

Future Proof Sustainability Into The Design

Kelly Mason

Director of Healthcare Partnerships

Specified Technologies Inc.



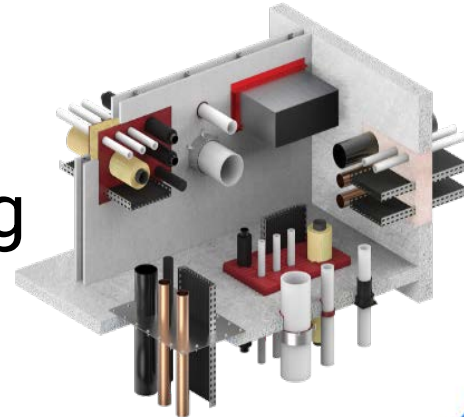
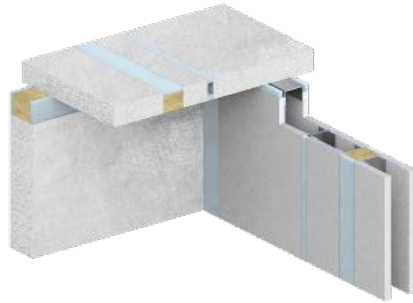
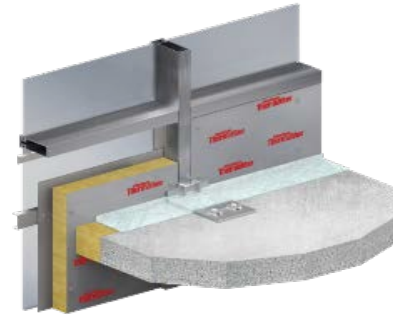
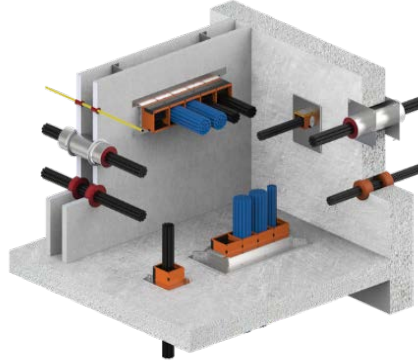
FIRESTOP

SPECIFIED TECHNOLOGIES INC.

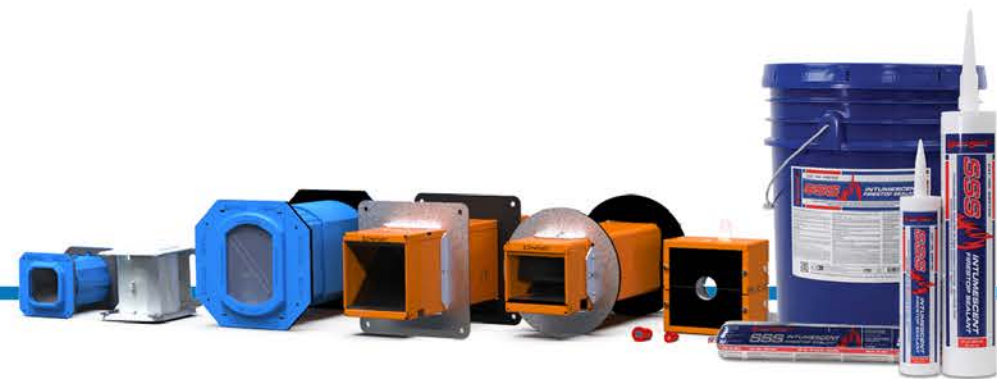


Many Types Of Firestop Applications

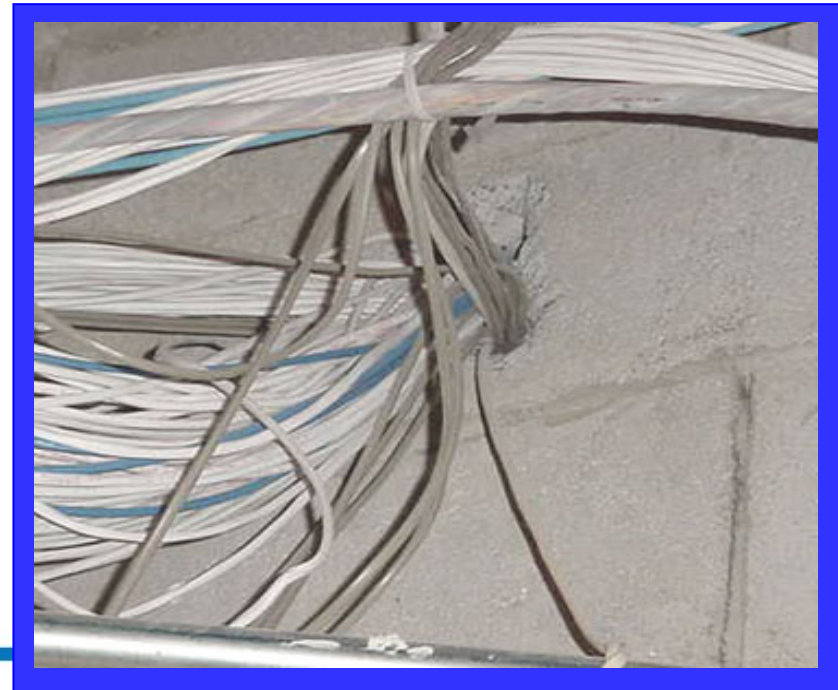
- Cable Management
- Curtain Wall
- Joints
- Mechanical, Electrical, Plumbing



FIRESTOP
SPECIFIED TECHNOLOGIES INC.



In the world above the ceiling tiles... Out of sight can be out of mind!



FIRESTOP
SPECIFIED TECHNOLOGIES INC.



Fire Tape?

- No UL System will support this application.



FIRESTOP
SPECIFIED TECHNOLOGIES INC.

Large Openings With Multiple Penetrations

- These openings can lead to bad situations for patients and employees.
- There are UL Systems to achieve compliance.



No Tested System Will Allow This

- You must follow a third party tested system.



FIRESTOP
SPECIFIED TECHNOLOGIES INC.



Compliance Mis-Interpreted



Giant Red Flag!

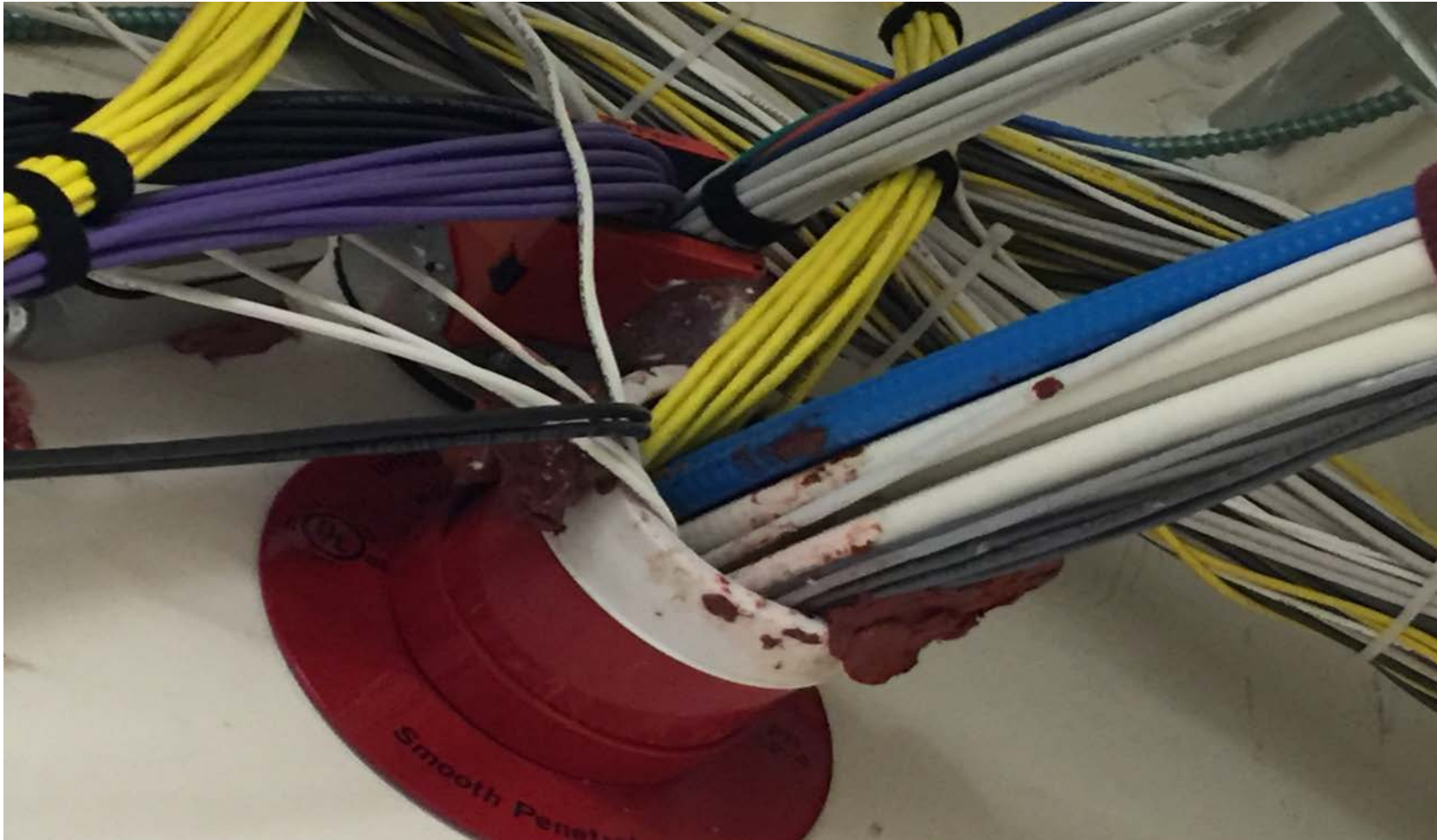
Dangerous Situation

- Smoke & gasses can migrate through the opening quickly





Over Filled Sleeves



Scab Patches

- Refer to a true tested assembly.
- Just placing drywall over an opening in a rated barrier is not the solution.



Scab Patches...Compliant?



Non Compliant!!!



Foam Fillers

- These foam products are not accepted in a healthcare environment.
- Highly toxic fumes from fire.



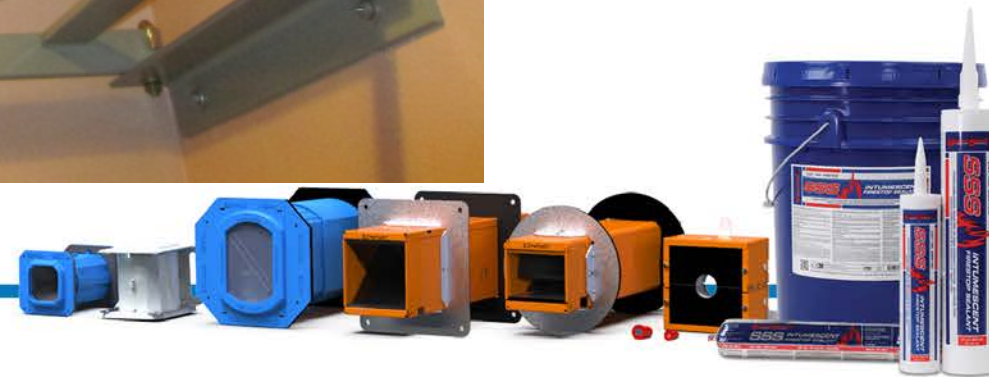
Properly installed dampers require no firestop.

Intumescent (expanding) materials can stop the damper from closing.



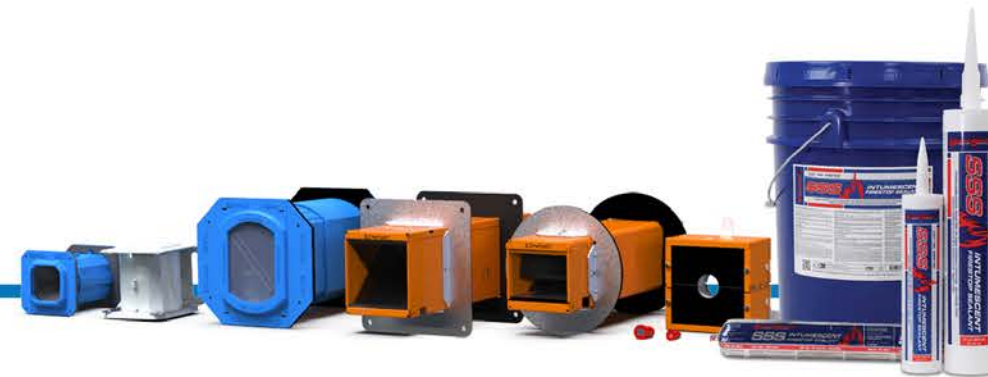
FIRESTOP
SPECIFIED TECHNOLOGIES INC.

Future Proofing?



Tested Assembly Must Meet The Application

- There are considerations for all types of firestop applications.
- Are the products and systems being selected best for the facility?
- What are the typical services running through barriers.
- Has there been a discussion about future growth?
- How will the building be used?
- How will the building be maintained?
- There are products with a huge system pedigree that offer a great R.O.I.!



Always start with a system

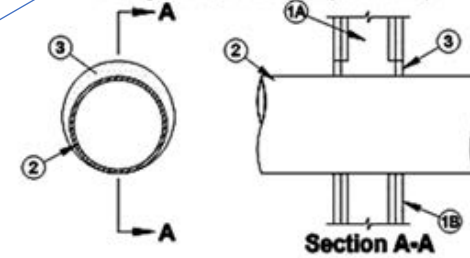
Every application has its own system which calls out:

- Hourly Fire Rating
- Type of Barrier
- Type of Penetrant
- Min/Max Annular Space*
- Firestop Materials

System No. W-L-1222

F Ratings - 1 and 2 Hr (See Item 1)

T Ratings - 1/4, 3/4 and 1 Hr (See Item 2)



1. **Wall Assembly** - The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** - Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 10-5/8 in. (270 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrant** - One metallic pipe, conduit or tube to be installed eccentrically or concentrically within the firestop system. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. The annular space between the pipe, conduit or tube and the periphery of the opening shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). Pipe, conduit or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of metallic pipes, conduits and tubes may be used:

A. **Steel Pipe** - Nom 8 in. (203 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

B. **Iron Pipe** - Nom 8 in. (203 mm) diam (or smaller) cast or ductile iron pipe.

C. **Conduit** - Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit, nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or nom 4 in. (102 mm) diam (or smaller) flexible steel conduit.

D. **Copper Pipe** - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

E. **Copper Tube** - Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.

Type of Penetrant	Max Diam	T Rating
Steel or iron pipe, steel conduit or EMT	2 in. (51 mm)	1 hr
Steel or iron pipe, steel conduit or EMT	8 in. (203 mm)	3/4 hr
Copper pipe or tube	4 in. (102 mm)	1/4 hr

- 2A. **Through Penetrating Product* - Flexible Metal Piping** - As an alternate to Item 2, one nom 1-1/4 in. (32 mm) diam (or smaller) steel flexible metal pipe to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe and the periphery of the opening shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). Pipe to be rigidly supported on both sides of the wall assembly.

OMEGA FLEX INC

TITFLEX CORP

A BUNDY CO

WARD MFG INC

3. **Fill, Void or Cavity Material* - Sealant** - Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. (6 mm) diam bead of fill material applied at metallic pipe/gypsum board interface on both surfaces of wall.

SPECIFIED TECHNOLOGIES INC - SpecSeal LCI Sealant

*Bearing the UL Classification Mark



FIRESTOP
SPECIFIED TECHNOLOGIES INC.

Firestopping is a system

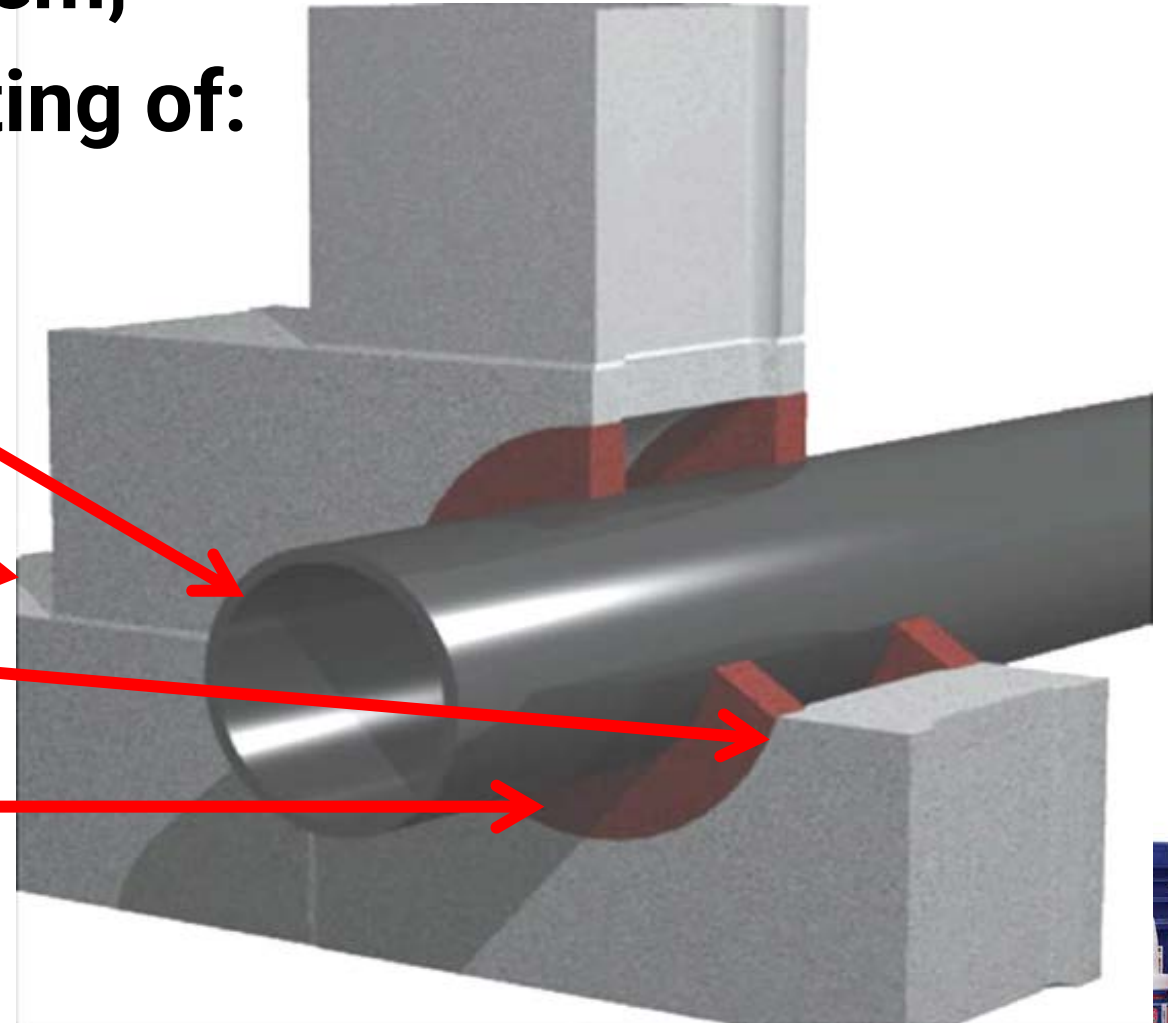
Firestopping is not just one item;
rather, it is a **SYSTEM** consisting of:

Penetrant or penetrants (if any)

Barrier type and rating

Annular space considerations

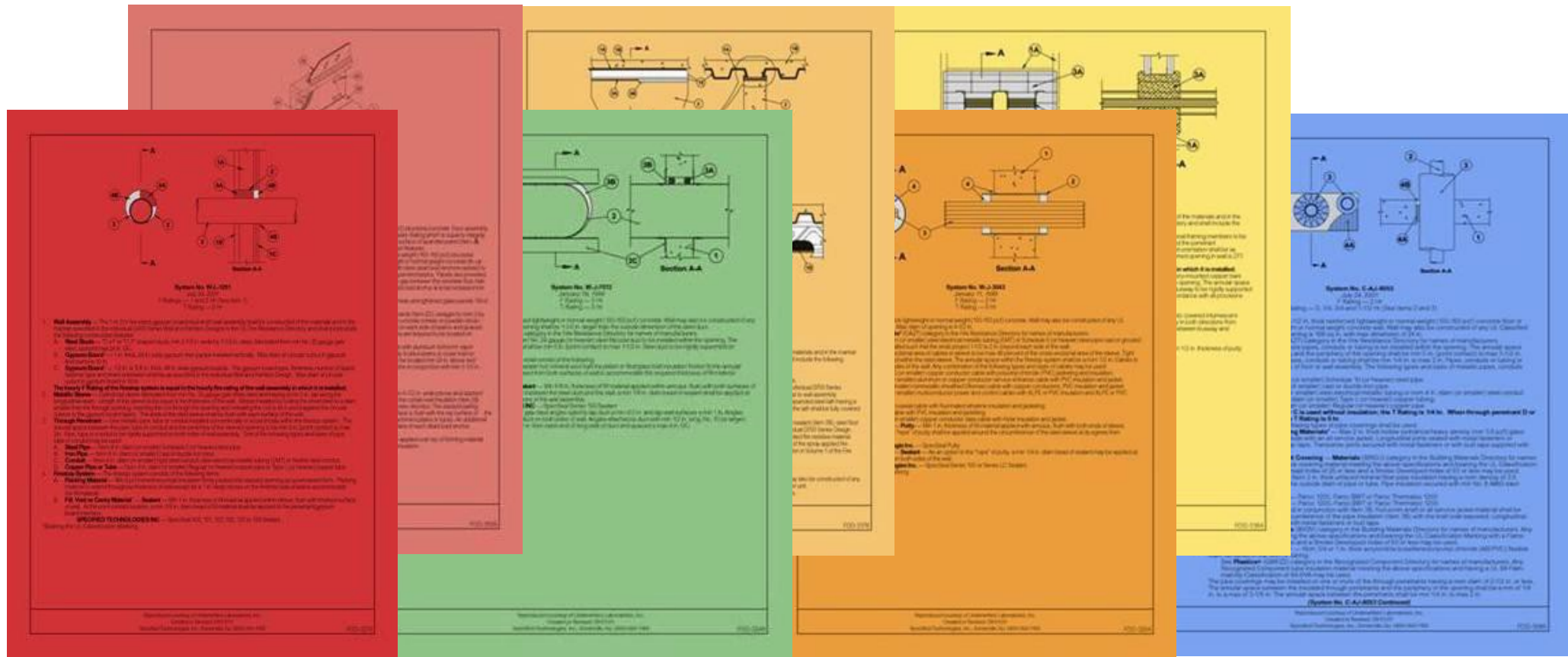
Sealing method



FIRESTOP
SPECIFIED TECHNOLOGIES INC.



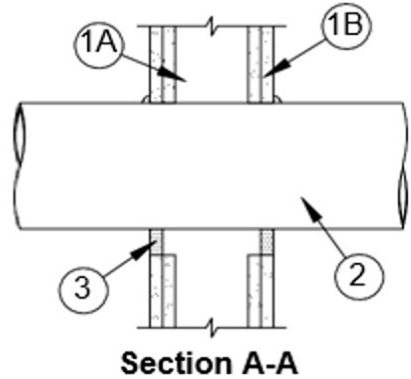
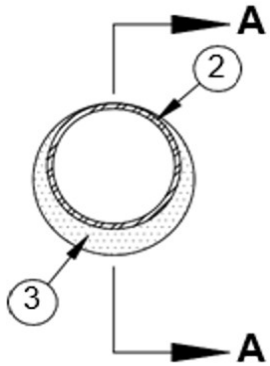
Tested Assembly Must Meet The Application



FIRESTOP
SPECIFIED TECHNOLOGIES INC.



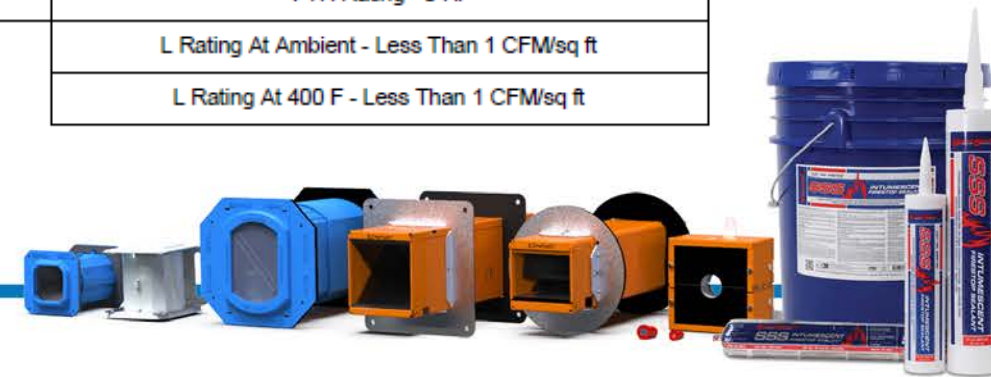
The UL Design Has Parameters



System No. W-L-1049

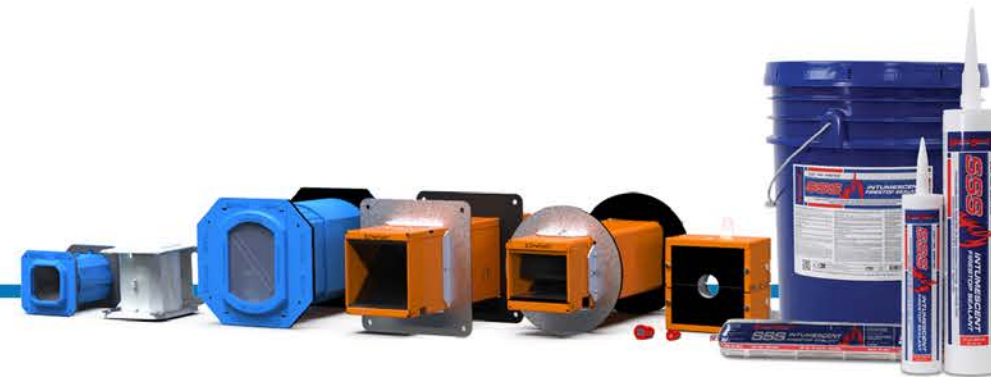


ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Rating - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr	FT Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Rating - 1 and 2 Hr (See Item 1)
L Rating At 400 F - Less Than 1 CFM/sq ft	FTH Rating - 0 Hr
	L Rating At Ambient - Less Than 1 CFM/sq ft
	L Rating At 400 F - Less Than 1 CFM/sq ft



Building Only For Today Will Cost In The Long Run

- Decisions made today may create elevated cost tomorrow.
- Think about Future Proofing the facility
- How often will a penetration in a barrier be re-entered?
- Who will monitor these penetrations after re-entry?
- What parameters have been put in place to eliminate costly repairs later?



What To Consider In The Design Phase:

Insulated Pipe

- Products with systems that will handle combustion of the insulation
- Is the Intumescent enough to stop the passage of fire and smoke?
- Do the tested assemblies meet the pipe size and insulation thickness?
- Is there a product with systems that will activate at a lower temperature?
- Why is this important?



Intumescent Sealants Can Only Do So Much!

- Very common product used on MEP penetrations.
- Not rated on its own
- Not the end all beat all process.
- The tested assembly must meet the application.

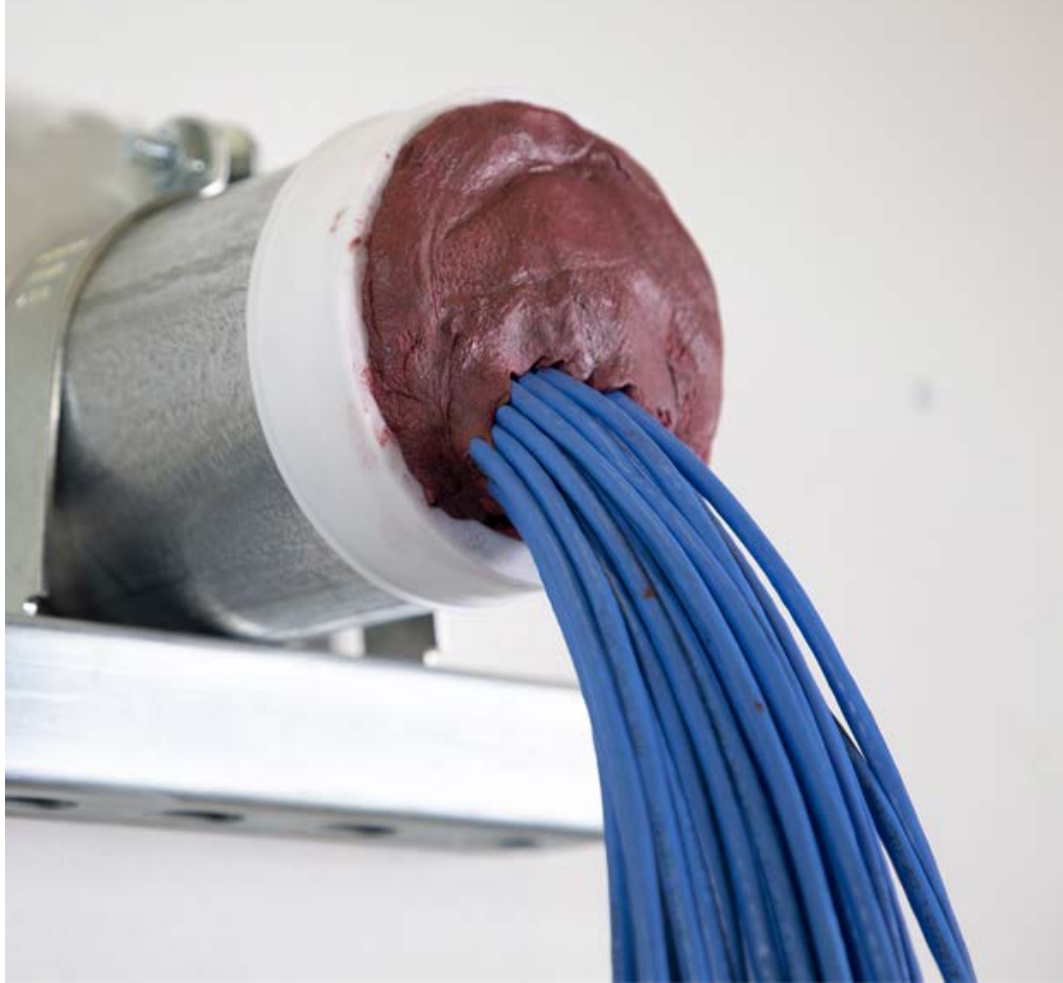


What To Consider In The Design: Sleeved Cable Penetrations

- What types of cables will be used in these sleeves?
- Will there be a need for re-entry?
- A non hardening putty should be considered. NOT SEALANT!
- Cable Race Ways
 - These penetrations never stop growing.
- There Are Limitations With Typical Conduit Systems
 - Only allow for limited growth
 - Cable load issues can create a non-compliant situation



Traditional: Cables and sleeve with putty



Verify all system details (See Life Safety Drawings)

- Type of barrier & its hourly rating
- Type of penetrant(s)
- Maximum hole size
- Annular space: minimum AND maximum
- Maximum cross-sectional cable fill %
- Special considerations:
 - Sleeve?
 - Extended or Flush?
 - Angle of penetrant?

Classified by Underwriters Laboratories, Inc. to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. W-L-3210**

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 3/4 Hr	FT Rating - 3/4 Hr
	FH Ratings - 1 and 2 Hr (See Item 1)
	FTH Rating - 3/4 Hr

Section A-A

1. **Wall Assembly** - The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (76 mm) wide and spaced max 24 in. (610 mm) OC.

B. **Gypsum Board*** - Thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-1/2 in. (165 mm) when sleeve (Item 2) is installed. Max diam of opening is 4 in. (102 mm) when sleeve is not used.

The hourly F rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Steel Sleeve - (Optional)** - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT), steel conduit, Schedule 5 (or heavier) steel pipe sleeve or min 0.016 in. thick (0.41 mm, No. 28 ga) galv steel sleeve installed flush with wall surfaces. The annular space between the steel sleeve and periphery of opening shall be min 0 in. (continuous point contact) to max 2 in. (51 mm). When Schedule 5 steel pipe or EMT is used, sleeve may be installed flush with or extend up to 18 in. (46 cm) beyond one or both wall surfaces. Steel sleeve may be installed at an angle not greater than 45 degrees from perpendicular. Schedule 5 steel pipe or EMT sleeves may extend continuously beyond one wall surface. Sleeve to be rigidly supported when extending from the wall surfaces.

Specified Technologies Inc. 210 Evans Way Somerville, NJ 08876
Reproduced courtesy of Underwriters Laboratories, Inc.
Created or Revised: June 13, 2016
(800)992-1180 • (908)526-8000 • FAX (908)231-8415 • E-Mail: techserv@stfireshop.com • Website: www.stfireshop.com

STI. W-L-3210
PAGE 1 OF 2

Cable Load Requirements

- Cables - Aggregate cross-sectional area of cables in steel sleeve to be max **48 percent** of the aggregate cross-sectional area of the opening or sleeve.
- If you are convinced there will be no additions, this will work

3. **Cables** - Aggregate cross-sectional area of cables in steel sleeve to be max 48 percent of the aggregate cross-sectional area of the opening or sleeve. Cables to be bundled and rigidly supported on both sides of wall assembly. When the sleeve (Item 2) is installed, the annular space between the cables and the sleeve shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). When the sleeve (Item 2) is not used, the annular space between the cables and the opening shall be a min 0 in. (point contact) to a max 1/2 in. (13 mm). Cable bundle, using cables described below, may penetrate the wall at an angle not greater than 45 degrees. Any combination of the following types and sizes of copper conductor cable may be used:
- A. Max 200 pair No. AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.
 - B. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
 - C. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
 - D. Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
 - E. Max RG/U (or smaller) coaxial cable with fluorinated ethylene or plenum-rated insulation and jacketing.
 - F. Max 62.5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.
 - G. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.
 - H. Max 4/C No. 2/0 aluminum or copper conductor aluminum or steel Metal-Clad# or Armored-Clad# cable.
 - I. Max 1/4-in. (19 mm) copper ground cable with or without a PVC jacket.
4. **Firestop System** - The firestop system shall consist of the following:
- A. **Packing Material** - When required (See table in Item 4B), min 1 in. (25 mm) thickness of min 4.0 pcf (64 kg/m³) mineral wool batt insulation firmly packed into each end of sleeve as a permanent form. Packing material to be recessed from each end of sleeve as required to accommodate the required thickness of fill material.
 - B. **Fill, Void or Cavity Material* - Sealant or Putty** - Fill material applied to appropriate thickness within steel sleeve, flush with edges of steel sleeve on both surfaces of wall. Min 1/2 in. (13 mm) thickness of fill material installed into annular space between sleeve and wall flush with both surfaces of the wall. Min 1/2 in. (13 mm) diam bead of sealant or "rope" of putty shall be applied around the perimeter of the sleeve on each side of the wall when sleeve extends beyond surface of wall and is installed at continuous point contact. See table below for fill material thickness requirements around cables.

Sealant or Putty Type	Thickness, In. (mm)	Packing Material Required
SpecSeal Series SSS Sealant or LCI Sealant	1/2 in. (13)	Yes
SpecSeal Series SSS Sealant or LCI Sealant	1 in. (25)	No
SpecSeal Putty	1 in. (25)	No

SPECIFIED TECHNOLOGIES INC. - SpecSeal Series SSS Sealant, SpecSeal LCI Sealant or SpecSeal Putty

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



Specified Technologies Inc. 210 Evans Way Somerville, NJ 08876

Reproduced courtesy of Underwriters Laboratories, Inc.
Created or Revised: June 13, 2016

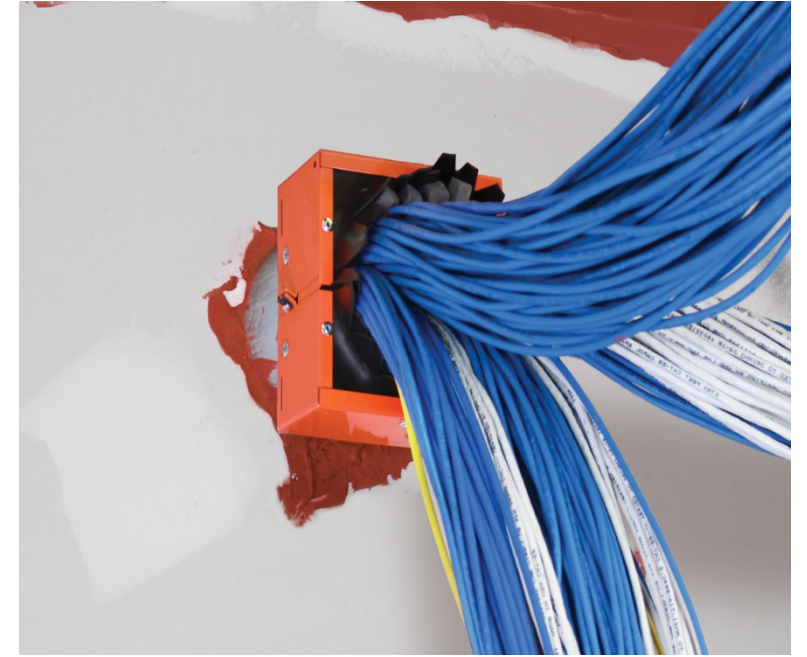
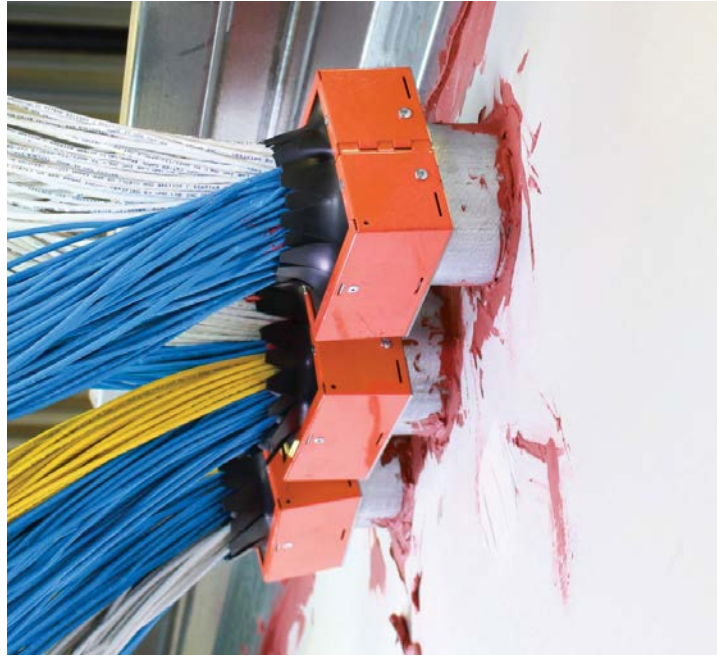
(800)992-1180 • (908)526-8000 • FAX (908)231-8415 • E-Mail:techserv@stifirestop.com • Website:www.stifirestop.com



W-L-3210
PAGE 2 OF 2



Overfilling of Sleeves Can Become Non-Compliant In Short Order



- There are ways to deal with these issues as they arise.
- For life safety to be achieved. There can be added cost!
- Design the facility for the future by using a maintenance free option.



What To Consider In The Design: *Sustainable*

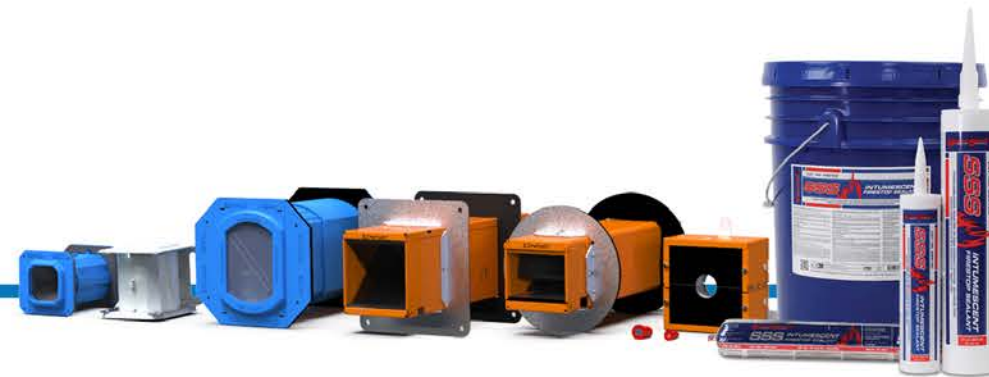
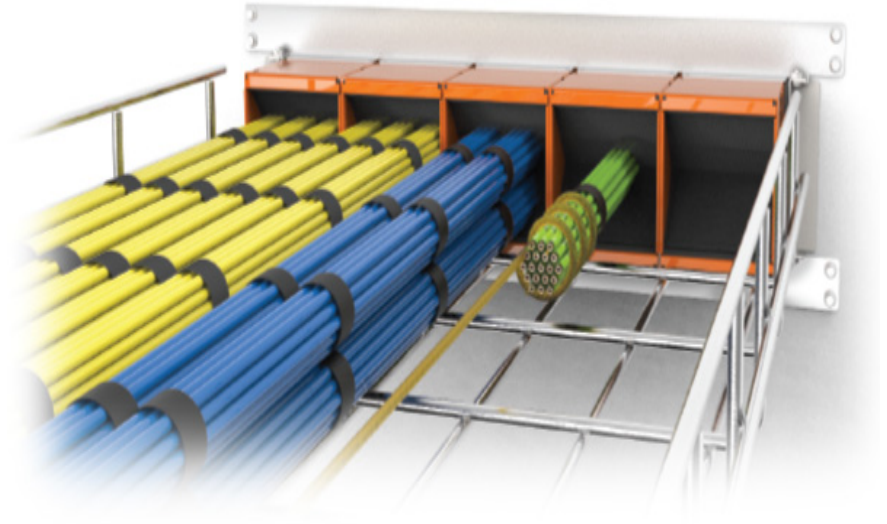
A True Sustainable Option For Cabling Requires:

- Re- Enterability
- No Requirement For Removal Of Product
- No Requirement Of Cable Load Worries
- Can the device be retrofit to existing cables?
- Gangable
- Allows for easy moves, adds and changes
- Sustainable



Self-Contained Firestopped Pathways For High-Traffic Locations

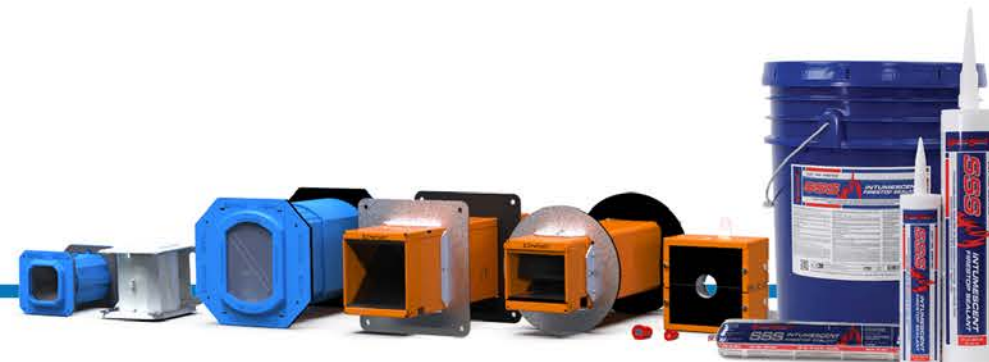
- There are several offerings by multiple manufactures
- Achieve compliance WITHOUT Sealant
- No Cable load worries over time
- Allows for seamless cable capacity moves, adds and changes



What To Consider In The Design: Floor Cable Penetrations

- Will these penetrations be located within a confined space?
- Will these penetrations require re-entry?
- Is the design equipped to allow for future growth?
- Would a maintenance free process be important for a life safety plan?

SUSTIANABLE DESIGNS



What To Consider In The Design: Large Openings

- Is there a need for future access
- Saving of time and money in place of blocking
- Can be used with other products
- Multiple manufactures have these type of products



Large Openings In Barriers Using Pillows or Bricks

- Cable tray designs are much more complex than they may seem.
- Sealant may not be the best option for large openings
- Should be retrofittable or re-enterable
- Multiple manufactures make these products
- Highly intumescent



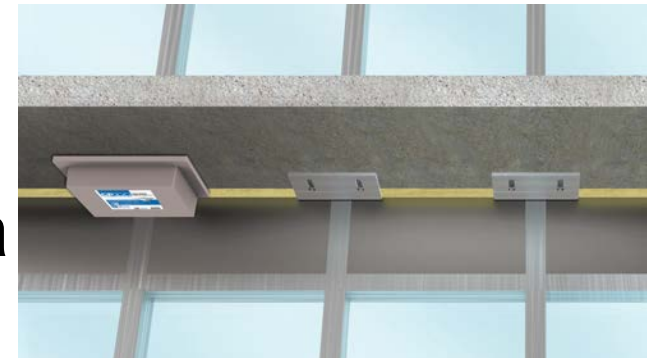
What To Consider In The Design: Critical Circuits and Infrastructure

- Fire pumps
- Signaling equipment
- Elevators
- Alarms
- Process control equipment
- Emergency Responder Communications Enhancement Systems (ERCES)
- These systems can be incased in concrete (COSTLY)
- Placed in a shaft or chase (Real-Estate)



What To Consider In The Design: Curtain Wall

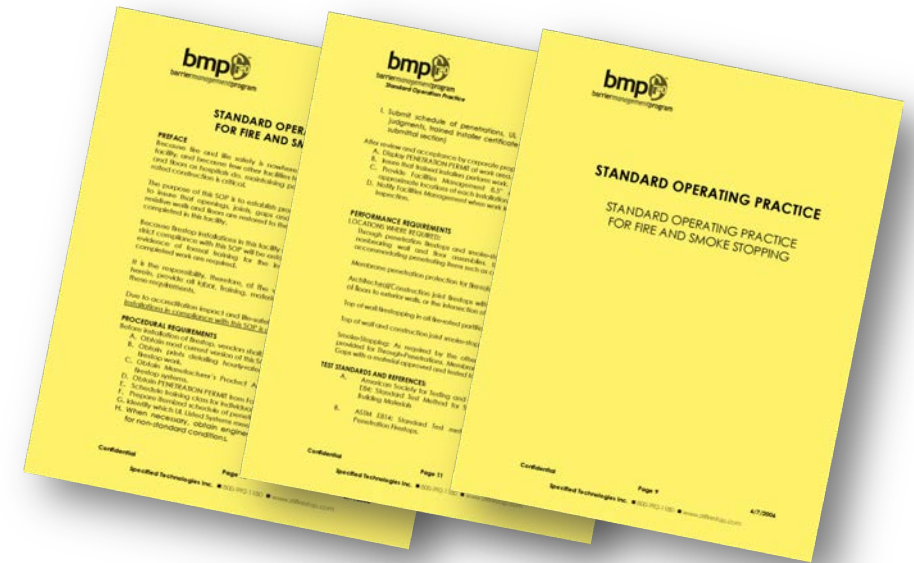
- What will the Spandrel Panel look like?
- Is the structure metal or aluminum?
- What will be the average joint width?
- How will the mullion brackets be protected?
- There are many variations with curtain wall applications. Too many to list here!
- STI will be hosting a webinar on this subject in the near future - **Eric Lacroix** is the foremost expert on this subject. He will take a deep dive into this topic.



Is There a Standard Operating Practice?

- A full overview as to what is expected of anyone working in a rated barrier
- A part of the bid documents
- Procedural requirements
- Performance requirements
- Submittal requirements
- Installation requirements
- Architectural specifications when needed

Failure to meet the SOC will result in contract termination!



Barrier Management Program Penetration Permit Form

- This permit will be given with a designated start. This will be determined by the facility.
- This permit will allow access above the ceiling.
- This permit would be displayed at all times.

NOT CONSIDERED A CLOSEOUT!

The form is titled "RESTRICTED SPACE ACCESS PERMIT" and is part of the "bmp barrier management program". It includes sections for "Permit Information", "Permit Details", "Permit Conditions", and "FOR OFFICIAL USE ONLY". The "Permit Information" section includes fields for "Permit Number", "Permit Location", "Permit Type", "Permit Date", and "Permit Expiration Date". The "Permit Details" section includes checkboxes for "Above A Ceiling Grid", "In A Utility Closet", "Performing Hot Work", "Cutting", "Braking", "Gas Welding", "Electric Welding", "Creating A New Opening(s) In A Smoke Wall Or Fire Rated Wall Or Floor", and "Accessing Existing Opening(s) In A Smoke Wall Or Fire Rated Wall Or Floor". The "Permit Conditions" section includes checkboxes for "Applicant Has Current Firestop Installer's Training Certificate?", "Applicant Has Current Hot Work Certificate?", "Permit Application Rejected", "Permit Opened", "Permit Close Date Extended", and "Permit Closed". The "FOR OFFICIAL USE ONLY" section includes fields for "Permit Open Date", "Permit Open Signature", "Permit Close Date", and "Permit Close Signature". The form is dated 4/7/2006 and includes contact information for Specified Technologies Inc.



Barrier Management Program Firestop Installer Worksheet

- This document would be picked up and returned to the firestop office.
- List all information of the installation.
- A log of Who, What, When and How.
- Use as an inspection tool.
- Accountability!

[illegible]

BMP Penetration Labels

- Accountability!
- Product Used
- Date Of Installation
- Contractor Information
- UL System#

WARNING!
Firestopped Penetration

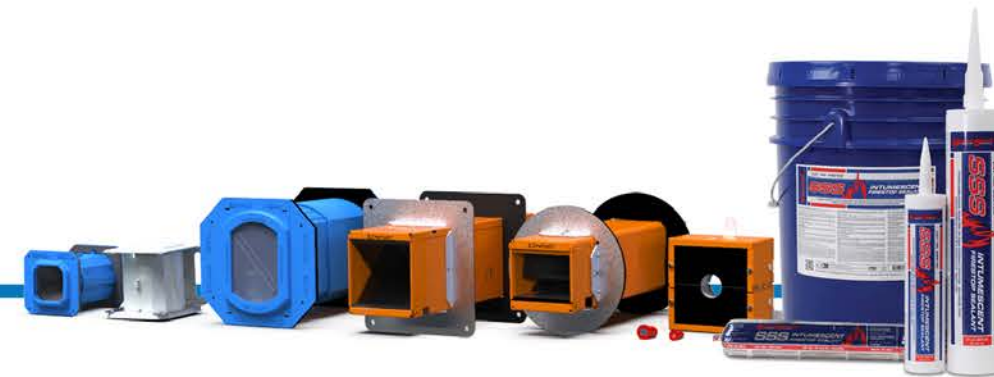
This penetration has been sealed with
Specified Technologies Inc. (STI)
SpecSeal® Firestopping materials.

DO NOT REMOVE!
To maintain UL Classification in retrofitting, reseal with
STI SpecSeal® Firestopping materials ONLY.

Product Installed _____
Date of Installation _____
Installing Contractor _____
Contractor Phone (_____
UL System# _____

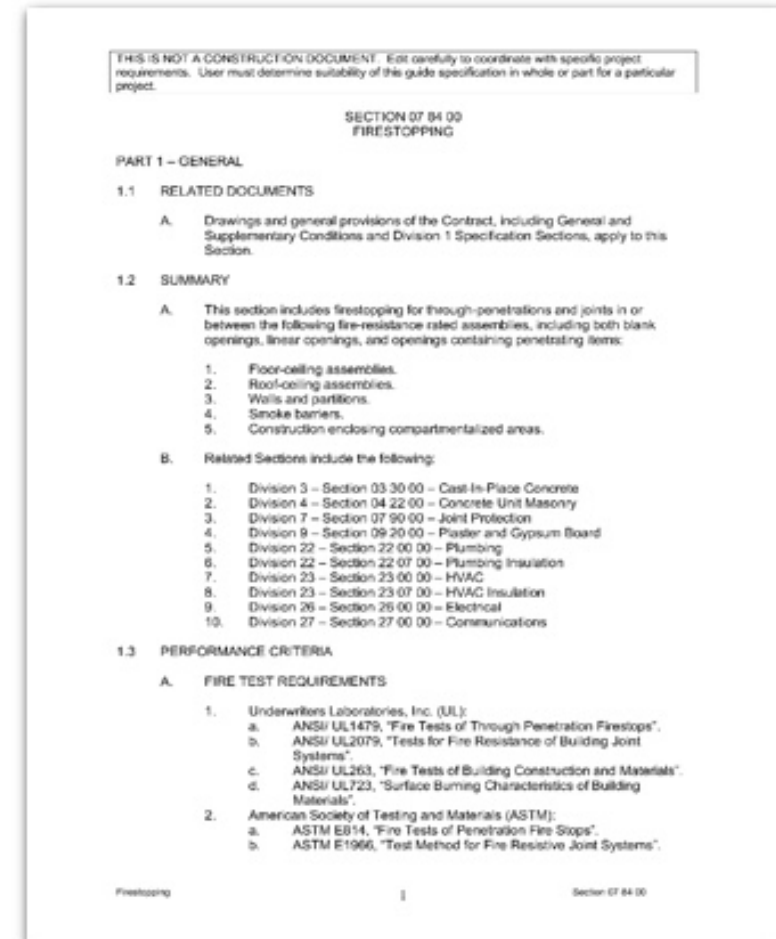
21002-602-03


Specified Technologies Inc.
Toll Free: 800-992-1180



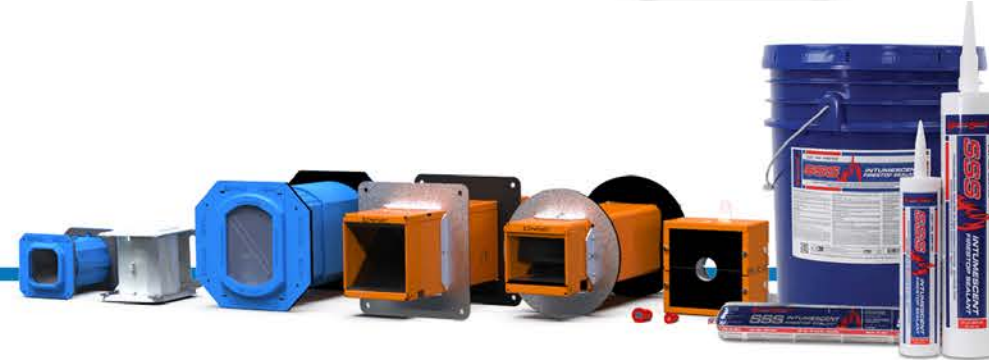
Architectural Specifications

- A Detailed Specification For Individual Trades
- Make sure proper UL Systems & Products are being used.
- The submittal of systems that **best fits** the requirements of the facility
- Made available to your architectural firms and STI will meet with them to outline the program requirements and answer any questions.



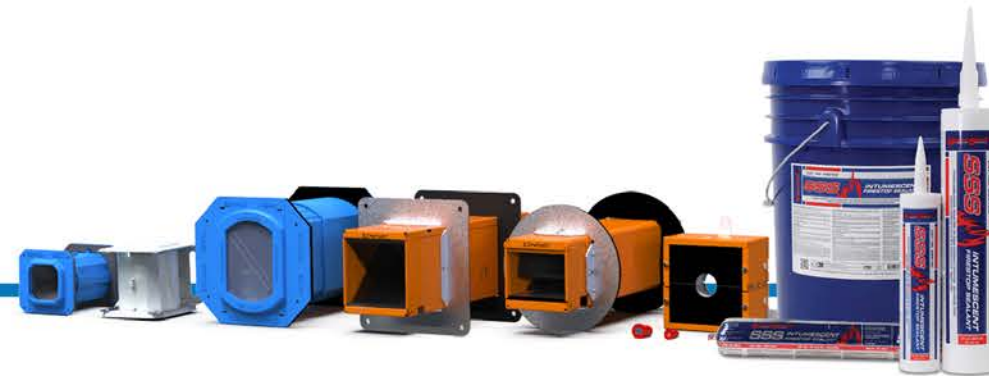
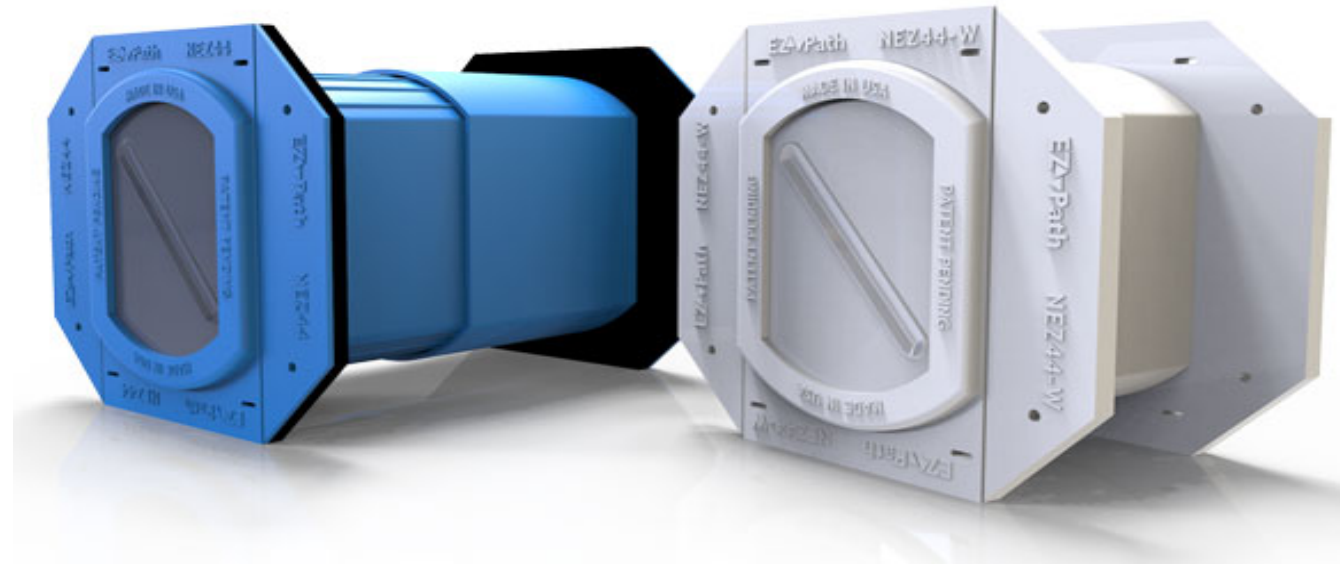
Maybe Digital Tools Will Help With Documentation

- Use mobile tools (phone, tablet, web)
- Platforms include both iOS and Android
- All functions can be done on either app or web
- Interactive with underlying floor drawings
- Streamline the firestop tracking process
- Turn-key solution with pre-printed QR labels

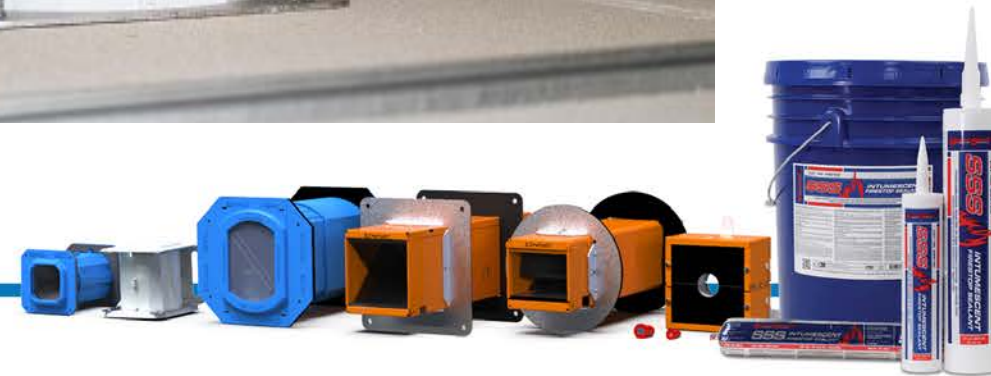


Designing For Smoke & Acoustics: Cable Pathways Options

- Non-rated floors and walls
- Sealing for other reasons
- Ease of entry
- 0 to 100% visual fill
- Clean cable management system



Clean Cable Management Application



Is BIM & Clash Management Being Utilized?



- Complete Library of BIM Objects & Tools
- Firestop Clash Management
 - Develops Clashes for Firestop Assemblies
 - Groups Clashes with Similar Properties
 - Reduces number of Systems for Projects
 - Automatically Performs System Search
 - Places UL® System at Clash Locations
 - Provides Openings Reports of Coordination



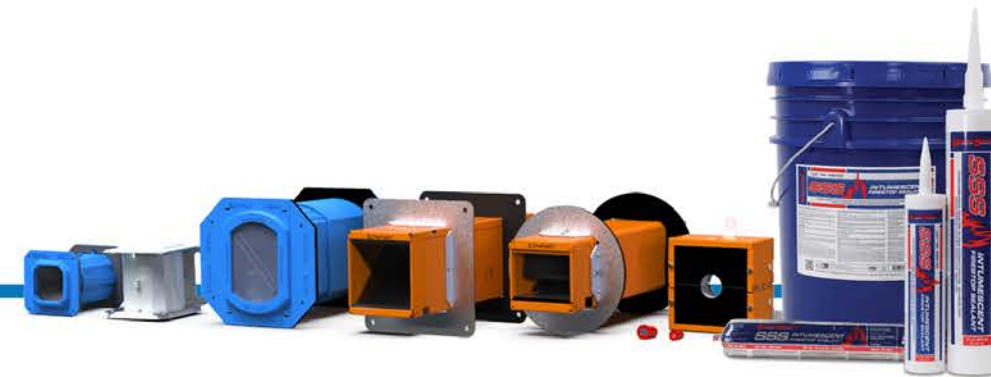
Best Practices

- Managerial approach (**Barrier Management Program**)
- Utilize products engineered for the specific application (Re-Enterable, Movement Capabilities, Accoustics...etc)
- Specific U.L. testing base
- Support systems
 - Training
 - Tech support
 - Specialized support

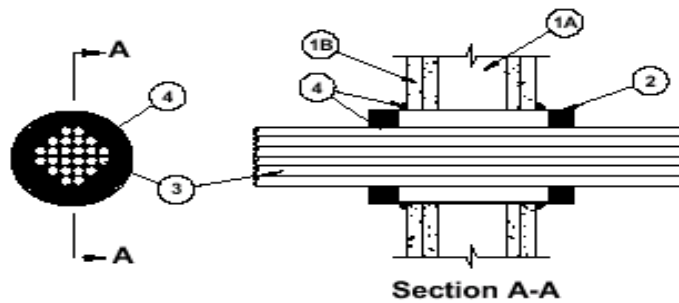


Specialized Healthcare Training

- Firestop fundamentals
- Containment
- Fire-rated construction
- Firestop penetrations — proper products selection
- Proper installations
- High traffic/re-enterable applications
- UL[®] firestop system parameters and testing
- Construction Joints
- Myths about firestop



Follow The Tested System Always



UL Systems serve two roles:

1) Evidence of compliance

- Wall Assembly** — The 1 or 2 hr fire-rated gypsum wallboard/ stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs** — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3.5/8 in. wide and spaced 24 in. OC.
 - Wallboard**, thickness, n... Series Desi... in which it is installed.

2) A set of build-instructions

- Steel Sleeve** — Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) or Schedule 5 (or heavier) steel pipe friction-fit into wall assembly. Sleeve installed such that the ends project 1-1/2 to 2 in. beyond each side of the wall.
- Cables** — Aggregate cross-sectional area of cables in sleeve to be max 48 percent of the cross-sectional area of the sleeve. Tight bundle of cables to be centered within the steel sleeve. The annular space within the firestop system shall be a nom 1/4 in. diam continuous "rope" of putty shall be applied around the circumference of the steel sleeve at its egress from both sides of the wall.
 - Max 20 No. 14 AWG (or smaller) insulated conductors with PVC insulation and jacket.
 - Max 3/C No. 20 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
 - Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
 - Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
 - Max RG59/U (or smaller) coaxial cable with fluorinated ethylene insulation and jacketing.
 - Max 62.5/48 fiber optic cable with PVC insulation and jacketing.
 - Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hytrel insulation and jacket.
- Fill, Void or Cavity Material* — Putty** — Min. 1 in. thickness of fill material applied within annulus, flush with both ends of sleeve. A nom 1/4 in. diam continuous "rope" of putty shall be applied around the circumference of the steel sleeve at its egress from both sides of the wall.
Specified Technologies Inc. — SpecSeal Putty
- Fill, Void or Cavity Material* — Sealant** — As an option to the "rope" of putty, a min 1/4 in. diam bead of sealant may be applied at the gypsum wallboard/steel sleeve interface on both sides of the wall.
Specified Technologies Inc. — SpecSeal Series 100 or Series LC Sealant

*Bearing the UL Classification Marking

Reproduced courtesy of Underwriters Laboratories, Inc.
Created or Revised: 01/01/00
Specified Technologies, Inc., Somerville, NJ (800) 992-1180

FOD-3256

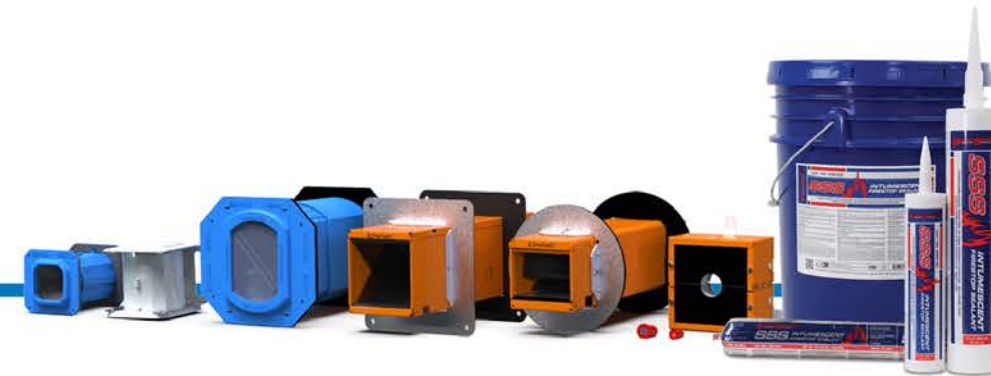


Verify all system details

- Type of barrier & its hourly rating
- Type of penetrant(s)
- Maximum hole size
- Maximum penetrant size
- Annular space: minimum AND maximum
- Special considerations:
- Movement
- Possible re-entry
- Sleeve?
- Angle of penetrant?
- Etc.



FIRESTOP
SPECIFIED TECHNOLOGIES INC.



Specified Technologies Is Committed

- At STI, products are but one component of our value package. As a fully focused manufacturer we are committed to providing complete solutions to your Firestop needs and challenges. We remain committed to these values, our client partnerships, and the firestop industry.

(Charbel Tagher, President STI)

Visit Us At:
WWW.STIFIRESTOP.COM

ACCESS  STI

