The Firestopping Quality Process

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The Firestopping Process

• Outline
  – FCIA
  – Total Fire Protection & Effective Compartmentation
  – Codes, Testing, Products - Materials
  – The Firestopping Process – A Quality Protocol
    • Properly Designed and Specified Firestopping - 07841/07842
    • Tested Systems - ASTM E 814 / UL 1479 – S115 - UL 2079
    • Professional Installation – FCIA Member, FM 4991 Approved, UL Qualified Contractors
    • Properly Inspected - ASTM E 2174 / 2393 Protocol
    • Maintained by FCIA Member Contractors
The Firestopping Process

• FCIA – Trade Association
• Firestop Contractors, Manufacturers, Consultants, Reps, Distributors,
• Website Resource - www.fcia.org
The Firestopping Process

FCIA Membership Means ……..

– Industry Interest
  • FCIA Seminars
  • FCIA Publications

– Industry Investment
  • FCIA Manual of Practice
  • FCIA Conference Education
  • Committee Membership
    – Return to the industry

– “Specialty Firestop Contractors”
  • Knowledge, Value, Expertise
The Firestopping Process

• “TOTAL FIRE PROTECTION”

• Effective Compartmentation
  – Fire Walls/Floors & Firestopping
  – Fire Dampers, Fire Doors, Fire Glass

• Detection & Alarm Systems

• Sprinkler Suppression Systems

• Education – Building Managers, Occupants and Firefighters
The Firestopping Process

Proper ‘DIIM’ Effective Compartmentation Means Reliable Systems…

- **Designed** - A/E, Firestop Consultant
  - Tested and Listed Systems, FCIA Member Mfr’s.

- **Properly Installed**
  - FCIA Member, “FM 4991, or UL QFC Contractors”

- **Properly Inspected**
  - ASTM E 2174 & ASTM E 2393 Inspection

- **Properly Maintained** –
  - FCIA Member, FM 4991, or UL QFC Contractor
The Firestopping Process

• Code Requirements
  – International Building Code – Chapter 7
    • New Construction
  – International Fire Code – Chapter 7
    • Existing Buildings
    • Enforced by Fire Marshal
  – NFPA 5000 – 101- Chapter 8
  – National Building Code – Canada
    • New and Existing Buildings
  – Minimum requirements for Construction & Maintenance
The Firestopping Process

• Code - Regulatory Basis for Firestopping
  – NBC - Canada
  – NFPA 5000 - 101
  – ICC – International Family of Codes
    • Firestopping Fire Resistance Rated Floor and Walls

• Effective Compartmentation
  Continuity Maintained
US ICC Adoptions – ICCsafe.org
FCIA Firestopping Process

The Canadian Commission on Building and Fire Codes (CCBFC):
- appointed by NRC
- members are volunteers
- represents regulators, construction industry and public interest

Oversees the code development system

*National Building Code of Canada (NBC)*
FCIA Firestopping Process

- **Compartmentation Codes - USA**
  - **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. ICC adds… “Systems”
  - Ch. 7 – IBC - **Fire Barrier** – Hourly Rated – IBC
  - Ch. 8 - NFPA - **Fire Barrier Walls** – wall other than fire rated, that have a fire resistance rating; 2 hour Rated – NFPA
  - Ch. 7 IBC - **Fire Wall** – Fire rating, structural independence
  - Ch. 7 IBC – **Fire Partition** – Not Rated, not continuous.
  - Ch. 7 IBC - **Smoke Barrier** – Hourly Rated, continuous…
  - Ch. 7 IBC - **Smoke Partition** – Not Rated…not continuous
FCIA Firestopping Process

• Compartmentation Codes - USA
  – **Smoke Barrier** – Firestopping
    • IBC – Hourly Rated, sealed, “L” Rating <5cfm/sf
    • NFPA - Similar
  – **Smoke Partition**
    • IBC – Continuous barrier, not rated.
    • NFPA – Continuous membrane that is designed to form a barrier to limit the transfer of smoke.
FCIA Firestopping Process

• Compartmentation Codes - USA
  – Firestopping Seals – Smoke Barriers, Partitions?
    • Standards Exist
      – F - Hours
      – T - Temperature
      – L – Air Leakage / Smoke
      – W – Water
    • Standards means suitability for use

• “Anything less …. Up to Judge”
  – Karen Layng, Esq.
The Firestopping Process

• Compartmentation - IBC?
  • Eliminated Rated Corridors in Schools
  • Eliminated Rated Mechanical Rooms
  • Occupancy Separations Reduced
  • Increased Height and Area
  • “Trade Offs”
The Firestopping Process

- Optimization Debate
  - IBC Height and Area Tables
    - Increased allowable SF w/o compartments
      - Fire Resistance Rated Walls become ‘0’ rated
        » Add Non Resistance Rated Smoke Partitions
    - 12,000 SF to 250,000 SF depending on occupancy
The Firestopping Process

- Compartmentation Reductions
  - Education
  - Office
  - Mercantile
  - Multi Family Residential
  - Industrial – Insurance influences
  - Institutional - Healthcare – No change
The Firestopping Process

• Total Fire Protection
  – Detection & Alarms
  – Sprinkler Systems
  – Occupant Education
  – Compartmentation

• Buildings are Safe because…
The Firestopping Process

• Total Fire Protection
  – Detection & Alarms
  – Sprinkler Systems
  – Occupant Education
  – Compartmentation

• 11,000 High Rises, 70% in NY, SF, LA, CHI, HI…Compartmentation, etc…

• 85% of Schools built before 1985…
The Firestopping Process
The Firestopping Process

• Chicago High Rise Life Safety Code
  – Sprinklers in Pre 1975 Buildings
    • Now MANDATED as Required
  – COMPARTMENTATION EXCEPTION
    • Life Safety Evaluation
      – Residential High Rise
      – Historic Structures
The Firestopping Process
Effective Compartmentation

• Fire Walls and Floors –
  – Continuous Fire Resistance Rated Assemblies
    – Concrete
    – Concrete Block
    – Plaster
    – Gypsum Block
    – Drywall
    – Floor/Ceiling Assemblies
    – Firestop Systems

“Tested & Listed Wall/Floor Systems”
The Firestopping Process
Effective Compartmentation Features

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

- FCIA Members Understand Effective Compartmentation & Firestop Quality Process…
  - Firestop Systems Tested to ASTM E 814, UL 1479/2079, ASTM E 2307
  - Specified by Professionals
  - Installed by FCIA Member
  - Inspected to ASTM E2174 & ASTM E2393
    Inspection Process by Qualified Firms/Individuals
  - Maintained by FCIA Member Firestopping Contractors
The Firestopping Process
I – Classified Systems

SECTION A-A

1. Floor or Wall Assembly—Min 1/2 in. thick lightweight or normal weight 100 to 200 psi concrete. Wall may also be constructed of any A-Classified Concrete Block. Door frames or through opening in floor or wall assembly to be 1 1/2 in. min. 1 1/2 in. larger than diam of flexible metal conduit (2 in) installed through opening. Min diam of opening is 6 in.

2. Through-Penetrating Products—Min 1 1/2 in. thick for a binding layer, or max. 3/4 in. diameter (or smaller) flexible metal conduit. Min diam. flexible metal conduit to be installed at least 1/2 in. below lower surface or top or in any part above top surface. Flexible metal conduit to be spaced 30 in. on center or more from any other part of electrical wiring, ducts, or water pipes within 12 in. of any part of a nonmetallic conduit.}

Packing Material:—Min 1 hr. thickness of ceramic (or other rigid) fiber blanket or mineral wool batt. Insulation firmly packed into opening in a permanent form. Insulating material to be separated by 1 in. from top or bottom of opening. Insulation to be held in place by sheet metal covering, wire mesh, or other similar material. Flexible metal conduit to be installed flush with top or bottom of wall. Insulation to be held in place by sheet metal covering, wire mesh, or other similar material.

Fill or Covering Material—Caulk—Applied to fill the annular space around the flexible metal conduit. In place, a 1 in. min. depth of material to be retained flush with top or bottom of wall. In walls, a 4 in. in depth of fill noted to be installed flush with wall surface on both sides of wall assembly.
The Firestopping Process

• 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, A/D, HILTI, Nelson
The Firestopping Process

- **Firestop Systems Materials**

- Pipes – Cables
  - Sealants, Wrap strips, Putties, Prefabricated Kits

- Gaps/Joints/Walltops/Perimeter Joints
  - Sealants – Sprays – Track Systems

- “Backing Material”
  - Mineral Wool, Ceramic Fiber,
  - Backer Rod, Others

» Graphics-W.R.Grace, Nelson Firestop, Tremco
The Firestopping Process

• Firestop Products Become Firestop Systems --
  – “A Specific field erected construction, consisting of an assemblage of materials to prevent the spread of fire through openings in fire rated walls and floors using ASTM E 814 / UL 1479, UL 2079, E 2307 as the test method…”
  – **Testing** = Suitability statement for use of a firestop product in a specific system application
The Firestopping Process

• What are Firestop Systems?
  – ASTM E814/UL 1479–UL S115 Tested Systems
    • F Rating - Flame
    • T Rating – Temperature
    • H Rating – Hose (CAN)
    • L Rating – Smoke (UL)
    • W Rating – Water (UL)
The Firestopping Process
Hose Stream
& “W” Rating
The Firestopping Process

- Firestop Systems Directories - UL®
  
  *Systems Selection…Not as easy as it looks…*
The Firestopping Process
UL Systems

System Example:
CAJ 1155
Metal Pipe in Concrete
Floor or Wall
The Firestopping Process

• Firestop Systems Directories - UL®

Alpha: The first letter is either “F” for floors, “W” for walls or “C” for a combination of walls and floors.

Alpha: The second letter or combination of letters, signify the following.

A  Concrete floors < 5”
B  Concrete floors > 5”
C  Frame floors
D  Deck construction
E – I  Reserved for future use
J  Concrete or Masonry walls < 8”
K  Concrete or Masonry walls > 8”
L  Framed Walls
M  Bulkheads
N – Z  Reserved for future use
The Firestopping Process

• Firestop Systems Directories - UL®
  – F           - Floors
  – W           - Walls
  – C           - Combination
  – A           - Concrete floors < 5 inches
  – B           - Concrete floors > 5 inches
  – C           - Frame floors
  – D           - Deck construction
  – E - I       - Reserved for future use
  – J           - Concrete or Masonry walls < 8 inches
  – K           - Concrete or Masonry walls > 8 inches
  – L           - Framed Walls
  – M           - Bulkheads
  – N - Z       - Reserved for future use

First letter of the system
The Firestopping Process

• **Numeric:** The first digit of the four digit number, identifies the type of penetrant in accordance with the following list. The next three digits will be assigned sequentially to successfully tested systems.
  - 0000 – 0999  No Penetrant
  - 1000 – 1999  Metallic Pipe, Conduit or Tube
  - 2000 – 2999  Non Metallic Pipe, Conduit or Tube
  - 3000 – 3999  Cables
  - 4000 – 4999  Cables in a Tray
  - 5000 – 5999  Insulated Pipes
  - 6000 – 6999  Misc. Electrical Penetrates
  - 7000 – 7999  Misc. Mechanical Penetrates
  - 8000 – 8999  Mixed multiple penetrates
  - 9000 – 9999  Reserved for future use
The Firestopping Process
UL Systems

System Example:
CAJ 1155
Metal Pipe in Concrete Floor or Wall
UL SYSTEM #

C-AJ-1155

C = Combination wall/floor
A = Conc. floor <= 5” thick; J= Block/Conc. wall <=8” thick
1= Metal Pipe in Concrete Floor or Wall

Sequential test #

UL Classified Firestop Systems
UL Classified Firestop Systems

Manufacturer: Specified Technologies Inc.
System No.: UL C-AJ-5021
Rating: F = 2 and 3
Rating: T = 1/2and1
Rating: L = <1CFM/SF
Every application has its own unique UL tested assembly which specifies:

- Hourly Fire Rating
- Type of Barrier
- Type of Penetrant
- Min/Max Hole Size
- Firestop Products

UL Classified Firestop Systems
How Installers Select UL Systems

- Wall or Floor Construction Type
- Wall or Floor Thickness
- Penetrating Item, coverings
- Size of the Penetrating Item
- Annular Space, Gap Sizes
- Firestop Fill Material(s)
Min/Max Hole Size

Annular Space
1. Centered
2. Off-Centered
3. Point Contact
4. Continuous Point Contact
The Firestopping Process

• Field or other Variances to Tested and Listed Systems?
  – Too Many Penetrating Items
  – Annular Space / Gap too large / small
  – Something in the way
  – Oversized penetrating item
  – Oversized Insulation
  – Tolerances??
The Firestopping Process

- Variances to Systems? – Now What…
  - First Action in Process
    - Find another system – Same Manufacturer
    - Find another system – Different Manufacturer
  - If no system exists in either case…
    - Engineering Judgment – “EJ”
    - Equivalent Fire Resistance Rated Assembly – “EFERRA”
    - Based on sound engineering IFC Protocol
Firestop sealant must be well bonded to penetrating item and surrounding wall or floor.

1. Pack
2. Caulk
3. Tool

Always Check BOTH SIDES
When the sealant is properly recessed, it will expand inward and work the way it was designed.
Left untooled, the sealant will expand outward during a fire, and likely fail.
Properly Tooled Penetrations
Large Insulated Pipes
Multiple Insulated Pipes
Sleeved Pipes
Correct Collar or Sealant Must Be Selected for Combustible Penetrations

- Intumescent sealant expands and fills the void that opens as the combustibles burn away
- Collar expands to crush the pipe
Intumescent Wrap Strips and Steel Collars

• **Key Points - Restricting Collars**
  – Fastening Tabs – 90 degree bends for expansion
  – Directional Tabs
  – Bands
Unlisted, Untested Firestop Systems
Firestop Systems
Unlisted, Untested Firestop Systems
Polystyrene Block in CMU Slab
Joint Compound
Incomplete is ineffective
Right Product, Incomplete Installation
Great Stuff
Sealant must be applied BEFORE sheet metal flanges in Duct Applications
Fire/Smoke Dampers

- Dampers are UL 555, 555S Listed *Systems*
- Installed to manufacturer’s written instructions (Systems – Angles…no sealants)
- Firestop sealants - not miraculous –
  - Improper hole sizing or poor installation…

Consult the Damper Manufacturer & the Authority Having Jurisdiction
Fire/Smoke Dampers

- Retaining angles
- 1 in. barrier overlap
- Attach angles to sleeve only
- All four sides ...
- Both sides of barrier is standard
- One side if tested...
- Breakaway Connections
Fire/Smoke Dampers
Firestop Installation

- Combination Fire Smoke Dampers
- Multi-blade Fire Dampers
- Underfloor applications
- Max. size 72” W x 96”

- Greenheck Slide
Fire/Smoke Dampers

- Dampers with sealant provide smoke protection

Consult the Damper Manufacturer & the Authority Having Jurisdiction
Installing an Incorrect System
May Void the Fire / Smoke Damper
Manufacturer’s Warranty
Barriers With Combustible Penetrants

- Plastic Pipe
- Plastic-Jacketed cables
The Firestopping Process

• Firestop Joint Systems Definition – UL 2079
  – “A joint system is a specific construction consisting of adjacent wall and floor assemblies, and the materials designed to prevent the spread of fire through a linear opening between the wall and / or floor assemblies”
  – “ANSI / UL 2079 ” – Qualified Joint System

» Specified Technologies Graphic
The Firestopping Process

• Firestop Joint Systems Definition – UL 2079
  – Min. Positive Pressure – .01 Water, 12” below assy.
  – Movement Cycling
    • Class I – min. 500 cycles, min. 1 cycle / minute
    • Class II- min. 500 cycles, min. 10 cycles / minute
    • Class III-min 100 cycles, min. 30 cycles / minute
  – Fire Tested at Maximum Joint Width
  – No Load Bearing Characteristics, unless noted
  – Assembly, L or W Ratings
Good Firestop Applications

Floor to Wall

Top of Wall
Joints and Seams

Top of Wall
Joints and Seams

I-Beam to Fluted Deck
Penetrations with Top of Wall
Unacceptable Substitutes
Unacceptable Substitutes

Insufficient Material?

Non Code Compliant!
Unacceptable Substitutes
Spackle is not Firestop
Results of Improperly Installed Mineral Wool
Mineral Wool

With Sealant
The Firestopping Process

• Firestop Perimeter Systems
  Definition – ASTM E 2307
  – “A Perimeter Fire Containment System is a specific field erected construction consisting of a floor with a fire resistance rating, and an exterior curtainwall with no hourly resistance rating, and the fill material installed between the floor and the curtain wall to prevent the vertical spread of fire in a building.”
The Firestopping Process

- **Firestop Perimeter Systems – ASTM E 2307**
  - Movement Classes = ANSI / UL 2079
  - Fire and Temperature Ratings
    - Integrity – Similar to “F” Rating
    - Insulation – Similar to “T” Rating
    - No “L” Rating, Hose Stream
  - CurtainWall Spandrel Panels
    - Protected with insulation, other systems
    - Interior Fire Spread only – No Leapfrog
    - Testing = 33” above slab for Leapfrog Prevention…
Proper Installation of Mineral Wool

• Compressed mineral wool must be inserted perpendicular to the joint to allow for movement between the slab and wall.
Properly Installed and Ready to Spray
Joints and Seams

Edge of Slab
Wall to Wall / Wall to Floor

Caulk and Self Leveling
Floor to Wall: Concrete floor assembly to pre-cast concrete wall assembly
Poor Firestop Installation of Perimeter Barriers
The Firestopping Process

Photos Courtesy of Omega Point Labs, 3M
The Firestopping Process
The Firestopping Process

• “Construction Quality Stinks”
  John R. Butler, Jr., Director, Construction Division of the Georgia State Financing and Investment Commission, *ENR’s Viewpoint…*

• “Where are the certified firestoppers” Ken Hercenberg, ‘The Construction Specifier Magazine’
The Firestopping Process

• Results of Non-Qualified Contractor
  – Firestoping wrong, missing
  – Systems Documentation?
  – As Built Documentation??

Conclusion – No Single Firestopping Trade means fire & life safety risk…
The Firestopping Process
The Firestopping Process
II Installation
Who’s Responsible ??
The Firestopping Process

Firestop Contractors & Installation

• Firestopping Industry Installation Methods

• 3 Types
  – All Trades - “He/She who pokes hole, fills hole”
  – Multiple Contracts to Firestop Contractors, Subs, GC/O
  – GC/O - Sub to Single Source Specialty Firestopping Contractor

• Qualifications??
The Firestopping Process

Qualified - ZERO TOLERANCE PROCESS

- “F” Fire & “T” Temperature, “H” Hose
- “L” Smoke
- “W” Water
- Insulation/Integrity
- Movement Capability
- Annular Space Sizes, Gap Sizes
- DOCUMENTATION
The Firestopping Process

FCIA Members, FM Approved, UL Qualified

Zero Tolerance” Quality Control
– Investment in Education
– Investment in Manual of Practice
  • Project Successful Proven Contractor
  • Education, Training, Accountability
    = Reduced Risk – Life, Property, Business

www.fcia.org
The Firestopping Process

Quality Process - Contractors

• Designated Responsible Individual (DRI)
• Office Facility & Procedures Audit
• Field Procedures Audit
The Firestopping Process

**UL QFC & FM 4991 Requirements**

**FM 4991 & UL – DRI’s**

- Pass Rigorous Examination
  - FCIA Manual of Practice
  - Firestop Systems Selection & Protocol
  - Quality Protocol
- Retested every 3 years (FM Only)
- CEU Requirement – 6 ea. 3 yrs.
- One DRI per Approved Contractor Location
  - Installation & Maintenance
The Firestopping Process

Facility and Procedures Audit – Firm Office

- **Firestopping Firm’s Quality Manual**
  - Training & Education
  - Systems Selection
  - Communications to Field
  - Material Controls
  - Systems installation “protocol”
  - Labeling
  - Record keeping - Variance Procedures
  - Non-Conformances
  - Documentation
  - Project closeout
The Firestopping Process

Initial *Firm* Jobsite Audit

- Verification of firestop systems installation
- Verify Quality Procedures
- Verify “communication”
  - Office to field, field to office
- “Culture of Quality…”
The Firestopping Process

Annual Review

• Continued satisfactory performance
  – Quality Manual
• Documented - Archived record keeping
• Employee Training Documentation
• Jobsite Visit
• DRI CEU Verification
The Firestopping Process

III - Inspection

Duct w/Pink FBGL

ST23-8a

ST23-8e
The Firestopping Process

“Design, manufacture, marketing, service, testing all go on forever in a cycle…..”


- ASTM E814, UL S115 Systems,
- Installed by FCIA Member,
- FM 4991 ULQFC Contractor, Inspected to
- ASTM E 2174,E 2393 Maintained by FCIA Member Contractor and Building Processes

“The Firestopping Quality Process”
The Firestopping Process

• ASTM E 2174 & ASTM E 2393 - “Standard Practice for On-Site Inspection of Installed Fire Stops – Pen’s - Joints”

• “Standard Inspection Procedure”
  • Fire Marshals & Code Officials
  • Inspection Firms
  • Architects
  • Other Qualified Firms
The Firestopping Process

• ASTM E 2174/ASTM E 2393 -
  “Inspector Firm Requirements”
  – Inspector NOT Related to Installing firm
    • Distributor, Manufacturer, Competitor, Supplier
    – Meet at least one criteria…..
      • 2 years experience (Construction, Field), education, and credentials acceptable to AHJ
      • Accredited by AHJ
      • Meet ASTM E699
  – FCIA Chairs new committee
The Firestopping Process

  - Pre Construction Meeting
    - Review Documents – Identify Conflicts
    - Materials - ASTM E 814 or UL 1479-S115 Systems
      - “exactly as Identified on inspection documents”
The Firestopping Process

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”
• Pre Construction Meeting
  – Mock Ups
    • Destructive Testing
    • Installation Measurements
  – Discuss Inspection Method
• Required for During/Post Insp. Methods
The Firestopping Process

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”

• During Construction Inspection Method
  – Firestop Installation Start
  – Random witness 10%, each type of Firestop
    • No Less than one
The Firestopping Process

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”

• Post Construction Method –
  – Destructive Testing
    • Minimum 2%, no less than 1, each type per 10,000 SF of floor area
    • If 10% variance per firestop type
      – Inspection stops
      – Installer inspects, repairs
      – Inspector reinspects
The Firestopping Process

• ASTM E 2174/ ASTM E 2393
  “Inspection Process”
• Inspection Forms
  – One for each type of firestop
  – Submit 1 day after inspection to Authorizing Agency
  – Numbered – Controlled
• Required – During/Post Construction Methods
The Firestopping Process

- Final Report – During/Post Inspection Method
  - Name, address, location – project, installer, inspector
  - Type and quantity of firestops inspected
  - Verification method
  - Percentage Deviation
  - Copies of all documents sent to Authorizing Agency
The Firestopping Process

• ASTM E 2174/ ASTM E 2393 – “Inspection Process”
• Why require ASTM E 2174 / ASTM E 2393
  – Quality Process Cycle
  – Verify Field Installations
  – “Service & Testing”….Demming
  – Qualifications of Inspectors
    • FCIA Project
The Firestopping Process

Firestop Contractor Quality

Specifications– 07 84 00 (was 07270)MF95

– 07 84 10 – Through Penetration Firestop Systems
  • Pipes, cables, ducts, cable trays, MEP&C Systems

– 07 84 20 – Fire Resistive Joint Systems
  • Top of Wall
  • Fire Resistance Rated Joints
  • Perimeter Joints (Floor Slab edge/Exterior Wall)

– MF 04 – Multiple Sections
The Firestopping Process

• Specifications– Systems Testing
  – “T” Ratings = F & T??
  – “H” Ratings – Hose Stream – (Canada)
  – “L” Ratings = Fire & Smoke Resistance Rated Construction
  – “W” Ratings – Floors; Functional when? Floor Loading Capabilities?
The Firestopping Process

• Specifications– Contractor Qualification
  – FCIA Members
  • FCIA. ORG
  – FM 4991 Approved Firestop Contractors
  – UL Qualified Firestop Contractors
The Firestopping Process

• Specifications– References
  – FM 4991
  – UL Qualified Firestop Contractor Program
  – ASTM E 2174 & ASTM E 2393
  – FCIA Manual of Practice
  – UL 1479, ASTM E 814 - Penetrations
  – UL 2079 – Joints, Walltops
  – ASTM E 2307 – Perimeter Fire Containment
The Firestopping Process

• Firestopping Quality Process
  – FCIA Member Specialty Firestop Contractors
  – ASTM E 2174 & ASTM E 2393 Inspection
  • Qualifications?
  – Materials – Suitable for applications…
The Firestopping Process
IV Maintenance
The Firestopping Process


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 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 hoes 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 closing or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.

The Firestopping Process

• “TOTAL FIRE PROTECTION
  – Effective Compartmentation -Fire Walls/Floors & Firestopping
  – Fire Dampers, Fire Glass
  – Detection & Alarm Systems
  – Sprinkler Suppression Systems
  – Building Personnel, Occupant and Firefighter Education
The Firestopping Process

Proper ‘DIIM’ Effective Compartmentation Means Reliable Systems…

• **Designed** - A/E, Firestop Consultant
  – Tested and Listed Systems, FCIA Member Mfr’s.

• Properly **Installed**
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• Properly **Inspected**
  – ASTM E 2174 & ASTM E 2393 Inspection

• Properly **Maintained** –
  – FCIA Member
The Firestopping Process

More Info??
FCIA Headquarters
Phone: 708-202-1108
Email: Info @ fcia.org
Website: FCIA.org

FREE Manual of Practice to Specifiers...
Email us for a FREE PDF Email Copy...
FCIA Education & Committee Action Conference

Firestopping & Compartmentation
For the Future