**Firestop Inspection for AHJs: Concepts, Codes & Standards**

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**TODAY’S SEMINAR**

1. What Firestopping is Really About
2. Why the ICC Now Requires Special Inspection for it
3. The “Who” & “How” of Special Inspections
4. What Impact Will the Code Change Have?
$1.1 million for clean up and repair
Compartmentation Does Work!
Compartmentation = Containment

Less Loss of Life & Civilian Injuries
Less Thermal Damage
Less Smoke & Water Damage
Fewer Fire Fighter Injuries & Deaths

Passive Fire Protection Components

Doors / Hardware
Glazing
Dampers
Firestops

A System for Compartmentation & Containment

Passive Fire Protection Components

Glazing
Barriers
Firestops
Dampers
Doors

Temperatures of 1200+ F
Air pressure of 115+ psi
The Barrier is the Heart of Compartmentation

Burn & Temperature Rise Test

Burn & Temperature Rise Test

Post Burn
Hose Stream Test

Specific UL Design Listing

Full Listing = 7 pages

Great for building solid boxes...
...but we need openings for...

Any opening de-rates the entire barrier.

Little Holes = Big Problem

½" annular space around each penetration
Top of wall joint doubles the unprotected area

Speed of Spread

~420 ft. /minute at 1500° F = 5 mph to 15 mph
Hallway - 100’ long, 10’ wide, 8’ high
Top of Wall joint = 5/8” high x 20 feet long

Hallway fills 100% with smoke in 4-5 minutes

Sprinklers suppress flames, NOT smoke
Can this be avoided...

...or does compartmentation just not work?

REVIEW

1. Choke the Smoke, Contain the Flame
2. Firestop systems, RESTORE the barrier rating
3. Small Holes = Massive Smoke/Heat Migration
4. Most damage, injury & death due to smoke

NEXT

1. What the IBC says
2. Systems versus Materials
3. What the heck is a system
4. Firestopping versus Fireblocking
What DOES the Code Require??

A Balanced Approach

Detection

Suppression

Compartmentation

2012/15 IBC - Sections 714.3.1.2

“Through-penetrations shall be protected by an approved penetration firestop system installed as tested …”

2012/15 IBC - Sections 714.3.1.2

Firestopping is NOT the Materials

System

[sis-tuh m]

Noun

A combination of things or parts forming a complex whole.

EVERY firestop system has three parts.
1st Part of a System: The Rated Assembly

2nd Part of a System: The Penetrant

3rd Part of a System: Materials

Zero Hourly Rating

Only Firestop Systems have ratings

Products and devices have NO F-rating

1st Part of a Joint System: The Assemblies that Form the Joint
2nd Part of a Joint System: The Gap

3rd Part of a Joint System: The Materials
Firestop Systems must be “Listed”
Independent verification

They CANNOT be made up in the field!
It is NOT up to the installer!

ASTM E 814 / UL 1479 Test Ratings

- **F-rating**: Length of time
- **T-rating**: Time & Temperature
- **L-rating**: Smoke Leakage
- **W-rating**: How long the system will resist water passing through

Now you have a **LISTED** Firestop System

Assigned a unique alpha-numeric identifier
Published in the UL, WHI or FM directory/website

12,000+ Listed Systems Currently
Why a System must be followed?

5/8” Gypsum removed
Chemically bound H₂O
Replaced with what?
How much?

1\( \frac{1}{4} \) ?
1\( \frac{1}{4} \) ?

2 hr

Systems Rule!
Without systems installers are just smearing “red stuff”
No basis for inspection

REVIEW

1. IBC requires SYSTEMS, not magic red stuff
2. Barrier + Penetrant + Material(s) = System
3. Materials have a Rating of Zero
4. Install & Inspection MUST follow SYSTEMS
It Will NOT Happen Without YOU!

Current Failure Rates

Code Authority & Changes

Inspection Protocols

It Will NOT Happen Without You

AHJs

A/Es

GCs

GC’s and Subs

“A Use more red stuff!”

“Close enough!”
Why the Change – BAD Firestopping
Failure rates – GC & sub self-install – Qualified inspection

90%  50%  20%

Inspection Failure Rates
Single Firestop Contractor

<1%  80%

Adequate Knowledge is a Challenge

90% Failure
75% Smoke
60% Outside
**Time is a Challenge**

- Your Time
- Their Time

**Where - Risk Category III Buildings**

- I-2 Resident Care >50
- No emergency or surgical
- Primary & secondary ed
- Day Care >250
- Adult Education >500

**Where - High Rises**

- Lowest point of highest occupied floor > 75 feet
- Lowest point of fire vehicle access

**Inspection under IBC 2015**

- 1705.17 Fire-resistant penetrations and joints.

- 1705.17 Penetration firestops:
  - Inspections of penetrations through walls and floors will be conducted by an approved inspection agency.

- 1705.17 Fire-resistant penetrations:
  - Inspections of fire-resistant penetrations shall be conducted in accordance with Section 714.3.1.2, 714.4.1.2, 714.5.3 and 714.6.2.