Fire Stopping for Data Cabling

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Data Centre

- Electrical Malfunction
- Equipment Failure
- Over Heating
- Open Flame
- Careless
- Natural
Fire – Can you outrun?

Fire rapidly engulfed Grenfell Tower in London
Guilhem Baker/LNP/Rex/Shutterstock

A fire engulfs The Address Hotel in Dubai on Dec. 31. AHMED JADALLAH / Reuters

Six patients have been killed in a fire that broke out at the intensive care unit (ICU) of the Sultanah Aminah Hospital here. Oct2016
Good Fire Protection Management

- Prevention
- Protection
- Passive
Passive

Compartmentation

Openings for building utilities

Restore the fire rated barrier
Compartmentation
FIRESTOP SYSTEM

Through Penetration

A firestop system is a specific construction consisting of a fire rated wall or floor assembly, a penetrating item passing through an opening on the wall or floor assembly and the firestop assembly designed to prevent the spread of fire and products of combustion through the opening.
Firestop System Components

Components:

• Barrier type

• Penetrants – Cables, pipes, etc.

• System Description

  ✔ UL System
  ✔ F-Rating
  ✔ T-Rating
  ✔ L-Rating

  ✔ You deserved what you paid for!
This Is What You WANT
But Is This What You GET?

Wrong Firestop!

Where’s Firestop?

No more space for Firestop
Moves, Adds and Changes

Working environments are changing constantly, bringing new priorities, projects and challenges for an Organization.
Moves, Adds and Changes

Why?

• Increase Capacity
• Support New Equipment
• Support New Applications
• Replacing Obsolete Cabling Infrastructure
Moves, Adds and Changes

Challenges

1. Disruption to Operation
2. Downtimes in Productivity
3. Inconvenience to Tenants
4. High Risk of compromising existing Infrastructure
Common Challenges in Installing Firestop

- Is the opening big enough?
- Breaking the seal with existing cables
- Obstruction or Resistance in pulling cables
- Sealing back the opening
Who’s Checking???

mmm...... interesting

Is he done yet? I want to go home
How do we know if the Firestop application is correct?

• UL Classified Firestop product?
• Completely seal the opening?
• Red Colour?
• Contractor said so?
• See no evil, hear no evil, speak no evil?
c. All penetrations of floors and walls shall be provided with firestopping having a fire resistance rating equal to that of the floor or wall.
International Codes “FireStopping”

Model Building Codes That Require Firestop

- International Building Code (IBC)
- Uniform Building Code (ICBO)
- Standard Building Code (SBCCI)
- National Building Code (BOCA)
- Life Safety Code (NFPA 101)
- National Electrical Code (NFPA 70)
- NFPA 5000 (NFPA Building Code)
International Code “FireStopping”

- Life Safety Code (NFPA 101)

8.3.5.1* Firestop Systems and Devices Required. Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor-ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device. The firestop system or device shall be tested in accordance with ASTM E 814, Standard Test Method for Fire Tests of Through Penetration Fire Stops, or UL 1479, Standard for Fire Tests of Through-Penetration Firestops, at a minimum positive pressure differential of 0.01 in. water column (2.5 N/m²) between the exposed and the unexposed surface of the test assembly.

- National Electrical Code (NFPA 70)

300.21 Spread of Fire or Products of Combustion. Electrical installations in hollow spaces, vertical shafts, and ventilation or air-handling ducts shall be made so that the possible spread of fire or products of combustion will not be substantially increased. Openings around electrical penetrations through fire-resistant-rated walls, partitions, floors, or ceilings shall be firestopped using approved methods to maintain the fire resistance rating.

- International Building Code

714.4.1.1.2 Through-penetration firestop system. Through penetrations shall be protected by an approved through-penetration firestop system installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.
Why should you care?
How much $ does your business worth?
Re-Enterable Solutions

• Putty
• Pillows
• Built-in Firestop
• Composite Sheet
Permanent Methods

• Mortar
• Intumescent Sealant
• Silicone Firestop Sealant

Not a good solutions for frequent cables changes
Why Conventional method is not practical?

- Economical?
- Ease of Installation? Accessibility?
- Need to Unseal & Reseal
- Firestop Integrity Compromised
- Damaged existing cables infrastructure
- Messy and might not fully seal if done incorrectly
- Waste of time
- Need to ensure compliance
Remember this?
Maximize? Is it a?

The **ACTUAL** Life Cycle of the Average Datacom Penetration…

- Cables are ADDED
- Firestopping is REMOVED
- Until ALL we have are CABLES

*FIRE RATING IS GONE!*
3 Key Challenges Installers faced:

- Maintaining the seal
- Not overfilling
- Avoiding new holes

EIA/TIA requires 60-40% Ratio
Huge Amount of Cables

But, We Use *Large Amounts* of Combustibles In Buildings …
The Jacket of the cables are FUEL

Maximum Fuel-loads of Communication Cable
(Insulation compared with building materials and fuels)

- Steel, glass and concrete
- FEP (CMP)
- Flame retardant polyolefins (LSZH)
- Polyolefins (LSZH)
- Gasoline

Potential heat (Btu/lb × 1,000) per ISO 1716

- Combustible
- Limited combustible
Plastic-Jacketed Cable
Plastic-Jacketed Cable
Plastic-Jacketed Cable
Plastic-Jacketed Spaghetti
Which Firestop solutions is suitable for you?

Frequency of Change – 1 to X times per year
Turnover time – weeks / Days / Hours
Built in Firestop

• No special skill needed
• Always compliance
• Ensure sufficient Firestop even if the cables filled is 100% capacity
• No more taking & putting back the firestop
Photos

Exposed

Non Exposed
Photos

Exposed

Non Exposed
Built in Firestop

A Self-Adjusting Intumescent Membrane Provides Smoke and Fire Protection 100% Of The Time, Empty or Full!
Moves, Adds and Changes Made EZ

Wall

Floor
Clean / Neat
Segregation
Future Cables
Vertical & Horizontal solution
What’s Next?

• Do a Health Check on your Firestop
• Correct any non-compliance Firestop
• Protect Yourself against any incidents
• Prevention is better than Cure
• Do yourself a favour

Do talk to us if you need any help
ANY QUESTIONS??
Contact Us

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