ASPE Chapter Meeting Integrations with ASPE Education

- You are required to complete the program evaluation after the chapter meeting in order to receive your CEUs. After completion it will appear in your education dashboard. Return to your ASPE Education dashboard (My Education) to find the program evaluation.

- https://education.aspe.org/my-dashboard

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- Email education@aspe.org with any other questions.

Firestopping Vertical & Horizontal Penetrations

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ASPE American Society of Plumbing Engineers℠ CEU PROVIDER

Learning Objectives

- Understand what firestopping is
- Understand the importance of firestopping
- Recognize the advantages of manufactured systems
- vs. built-in-place systems
- Be able to identify correctly applied systems
- Be able to effectively update specifications

Content

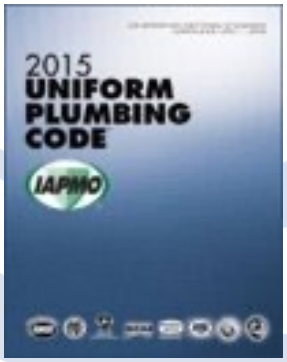
- Firestopping Defined
- Purpose of firestopping
- Importance of firestopping
- Ensure proper firestopping
- Manufactured vs. built-in-place systems
- Ideal fire stopping methods
- Update specifications
- Summary

Code Requirement for Firestopping

Uniform Plumbing Code 2015

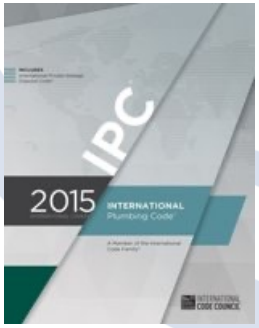
- *312.7 Piping penetrations of fire-resistance-rated walls, partitions, floors, floor/ceiling assemblies, roof/ceiling assemblies, or shaft enclosures shall be protected in accordance with the requirements of the building code and Chapter 14, "Firestop Protection".*

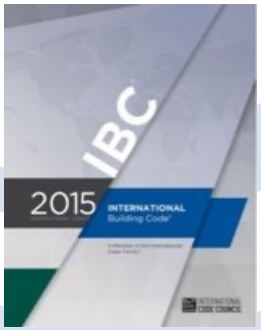
- *1404.3 Firestop Systems. Penetrations shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E119, ASTM E814, UL 263, or UL 1479 with a positive pressure differential of not less than 0.01 inch of water (0.002 kPa). Systems shall have an F rating of not less than 1 hour but not less than the required fire resistance rating of the floor being penetrated. Systems protecting floor penetrations shall have a T rating of not less than 1 hour but not less than the required fire resistance rating of the floor being penetrated. Floor penetrations contained within the cavity of a wall at the location of the floor penetration do not require a T rating. No T rating shall be required for floor penetrations by piping that is not in direct contact with combustible material.*



Code Requirement for Firestopping

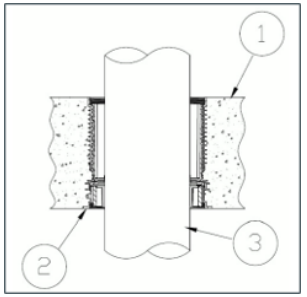
- International Plumbing Code 2015
  - •*307.3* Penetrations of floor/ceiling assemblies and fire-resistance-rated assemblies. *Penetrations of floor/ceiling assemblies and assemblies required to have a fire-resistance rating shall be protected in accordance with the International Building Code.*
- International Building Code 2015
  - •*714.3.1.2* Through-penetration firestop system. *Through penetrations shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E814 or UL 1479, with a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water and shall have an F-rating of not less than the required fire-resistance of the wall penetrated.*

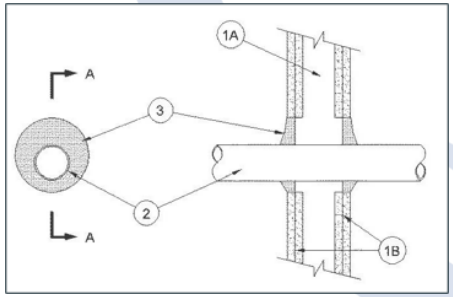




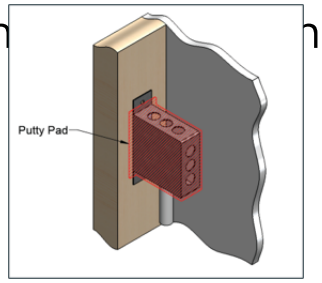
Firestopping

- Is a component of a system
  - UL Category XHEZ: through-penetration firestop system – vertical / horizontal





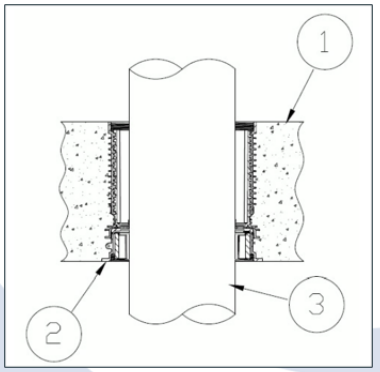
  - UL Category CLIV: m[illegible]netration (outlet boxes)

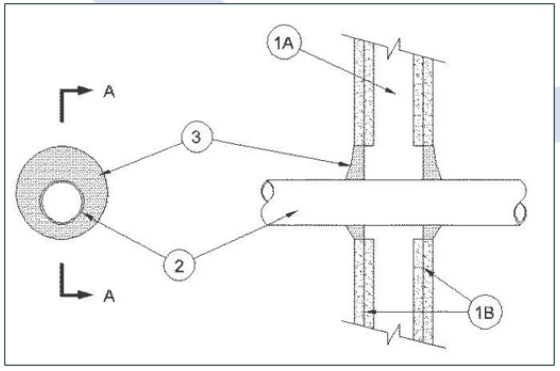


Firestopping

Comprises three elements:

1. A fire-rated assembly
    - Wall or floor
2. Firestop product
    - Manufactured devices: sleeves, collars, etc.
    - Built-In-Place systems: backing material (if required) such as mineral wool and a fire caulking compound or intumescent strip
3. A penetrating item
    - Such as a plumbing pipe or electrical cables/conduit





Firestopping

- These systems are tested per **ASTM E814** & **UL 1479** "Standard for Fire Tests of Penetration Firestop Systems"
  - Determines performance of firestop system:
    - Exposure to standard time-temperature fire test
    - Hose-stream test
  - Performance is dependent upon specific assembly
    - Type of materials tested
    - Number, type and size of penetrations
    - Materials of floors or walls in which it is installed

Firestop System Testing Process

Penetrating items and firestop Material installed.

- Firestop material is allowed to cure

Completed assembly placed into either a wall or floor furnace.

- 1 Hour to 4 Hour burn

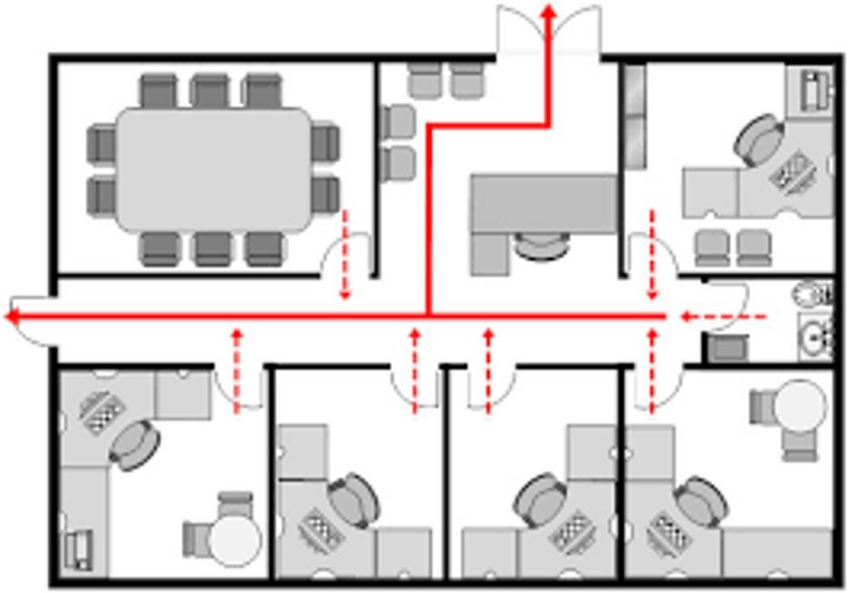
Hose Stream Test

- 30 psi - 1, 2 & 3-hour tests
- 45 psi - 4-hour test

Purpose of Firestopping

- Intended to restore the hourly rating of fire-resistive assemblies breached by penetrating plumbing, electrical and mechanical installations.

- Increases the availability of escape routes for occupants of a building giving them the TIME or means of egress to get out of a building.



Purpose of Firestopping

- **Firestop systems must be installed exactly according to listing details**
  - **Failure to install exactly according to listing details will result in a system that will not perform**

Consequences of Fires

Fire Departments respond to a fire every **24 seconds**

Annual Direct Property Loss **$25.6+ Billion**

Annual Civilian Deaths **3000+ Lives Lost**

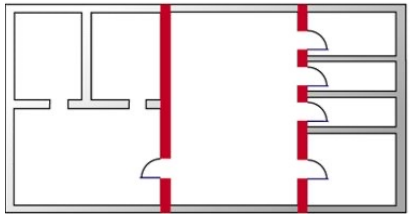
(Wildfires + Structural)

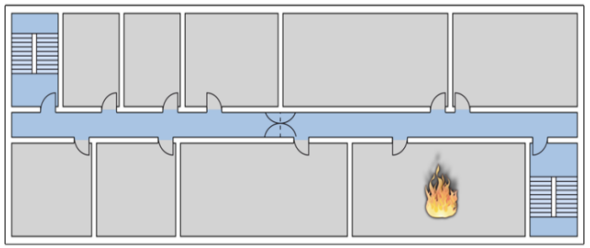
Source: NFPA Fire Loss Statistics 2018

One globally applied principle for fire safety: Compartmentation (fire compartments)

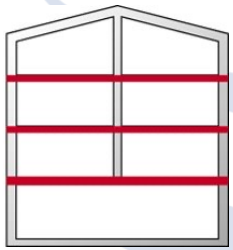
The spread of fire can be restricted by dividing a building into separate compartments with fire-resistive walls and floors—increasing the availability of escape routes for occupants.

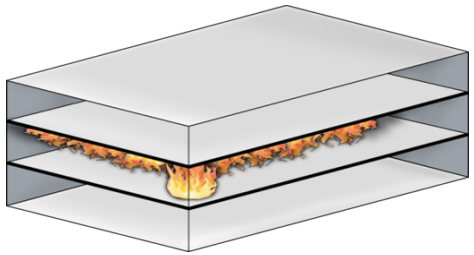
Fire walls





Fire floors

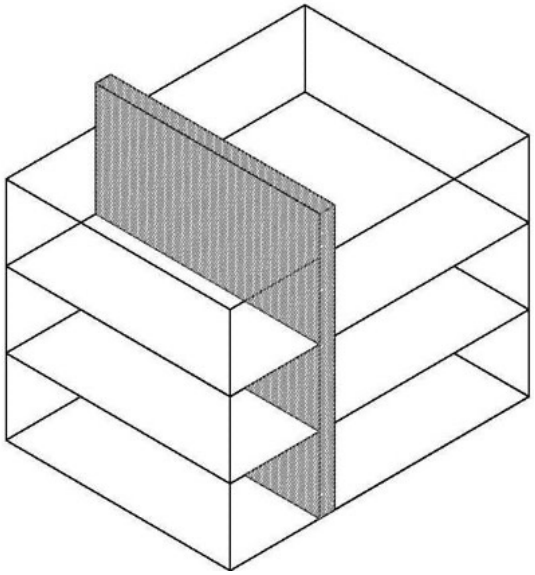




Types of fire/smoke wall assemblies

- Fire Walls
- Fire Barrier Walls
- Shaft Wall
- Fire Partitions
- Smoke Barriers
- Smoke Partitions

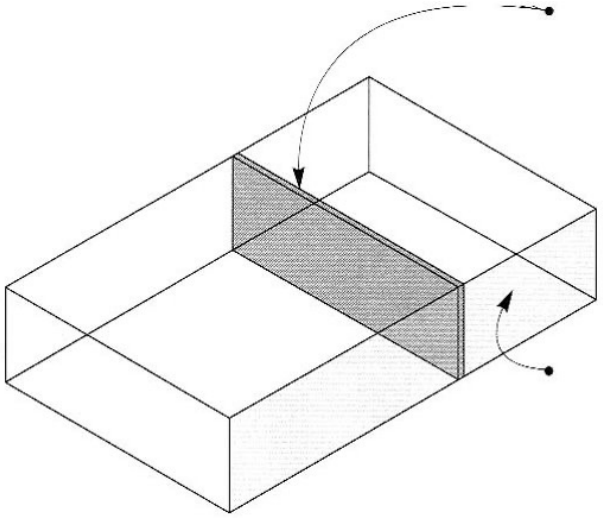
Types of fire rated assemblies



FIRE WALL

- Fire-resistant rated
- Extends continuously from foundation to or through roof
- Sufficient structural stability
  - Allows collapse of building on either side without wall collapse

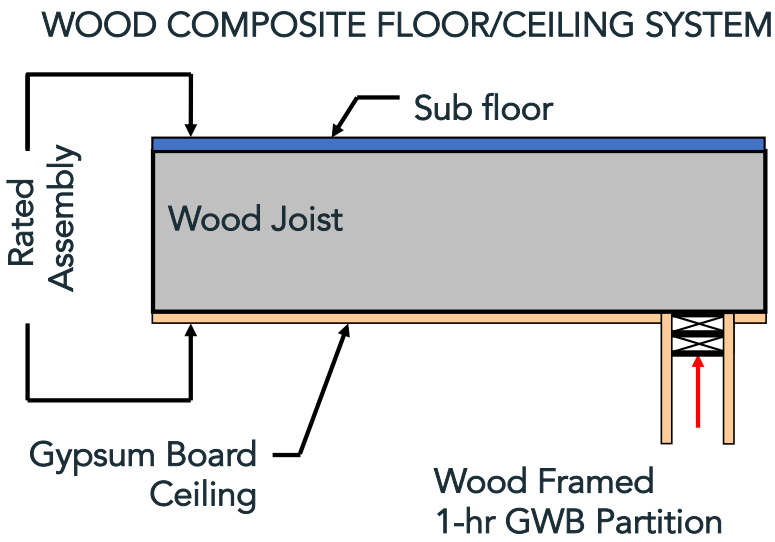
Types of fire rated assemblies



FIRE BARRIER

- Wall assembly that restricts fire spread
- Span from floor/ceiling to underside of floor or roof above
  - Need not be continuous from story to story
- Does not require structural independence from building

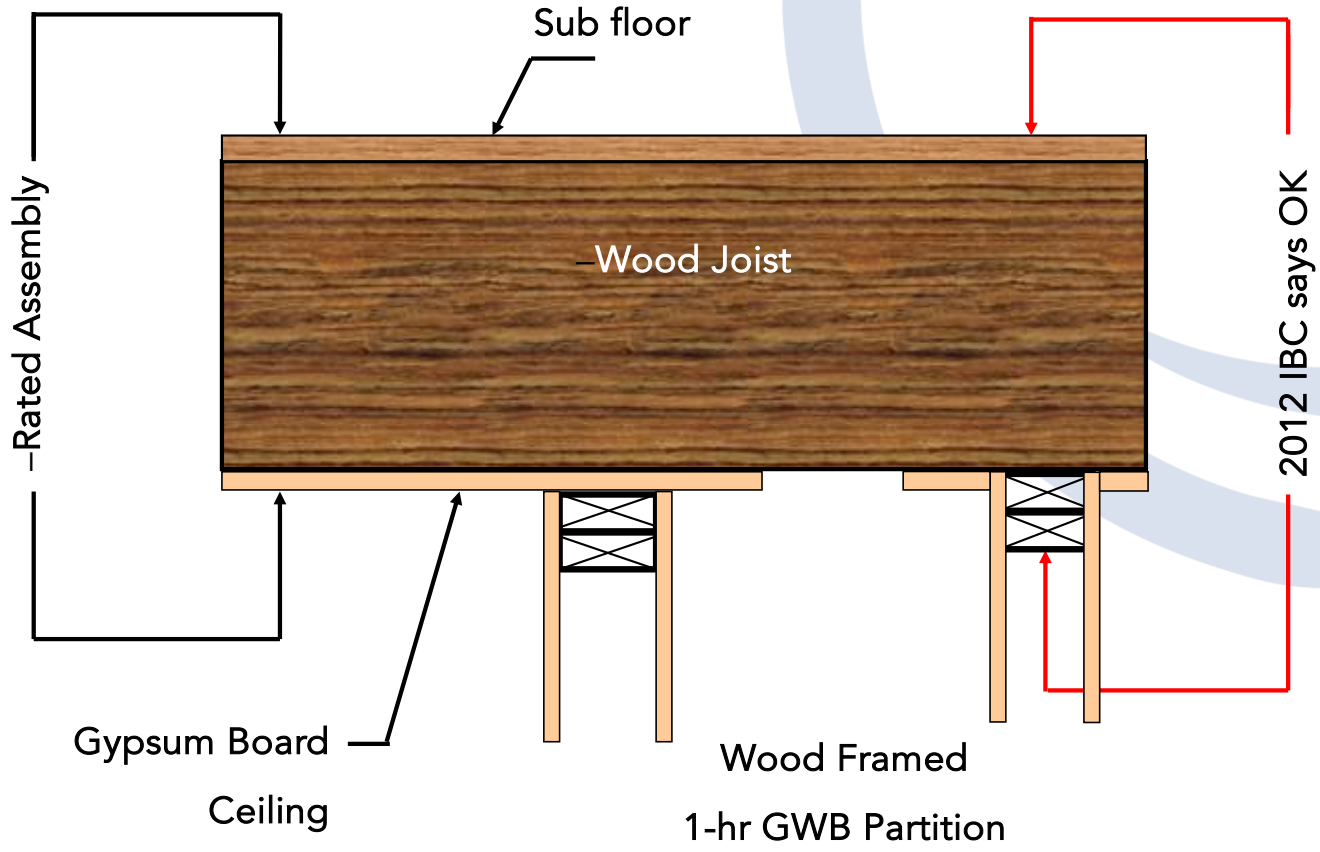
Types of fire rated assemblies



FIRE PARTITION

- 1-hour fire resistance
  - ½ hour allowed for dwelling/guestroom
  - Separation in sprinkled buildings of IIB, IIIB, VB construction
- Extend from top of floor assembly below to:
  - Underside of floor, roof slab or deck above, OR
  - Underside of fire-resistance rated floor/ceiling or roof/ceiling assembly

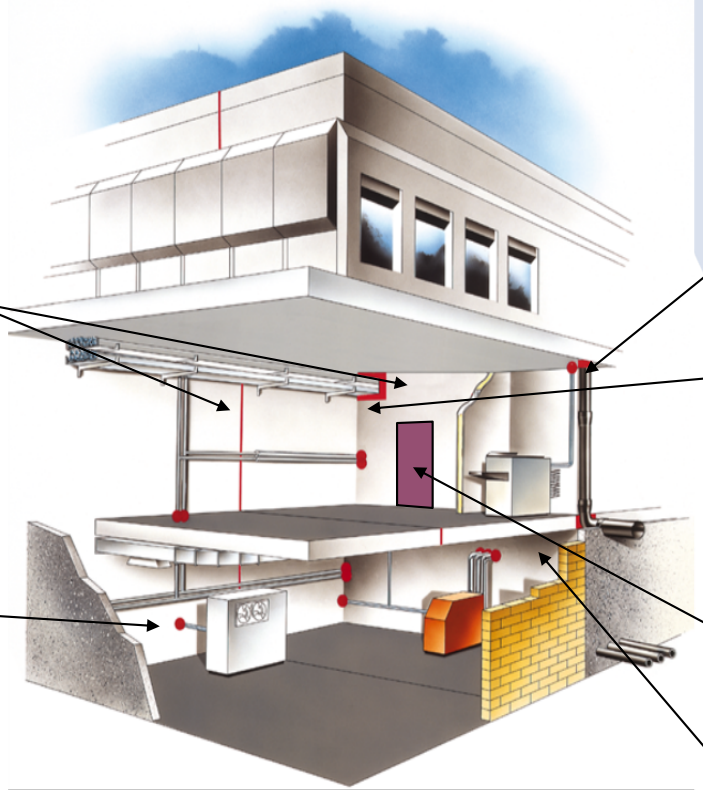
Wood Composite Floor/Ceiling System



IBC 2012 changes: Firestopping of double top plate

- Membrane penetrations of horizontal assemblies, new exception:
- 714.4.1.2
- Exception 7. The ceiling membrane of 1- and 2-hour fire-resistance rated horizontal assemblies is permitted to be interrupted with the double wood top plate of a fire resistance rated wall assembly, provided that all penetrating items through the double top plates are protected in accordance with 714.4.1.1.1 or 714.4.1.1.2.
- 714.4.1.1 = penetration tested as part of assembly
- 714.4.1.2 = penetration firestopped

Areas that can allow for fire/smoke spread:



Identifying Incorrect Firestop Installations

Sample of deficiencies found in incorrect firestop

- Preparation of joint, service penetration or substrate not being followed
- Work only partially complete
- No design listing submitted for installed system
- Design Listing not followed
- Product expired, frozen, ruined by excessive heat, or washed out
- Seals broken
- Installed systems differ from submittals (wrong? right?)
- Installer qualifications not meeting specification requirements
- No fasteners or incorrect fasteners installed (collars)
- Not familiar with code requirements
- Sealant not applied properly/consistently

UL Listed Firestop Assembly

UL System #

"T" Rating

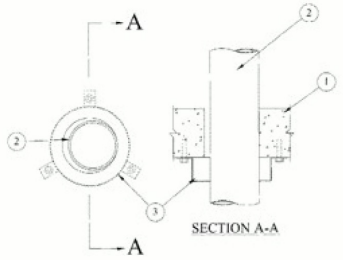
"F" Rating

System No. C-AJ-2842

January 08, 2019

F Rating — 3 Hr

T Rating — 3 Hr



1. **Floor or Wall Assembly —** Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units***. Max diam of opening is 5 in. (127 mm).

See **Concrete Blocks** (CAZT) and **Precast Concrete Units** (CFTV) categories in the Fire Resistance Directory for names of manufacturers.

UL Fire Resistance Directory utilizes an alpha numeric numbering system: Basic number system = ALPHA-ALPHA-NUMERIC

Through – Penetrations

The first letter represents what is being penetrated:	The second letter(s) provide more information about the floor or wall:	The four digit number describes the penetrating item(s):
F = FLOOR	A = CONCRETE FLOORS 5 INCHES THICK OR LESS	0000 – 0999 BLANK OPENINGS
W = WALLS	B = CONCRETE FLOORS GREATERE THAN 5 INCHES THICK	1000 – 1999 METAL PIPE, CONDUIT OR TUBING
C = FLOORS OR WALLS (COMBINED)	C = FRAMED FLOORS – FLOOR/CEILING ASSEMBLIES	2000 – 2999 NONMETALLIC PIPE CONDUIT OR TUBING
	D = STEEL DECK CONSTRUCTION	3000 – 3999 CABLES
	E THRU I = NOT USED AT THE PRESENT TIME	4000 – 4999 CABLE TRAYS
	J = CONCRETE OR MASONRY WALLS 8 INCHES THICK OR LESS	5000 – 5999 INSULATED PIPES
	K = CONCRETE WALLS GREATER THAN 8 INCHES THICK	6000 – 6999 MISCELLANEOUS ELECTRICAL (BUSWAY)
	L = FRAMED WALLS – GYPSUM WALLBOARD ASSEMBLIES	7000 – 7999 MISCELLANEOUS MECHANICAL
	M = BULKHEADS	8000 – 8999 MIXED PENETRATING ITEMS
	N THRU Z = NOT USED AT THE PRESENT TIME	9000 – 9999 RESERVED FOR FUTURE USE

Underwriters Laboratories

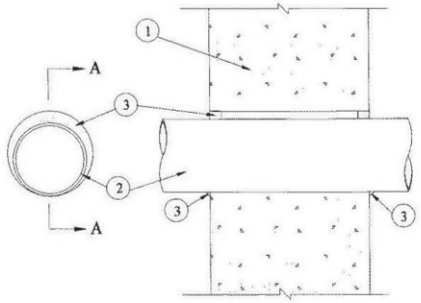
Typical Application

Block Wall
F-Rating = 2 Hrs
Steel Conduit 2”
Annular Space
Min: Point of contact (top)
Max: 3/8” (below the pipe)

System No. W-J-1310

January 30, 2019

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 4 Hr	F Rating - 4 Hr
	FH Rating - 4 Hr
T Rating - 0 Hr	FT Rating - 0 Hr
	FTH Rating 0 Hr



SECTION A-A

1. **Wall Assembly —** Min 5-5/8 in. (143 mm) thick reinforced lightweight or normal weight (100-150 pcf) (1600-2400 kg/m^3) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 9 in. (229 mm) See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Through Penetrants —** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipes, conduits or tubing and periphery of opening shall be min 0 in. (0 mm) (point contact) to max 3/8 in. (10 mm) . Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe —** Nom 8 in. (203 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.

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

C. **Conduit —** Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. diam (or smaller) steel conduit.

D. **Copper Tubing —** Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.

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

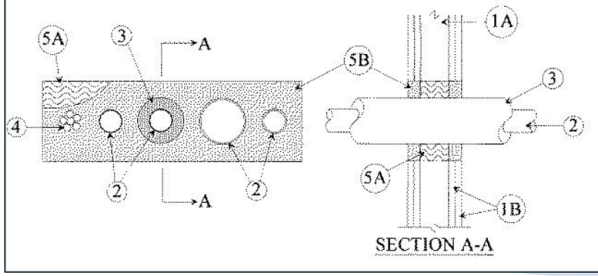
3. **Fill, Void or Cavity Material* — Caulk —** Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. A min 1/4 in. (6 mm) diam bead of caulk shall be applied to the pipe/concrete interface at the point contact location on both sides of wall.

System No. W-L-8121

February 15, 2019

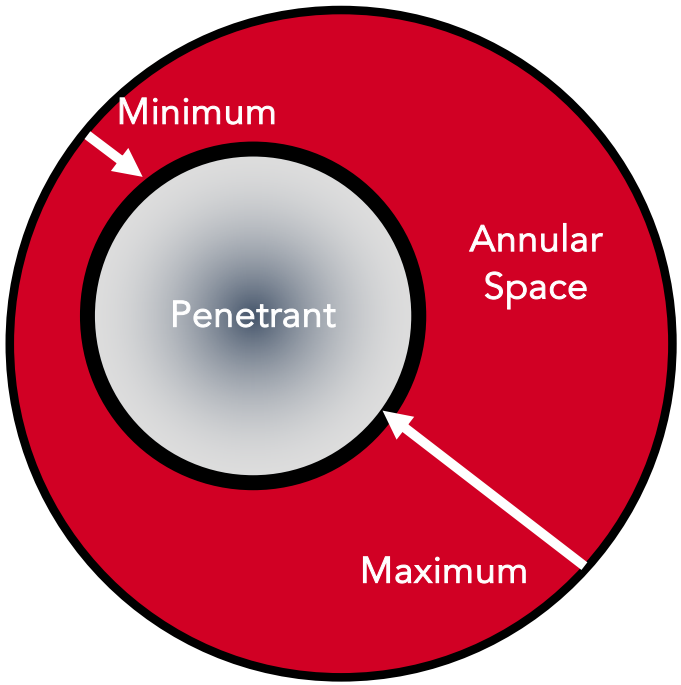
F Ratings — 1 and 2 Hr (See Item 1)

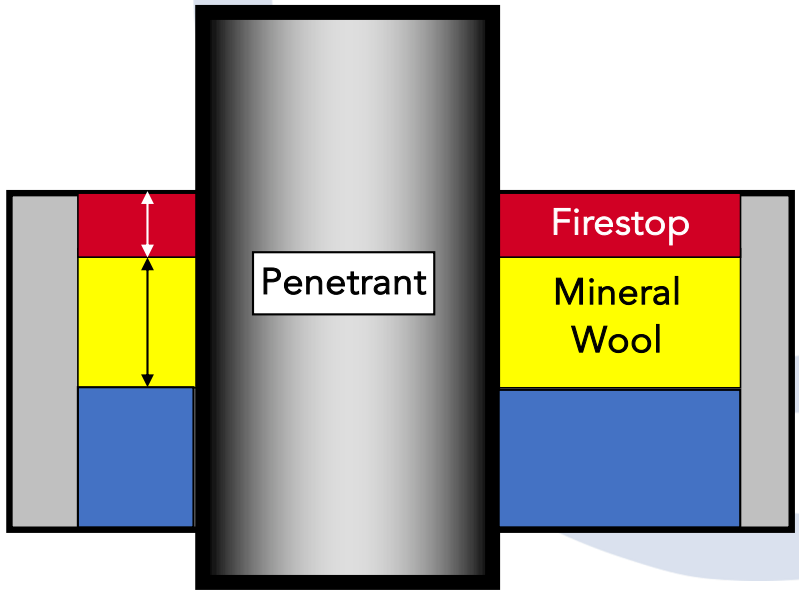
T Rating — 0 Hr



SECTION A-A

Annular Space





- Gypsum wall board used to cover oversized opening in block wall
- What is the F-Rating of this block wall assembly (typically 2 – 4 hours)?
- One layer of Type X Gypsum board has F-Rating of 1 hour
- Does this solution meet the original F-Rating?

- Annular space around penetrant is greater than the outside diameter of the fire collar
- This installation would not prevent the passage of smoke/hot gases or flame unless corrected
- Example where an Engineering Judgement would be needed to correct if no UL System exists that matches these conditions

- Firestop sealant applied in annular space around penetrant
- Surface of sealant trowel-finished to surface of wall penetrated
- Firestop label applied – required!
- Verify UL System was followed in this installation

Firestop systems ability to restrict passage of flame

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F- Rating

- Test per UL 1479
- Measures amount of time the firestop system will prevent spread of flames
- Test conducted at four-time intervals:
  - 1-hour
  - 2-hour
  - 3-hour
  - 4-hour
- F-Rating is a measure of “Escape Time” for building occupants

Firestop systems ability to restrict passage of flame

- Optional test per UL 1479
- Measures amount of air leakage through the firestop system
- Test conducted at two temperature ranges:
  - Ambient temperature (simulates cold smoke away from fire origin)
  - 400°F (simulates warm smoke near fire origin)
- Measured in CFM (Cubic Feet per Minute): the lower the number, the better the L-Rating

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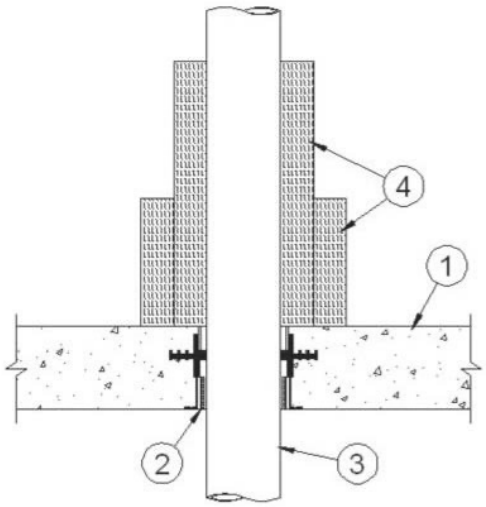
L- Rating

Firestop systems ability to restrict passage of flame

- Test per UL 1479
- Measures amount of time for the surface of the penetrating item on the non-fire side to reach 325 degrees F above ambient temperature
- T-Rating must equal F-Rating:
  - For penetrants located outside of a wall assembly above or below fire chamber
  - T-Rating achieved by covering penetrant with fire-rated insulation according to appropriate UL System

T- Rating



T-rating exceptions

2009 IBC:
Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating

2012 IBC:
Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating

New T-rating exceptions

2015 IBC:

Floor penetrations of maximum 4-inch (102 mm) nominal diameter penetrating directly into metal-enclosed electrical power switchgear do not require a T rating.

Firestop systems ability to protect against water leakage

W- Rating

W-Rating (optional test) – determines effectiveness of a firestop system to restrict flow of water.

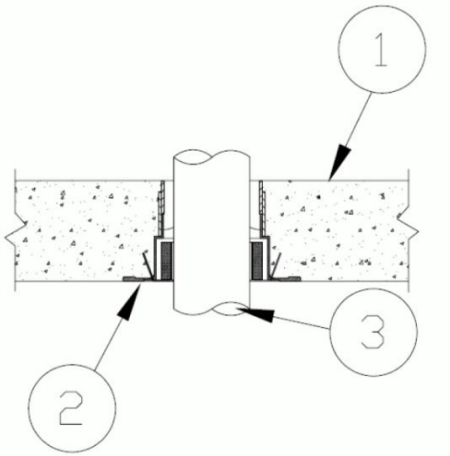
- Tested to resist up to 3 feet of water column for 72 hours
- Specific to floor penetrations

System No. F-B-1017

October 29, 2018

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/Lin Ft	FH Rating — 3 Hr
L Rating At 400°F — Less Than 1 CFM/Lin Ft	FTH Rating — 0 Hr
W Rating — Class 1 (See Item 5)	L Rating At Ambient — Less Than 5.1L/s-m^2
	L Rating At 400°F — Less Than 5.1L/s-m^2

"W" rating



Intumescent vs. Elastomeric

- Generally, fire protective products fall into two categories:
  - Intumescent
  - Elastomeric

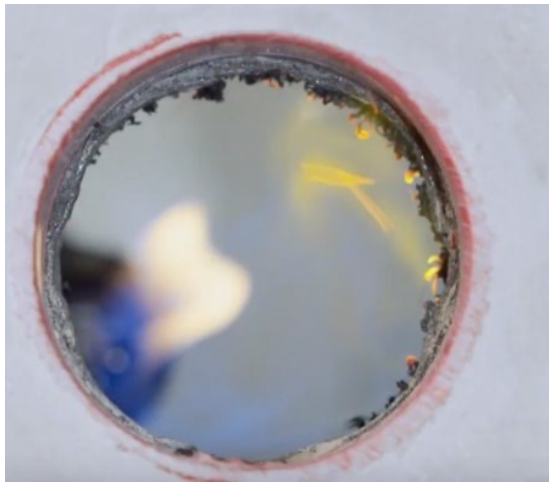
Intumescent Products:

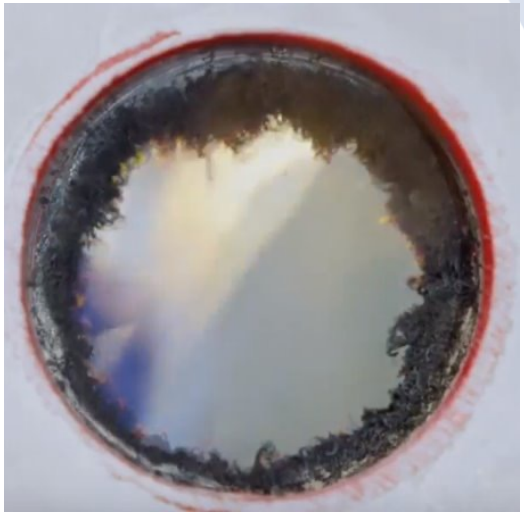
- Swell, char or otherwise expand when subjected to a specified degree of heat (different materials have differing degrees at which they begin to intumesce)

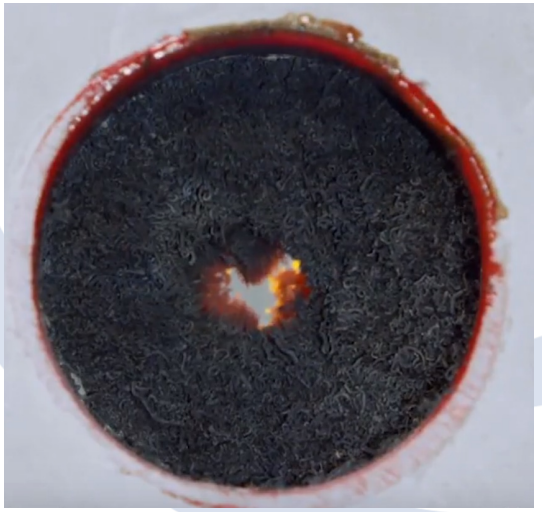
Elastomeric Products:

- Any of various elastic products resembling rubber that are able to retain their shape after being subjected to dynamic movement

Intumescent (heat expanding) firestop materials typically needed to firestop combustible penetrants







Pictures courtesy of UL

Each manufacturer's firestop products have unique chemical and physical properties

Firestop Submittals: suggested content

- Cover Sheet – project name and location, company name and location,
- Table of Contents
- Product Information Sheets
- Shop Drawings - tested firestop systems, engineering judgments
- Material Safety Data Sheets - MSDS
- Certificates of Compliance - Product Test Reports -
- Installer Qualifications – experience with similar type projects, trained by manufacturer, UL Certified, or FM Certified

When a contractor submits a firestop product to you, what do you receive?

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Product Data Sheet

PRODUCT SPECIFICATION SHEET
HoldRite® HydroFlame™ 100 Sealant

HydroFlame 100 is an elastomeric water based single component non-sag low-intumescent firestop sealant. It is convenient in areas and conditions where dynamic movement is expected. An ideal firestop sealant for new and existing penetrations through interior rated gypsum, concrete, and block walls as well as rated concrete floors, concrete over metal decking floors, and wood floor-ceiling assemblies. When properly installed, HydroFlame 100 will prevent the passage of smoke, gasses, and flames through openings around penetrating items. HydroFlame 100 is ready to be dispensed out of the package and does not require thinning or mixing. It is simple to install and can be dispensed out of any standard caulking gun or bulk loader that is designed for 10, 20, or 30-ounce packaging as well as 5 gallon buckets. Additionally, it can easily be troweled out of a 5 gallon bucket. HydroFlame 100 UL systems are rated up to 4 hours as tested in conformance to ASTME E814 or ANSI/UL-1479, and CAN/ULC-S115.

Product Information:

- **Material Properties:** HydroFlame 100 sealant does not contain any solvents, asbestos fibers or hazardous materials. Application temp 40°F (5°C) - 120°F (49°C). Cure time: 3-4 weeks at 77°F (25°C). Density: 12.5 +/- 0.5 lbs/gal. (1.25 g/L). Skin over time: 30 minutes 77°F (25°C). Product color: BRS. Elastomeric and flexible. PH Value 7 - 8. Density 12.5 +/- 0.5 lbs/gal. Freeze/thaw – exceptional. VOC Negligible. Volume coverage: 10.3 oz. cartridge = 304ml, 28 cu. in., or 295cc. Volume coverage: 5-gallon buckets = 1150 cubic inches or 5800 cu. cm).
- **Application:** HydroFlame 100 sealant when properly installed will prevent the passage and migration of smoke, toxic gases, and flames through wall and floor assemblies where penetration firestop systems are installed. Can be used on a variety of common plastic and noncombustible pipes or insulated pipes including PVC, CPVC, ABS and PEX cross-linked polyethylene (PEX) tubing, steel, copper, cast iron, EMT and conventional cables and more. HydroFlame 100 is a flexible firestop sealant so it can be used in areas where vibrations or other movements occur. In addition, it has excellent sound attenuation and can be used where rated walls or floors have high STC requirements.
- **Availability:** HydroFlame 100 is available in the following four sizes: 10.3oz. cartridges (304ml), 20.2oz. sausages (597ml), 30oz. cartridges (886ml), and 5-gallon buckets (18.9L).

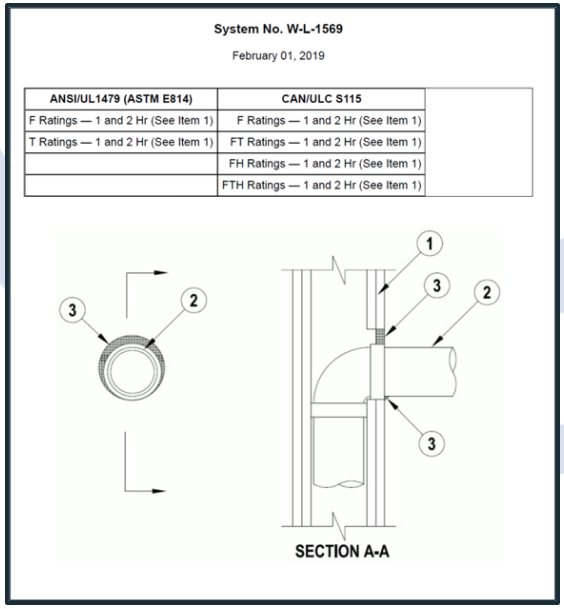
Product Submittal

HydroFlame™

UL listed firestop assembly

"F" Rating

"T" Rating



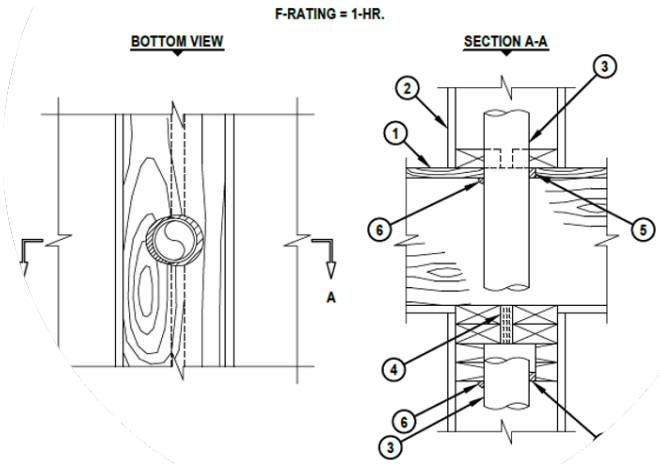
System No. W-L-1569

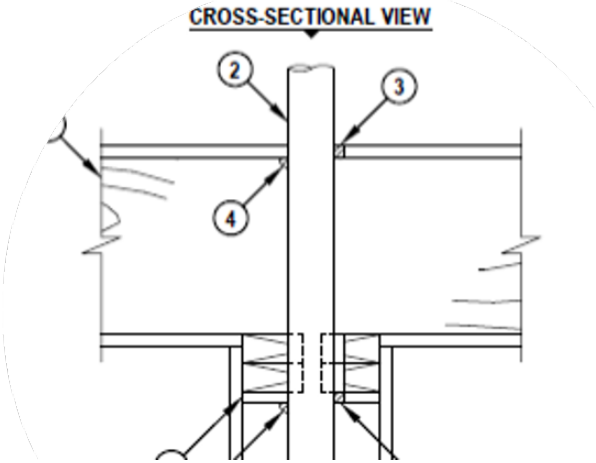
February 01, 2019

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 Ratings — 1 and 2 Hr (See Item 1)	FT Ratings — 1 and 2 Hr (See Item 1)
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Ratings — 1 and 2 Hr (See Item 1)

SECTION A-A

Penetration
Application





ENGINEERING JUDGMENT SOLUTIONS WOOD FLOOR / CEILING ASSEMBLIES

When / why is an EJ used?

When no tested system exists that exactly matches the conditions of the field application

Typical situations:

- Annular space larger/smaller than tested
- Irregular hole shape
- Hole shape different than tested
- Curtain wall construction not identical to that tested
- More penetrating items in hole than system allows
- Access to one side only
- Oversized or exotic insulation types
- Structural member penetrations
- *Intersections of rated assembly with non-rated assembly (e.g.: roof deck)*

If No Qualified Tested System is Available

SUBMITTALS

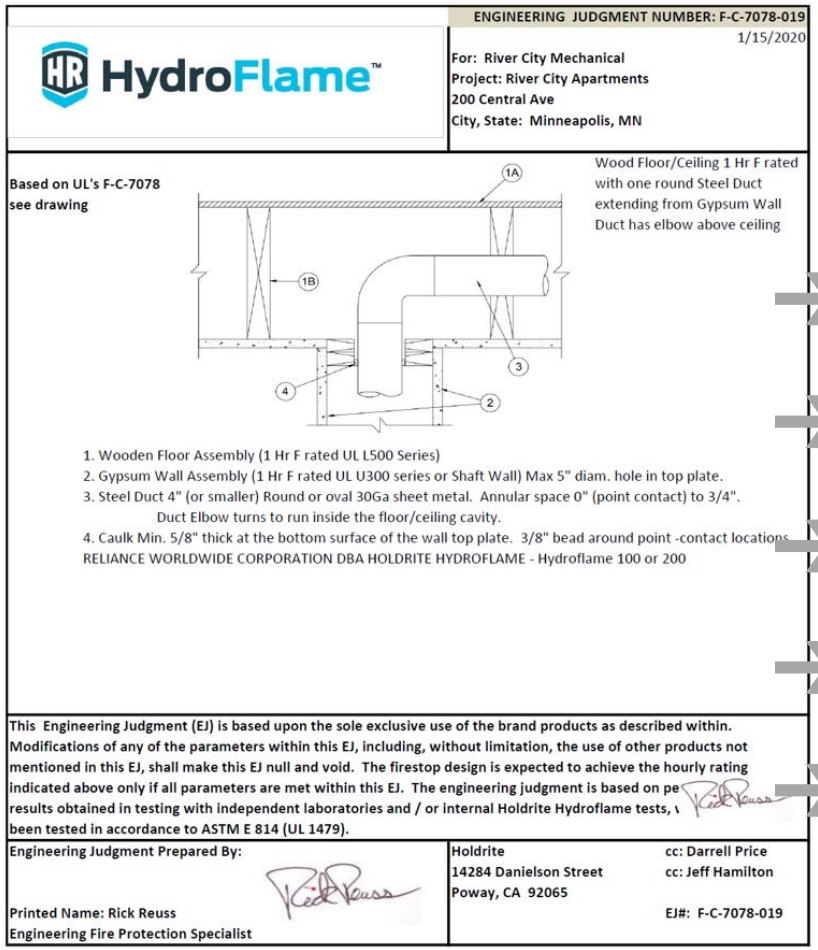
A. Submit Firestop Systems that meet requirements of ASTM E 814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated

B. Submit manufacturer's engineering judgment identification number and document details when no qualified tested system is available for an application. Engineering judgment mu include both project name and contractor's name who will install firestop system as described in document.

C. Submit Product Data: Manufacturer's specifications and technical data for each material including the composition and limitations, documentation of qualified tested firestop systems to be used and manufacturer's installation instructions to comply with Section 01 30 00.

D. Submit safety data sheets provided with product delivered to job-site.

International firestop council guidelines:



ENGINEERING JUDGMENT NUMBER: F-C-7078-019

1/15/2020

HydroFlame™

For: River City Mechanical
Project: River City Apartments
200 Central Ave
City, State: Minneapolis, MN

Based on UL's F-C-7078
see drawing

Wood Floor/Ceiling 1 Hr F rated with one round Steel Duct extending from Gypsum Wall Duct has elbow above ceiling

1. Wooden Floor Assembly (1 Hr F rated UL L500 Series)
2. Gypsum Wall Assembly (1 Hr F rated UL U300 series or Shaft Wall) Max 5" diam. hole in top plate.
3. Steel Duct 4" (or smaller) Round or oval 30Ga sheet metal. Annular space 0" (point contact) to 3/4". Duct Elbow turns to run inside the floor/ceiling cavity.
4. Caulk Min. 5/8" thick at the bottom surface of the wall top plate. 3/8" bead around point -contact locations.

RELIANCE WORLDWIDE CORPORATION DBA HOLDRITE HYDROFLAME - Hydroflame 100 or 200

This Engineering Judgment (EJ) is based upon the sole exclusive use of the brand products as described within. Modifications of any of the parameters within this EJ, including, without limitation, the use of other products not mentioned in this EJ, shall make this EJ null and void. The firestop design is expected to achieve the hourly rating indicated above only if all parameters are met within this EJ. The engineering judgment is based on pe results obtained in testing with independent laboratories and / or internal Holdrite Hydroflame tests, been tested in accordance to ASTM E 814 (UL 1479).

Engineering Judgment Prepared By:

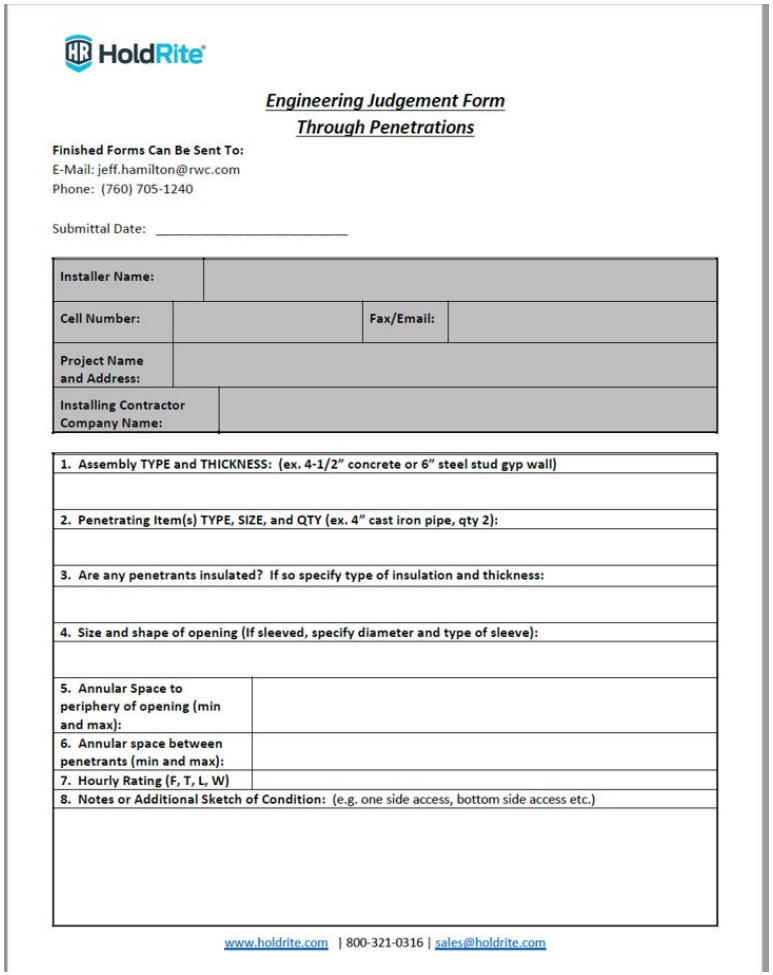
Printed Name: Rick Reuss
Engineering Fire Protection Specialist

Holdrite
14284 Danielson Street
Poway, CA 92065

cc: Darrell Price
cc: Jeff Hamilton

EJ#: F-C-7078-019

- Not to be used in lieu of available tested system
- Be issued by qualifed technical personnel
- Based upon previously tested system(s)
- Be issued only for a single job, location, and application
- Based on assumption that the recommended system (EJ) would pass if tested for the required rated period of time



HoldRite

Engineering Judgement Form
Through Penetrations

Finished Forms Can Be Sent To:
E-Mail: jeff.hamilton@rwc.com
Phone: (760) 705-1240

Submittal Date: _____

Installer Name:			
Cell Number:		**Fax/Email:**	
Project Name and Address:			
Installing Contractor Company Name:			

1. Assembly TYPE and THICKNESS: (ex. 4-1/2" concrete or 6" steel stud gyp wall)	
2. Penetrating Item(s) TYPE, SIZE, and QTY (ex. 4" cast iron pipe, qty 2):	
3. Are any penetrants insulated? If so specify type of insulation and thickness:	
4. Size and shape of opening (If sleeved, specify diameter and type of sleeve):	
5. Annular Space to periphery of opening (min and max):	
6. Annular space between penetrants (min and max):	
7. Hourly Rating (F, T, L, W)	
8. Notes or Additional Sketch of Condition: (e.g. one side access, bottom side access etc.)	

www.holdrite.com | 800-321-0316 | sales@holdrite.com

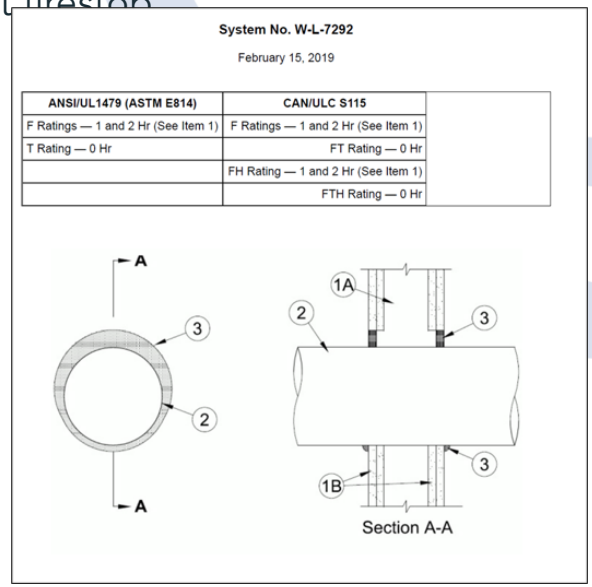
ASPE American Society of Plumbing Engineers

DOWNLOAD FIRESTOP ENGINEERING JUDGMENT REQUEST FORM

- FREE Service
- Turn around time – 2-3 BUSINESS DAYS

Identification / Labeling

- Installation Stickers aid in identification, inspection and tracking
- Placed next to each penetration firestop or periodically along a joint firestop


System No. W-L-7292

February 15, 2019

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 — 0 Hr	FT Rating — 0 Hr
	FH Rating — 1 and 2 Hr (See Item 1)
	FTH Rating — 0 Hr

Section A-A

Field Quality Control

3RD PARTY INSPECTION OF FIRESTOP

Firestop Special Inspection Mandated for high-rises and Risk Category III & IV building (IBC 2012 - 1705.16)

- **High-rise:** Occupied floor > 75 ft. above lowest level of FD access
- **Risk category III building:**
  Substantial hazard to human life in event of failure (IBC 1604.5)
  Examples:
  - elementary school > 250 occupants
  - Public assembly > 300 occupants
- **Risk Category IV building:**
  Essential facilities (IBC 1604.5)
  Examples:
  - Medical facilities (I-2) having surgery or emergency treatment
  - Buildings containing highly toxic materials that may endanger public

Third Party Inspection – ASTM Standards

- Independent Inspection Agency contracted directly with Owner
  - ASTM E 2174 – Standard Practice for On-Site Inspection of Installed Fire Stops
    - Witness 10% of Installations
    - Destructive Testing on 2% of Installations
  - ASTM E 2393 – Standard Practice for Inspection of Installed Fire Resistive Joint and Perimeter Fire Barriers
    - Witness 5% of total length during installation or Destructive Disassembly or Visual Inspection (as appropriate) with one sampling per type of joint system per 500 lineal feet.
- Both ASTM E 2174 and E 2393 outline Inspector qualifications, detail conflicts of interest, require review of firestop materials and level of documentation

Questions?

Jim LeStage
Specifications Sales Manager
(760) 310-5432 /
jim.lestage@rwc.com

Thank You!

ASPE Chapter Meeting Integrations with ASPE Education

- You are required to complete the program evaluation after the chapter meeting in order to receive your CEUs. After completion it will appear in your education dashboard. Return to your ASPE Education dashboard (My Education) to find the program evaluation.

- https://education.aspe.org/my-dashboard

- Login help: https://education.aspe.org/moreinfo

- Email education@aspe.org with any other questions.