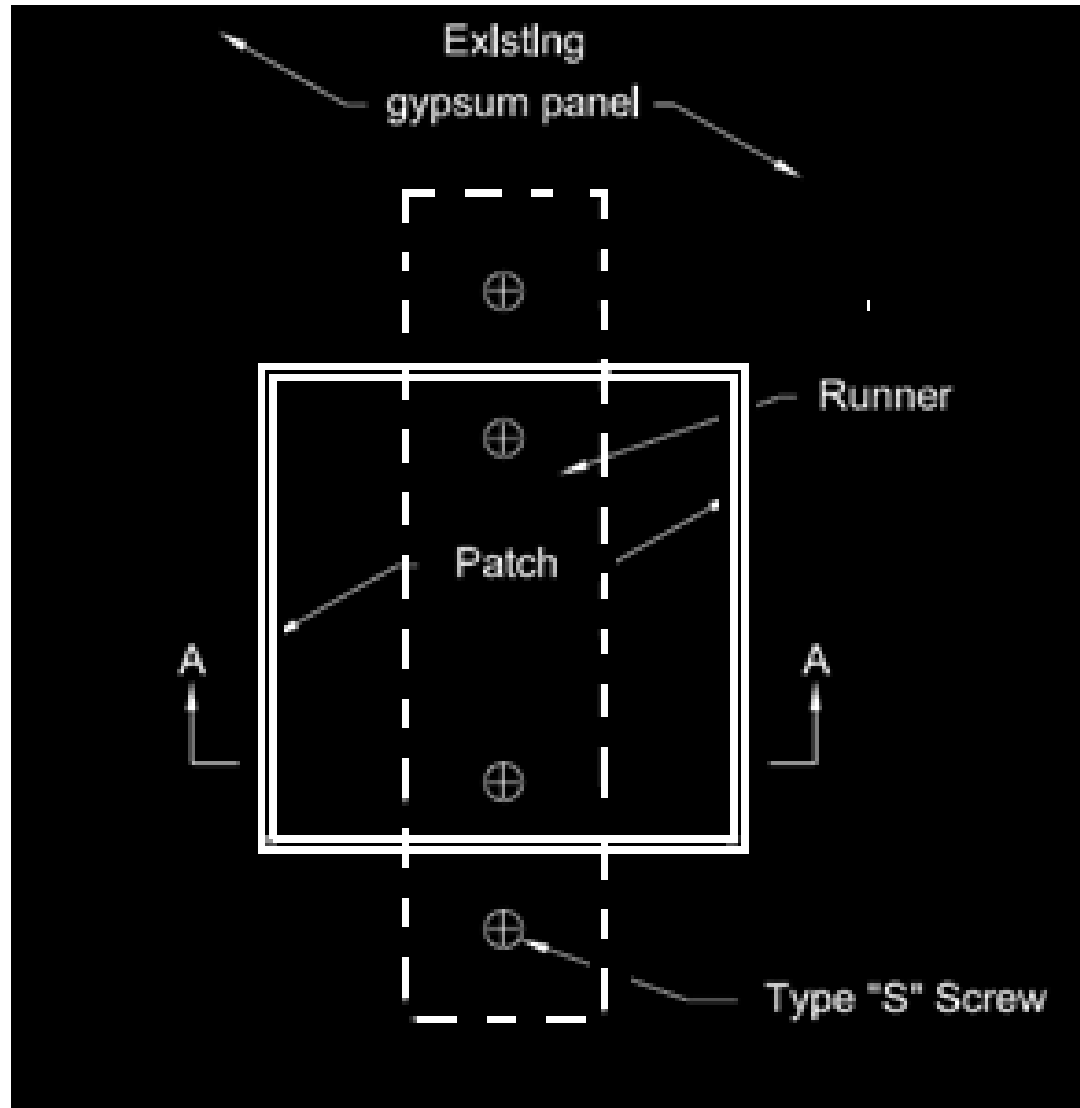
- **Barrier Repair Examples**

Gypsum Wallboard Repair Large Holes

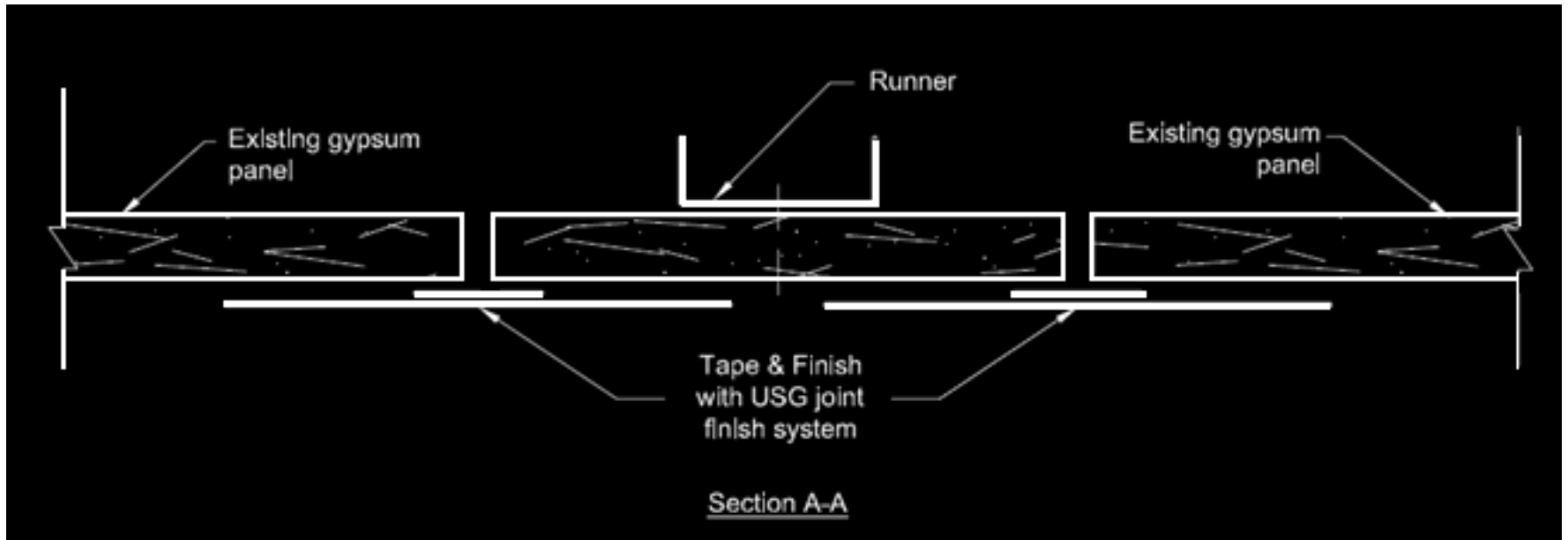


- USG Photo

Repair Small Holes



Repair Small Holes

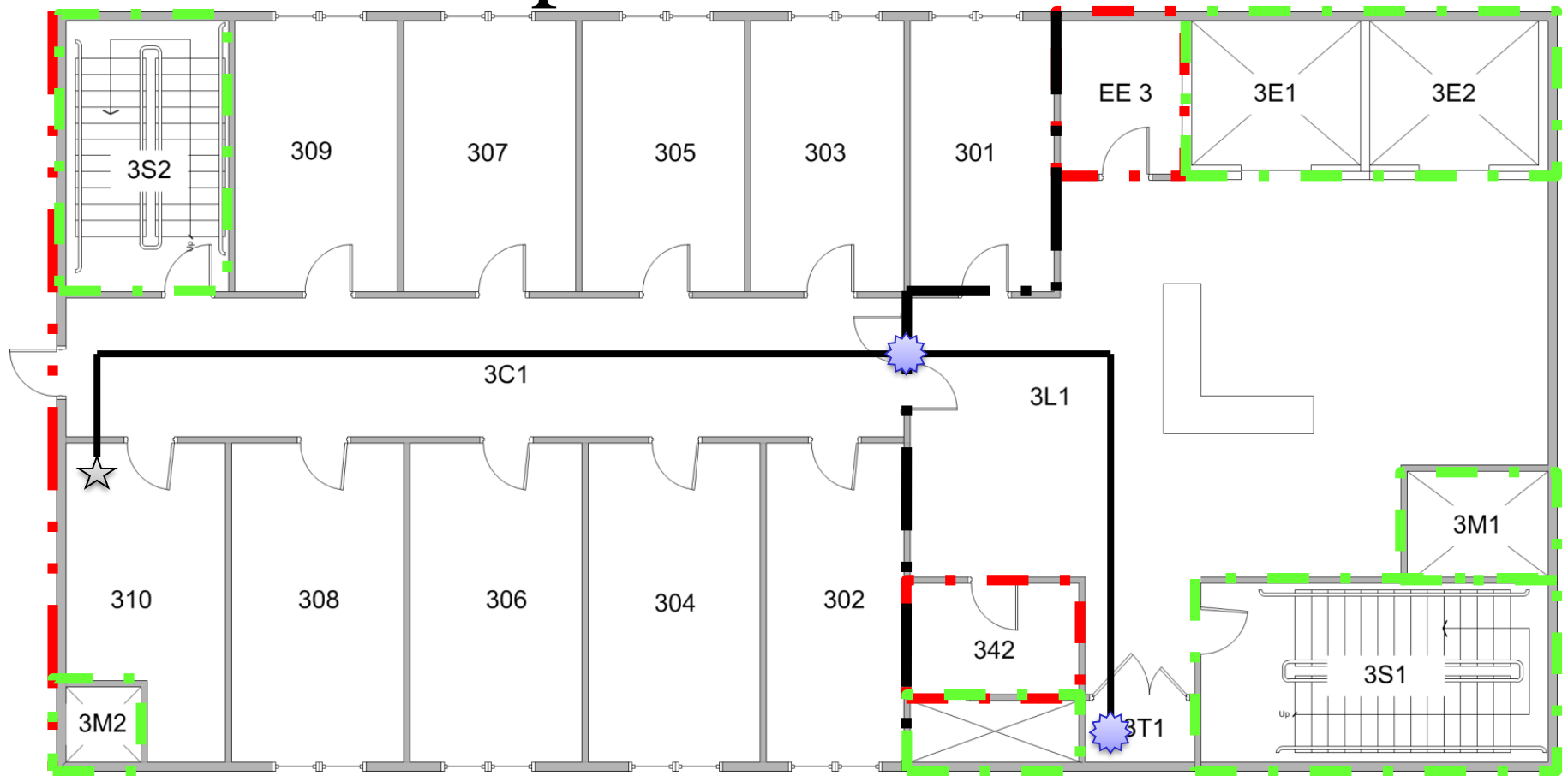


M–Barrier Management Systems

- **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

admin Client: Life Safety Tracker Demo

Beta v1.3.13.9

Gleeson Powers Graphic

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

Corrective Action Photo



Side: 1: 3C1

Photo Notes:

Photo ID: 37298

Survey Photo



Side: 2: 3L1

Photo ID: 37297

Corrective Action Photo



Side: 2: 3L1

Photo Notes:

Photo ID: 37299

Barrier Management Policy

Identification

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.

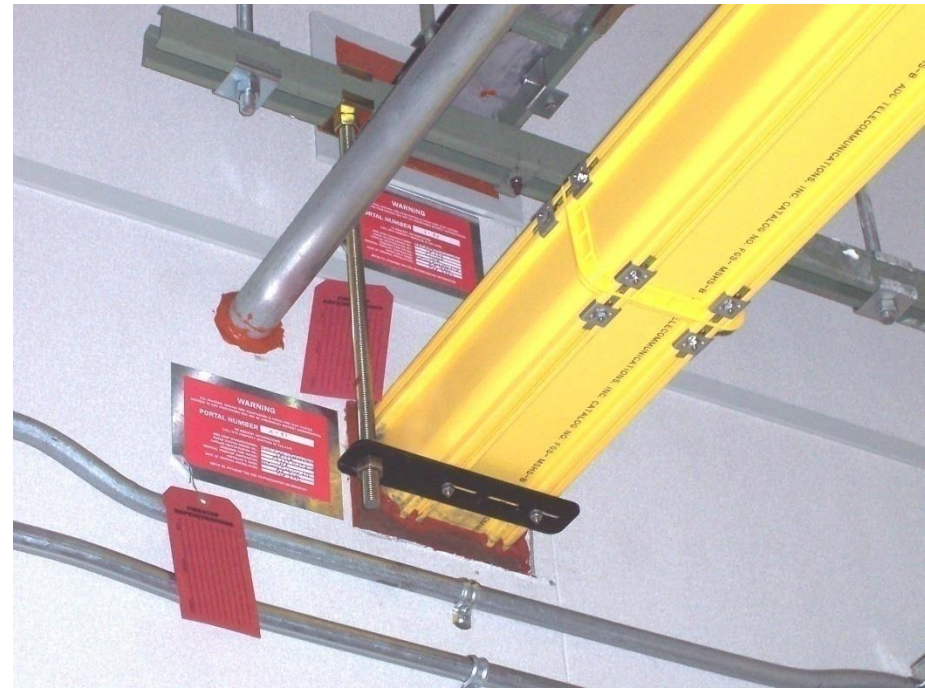
“FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS”
or other wording.

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 Warnings on ASSEMBLIES
- International Building Code – 2009++



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 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

- **Find Violators....**
 - **Staff Awards**

Barrier Management Policy Tool

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

Barrier Management Policy Tool

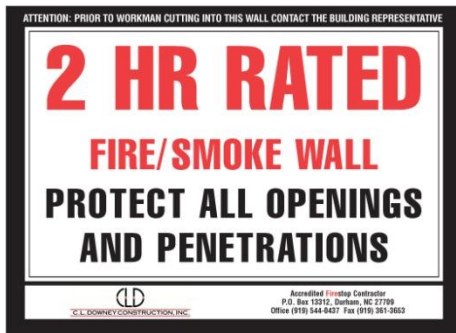
- **Education - Staff Repairs – Simple??**
 - **Fire Doors & Hardware – Simple things...**
 - **Close & Latch**
 - **Holes in Door**
 - **Ladder = ?? Permit Sticker?**
 - **Fire Rated Walls - Holes**
 - **Accidental**
 - **Workers**

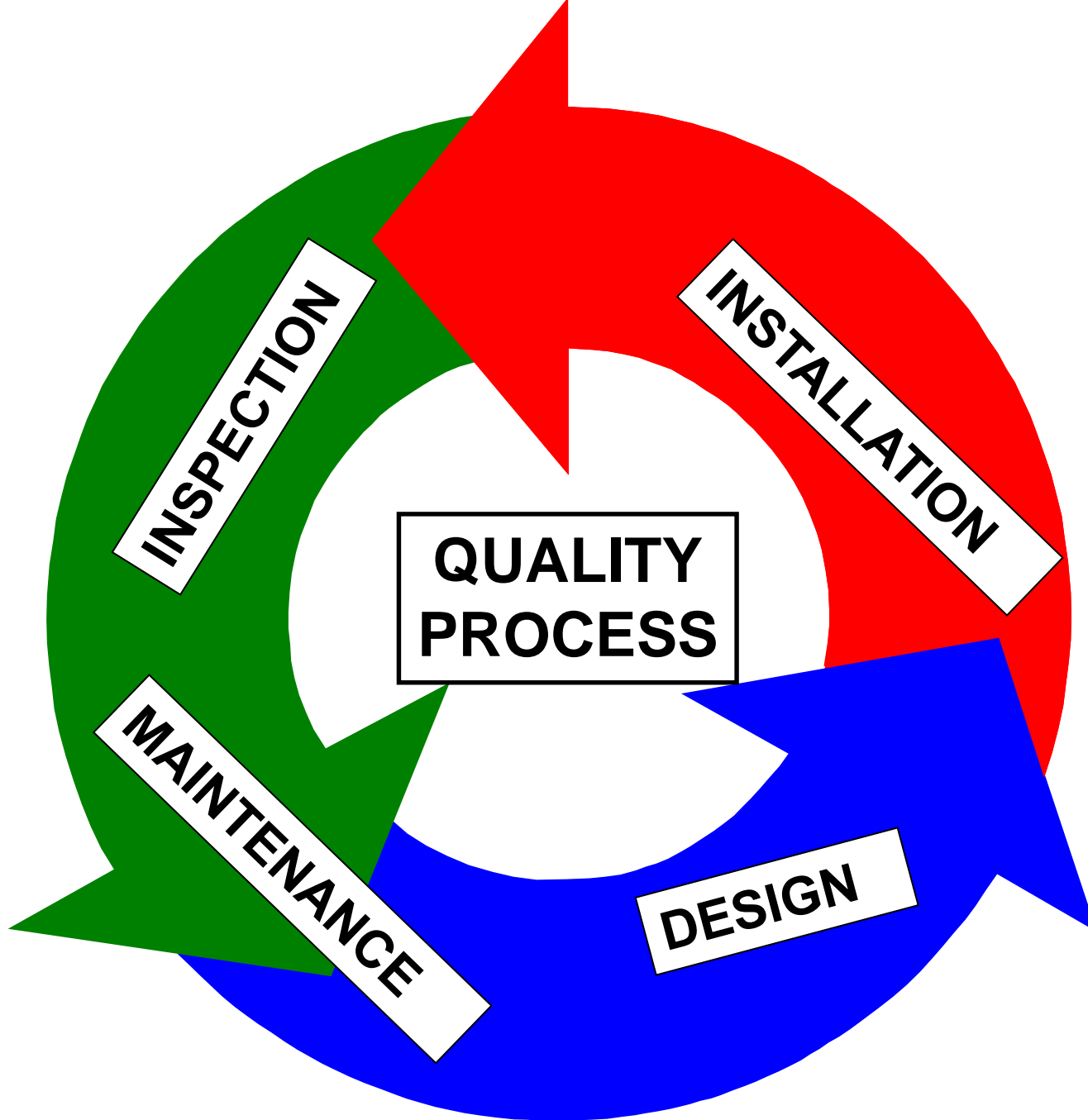
Barrier Management Policy Tool

- **Budgets...**
 - **Sprinkler Maintenance**
 - **Alarms Maintenance**
 - **Security**
 - **Fire and Smoke Resistant Assemblies**
 - **Doors**
 - **Dampers**
 - **Firestops**
 - **Glazing**
 - **Walls/Floors**

“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





“DIIM”

- Barriers are for Safety – DIIM
 - Properly *Designed* and Specified
 - *Tested and Listed Systems* – Directories,
 - Professional *Installation* - Companies
 - Properly *Inspected* – Commissioned
 - *Maintained* - Annually –
 - NFPA 101
 - International Fire Code
 - International Property Maintenance Code
 - It's required by Code
 - Minimize Liability
 - Protect Occupants

Effective Compartmentation is a SYSTEM





Contacts

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FCIA Webinar

Barrier Management Systems

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