



# Firestopping Submittal Package

**metacaulk®**

Project: Commercial Insulation Contractors

Architect:

General Contractor:

Installation Contractor:

Distributor (and Contact):

Manufacturer's Representative:

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## APPROVALS FOR METACAULK® PRODUCTS

Below is a list of Model Building Codes requiring the use of firestop products in various types of constructions and occupancies. Most local codes are derived from one or more of these model codes. Metacaulk® products and systems meet the through-penetration firestopping requirements of all of these codes.

ICC . . . . .	International Code Council; International Building Code
ICBO . . . . .	International Code of Building Officials; Uniform Building Code
SBCCI . . . . .	Southern Building Code Congress International; Standard Building Code
BOCA . . . . .	Building Official and Code Administrators International; National Building Code
CABO . . . . .	Council of American Building Officials (coordinating agency between ICBO, SBCCI and BOCA)
NBCC . . . . .	National Building Code of Canada
NFPA 101 . . .	National Fire Protection Association Life Safety Code
IRC . . . . .	International Residence Code

Certain cities, counties and states have written their own code requirements which may supersede or supplement model building codes, check with these authorities for approvals.

Metacaulk® Products are UL Classified and conform to the codes and test requirements shown below.

UL 1479 . . . . .	Fire Tests of Through-Penetration Firestops
UL 2079 . . . . .	Tests for Fire Resistance of Building Joint Systems
ASTM E 1966 . . . . .	Standard Test Method for Fire Resistive Joint Systems
ASTM E 814 . . . . .	Methods for Fire Tests of Through-Penetration Fire Stops
NFPA 101 . . . . .	National Fire Protection Association Life Safety Code
ASTM E 84 (UL 723) . . .	Test Method for Surface Burning Characteristics of Building Materials
ASTM E 119 (UL 263) . .	Method for Fire Tests of Building Construction and Materials
ULC CAN4-S115M . . . .	Standard Method of Fire Tests of Firestop Systems
B.S. 476/ pr EN 1366.3 .	European/ British Standards
AS 1530.4 . . . . .	Part 4: Fire Resistance Tests of Elements of Building Construction
AS 4072.1 . . . . .	Part 1: Service Penetration and Control Joint

For Questions or Additional Information call Technical Service 1-800-231-3345 • 1-713-263-8001  
Fax 1-800-441-0051 • 1-713-263-7577





A CSW Industrials Company

## GENERAL CERTIFICATE OF COMPLIANCE

DESCRIPTION: METACAULK® FIRESTOPPING PRODUCTS

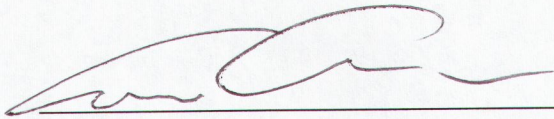
METACAULK® MC 150+ FIRESTOP SEALANT  
METACAULK® 350i FIRESTOP SEALANT  
METACAULK® 835+ SILICONE SEALANT  
METACAULK® 950 FIRESTOP SEALANT  
METACAULK® 1000 FIRESTOP SEALANT  
METACAULK® 1200  
METACAULK® BLAZESEAL™  
METACAULK® BOX GUARD™  
METACAULK® COMPOSITE SHEET  
METACAULK® COVER GUARD™  
METACAULK® FIRE-RATED MORTAR  
METACAULK® FIRESTOP PILLOW  
METACAULK® INDUSTRIAL CABLE COATING  
METACAULK® INTUMESCENT SLEEVE  
METACAULK® JOINT STRIP  
METACAULK® PASS-THRU DEVICE  
METACAULK® PIPE COLLAR  
METACAULK® PUTTY STICK & PUTTY PAD  
METACAULK® WRAP STRIP  
FLAMESAFE® BAGS  
FLAMESAFE® FS 900+ SEALANT  
RECTORSEAL® SMOKE AND ACOUSTIC SEALANT  
RECTORSEAL® TRACK-SAFE™

THESE PRODUCTS ARE TESTED ACCORDING TO ONE OR MORE OF THE FOLLOWING STANDARDS:

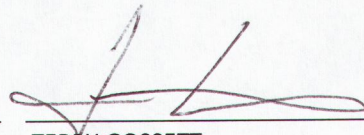
U.L. 263 - FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS  
U.L. 1479 - FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS  
U.L. 2079 - TESTS FOR FIRE RESISTANCE OF BUILDING JOINT SYSTEMS  
ASTM E-84 (UL 723) - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS  
ASTM E-814 - FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS  
ASTM E-2307 - METHOD FOR DETERMINING FIRE RESISTANCE OF PERIMETER FIRE BARRIERS  
IEEE 1202 - FLAME-PROPAGATION TESTING OF WIRE & CABLE



ALL PRODUCTS CONTAIN NO ASBESTOS OR PCB'S AND ARE CONSIDERED V.O.C. COMPLIANT.

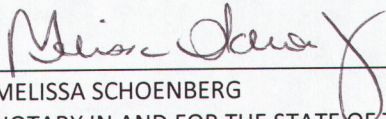


EVA ACKERMAN PH.D  
VICE PRESIDENT OF RESEARCH & TECHNOLOGY



TERRY GOSSETT  
TECHNICAL SERVICES

SUBSCRIBED AND SWORN TO BEFORE ME THIS 1<sup>ST</sup> DAY OF OCTOBER 2015.



MELISSA SCHOENBERG  
NOTARY IN AND FOR THE STATE OF TEXAS  
COUNTY OF HARRIS  
MY COMMISSION EXPIRES: OCTOBER 25, 2019





A CSW Industrials Company

December 18, 2017

To whom it may concern:

RectorSeal's Warranty statement for firestop is contingent upon actual storage conditions and proper installation.

If RectorSeal® firestop products are correctly installed in accordance with our stated Manufacturers instructions and according to the UL tested systems, our products comply with UL 1479 "Fire Tests of Through-Penetration Firestops" standard requirements for Environmental Exposure Tests. This test relates to the performance of firestop products as originally installed, and compares to the performance testing after exposure to extreme temperatures and high humidity for an extended period of time.

If properly stored, our products have a minimum shelf life of three years, subject to inspection with the exception of our fire rated mortar and silicone products which have a two year shelf life.

The Rectorseal Corporation, manufacturer of Metacaulk® Fire Stop products, has always been concerned about the long-term performance of our products. We implemented a testing program prior to the UL 1479 requirement for "Fire Tests of Through-Penetration Firestops". We burned materials in our UL sanctioned fire test facility to measure the performance of RectorSeal® products after extended periods of time as in accordance with current standards. Some of the tested materials exceed 15 years in age. Assuming that the substrate area surrounding the actual penetration has not been damaged, we warrant that Metacaulk® products will perform satisfactorily for the sustainable life of the building.

Repectfully,

*Terry L. Gossett*

Terry L. Gossett  
Technical Service



A CSW Industrials Company

March 3, 2016

To Whom It May Concern:

RectorSeal's Warranty Statement for our Smoke and Acoustical sealant is contingent upon actual storage conditions and proper installation.

If properly stored, our RectorSeal® Smoke and Acoustic Sealant has a minimum shelf life of two years, subject to inspection. Assuming that the substrate area surrounding the actual penetration/joint has not been damaged, we warrant that the RectorSeal® Smoke and Acoustic Sealant product, when fully cured will perform satisfactorily for the sustainable life of the building.

If there are any additional questions, do not hesitate to call our office at 800-231-3345.

Respectfully,  
RECTORSEAL

*Terry Gossett*

Terry Gossett  
Technical Services



2601 Spenwick Dr  
Houston, TX 77055

ph: 713-263-8001  
fax: 713-263-7577



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trademark owned by the U.S. Green  
Building Council and is used by  
permission

May 9, 2012

RE: Metacaulk® Firestopping Materials  
LEED® Product Information

TO: Whom It May Concern

This letter will detail the contribution of Metacaulk® firestopping materials to the LEED Green Building Rating System in accordance with LEED-NC, CS, CI and School Rating Systems.

**MR Credit 2.1: Construction Waste Management, Divert 50% from Disposal**

**MR Credit 2.2: Construction Waste Management, Divert 75% from Disposal**

In areas where facilities exist, the following Metacaulk® materials are recyclable and can contribute to earning Materials and Resources Credit 2.1 or Credit 2.2.

•	Carton	Cardboard	2 lbs / carton
•	10.3 oz caulk tube	HDPE	40 g. / tube
•	20.2 oz foil pack	Mylar	5 g. / pack
•	30 oz caulk tube	HDPE	98 g. / tube
•	quart bottle	HDPE	57 g. / bottle
•	5 gallon pail	HDPE	934 g. / pail
•	Wooden pallet	wood	45 lbs. / pallet

**MR Credit 5.1: Regional Materials, 10% Extracted, Processed & Manufactured Regionally**

**MR Credit 5.2: Regional Materials, 20% Extracted, Processed & Manufactured Regionally**

Metacaulk® firestopping materials are manufactured in one location Houston, Texas. If these locations fall within a 500-mile radius of the project site and the location the raw materials used to make the finished product are extracted, recovered or harvested within a 500-mile radius of the project, then these materials or a portion of the materials can contribute to earning Materials and Resources Credit 5.1 and Credit 5.2.

The following are the locations of the Metacaulk® firestopping materials manufacturing plants:

<u>Metacaulk® Product</u>	<u>Location</u>
All Metacaulk® Products	Houston, Texas



Please contact your local Metacaulk® Representative to request a project specific letter pertaining to Credit 5.1 and Credit 5.2. The letter will provide the location where the raw materials are extracted, recovered or harvested in relation to the location of the project.

**EQ Credit 4.1: Low Emitting Materials, Adhesives & Sealants**

**EQ Credit 4.2: Low Emitting Materials, Paints & Coatings**

The volatile organic content (VOC) of Metacaulk® firestopping materials is listed below for those products that are lower than the minimum LEED requirements for low-emitting materials. These materials can help contribute to earning Indoor Environmental Quality EQ Credit 4.1 and 4.2.

<u>Metacaulk Product</u>	<u>EQ Credit</u>	<u>VOC Content (g/l)</u>
Metacaulk® 1000	4.1	10
Metacaulk® 950	4.1	10
Metacaulk® 835+	4.1	10
Metacaulk® MC 150+	4.1	10
Metacaulk® 350i	4.1	10
Metacaulk® Putty pads & Sticks	4.1	10
Metacaulk® 1100	4.2	10
Metacaulk® 1200	4.2	10
Metacaulk® Joint Strip	4.1	10
Metacaulk® Wrap Strip	4.1	10
Metacaulk® 1500	4.1	10
Metacaulk® Industrial Cable Coating	4.2	10
Metacaulk® Pipe Collar	4.1	10
Metacaulk® Intumescent Sleeve	4.1	10
Metacaulk® Fire Rated Mortar	4.1	10
Metacaulk® Firestop Pillows	4.1	10
Metacaulk® Cast-In-Place (CID)	4.1	10

Please feel free to contact me with any additional questions or information.

Sincerely,



Terry Gossett  
Technical Service



A CSW Industrials Company

## SAFETY DATA SHEET

### METACaulk® MC 150+

General purpose firestop sealant

#### SECTION 1 – PRODUCT AND COMPANY INFORMATION

**Product Name**

Metacaulk® MC 150+

**Product Codes**

66382, 66383, 66385, 66389, 66648

**Chemical Family**

Organic/Inorganic

**Use**

Firestopping sealant

**Manufacturer's Name**

The RectorSeal Corporation  
2601 Spenwick Drive  
Houston, Texas 77055 USA

**Date of Validation**

January 23, 2015

**Date of Preparation**

March 21, 2011

**HMIS Codes**

Health	1
Flammability	0
Reactivity	0
PPI	B

**Emergency Telephone No.**

Chemtrec 24 Hours  
(800)-424-9300 USA  
(703)-527-3887 International

**Technical Service Telephone No.**

(800)-231-3345 or (713)-263-8001

#### SECTION 2 – HAZARDS IDENTIFICATION

##### GHS CLASSIFICATION

**Physical Hazards:**

None

**Health Hazards**

**Acute Toxicity:**

Oral: Not Classified  
Dermal: Not Classified  
Inhalation: Not Classified  
Skin Corrosion/Irritation: Not Classified  
Serious Eye Damage/Eye Irritation: Not Classified  
Respiratory or Skin Sensitization: Not Classified  
Germ Cell Mutagenicity: Not Classified  
Carcinogenicity: Not Classified  
Reproductive Toxicology: Not Classified  
Target Organ Systemic Toxicity - Single Exposure: Not Classified  
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified

Aspiration Toxicity: Not Classified

## ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment: Not Classified  
 Acute aquatic toxicity: Not Classified  
 Chronic aquatic toxicity: Not Classified  
 Bioaccumulation potential: Not Classified  
 Rapid degradability: Not Classified

## GHS Label elements, including precautionary statements

Pictogram: None

Signal Word: None

Hazard Statements:  
 None

Precautionary Statements:  
 P102 - Keep out of reach of children.  
 P264 - Wash hands thoroughly after handling.

## Classification according to EU Directives 67/548/EEC or 1999/45/EC

Labeling Symbols: None

Risk R-Phrases: None

Safety S-Phrases:  
 S2: Keep out of the reach of children.

## Summary Of Acute Hazards

May cause skin irritation.

## Route Of Exposure, Signs And Symptoms

### INHALATION

Not a respiratory irritant.

### EYE CONTACT

Contact may cause eye irritation.

### SKIN CONTACT

Contact may cause skin irritation.

### INGESTION

Possible irritation to mucous membranes of the mouth, throat, and stomach.

## SUMMARY OF CHRONIC HAZARDS

None known.

## MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Persons with pre-existing skin conditions or chemical allergies may be more susceptible to contact effects of the cured elastomer.

## SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

% by WT

CAS No.

INGREDIENT

UNITS

None as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200.

## SECTION 4 – FIRST AID MEASURES

- |               |  |
|---------------|--|
| If inhaled:   | Not a respiratory irritant.  |
| If on skin:   | Wash with soap and water. If irritation occurs, seek medical attention.  |
| If in eyes:   | Immediately flush with large amounts of water. If irritation occurs, seek medical attention.   |
| If swallowed: | If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person. |

## SECTION 5 – FIRE FIGHTING MEASURES

### Extinguishing Media

Foam, dry chemical, carbon dioxide or water fog.

**Special Fire Fighting Procedures:** Wear self-contained breathing apparatus (SCBA) and other protective clothing. Hazardous decomposition products possible (see Section 10).

**Unusual Fire And Explosion Hazards:** Heat may build up and rupture closed containers.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wipe up spills to prevent footing hazard. Avoid flushing into sewers, drains, waterways and soil. Wear protective clothing during clean up.

## SECTION 7 – HANDLING AND STORAGE

**Precautions To Be Taken In Handling And Storing:** Keep container closed and upright when not in use. To prevent freezing and possible rupture of container, do not store below 35°F.

**Other Precautions:** Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues and vapors; treat as if full and observe all product precautions. Do not reuse empty containers.

KEEP OUT OF REACH OF CHILDREN.



## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

**Respiratory Protection (Specify Type):** None required.

**Ventilation – Local Exhaust:** N/A

**Special:** N/A

**Mechanical (General):** N/A

**Other:** N/A

**Protective Gloves:** None required.

**Eye Protection:** None required.

**Other Protective Clothing Or Equipment:** None required.

**Work/Hygienic Practices:** Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling point:	212°F (100°C) @ 760mm Hg
Specific gravity (H <sub>2</sub> O = 1):	1.5
Vapor pressure (mmHg):	17 @ 68°F (20°C)
Melting point:	N/A
Vapor Density (Air = 1):	N/A
Evaporation rate (Ethyl Acetate = 1):	> 1
Appearance/Odor:	Red paste/Mild odor
Solubility in water:	Soluble
Volatile Organic Compounds (VOC) Content (theoretical percentage by weight):	< 1% or (< 10 g/L)
Flash point:	None
Lower explosion limit:	None
Upper explosion limit:	None

## SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable

**Conditions To Avoid:** None.

**Incompatibility (Materials To Avoid):** None known.

**Hazardous Decomposition Products:** CO, CO<sub>2</sub> and fragmented hydrocarbons.

**Hazardous Polymerization:** Will not occur.

## SECTION 11 – TOXICOLOGY INFORMATION

**Chronic Health Hazards**

No ingredient in this product is an IARC, NTP or OSHA Lister carcinogen.

Toxicology Data

Ingredient Name

**None**

## SECTION 12 – ECOLOGICAL INFORMATION

**Ecological Data**

Ingredient Name:	<b>None</b>
Food Chain Concentration Potential:	N/A
Waterfowl Toxicity:	N/A
BOD:	N/A
Aquatic Toxicity:	N/A

## SECTION 13 – DISPOSAL CONSIDERATIONS

**Waste Classification:** Non-regulated solid waste

**Disposal Method:** Approved landfill

Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with federal, state, and local regulation regarding pollution.

## SECTION 14 – TRANSPORTATION INFORMATION

DOT:	Non-regulated
Ocean (IMDG):	Non-regulated
Air (IATA):	Non-regulated
WHMIS (Canada):	Non-regulated

## SECTION 15 – REGULATORY INFORMATION

### Regulatory Data

Ingredient Name:	<b>None</b>
SARA 313	N/A
TSCA Inventory	All components listed
CERCLA RQ	N/A
RCRA Code	N/A

## SECTION 16 – OTHER INFORMATION

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
The information herein is given in good faith, but no warranty, expressed or implied is made.

Consult RectorSeal for further information: (713) 263-8001



A CSW Industrials Company

## SAFETY DATA SHEET

### METACAULK® 1000

Intumescent, water-based firestop sealant

#### SECTION 1 – PRODUCT AND COMPANY INFORMATION

**Product Name**

Metacaulk® 1000 Intumescent Firestop Sealant

**Product Codes**

66640, 66242, 66302, 66303, 66305, 66307, 66309, 66312

**Chemical Family**

Organic/Inorganic

**Use**

Firestopping sealant

**Manufacturer's Name**

RectorSeal LLC  
2601 Spenwick Drive  
Houston, Texas 77055 USA

**Date of Validation**

July 11, 2017

**Date of Preparation**

May 22, 2012

**HMIS Codes**

Health	1
Flammability	0
Reactivity	0
PPI	B

**Emergency Telephone No.**

Chemtrec 24 Hours  
(800)-424-9300 USA  
(703)-527-3887 International

**Technical Service Telephone No.**

(800)-231-3345 or (713)-263-8001

#### SECTION 2 – HAZARDS IDENTIFICATION

##### GHS CLASSIFICATION

**Physical Hazards:**

None

**Health Hazards**

**Acute Toxicity:**

Oral: Not Classified  
Dermal: Not Classified  
Inhalation: Not Classified  
Skin Corrosion/Irritation: Not Classified  
Serious Eye Damage/Eye Irritation: Not Classified  
Respiratory or Skin Sensitization: Not Classified  
Germ Cell Mutagenicity: Not Classified  
Carcinogenicity: Not Classified  
Reproductive Toxicology: Not Classified



Target Organ Systemic Toxicity - Single Exposure: Not Classified  
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified

Aspiration Toxicity: Not Classified

## ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment: Not Classified  
Acute aquatic toxicity: Not Classified  
Chronic aquatic toxicity: Not Classified  
Bioaccumulation potential: Not Classified  
Rapid degradability: Not Classified

## GHS Label elements, including precautionary statements

Pictogram: None

Signal Word: None

Hazard Statements:  
None

Precautionary Statements:  
P102 - Keep out of reach of children.  
P264 - Wash hands thoroughly after handling.

## Classification according to EU Directives 67/548/EEC or 1999/45/EC

LABELING SYMBOLS: None

RISK R-PHRASES: None

SAFETY S-PHRASES:  
S2: Keep out of the reach of children.

## Summary Of Acute Hazards

May cause skin irritation.

## Route Of Exposure, Signs And Symptoms

### INHALATION

Not a respiratory irritant.

### EYE CONTACT

Contact may cause eye irritation.

### SKIN CONTACT

Contact may cause skin irritation.

### INGESTION

Possible irritation to mucous membranes of the mouth, throat, and stomach.

## SUMMARY OF CHRONIC HAZARDS

None known.

## MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Persons with pre-existing skin conditions or chemical allergies may be more susceptible to contact effects of the cured elastomer.

## SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

% by WT	CAS No.	INGREDIENT	UNITS
None as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200.			

## SECTION 4 – FIRST AID MEASURES

If inhaled:	Not a respiratory irritant.
If on skin:	Wash with soap and water. If irritation occurs, seek medical attention.
If in eyes:	Immediately flush with large amounts of water. If irritation occurs, seek medical attention.
If swallowed:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

## SECTION 5 – FIRE FIGHTING MEASURES

### Extinguishing Media

Foam, dry chemical, carbon dioxide or water fog.

**Special Fire Fighting Procedures:** Wear self-contained breathing apparatus (SCBA) and other protective clothing. Hazardous decomposition products possible (see Section 10).

**Unusual Fire And Explosion Hazards:** Heat may build up and rupture closed containers.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wipe up spills to prevent footing hazard. Avoid flushing into sewers, drains, waterways and soil. Wear protective clothing during clean up.

## SECTION 7 – HANDLING AND STORAGE

**Precautions To Be Taken In Handling And Storing:** Keep container closed and upright when not in use. To prevent freezing and possible rupture of container, do not store below 35°F.

**Other Precautions:** Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues and vapors; treat as if full and observe all product precautions. Do not reuse empty containers.

KEEP OUT OF REACH OF CHILDREN.

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

**Respiratory Protection (Specify Type):** None required.

**Ventilation – Local Exhaust:** N/A

**Special:** N/A

**Mechanical (General):** N/A

**Other:** N/A

**Protective Gloves:** None required.

**Eye Protection:** None required.

**Other Protective Clothing Or Equipment:** None required.

**Work/Hygienic Practices:** Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling point:	212°F (100°C) @ 760mm Hg
Specific gravity (H <sub>2</sub> O = 1):	1.25
Vapor pressure (mmHg):	17 @ 68°F (20°C)
Melting point:	N/A
Vapor Density (Air = 1):	N/A
Evaporation rate (Ethyl Acetate = 1):	> 1
Appearance/Odor:	Red paste/Mild odor
Solubility in water:	Soluble
Volatile Organic Compounds (VOC) Content (theoretical percentage by weight):	< 1% or (< 10 g/L)
Flash point:	None
Lower explosion limit:	None
Upper explosion limit:	None

## SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable

**Conditions To Avoid:** None.

**Incompatibility (Materials To Avoid):** None known.

**Hazardous Decomposition Products:** CO, CO<sub>2</sub> and fragmented hydrocarbons.

**Hazardous Polymerization:** Will not occur.

## SECTION 11 – TOXICOLOGY INFORMATION

### Chronic Health Hazards

No ingredient in this product is an IARC, NTP or OSHA Listed carcinogen.

Toxicology Data

Ingredient Name

**None**

## SECTION 12 – ECOLOGICAL INFORMATION

### Ecological Data

Ingredient Name: **None**

Food Chain Concentration Potential: N/A

Waterfowl Toxicity: N/A

BOD: N/A

Aquatic Toxicity: N/A

## SECTION 13 – DISPOSAL CONSIDERATIONS

**Waste Classification:** Non-regulated solid waste

**Disposal Method:** Approved landfill

Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with federal, state, and local regulation regarding pollution.

## SECTION 14 – TRANSPORTATION INFORMATION

DOT: Non-regulated

Ocean (IMDG): Non-regulated

Air (IATA): Non-regulated

WHMIS (Canada): Non-regulated



SECTION 15 – REGULATORY INFORMATION

Regulatory Data

Ingredient Name:	None
SARA 313	N/A
TSCA Inventory	All components listed
CERCLA RQ	N/A
RCRA Code	N/A

SECTION 16 – OTHER INFORMATION

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
The information herein is given in good faith, but no warranty, expressed or implied is made.  
Consult RectorSeal for further information: (713) 263-8001

The logo for RectorSeal, featuring the word "RECTORSEAL" in a bold, sans-serif font. The letters "RECTOR" are in black and "SEAL" is in white, both contained within a red-bordered hexagonal shape. The entire logo is set against a solid red rectangular background.

## SAFETY DATA SHEET

**METACALK® FIRESTOP PILLOWS**

Firestop for large temporary openings

## SECTION 1 – PRODUCT AND COMPANY INFORMATION

## Product Name

Metacalk® Firestop Pillows

## Product Codes

66362, 66363

## Chemical Family

Organic/Inorganic

## Use

Firestopping Material

## Manufacturer's Name

The RectorSeal Corporation  
2601 Spenwick Drive  
Houston, Texas 77055 USA

## Date of Validation

January 23, 2015

## Date of Preparation

March 21, 2011

## HMIS Codes

Health	1
Flammability	0
Reactivity	0
PPI	B

## Emergency Telephone No.

Chemtrec 24 Hours  
(800)-424-9300 USA  
(703)-527-3887 International

## Technical Service Telephone No.

(800)-231-3345 or (713)-263-8001

## SECTION 2 – HAZARDS IDENTIFICATION

**GHS CLASSIFICATION****Physical Hazards:**

None

**Health Hazards**

## Acute Toxicity:

Oral: Not Classified

Dermal: Not Classified

Inhalation: Not Classified

Skin Corrosion/Irritation: Not Classified

Serious Eye Damage/Eye Irritation: Not Classified

Respiratory or Skin Sensitization: Not Classified

Germ Cell Mutagenicity: Not Classified

Carcinogenicity: Not Classified

Reproductive Toxicology: Not Classified

Target Organ Systemic Toxicity - Single Exposure: Not Classified

Target Organ Systemic Toxicity - Repeated Exposure: Not Classified

Aspiration Toxicity: Not Classified

# METACAULK® FIRESTOP PILLOWS

## ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment: Not Classified

Acute aquatic toxicity: Not Classified

Chronic aquatic toxicity: Not Classified

Bioaccumulation potential: Not Classified

Rapid degradability: Not Classified

## GHS Label elements, including precautionary statements

Pictogram: None

Signal Word: None

Hazard Statements:  
None

Precautionary Statements:  
P102 - Keep out of reach of children.  
P264 - Wash hands thoroughly after handling.

## Summary Of Acute Hazards

May cause skin irritation.

## Route Of Exposure, Signs And Symptoms

### INHALATION

Not a respiratory irritant.

### EYE CONTACT

Contact may cause eye irritation.

### SKIN CONTACT

Contact may cause skin irritation.

### INGESTION

Possible irritation to mucous membranes of the mouth, throat, and stomach.

## SUMMARY OF CHRONIC HAZARDS

None known.

## MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Persons with pre-existing skin conditions or chemical allergies may be more susceptible to contact effects of the cured elastomer.

## SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

% by WT

CAS No.

INGREDIENT

UNITS

None as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200.

# METACALK® FIRESTOP PILLOWS

## SECTION 4 – FIRST AID MEASURES

If inhaled:	Not a respiratory irritant.
If on skin:	Wash with soap and water. If irritation occurs, seek medical attention.
If in eyes:	Immediately flush with large amounts of water. If irritation occurs, seek medical attention.
If swallowed:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

## SECTION 5 – FIRE FIGHTING MEASURES

### Extinguishing Media

Foam, dry chemical, carbon dioxide or water fog.

**Special Fire Fighting Procedures:** Wear self-contained breathing apparatus (SCBA) and other protective clothing. Hazardous decomposition products possible (see Section 10).

**Unusual Fire And Explosion Hazards:** None.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wipe up spills to prevent footing hazard. Avoid flushing into sewers, drains, waterways and soil. Wear protective clothing during clean up.

## SECTION 7 – HANDLING AND STORAGE

**Precautions To Be Taken In Handling And Storing:** Keep container closed and upright when not in use. To prevent freezing and possible rupture of container, do not store below 35°F.

**Other Precautions:** Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues and vapors; treat as if full and observe all product precautions. Do not reuse empty containers.

KEEP OUT OF REACH OF CHILDREN.

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

**Respiratory Protection (Specify Type):** None required.

**Ventilation – Local Exhaust:** N/A

**Special:** N/A

**Mechanical (General):** N/A

**Other:** N/A

**Protective Gloves:** None required.

# METACAULK® FIRESTOP PILLOWS

**Eye Protection:** None required.

**Other Protective Clothing Or Equipment:** None required.

**Work/Hygienic Practices:** Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling point:	N/A
Specific gravity (H <sub>2</sub> O = 1):	N/A
Vapor pressure (mmHg):	N/A
Melting point:	N/A
Vapor Density (Air = 1):	N/A
Evaporation rate (Ethyl Acetate = 1):	N/A
Appearance/Odor:	Red/Mild odor
Solubility in water:	Insoluble
Volatile Organic Compounds (VOC) Content (theoretical percentage by weight):	< 1% or < 10 g/L
Flash point:	None
Lower explosion limit:	None
Upper explosion limit:	None

## SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable

**Conditions To Avoid:** None.

**Incompatibility (Materials To Avoid):** None known.

**Hazardous Decomposition Products:** CO, CO<sub>2</sub> and fragmented hydrocarbons.

**Hazardous Polymerization:** Will not occur.

## SECTION 11 – TOXICOLOGY INFORMATION

### Chronic Health Hazards

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

Toxicology Data

Ingredient Name

None

# METACAULK® FIRESTOP PILLOWS

## SECTION 12 – ECOLOGICAL INFORMATION

### Ecological Data

Ingredient Name:	None
Food Chain Concentration Potential:	N/A
Waterfowl Toxicity:	N/A
BOD:	N/A
Aquatic Toxicity:	N/A

## SECTION 13 – DISPOSAL CONSIDERATIONS

**Waste Classification:** Non-regulated solid waste

**Disposal Method:** Approved landfill

Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with federal, state, and local regulation regarding pollution.

## SECTION 14 – TRANSPORTATION INFORMATION

DOT:	Non-regulated
Ocean (IMDG):	Non-regulated
Air (IATA):	Non-regulated
WHMIS (Canada):	Non-regulated

## SECTION 15 – REGULATORY INFORMATION

### Regulatory Data

Ingredient Name:	None
SARA 313	N/A
TSCA Inventory	All components listed
CERCLA RQ	N/A
RCRA Code	N/A

## SECTION 16 – OTHER INFORMATION

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, expressed or implied is made.

Consult RectorSeal for further information: (713) 263-8001

The logo for RectorSeal, featuring the brand name in a bold, sans-serif font inside a stylized, elongated hexagonal border.

## SAFETY DATA SHEET

**METACaulk® WRAP STRIP**

Firestop for penetrations

## SECTION 1 – PRODUCT AND COMPANY INFORMATION

## Product Name

Metacaulk® Wrap Strip

## Product Codes

66133, 66135, 66136

## Chemical Family

Organic/Inorganic

## Use

Firestopping Material

## Manufacturer's Name

The RectorSeal Corporation

2601 Spenwick Drive

Houston, Texas 77055 USA

## Date of Validation

January 23, 2015

## Date of Preparation

February 27, 2012

## HMIS Codes

Health 1

Flammability 0

Reactivity 0

PPI B

## Emergency Telephone No.

Chemtrec 24 Hours

(800)-424-9300 USA

(703)-527-3887 International

## Technical Service Telephone No.

(800)-231-3345 or (713)-263-8001

## SECTION 2 – HAZARDS IDENTIFICATION

**GHS CLASSIFICATION****Physical Hazards:**

None

**Health Hazards**

## Acute Toxicity:

Oral: Not Classified

Dermal: Not Classified

Inhalation: Not Classified

Skin Corrosion/Irritation: Not Classified

Serious Eye Damage/Eye Irritation: Not Classified

Respiratory or Skin Sensitization: Not Classified

Germ Cell Mutagenicity: Not Classified

Carcinogenicity: Not Classified

Reproductive Toxicology: Not Classified



Target Organ Systemic Toxicity - Single Exposure: Not Classified  
Target Organ Systemic Toxicity - Repeated Exposure: Not Classified

Aspiration Toxicity: Not Classified

## ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment: Not Classified  
Acute aquatic toxicity: Not Classified  
Chronic aquatic toxicity: Not Classified  
Bioaccumulation potential: Not Classified  
Rapid degradability: Not Classified

## GHS Label elements, including precautionary statements

Pictogram: None

Signal Word: None

Hazard Statements:  
None

Precautionary Statements:  
P102 - Keep out of reach of children.  
P264 - Wash hands thoroughly after handling.

## Summary Of Acute Hazards

May cause skin irritation.

## Route Of Exposure, Signs And Symptoms

### INHALATION

Not a respiratory irritant.

### EYE CONTACT

Contact may cause eye irritation.

### SKIN CONTACT

Contact may cause skin irritation.

### INGESTION

Possible irritation to mucous membranes of the mouth, throat, and stomach.

## SUMMARY OF CHRONIC HAZARDS

None known.

## MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Persons with pre-existing skin conditions or chemical allergies may be more susceptible to contact effects of the cured elastomer.

## SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

% By Wt

CAS No.    Ingredient    Units

None as defined by OSHA Hazard Communication Standard 29 CFR 1910.1200.

## SECTION 4 – FIRST AID MEASURES

If inhaled:	Not a respiratory irritant.
If on skin:	Wash with soap and water. If irritation occurs, seek medical attention.
If in eyes:	Immediately flush with large amounts of water. If irritation occurs, seek medical attention.
If swallowed:	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

## SECTION 5 – FIRE FIGHTING MEASURES

### Extinguishing Media

Foam, dry chemical, carbon dioxide or water fog.

**Special Fire Fighting Procedures:** Wear self-contained breathing apparatus (SCBA) and other protective clothing.

**Unusual Fire And Explosion Hazards:** Fire conditions will activate product causing intumescence to occur.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Steps To Be Taken In Case Material Is Released Or Spilled:** Pick up debris to prevent footing hazard.

## SECTION 7 – HANDLING AND STORAGE

**Precautions To Be Taken In Handling And Storing:** Do not store near heat, sparks, or open flames.

**Other Precautions:** KEEP OUT OF REACH OF CHILDREN.

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

**Respiratory Protection (Specify Type):** None required.

**Ventilation – Local Exhaust:** N/A

**Special:** N/A

**Mechanical (General):** N/A

**Other:** N/A

**Protective Gloves:** None required.

**Eye Protection:** None required.

**Other Protective Clothing Or Equipment:** None required.

**Work/Hygienic Practices:** Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling point:	N/A
Specific gravity (H <sub>2</sub> O = 1):	N/A
Vapor pressure (mmHg):	N/A
Melting point:	N/A
Vapor Density (Air = 1):	N/A
Evaporation rate (Ethyl Acetate = 1):	N/A
Appearance/Odor:	Black/Mild odor
Solubility in water:	Insoluble
Volatile Organic Compounds (VOC) Content (theoretical percentage by weight):	< 1% or < 10 g/L
Flash point:	None
Lower explosion limit:	None
Upper explosion limit:	None

## SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable

**Conditions To Avoid:** None.

**Incompatibility (Materials To Avoid):** None known.

**Hazardous Decomposition Products:** CO, CO<sub>2</sub> and fragmented hydrocarbons.

**Hazardous Polymerization:** Will not occur.

## SECTION 11 – TOXICOLOGY INFORMATION

### Chronic Health Hazards

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

Toxicology Data

Ingredient Name

**None**

## SECTION 12 – ECOLOGICAL INFORMATION

### Ecological Data

Ingredient Name:	<b>None</b>
Food Chain Concentration Potential:	N/A
Waterfowl Toxicity:	N/A
BOD:	N/A
Aquatic Toxicity:	N/A

## SECTION 13 – DISPOSAL CONSIDERATIONS

**Waste Classification:** Non-regulated solid waste

**Disposal Method:** Approved landfill

Waste from this product is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with federal, state, and local regulation regarding pollution.

## SECTION 14 – TRANSPORTATION INFORMATION

DOT:	Non-regulated
Ocean (IMDG):	Non-regulated
Air (IATA):	Non-regulated
WHMIS (Canada):	Non-regulated

## SECTION 15 – REGULATORY INFORMATION

### Regulatory Data

Ingredient Name:	<b>None</b>
SARA 313	N/A
TSCA Inventory	All components listed
CERCLA RQ	N/A
RCRA Code	N/A

## SECTION 16 – OTHER INFORMATION

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, expressed or implied is made.

Consult RectorSeal for further information: (713) 263-8001

**RECTORSEAL**

A CSW Industrials Company

## PRODUCT DATA SHEET

**METACAULK® 150+**  
General Purpose Firestop Sealant**Description**

Metacaulk 150+ is a one component, general purpose fire rated sealant, acoustic sealant and smoke seal for construction joints and through-penetrations. Metacaulk 150+ is a water based, non-sag caulking grade sealant that is easy to apply as well as retrofit. It cures to an elastomeric seal that is suitable where dynamic movement is expected. In the event of a fire, Metacaulk 150+ will prevent the spread of flames, smoke, hot gases and water through joint openings and through-penetrations. No dilution or mixing is required for use. No special skills are necessary for installation. Metacaulk 150+ is applied with a conventional caulking gun, bulk loading gun or can be troweled from the pail. For large applications, it can be pumped directly from the pail. Metacaulk 150+ systems are rated for up to 4 hours in accordance with ASTM E814 (UL 1479) and ASTM E1966 (UL 2079) test standards. Metacaulk 150+ is protected in a wet stage as well as in a dry stage against mold growth with a combination of biocides.

**Applications**

Metacaulk 150+ can be used in interior applications as a general purpose fire rated sealant, acoustic sealant and smoke seal for construction joints on both vertical and horizontal surfaces. Metacaulk 150+ is also an excellent fire rated acoustical sealant and can be used in areas under constant vibration or movement. Metacaulk 150+ can also be used on various penetrations such as EMT, telephone & power cables in concrete floors and walls, gypsum walls as well as wood floors. Use Metacaulk 150+ to prevent the spread of fire and smoke through joints in fire rated gypsum wallboard partitions, concrete block or concrete walls and/or concrete or corrugated steel deck floor/ceiling assemblies.

**Characteristics | Features**

- Water based
- Excellent freeze-thaw
- Flexible set
- Paintable
- VOC compliant
- Safe and easy to use
- 3 Year shelf life
- STC rating 65

**Packaging**

Code	Size	Qty. per Case	Dimensions (in)	Cubic Feet
66648	10.3 oz cartridge	12	8x6x12	.34
66385	20.2 oz foil pack	12	9x14x7	.51
66383	30 oz. cartridge	12	11x9x17	.97
66389	5 Gallon	1	13 dia x14	1.08

Installation Data

Install Metacaulk 150+ using standard caulking techniques or trowel from pails. Metacaulk MC 150+ may also be pumped from the pails. When damming materials are needed, use only materials approved for the specific application.

TYPICAL GYPSUM WALLBOARD INSTALLATION

- Step 1** Cut opening in wall.
- Step 2** Clean penetration opening and surfaces from loose debris, dirt, oil and wax.
- Step 3** If required, install sleeve or wire mesh and backing material.
- Step 4** Gun the sealant as required to the specified depth. Trowel surface flush with wall.
- Consult UL Product iQ for complete instructions and system listings.

Testing Data

For specific test criteria, refer to UL's Fire Resistance Directory or call RectorSeal.

Metacaulk 150+ was tested at positive pressure with a minimum 0.01 inches of water (2.5 Pa) and in accordance with ASTM E814 (UL 1479), ASTM E1966 (UL 2079).

Sound Transmission Class (STC) 65 - The test was performed in accordance with ASTM E90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

Tested by a third party independent laboratory to the ASTM G21 standard with Fungal Growth Rating results of zero.



FBC™ System Compatible indicates that this product has been tested, and is monitored on an on-going basis, to assure its chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® pipe and fittings.

FBC, FlowGuard Gold®, BlazeMaster® and Corzan® are licensed trademarks of The Lubrizol Corporation.

Inspection & Repair

RectorSeal recommends that a firestop system inspection be conducted during installation of the material in accordance with ASTM E2174 and ASTM E2393. In the event post-installation inspection and destructive sampling is necessary, RectorSeal advises repairing the damaged firestop system by replacing any material that was removed or damaged with the same product originally installed, and ensuring the assembly matches the original firestop listing. RectorSeal advises, that due to the chemical nature of firestop products and sealants, material depth should be determined by measuring the points of adhesion at the substrate bond area as sealants may decrease in size during the curing process.

Storage & Handling

Metacaulk 150+ should be stored between 35°F (2°C) and 120°F (49° C) to obtain a 3 year shelf life.

**NOTE:** Do not dilute, no mixing is required. Best if protected from freezing. If freezing occurs, thaw completely before using. Keep products stored under protective cover in original containers.

Limitations

Metacaulk 150+ is not designed to be used in areas under continuous immersion or in areas which would be continuously wet. Metacaulk 150+ should not be used against hot uninsulated surfaces above 300°F (149°C).

Material Properties

Asbestos Fillers	None
Solvents	None
Hazardous Ingredients	None
Application	Caulking Gun or Trowel
Application Temperature between	40°F - 120°F 4°C - 49°C
Color	Red
Cure Time	3 to 4 weeks (at 77°F/25°C)
Density	12.5 lbs/gal
Elastomeric	Yes
Freeze/Thaw	Excellent
Skin Over Time	30 min. (at 77°F/25°C)
pH Value	7 to 8

Volume Coverage:	
for 10.3 oz. tube	(304 ml) 18 cu. in.
for 20.2 oz. foil packs	(597 ml) 36 cu. in (
for 30 oz. tube	(887 ml) 54 cu. in.
for 5 gallon	(18.9 liter) 1155 cu. in..

VOC	Negligible
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ASTM E84, UL 723 Tunnel Test	
Flame Spread	10
Smoke Index	0

## Cautions

**FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.**

**PRECAUTIONS:** Do not take internally. May be harmful if swallowed. May cause eye and skin irritation if prolonged or repeated contact occurs. Wash after handling. **FIRST AID:** For any overexposure, get immediate medical attention after first aid is given. **EYES**-Flush 15 minutes with clean water. **SKIN**-Wash with soap and water. **INHALATION**-Remove to fresh air. **INGESTION**-Only if conscious, give large amounts of water and INDUCE VOMITING. **FIRE AND SPILLS:** Use water fog, CO<sub>2</sub>, foam, or dry chemicals. Wipe up spills to prevent footing hazard. Clean up with scrapers and water. **STORAGE AND HANDLING:** Store away from heat sources. Keep container closed. Do not reuse empty container. **KEEP OUT OF REACH OF CHILDREN.**

For additional information, refer to Safety Data Sheet.

## Limited Warranty

RectorSeal, LLC makes the Limited Express Warranty that when the instructions for storage and handling of our products are followed we warrant our products to be free from defects. THIS LIMITED EXPRESS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATION ON THE PART OF RectorSeal, LLC. The sole remedy for breach of the Limited Express Warranty shall be the refund of the purchase price. All other liability is negated and disclaimed, and RectorSeal, LLC shall not be liable for incidental or consequential damages.



Manufactured by **RectorSeal, LLC • 2601 Spenwick Drive, Houston, TX 77055, USA • 800-231-3345 • Fax 800-441-0051 • RectorSeal.com**

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# METACaulk® 1000

## Highly Intumescent Firestop Sealant

### Description

Metacaulk 1000 is a single component, general purpose fire rated sealant and smoke seal for construction joints and through-penetrations. Metacaulk 1000 is a water based, extremely intumescent, non-sag caulking grade sealant that is easy to apply. It cures to an elastomeric seal that is suitable where dynamic movement is expected.

In the event of a fire, Metacaulk 1000 will prevent the spread of flames, smoke, hot gases and water through joint openings and through-penetrations. Metacaulk 1000 systems are rated for 1, 2, 3 and 4 hours in accordance with the ASTM E814 (UL1479), ASTM E1966 (UL 2079) and CAN/ULC-S115 test standards. Metacaulk 1000 is protected in a wet stage as well as in a dry stage against mold growth with a combination of biocides Tested to ASTM G21 standard testing for mold and mildew growth resistance.



### Applications

Metacaulk 1000 can be used in interior applications as a general purpose fire rated sealant and smoke seal for construction joints, through penetrations and blank openings on both vertical and horizontal surfaces. Use Metacaulk 1000 to prevent the spread of fire and smoke through joints in fire rated gypsum wallboard partitions, concrete block or concrete walls and/or concrete or corrugated steel deck floor/ceiling assemblies. Metacaulk 1000 is also an excellent fire rated acoustical sealant and can be used in areas under constant vibration or movement to reduce the transfer of noise through assemblies. Metacaulk 1000 can also be used on various penetrations such as EMT, telephone & power cables, insulated pipes, etc. in concrete floors and walls, gypsum walls as well as wood floors.

### Characteristics | Features

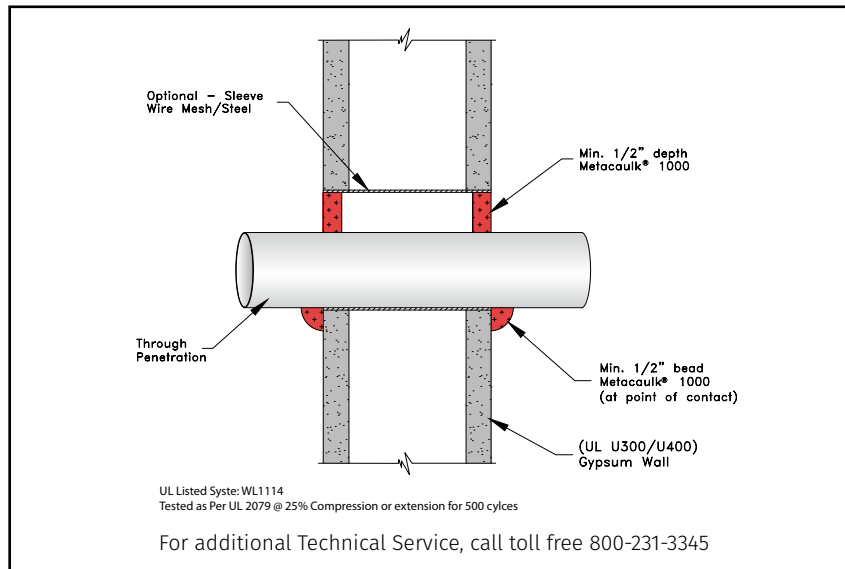
- Water based
- Excellent freeze-thaw
- Flexible set
- Highly intumescent
- Paintable
- VOC compliant
- Safe and easy to use
- 3 Year shelf life

### Packaging

Code	Size	Qty. per Case	Dimensions (in)	Cubic Feet
66640	10.3 oz cartridge	12	8x6x12	.34
66312	20.2 oz foil pack	12	9x14x7	.51
66303	30 oz. cartridge	12	11x9x17	.97
66305	1 Gallon	4	17x17x9	1.51
66307	2 Gallon	1	14x13x10	1.05
66309	5 Gallon	1	13 dia x14	1.08

## Installation Data

Install Metacaulk 1000 using standard caulking techniques or trowel from pails. Metacaulk 1000 may also be pumped from the pails. When damming materials are needed, use only materials approved for the specific application.



TYPICAL TOP OF WALL INSTALLATION

**Step 1** Gun, trowel or pump the sealant as required to the specified depth. Properly tool sealant surface flush with the wall.

Consult UL Directory for complete instructions and system listings.

## Testing Data

For specific test criteria, refer to the UL Product iQ and Intereq Directory of Building Products or call RectorSeal

Metacaulk 1000 was tested at positive pressure with a minimum 0.01 (2.5 Pa) inches water and in accordance with ASTM E814 (UL 1479), ASTM E1966 (UL 2079) and tested with a pressure differential of 50 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side in accordance with CAN/ULC S115 testing standards. Tested by a third party independent laboratory to the ASTM G213 standard with Fungal Growth Rating results of zero.

Sound Transmission Class (STC) 62 - The test was performed in accordance with ASTM 90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

Complies to Required Environmental Exposure Testing of Accelerated Aging and High Humidity as per UL 1479 Fire Test of Through-Penetration Firestops.



FBC System Compatible indicates that this product has been tested, and is monitored on an ongoing basis, to assure its chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® pipe and fittings.

FBC, FlowGuard Gold®, BlazeMaster® and Corzan® are licensed trademarks of the Lubrizol Corporation.

Suggestions and recommendations covering the use of our products are based on our past experience and laboratory findings. However, as we have no control as to the methods and conditions of application, we only assume responsibility for the uniformity of our products within manufacturing tolerances.

## Material Properties

Asbestos Fillers	None
Solvents	None
Hazardous Ingredients	None
Application	Caulking Gun or Trowel
Application Temperature between	40°F - 120°F 4°C - 49°C

### Activation of Intumescence:

Expansion Begins	375°F (190°C)
Expansion Greatest	575°F - 1100°F 302°C - 593°C

Color	Red
Cure Time	3 to 4 weeks (at 77°F/25°C)
Density	~11 lbs/gal ~1.32 kg/L
Elastomeric	Yes
Freeze/Thaw	Excellent
Skin Over Time	30 min. (at 77°F/25°C)
pH Value	6.5 to 7

### Volume Coverage:

for 10.3 oz. tube	18 cu. in. (304 ml)
for 20.2 oz. foil packs	36 cu. in. (597 ml)
for 30 oz. tube	54 cu. in. (887 ml)
for 5 gallon	1155 cu. in. (18.9 liter)

VOC	< 10 g/L
-----	----------

### ASTM E 84, UL 723 Tunnel Test

Flame Spread	0
Smoke Index	0

## Inspection & Repair

RectorSeal recommends firestop system inspection is conducted during installation of the material in accordance with ASTM E2174 and ASTM E2393. In the event post-installation inspection and destructive sampling is necessary, RectorSeal advises repairing the damaged firestop system by replacing any material that was removed or damaged with the same product originally installed, and ensuring the assembly matches the original firestop listing. RectorSeal advises, that due to the chemical nature of firestop products and sealants, material depth should be determined by measuring the points of adhesion at the substrate bond area as sealants may decrease in size during the curing process.

## Storage & Handling

Metacaulk 1000 should be stored between 35°F (2°C) and 120° F (49° C) to obtain a 3 year shelf life.

**NOTE:** Do not dilute, no mixing is required. Best if protected from freezing. If freezing occurs, thaw completely before using. Keep products stored under protective cover in original containers.

## Limitations

Metacaulk 1000 is not designed to be used in areas under continuous immersion or in areas which would be continuously wet. Metacaulk 1000 should not be used against hot uninsulated surfaces above 300° F (149° C).

## Cautions

**FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.**

**PRECAUTIONS:** Do not take internally. May be harmful if swallowed. May cause eye and skin irritation if prolonged or repeated contact occurs. Wash after handling. **FIRST AID:** For any overexposure, get immediate medical attention after first aid is given. **EYES**-Flush 15 minutes with clean water. **SKIN**-Wash with soap and water. **INHALATION**-Remove to fresh air. **INGESTION**-Only if conscious, give large amounts of water and INDUCE VOMITING. **FIRE AND SPILLS:** Use water fog, CO<sub>2</sub>, foam, or dry chemicals. Wipe up spills to prevent footing hazard. Clean up with scrapers and water. **STORAGE AND HANDLING:** Store away from heat sources. Keep container closed. Do not reuse empty container. **KEEP OUT OF REACH OF CHILDREN.**

For additional information, refer to Safety Data Sheet.

## Limited Warranty

RectorSeal, LLC makes the Limited Express Warranty that when the instructions for storage and handling of our products are followed we warrant our products to be free from defects. THIS LIMITED EXPRESS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATION ON THE PART OF RectorSeal, LLC. The sole remedy for breach of the Limited Express Warranty shall be the refund of the purchase price. All other liability is negated and disclaimed, and RectorSeal, LLC shall not be liable for incidental or consequential damages.



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A CSW Industrials Company

## PRODUCT DATA SHEET

# METACAULK® FIRESTOP PILLOWS

Intumescent Pillows for Large Openings

### Description

Metacaulk® Firestop Pillows are designed for use primarily in large openings with cables, cable trays, blank openings or multiple penetrating items. In the event of a fire, Metacaulk Firestop Pillows will prevent the spread of flames and hot gases through the openings. Since no cure time is required, RectorSeal® Firestop Pillows are ready to install. Metacaulk Firestop Pillows are reusable since they can be removed and reinstalled if necessary.



### Applications

Metacaulk Firestop Pillows are generally used for larger openings. These openings may contain cables, cable trays, pipes, conduits or nothing at all. They are also excellent for temporary openings.

### Characteristics | Features

- Easy to install - No tools required
- Versatile
- Highly intumescent
- Forms a very hard char when burned
- No Wire Mesh Required in Certain Installations

### Packaging

Code	Size	Qty. per Case	Dimensions (in)	Cubic Feet
66362	2"x9"x6"	10	11 1/4 x9 1/4 x12 1/2	.34
66363	3"x9"x6"	10	10x17x13	.51

### Installation Data

Estimate the number of bags required, by performing the following calculation.

- Calculate the size in square inches of the opening to be firestopped.
- Calculate the area in square inches required by the penetrating items.
- Subtract (B) from (A) and divide by the coverage shown in the chart below.

Pillow Size	30% Compression	20% Compression
3"x9"x6"	18.90 sq. in.	21.60 sq. in.
2"x9"x6"	12.60 sq. in.	14.40 sq. in.

### Material Properties

Asbestos Fillers	None
Solvents	None
Hazardous Ingredients	None
Color	Red
Sizes	2"x9"x6" 3"x9"x9"

Metacaulk Firestop Pillows have been tested to give a choice of two methods:

- If wire mesh will be used, the pillows must be installed by being compressed a minimum of 20%.
- If wire mesh will not be used, the pillows must be compressed a minimum of 30%.

Example: (using 3"x9"x6" pillows without wire mesh)

12" x 24" opening = 288 sq. in.

3" x 18" cable tray = 54 sq. in.\*

Subtract 54 sq. in. from 288 sq. in. to get the area to be firestopped:

Opening = 288 sq. in.

Less cable tray = 54 sq. in.

To be Firestopped = 234 sq. in.

Divide by 18.90 = 12.38 or 13 pillows.

**NOTE:** Always start with the largest pillow (3"x9"x6") to cover the maximum space. Use the smaller size to fill in where required. Calculations are based on pillows being installed with 6" dimension going through the wall or floor. In order to achieve a more economical system, Metacaulk® Mortar can be used to reduce large openings into smaller ones and pillows can then be used for the remaining area. All calculations are approximate. User must verify.

Install the pillows taking care to compress each to form a tight seal within the penetration.

## Testing Data

Metacaulk Firestop Pillows are classified by Underwriters Laboratories as a Fill, Void or Cavity Material. For specific test criteria see UL Product iQ or call RectorSeal. Metacaulk Firestop Pillows were tested to a positive pressure at a minimum .01 inches of water in accordance with UL 1479 and ASTM E814 test standards. Tested to CAN/ULC- S115 (Fire Tests of Firestop Systems) test standards. Classified Through-Penetration Fire Stop System Numbers



## Inspection & Repair

RectorSeal recommends that a firestop system inspection be conducted during installation of the material in accordance with ASTM E2174 and ASTM E2393. In the event post-installation inspection and destructive sampling is necessary, RectorSeal advises repairing the damaged firestop system by replacing any material that was removed or damaged with the same product originally installed, and ensuring the assembly matches the original firestop listing. RectorSeal advises, that due to the chemical nature of firestop products and sealants, material depth should be determined by measuring the points of adhesion at the substrate bond area as sealants may decrease in size during the curing process.

## Storage & Handling

Metacaulk Firestop Pillows should be stored between 0°F and 150°F. For easier installation, bring pillows to room temperature before installing. Keep products stored under protective cover, in their original containers. A stock rotation program is recommended.

## Limitations

To be used only in the tested configurations or as recommended by RectorSeal.

## Cautions

**FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.**

**PRECAUTIONS:** Do not take internally. May be harmful if swallowed.

**KEEP OUT OF REACH OF CHILDREN.**

For additional information, refer to Safety Data Sheet.

## Limited Warranty

RectorSeal, LLC makes the Limited Express Warranty that when the instructions for storage and handling of our products are followed we warrant our products to be free from defects. THIS LIMITED EXPRESS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATION ON THE PART OF RectorSeal, LLC. The sole remedy for breach of the Limited Express Warranty shall be the refund of the purchase price. All other liability is negated and disclaimed, and RectorSeal, LLC shall not be liable for incidental or consequential damages.



Manufactured by **RectorSeal® LLC • 2601 Spenwick Drive, Houston, TX 77055, USA • 800-231-3345 • Fax 800-441-0051 • RectorSeal.com**

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**RECTORSEAL**

A CSW Industrials Company

## PRODUCT DATA SHEET

**METACAULK® WRAP STRIP**  
For Penetration**Description**

Metacaulk® Wrap Strip is a strip of highly intumescent firestop material used primarily for plastic and insulated pipe applications. When exposed to heat, this product expands and forms a hard char to seal off the penetration preventing the passage of flames and hot gases.

**Applications**

Metacaulk Wrap Strip can firestop difficult penetrations such as plastic pipe, and insulated pipe.

**Packaging**

Code	Size	Qty. per Case
66135	1"x12"	6
66136	2"x12"	4

**Installation Data**

Metacaulk Wrap Strip is simple to install. Tightly wrap the required number of strips continuously around the penetrant to completely fill the annular space or as required by system design. Push the strips into the opening to the required depth. If a cold smoke seal is required, apply the recommended sealant in the opening over the strips.

Consult UL Directory for complete instructions and system listings.

**Testing Data**

Metacaulk Wrap Strip is classified by Underwriters Laboratories as a Fill, Void or Cavity Material. For specific test criteria, see UL Product iQ or call RECTORSEAL. Metacaulk Wrap Strip was tested at positive pressure for a minimum .01 inches (2.5 Pa) of water in accordance with UL 1479 and ASTM E 814 test standards. Tested to CAN/ULC-S115 (Fire Tests of Firestop Systems) test standards. Complies to Required Environmental Exposure Testing of Accelerated Aging and High Humidity as per UL 1479 Fire Test of Through-Penetration Firestops.



FBC™ System Compatible\* indicates that this product has been tested, and is monitored on an ongoing basis, to assure its chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® pipe and fittings.

FBC, FlowGuard Gold®, BlazeMaster® and Corzan® are licensed trademarks of the Lubrizol Corporation.

**Characteristics | Features**

- Easy to install
- Cost effective
- Versatile, Flexible
- Highly intumescent
- Excellent freeze/thaw characteristics
- Long length means less waste
- Forms a very hard char when burned

**Material Properties**

Asbestos Fillers	None
Solvents	None
Hazardous Ingredients	None

**Activation of Intumescence:**

Expansion Begins	375°F (190°C)
Expansion Greatest	575°F - 1100°F 302°C - 593°C

Color	Black
Freeze/Thaw	Excellent

**ASTM E 84, UL 723 Tunnel Test**

Flame Spread	5
Smoke Index	5

## Inspection & Repair

RectorSeal recommends that a firestop system inspection be conducted during installation of the material in accordance with ASTM E2174 and ASTM E2393. In the event post-installation inspection and destructive sampling is necessary, RectorSeal advises repairing the damaged firestop system by replacing any material that was removed or damaged with the same product originally installed, and ensuring the assembly matches the original firestop listing. RectorSeal advises, that due to the chemical nature of firestop products and sealants, material depth should be determined by measuring the points of adhesion at the substrate bond area as sealants may decrease in size during the curing process.

## Storage & Handling

Metacaulk Wrap Strip should be stored in a cool, dry place. Keep products stored under protective cover, in their original containers. A stock rotation program is recommended.

## Limitations

To be used only in the tested configurations or as recommended by RectorSeal.

## Cautions

**FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC-DAY OR NIGHT 1-800-424-9300.**

**PRECAUTIONS:** Do not take internally. May be harmful if swallowed. May cause eye and skin irritation if prolonged or repeated contact occurs. Wash after handling. **FIRST AID:** For any overexposure, get immediate medical attention after first aid is given. **EYES**-Flush 15 minutes with clean water. **SKIN**-Wash with soap and water. **INHALATION**-Remove to fresh air. **INGESTION**-Only if conscious, give large amounts of water and INDUCE VOMITING. **FIRE AND SPILLS:** Use water fog, CO<sub>2</sub>, foam, or dry chemicals. Wipe up spills to prevent footing hazard. Clean up with scrapers and water. **STORAGE AND HANDLING:** Store away from heat sources. Keep container closed. Do not reuse empty container. **KEEP OUT OF REACH OF CHILDREN.**

For additional information, refer to Safety Data Sheet.

## Limited Warranty

RectorSeal, LLC makes the Limited Express Warranty that when the instructions for storage and handling of our products are followed we warrant our products to be free from defects. THIS LIMITED EXPRESS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATION ON THE PART OF RectorSeal, LLC. The sole remedy for breach of the Limited Express Warranty shall be the refund of the purchase price. All other liability is negated and disclaimed, and RectorSeal, LLC shall not be liable for incidental or consequential damages.



Manufactured by **RectorSeal® LLC • 2601 Spenwick Drive, Houston, TX 77055, USA • 800-231-3345 • Fax 800-441-0051 • RectorSeal.com**

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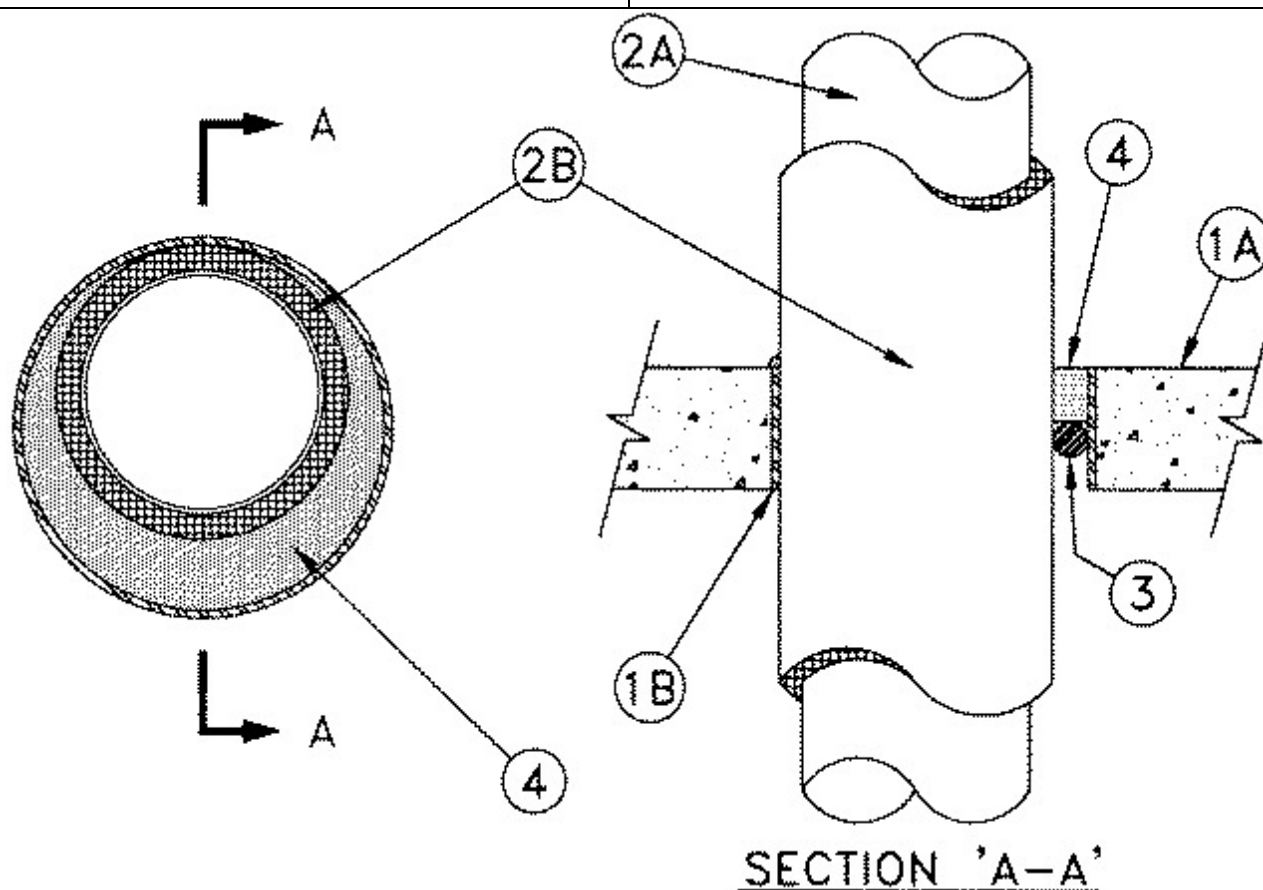




## System No. C-AJ-5223

July 16, 2014

ANSI/UL1479	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 1/2 Hr	FT Rating — 1/2 Hr
	FH Rating — 2 Hr
	FTH Rating — 1/2 Hr



**1. Floor or Wall Assembly** — Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL classified **Concrete Blocks\***. Max diam of opening is 17-1/2 in.

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

**1B. Metallic Sleeve (optional)** — Nom 18 in. (or smaller) Schedule 10 (or heavier) steel pipe sleeve, cast or grouted into floor or wall assembly.

**2A. Through Penetrants** — One nom 8 in. (or smaller) Schedule 30 (or heavier) steel or iron pipe. Pipe to be firmly supported on both sides of opening. Pipe installed concentrically or eccentrically such that the annular space between the insulated pipe and the periphery of the opening is min 0 in. (point of contact) to max 2-1/8 in.

**2B. Pipe Covering Material\*** — Cellular Glass Insulation - Nom 3 in. thick cellular glass units sized to the outside diam of the metallic pipe and supplied in 18 or 24 in. long, half sections. Pipe insulation installed on pipe in accordance with manufacturer's instructions. The insulation material may be jacketed with 0.010 in. thick aluminum sheet wrapped tightly around with a min 2 in. overlap. Jacket to be installed with edge abutting surface of caulk fill material (Item 3) on top surface of floor or both surfaces of wall. Jacket to be well secured with metallic bands.

3. **Packing Material** — Min 1 in. diam foam backer rod firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the thickness of fill material.

4. **Fill, Void, or Cavity Materials\*** — Caulk. Min 1 in. thickness of fill material applied within annulus, flush with top surface of floor or both surfaces of wall. Additional material to be installed to form a min 3/8 in. bead at the concrete/penetrating item interface on the top surface of the floor and both surfaces of the wall.

**RECTORSEAL** — FlameSafe® FS900+, Metacaulk MC 150+, Biostop BF 150+

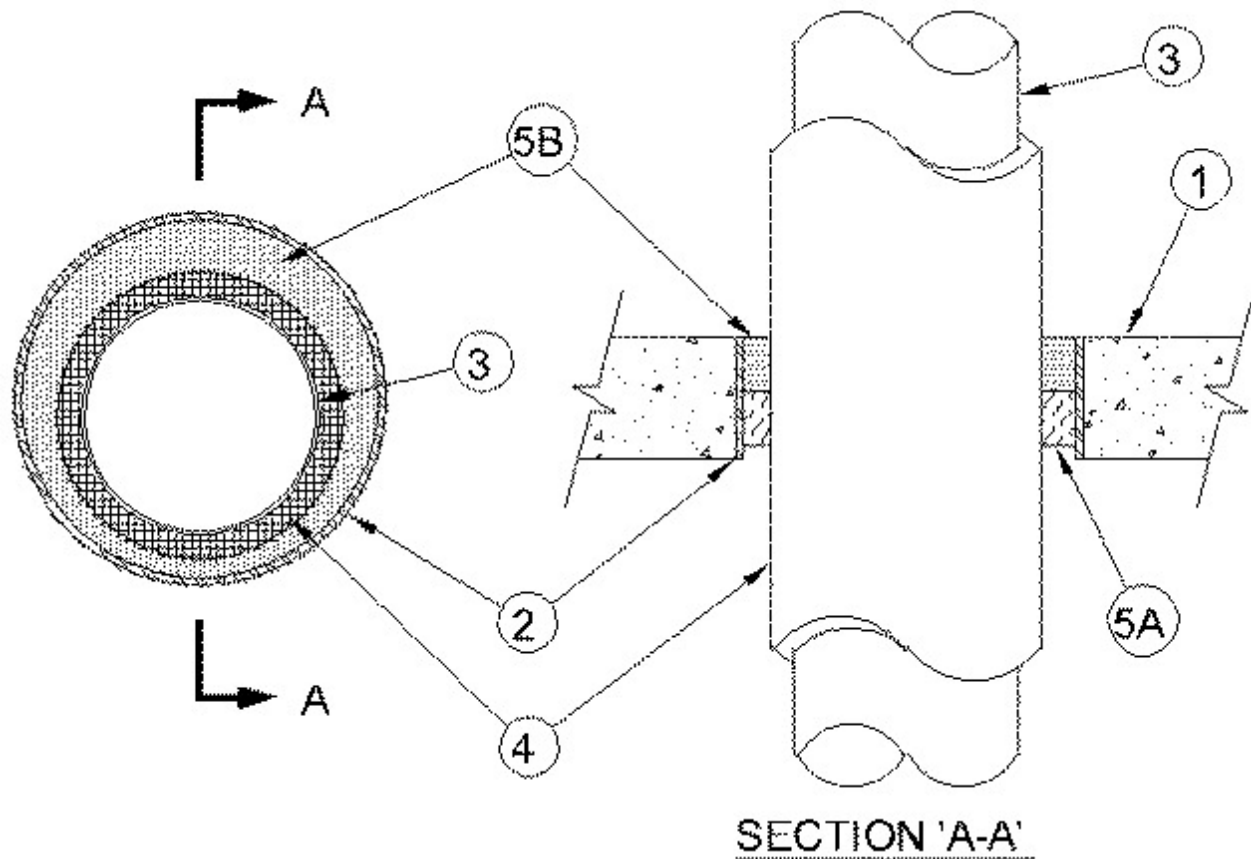
\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



## System No. C-AJ-5283

July 16, 2014

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Rating — 1 Hr	FT Rating — 1 Hr (see Item 5)
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 3 Hr
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Rating — 1 Hre
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



**1. Floor or Wall Assembly** — Min 4-1/2 in. (114 mm) thick reinforced light weight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete floor or min 5 in. (127 mm) thick reinforced light weight or normal weight concrete wall. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow core **Precast Concrete Units\***. When precast concrete units are used, the max diam of opening is 7 in. (178 mm). Wall may also be constructed of any UL Classified **Concrete Units\***. Max diam of opening is 30 in. (762 mm).

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

**2. Metallic Sleeve** — (Optional) - Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces.

**3. Through Penetrant** — One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. **Steel Pipe** — Nom 24 in. (610 mm) diam (or smaller) Schedule 20 (or heavier) steel pipe.

B. **Iron Pipe** — Nom 24 in. (610 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

D. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

4. **Pipe Covering\*** — Nom 2 in. (51 mm) thick hollow cylindrical glass fiber units, nom 3.5 pcf (56 kg/m<sup>3</sup>) density, jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. Annular space between insulated pipe and periphery of the opening shall be min 1/4 in. (6 mm) to max 1-1/4 in. (32 mm).

See **Pipe and Equipment Covering - Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

5. **Firestop System** — The firestop system shall consist of the following:

A. **Packing Material** — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material. When the floor is constructed of hollow-core precast concrete units, packing material shall be recessed from both surfaces of floor to accommodate the required thickness of fill material.

B. **Fill, Void, or Cavity Materials\* - Sealant** — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. When the floor is constructed of hollow-core precast concrete units, fill material shall be installed symmetrically on both sides of floor, flush with both floor surfaces.

**RECTORSEAL** — FlameSafe FS900+ FlameSafe FS1900, Metacaulk MC 150+, Metacaulk 1000, Metacaulk 350i, Biostop BF 150+, Biostop 350i or Biostop 500+

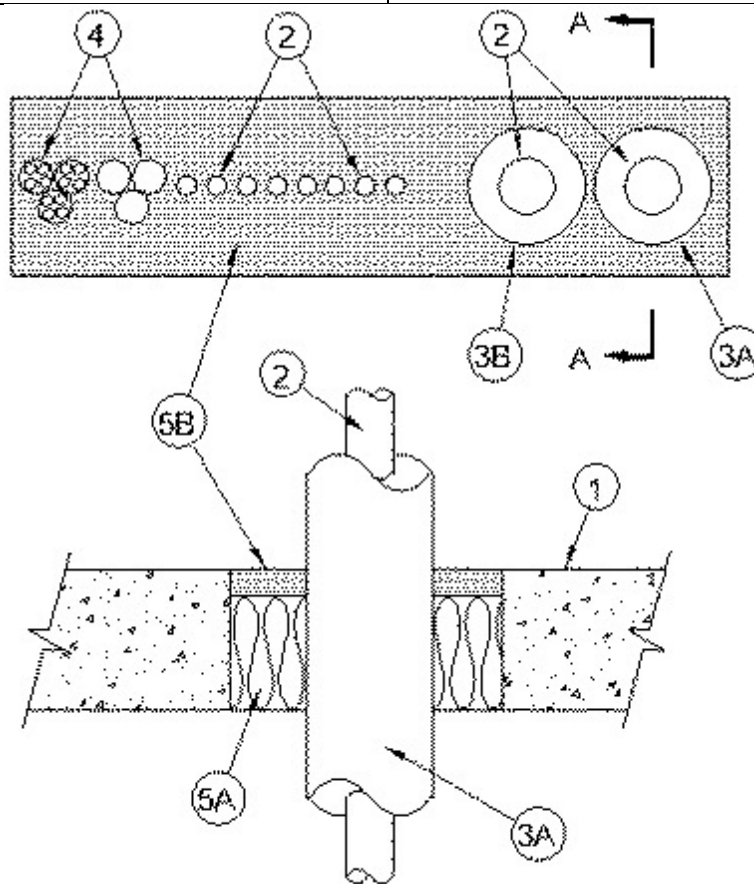
\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



## System No. C-AJ-8101

July 15, 2014

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



**SECTION 'A-A'**

**1. Floor or Wall Assembly** — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete floor, or min 3 in. (76 mm) thick reinforced lightweight or normal concrete wall. Wall may also be constructed of any UL classified **Concrete Blocks**\*. Max area of opening is 144 sq in. (929 cm<sup>2</sup>) with max dimension of 24 in. (610 mm).

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

**1A. Steel Deck/Floor Assembly (not shown)** — As an alternate to Item 1, the floor assembly may consist of a fluted steel deck/concrete floor assembly. The floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

**A. Steel Floor and Form Units\*** — 1-1/2 to 3 in. (38 to 76 mm) deep galv fluted units.

**B. Concrete** — Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

**2. Through-Penetrants** — Max ten pipes, conduits or tubing to be installed within the opening. The space between pipes, conduits or tubing shall be a min 3/8 in. (10 mm) to max 1 in. (25 mm). The space between pipes, conduits or tubing and periphery of opening shall be min 1/2 in. to max 3 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of pipes, conduits or tubing may be used:

A. Max eight steel or iron or Type L copper pipe, tubing or conduit of nom 3/4 in. (19 mm) diam.

B. Max two steel or iron or Type L copper pipe, tubing or conduit of nom 2 in. (51 mm) diam (or smaller).

3. Either or both of the following types of pipe coverings may be used on two of the metallic pipes or tubing having a nom diam of 2 in. (51 mm) or less.

**A. Tube Insulation - Plastics+** — Nom 1 in. (25 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The insulated pipe or tubing shall be spaced a nom 1-1/4 in. (32 mm) from the other through-penetrants. The annular space between the insulated pipe or tubing and periphery of the opening shall be a min of 1/2 in. (13 mm) to max 1-3/4 in. (44 mm).

See **Plastics+** (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5 VA may be used.

**B. Pipe and Equipment Covering Materials** — Nom 1 in. (25 mm) thick hollow cylindrical glass fiber units, nom 3.5 pcf (56 kg/m<sup>3</sup>), jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The insulated pipe or tubing shall be spaced a nom 1-1/4 in. (32 mm) from the other through-penetrants. The annular space between the insulated pipe or tubing and periphery of the opening shall be a min of 1/2 in. (13 mm) to max 1-3/4 in. (44 mm).

See **Pipe and Equipment Covering Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

**4. Cables** — Max two cable bundles to be installed within the opening. Each bundle to consist of 3 cable lengths of cables specified below. Cable to be tightly bundled and supported on both sides of floor or wall. The annular space between cable bundles and periphery of the opening shall be min 3/8 in. (10 mm) to max 2-5/8 in. (67 mm).

A. Max 400 pair No. 24 AWG (or smaller) telephone cables with PVC insulation and jacket.

B. Max 3/C, No. 2/0 AWG (or smaller) copper conductor, PVC jacketed aluminum clad or steel clad cable.

**5. Firestop System** — The firestop system shall consist of the following:

**A. Packing Material** — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or both surfaces of wall to accommodate the required thickness of fill material.

**B. Fill, Void or Cavity Material\*—Sealant** — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor and both surfaces of wall. Fill material to be forced into interstices of cable group to max extent possible.

**RECTORSEAL** — FlameSafe® FS900+, Metacaulk MC 150+, Biostop BF 150+

+Bearing the UL Recognized Component Mark.

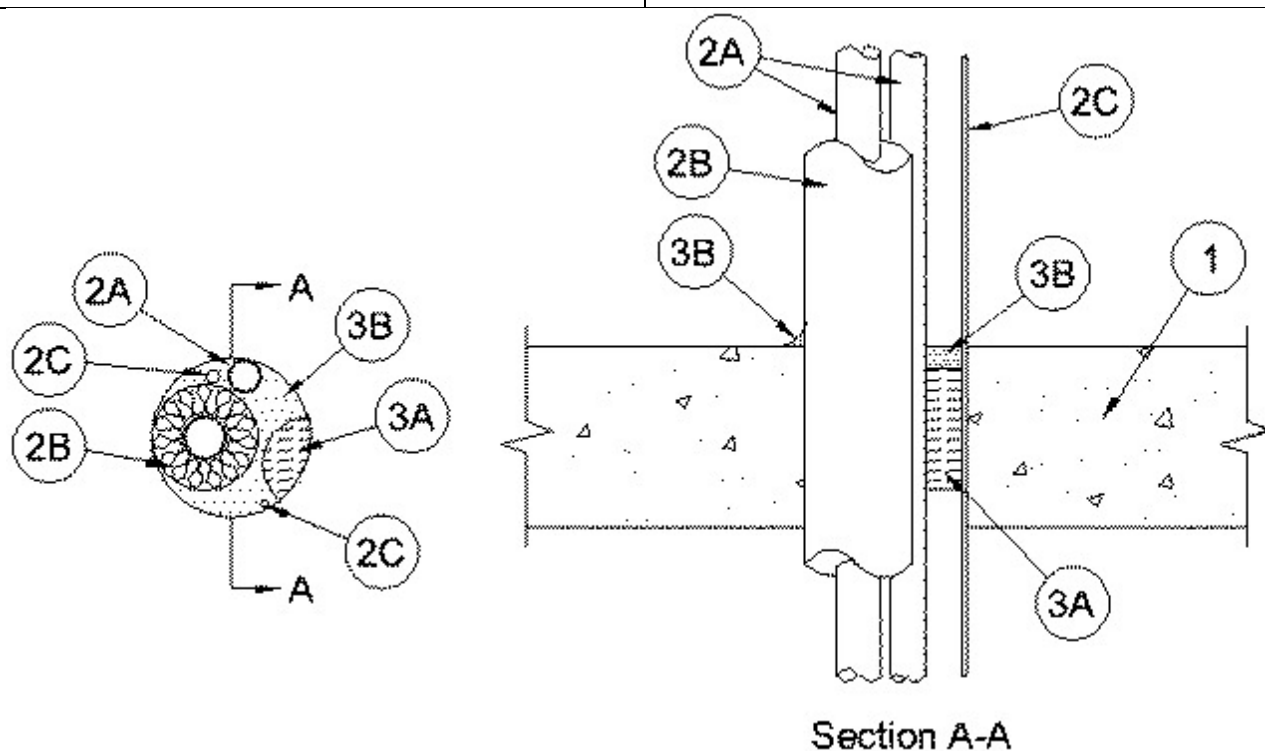
\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



## System No. C-AJ-8161

July 15, 2014

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 2 Hr
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



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<sup>3</sup>) concrete. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow-core **Precast Concrete Units**\*. Wall may also be constructed of any UL Classified **Concrete Blocks**\*. Max diam of opening is 4 in. (102 mm).

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

2. **Through Penetrants** — Metallic pipes, tubing or cable to be installed either concentrically or eccentrically within the firestop system. Penetrants to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:

A. **Metallic Pipes** — Max two metallic pipes or tubing. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 2-1/4 in. (57 mm). The following types and sizes of metallic pipes or tubing may be used:

A1. **Copper Tubing** — Nom 1 in. (25 mm) diam (or smaller) Type M (or heavier) copper tube.

A2. **Copper Pipe** — Nom 1 in. (25 mm) diam (or smaller) Regular



(or heavier) copper pipe.

A3. **Steel Pipe** — Nom 1 in. (25 mm) diam (or smaller) Schedule 10 steel pipe.

B. **Tube Insulation - Plastics+** — Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The tube insulation may be installed on all tubing. The annular space between the insulated penetrating item and uninsulated metallic pipes, conduit or tubing shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm). The annular space between the insulated penetrating item and the periphery of the opening shall be min 0 in. (point contact) to max 2-1/4 in. (57 mm).

See **Plastics** (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5A may be used.

C. **Cables** — Max two cables spaced min 0 in. (point contact) from tube insulation or min 1/2 in. (13 mm) from other penetrants. The annular space between cable and periphery of opening is min 0 in. (point contact) to max 2-1/4 in. (57 mm). Cables to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of cables may be used:

C1. Max 7/C No. 24 AWG (or smaller) control cable with polyvinyl chloride (PVC) insulation and jacket.

C2. Max 2/C No. 10 AWG (or smaller) thermostat wire.

3. **Firestop System** — The firestop system shall consist of the following:

A. **Packing Material** — Min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or both surfaces of wall to accommodate the required thickness of fill material. When the floor is constructed of hollow-core precast concrete units, packing material shall be recessed from both surfaces of floor to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Materials\* - Sealant** — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both surfaces of wall. Min 1/2 in. (13 mm) diam bead of fill material applied to the penetrant/concrete interface at the point contact location on the top surface of floor or both surfaces of wall. When the floor is constructed of hollow-core precast concrete units, fill material shall be installed flush with both surfaces of floor. If FS 900+ Sealant is used, sealant shall be forced into interstices between penetrants to max extent possible.

**RECTORSEAL** — FlameSafe FS 1900, FlameSafe FS 900+, Metacaulk MC 150+, Metacaulk 1000, Metacaulk 350i, Biostop BF 150+, Biostop 350i or Biostop 500+

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

+Bearing the UL Recognized Component Marking

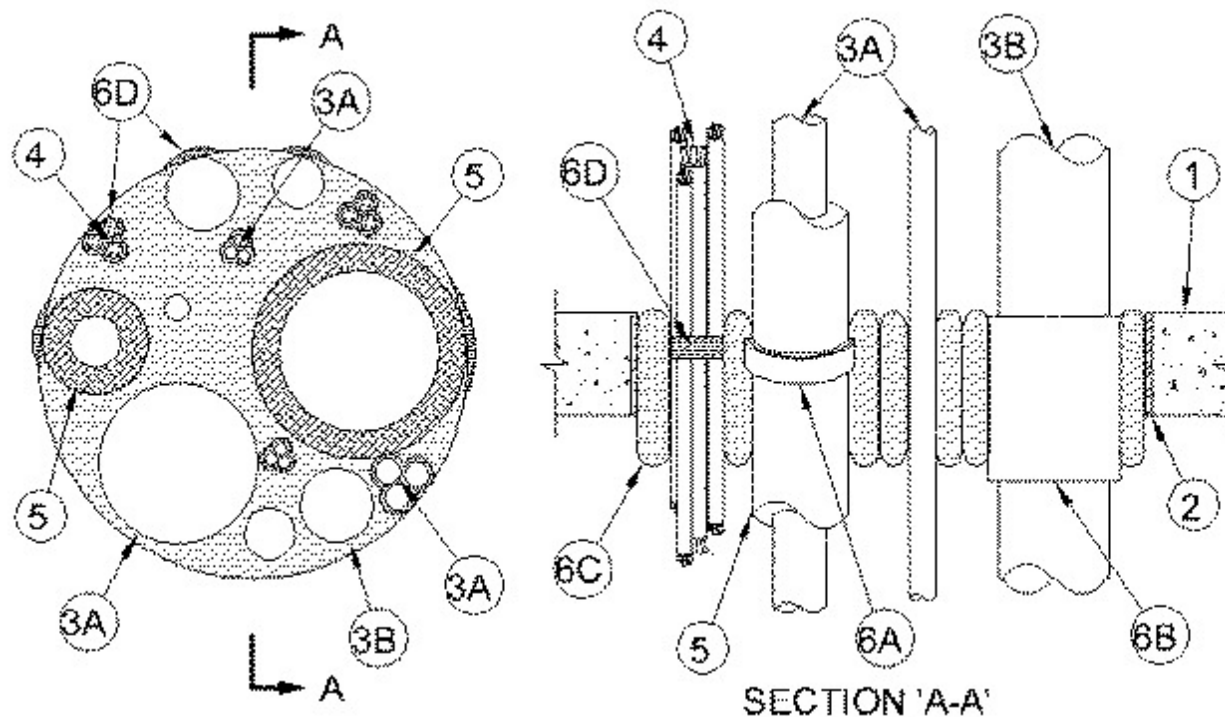


## System No. C-AJ-8171

March 09, 2011

**F Rating — 2 Hr**

**T Ratings — 0 and 1/2 Hr (see Item 3A)**



**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<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks\***. Floor may also be constructed of any 6 in. thick UL Classified hollow core **Precast Concrete Units**. Max diam of opening is 31-1/2 in. (800 mm) or max 779 in.2 (5,026 cm<sup>2</sup>) with max 31-1/2 in. dimension. When precast concrete units are used the max diam of opening is 7 in. (178 mm) or max 49 in.2 (316 cm<sup>2</sup>) with max 7 in. (178 mm) dimension.

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

**2. Metallic Sleeve** — (Optional) - Nom 31-1/2 in. (800 mm) diam (or smaller) Schedule 5 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces.

**3A. Through Penetrants** — A max of six 1 in. (25 mm) diam, four 2 in. (51 mm) diam (or smaller), two 4 in. (102 mm) diam (or smaller) and two 12 in. (305 mm) diam (or smaller) metallic pipes, conduits or tubing to be installed within the firestop system. The annular space between the pipes, conduits or tubing and the periphery of the opening shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm). Separation between pipes, conduits or tubing shall be min 1 in. (25 mm) to max 2-3/8 in. (60 mm). Pipes of max 2 in. (51 mm) diam may be bundled together in group of three or less. Pipes, conduits or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of pipes, conduits and tubes may be used:

**A. Steel Pipe** — Nom 12 in. (305 mm) diam (or smaller) Schedule 30 (or heavier) steel pipe.

**B. Iron Pipe** — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

**C. Steel Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

**D. Iron Pipe** — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.

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

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

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

H. **Copper Pipe** — Nom 2 in. (51 mm) diam Type K copper tube.

I. **Copper Pipe** — Nom 1 in. diam (25 mm) Type K copper tube.

**When any un-insulated pipe is used, the T-Rating is 0 hr.**

3B. **Through Penetrant** — A max of two nonmetallic pipes or conduits to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe and the periphery of opening shall be min 1/2 in. (13 mm) to max 1 in. (25 mm). The separation between nonmetallic pipes and other penetrants shall be a min 1 in. (25 mm). Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of pipes and conduits may be used:

A. **Polyvinyl Chloride (PVC) Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 4 in. (102 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.

C. **Rigid Nonmetallic Conduit+** — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code, (NFPA No. 70).

4. **Cables** — A max of two nom 3 in. (76 mm) diam (or smaller) tight bundle of cables. Each cable bundle spaced min 1 in. (25 mm) from other cable bundle and penetrants. Annular space between cable bundles and periphery of opening to be min 0 in. (point contact) to max 1 in. (25 mm). Cable bundles to be rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of cables may be used:

A. Max 400 pairs, 24 AWG telephone communication cable with PVC insulation and jacket.

B. Max 62.5/125 fiber optic cable with PVC insulation and jacketing.

C. Max 7/C No. 12 AWG copper conductor power and control cables; XLPE or PVC insulation with XLPE or PVC jacket.

D. Max RG59/U (or smaller) coaxial cable with fluorinated ethylene insulation and jacketing.

E. Type RG 59/U coaxial cable with polyethylene (PE) insulation and PVC jacket.

F. 4/C No. 14 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TEK cable with XLPE insulation.

5. **Pipe Insulation** — (Optional) - The following types of pipe insulations may be installed on one or more of the metallic pipes (Item 3A):

A. **Pipe and Equipment Covering Materials\*** — Max 2 in. (51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m<sup>3</sup>) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.

See **Pipe and Equipment Covering Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B. **Pipe Covering Materials\*** — Max 2 in. (51 mm) thick unfaced mineral fiber pipe insulation having a nom density of 7 pcf (112 kg/m<sup>3</sup>), or heavier, and sized to the outside diam of the pipe or tube. Pipe insulation secured with min 18 AWG steel wire spaced max 12 in. (305 mm) OC.

**IIG MINWOOL L L C** — High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT and High Temperature Pipe Insulation Thermaloc

C. **Sheathing Material\*** — Use in conjunction with Item 5B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 5B) with

the kraft side exposed. Longitudinal and transverse joints sealed with metal fasteners or butt tape.

See **Sheathing Materials** (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

**6. Firestop System** — The firestop system shall consist of the following:

**A. Fill, Void or Cavity Material\* — Wrap Strip** — Nom 1/4 in. (6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. (38 mm) wide strips. Two layers of wrap strip installed around outer circumference of each insulated metallic pipe with ends butted and held in place with masking tape. The wrap strip shall be recessed a nom 1 in. (25 mm) from the top surface of the concrete floor. In walls, the wrap strip shall be installed from both surfaces of the wall such that the exposed edges of the wrap strip are recessed a nom 1 in. from each side of the wall.

**RECTORSEAL** — FlameSafe®Wrap Strip, Metacaulk Wrap Strip or Biostop Wrap Strip

**B. Firestop Device** — Galv steel sleeve lined with an intumescent material sized to fit the specific diam of the through penetrant. Device to be wrapped around outer circumference of each nonmetallic pipe or conduit (Item 3B) and installed through the annular space of the opening. The device may be secured together by means of min 1/2 in. (13 mm) wide by 0.028 in. (0.71 mm) thick stainless steel hose clamps or min 1/8 in. (3.2 mm) diam by 1/2 in. (13 mm) long steel pop rivets spaced max 4 in. (102 mm) OC. As an option, the device may be secured to the penetrant with 3/4 in. (19 mm) wide by 0.007 in. (0.18 mm) thick glass cloth electrical tape continuously wrapped twice around the outer circumference of through penetrant, spaced a max 2 in. (51 mm) OC. In floors 8 in. (203 mm) or less, the top edge of the device may be installed flush with the top surface and extend a max 3-1/2 in. (89 mm) below the bottom surface of the floor or the bottom edge of the device may be installed flush with the bottom surface of the floor. In floors greater than 8 in. (203 mm), the bottom edge of the device may be installed flush with the bottom surface of the floor or extend a max 3-1/2 in. (89 mm) below the bottom surface of the floor. In walls having a nominal thickness of 8 in. (203 mm) or less, the device shall be centered within the wall and extend equally beyond each surface of the wall. In walls having a nominal thickness greater than 8 in. (203 mm), two devices shall be installed within the opening with butted ends and extend equally beyond each surface of the wall.

**RECTORSEAL** — FlameSafe®Intumescent Sleeve, Metacaulk Intumescent Sleeve or Biostop Intumescent Sleeve

**B1. Fill, Void or Cavity Material\* — Wrap Strip** — (Not Shown). When max 2 in. (51 mm) diam nonmetallic pipes (Item 3B) are used, wrap strip may be used as an option to the firestop device (Item 6B).

Nom 1/4 in. (6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. (38 mm) wide strips. One layer of wrap strip installed around outer circumference of each nonmetallic pipe with ends butted and held in place with masking tape. The wrap strip shall be recessed a nom 1 in. (25 mm) from the top surface of the concrete floor. In walls, the wrap strip shall be installed from both surfaces of the wall such that the exposed edges of the wrap strip are recessed a nom 1 in. (25 mm) from each side of the wall. If floor is constructed of hollow-core precast concrete units, wrap strip to be installed from top and bottom floor surfaces and recessed a nom 1 in. from each surface.

**RECTORSEAL** — FlameSafe®Wrap Strip, Metacaulk Wrap Strip or Biostop Wrap Strip

**C. Fill, Void or Cavity Materials** — Pillow-like material of size Nos. 1, 2 and 4 shall be tightly packed with no visible air space into opening to fill annular space between metallic penetrants, nonmetallic penetrants, cable bundles and periphery of opening. Pillows installed vertically with long edges parallel to floor or wall thickness and top of pillows shall be flush with floor surface. In walls, pillows shall be centred within wall thickness.

**RECTORSEAL** — FlameSafe®Pillows, Metacaulk Pillows or Biostop Pillows

**D. Fill, Void or Cavity Materials\* — Putty** — Min 1 in. (25 mm) thickness of kneaded putty material packed tightly around cable bundles (Item 4), in all interstices between cables, around group of penetrants of max 2 in. diam (Item 3A) and within all void areas between pillows. Min 1 in. (25 mm) thickness of putty to be applied at all points of contact between penetrants and periphery of opening. Putty installed from top surface of floor or from both surfaces of wall. If floor is constructed of hollow-core precast concrete units, putty to be installed from top and bottom floor surfaces. Putty around cable bundles and group of penetrants shall be recessed 1 in. (25 mm) from floor or wall surfaces and installed prior to the installation of pillows (Item 6C).

**RECTORSEAL** — Type FSP1000, Metacaulk Fire Rated Putty, Biostop Fire Rated Putty

\*Bearing the UL Classification Mark



C. **Copper Tubing** — Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.

D. **Copper Pipe** — Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

3. **Pipe Covering\*** — One of the following types of pipe coverings shall be used:

A. **Pipe and Equipment Covering Materials\*** — - Nom 2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or butt tape supplied with the product. The annular space between the insulated through penetrant and the metallic sleeve (Item 4A) shall be min 0 in. (point contact) to max 2 in.

See **Pipe and Equipment Covering Materials\*** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B. **Pipe and Equipment Covering Materials\*** — Nom 2 in. thick unfaced mineral fiber pipe insulation having a nom density of 3.5 pcf (or heavier) and sized to the outside diam of the pipe or tube. Pipe insulation secured with min 8 AWG steel wire spaced 12 in. OC. The annular space between insulated penetrating item and the metallic sleeve (Item 4A) shall be min 0 in. (point contact) to max 2 in.

C. **Sheathing Material** — Used in conjunction with Item 3B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3B) with the kraft side exposed. Longitudinal and transverse joints sealed with metal fasteners or butt tape.

See **Sheathing Materials\*** (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. **Firestop System** — The firestop system shall consist of the following:

A. **Metallic Sleeve** — (optional) Cylindrical sleeve fabricated from min 0018 in. thick (No. 28 gauge) galv sheet steel and having a min 1 in. lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall. The inside diam of sleeve shall be min 1 in. larger than the outside diam of pipe covering. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil to let it uncoil within the circular opening. Sleeve to be tightly fitted in wall opening with no annular space. The annular space between the insulated through penetrant and the sleeve shall be min 0 in. (point of contact) to max 2 in.

B. **Packing Material** — Nom 1 in. foam backer rod firmly packed into the opening as a permanent form to prevent leakage of fill material during installation. Packing material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.

C. **Fill, Void or Cavity Material\* - Sealant** — Min 1 in. thickness of fill material applied within annulus, flush with each surface of wall. At point contact location, a min 3/8 in. bead of fill material shall be applied to the wall/sleeve/pipe covering interface on both surfaces of the wall.

**RECTORSEAL** — FlameSafe® FS900+, Metacaulk MC 150+, Biostop BF 150+

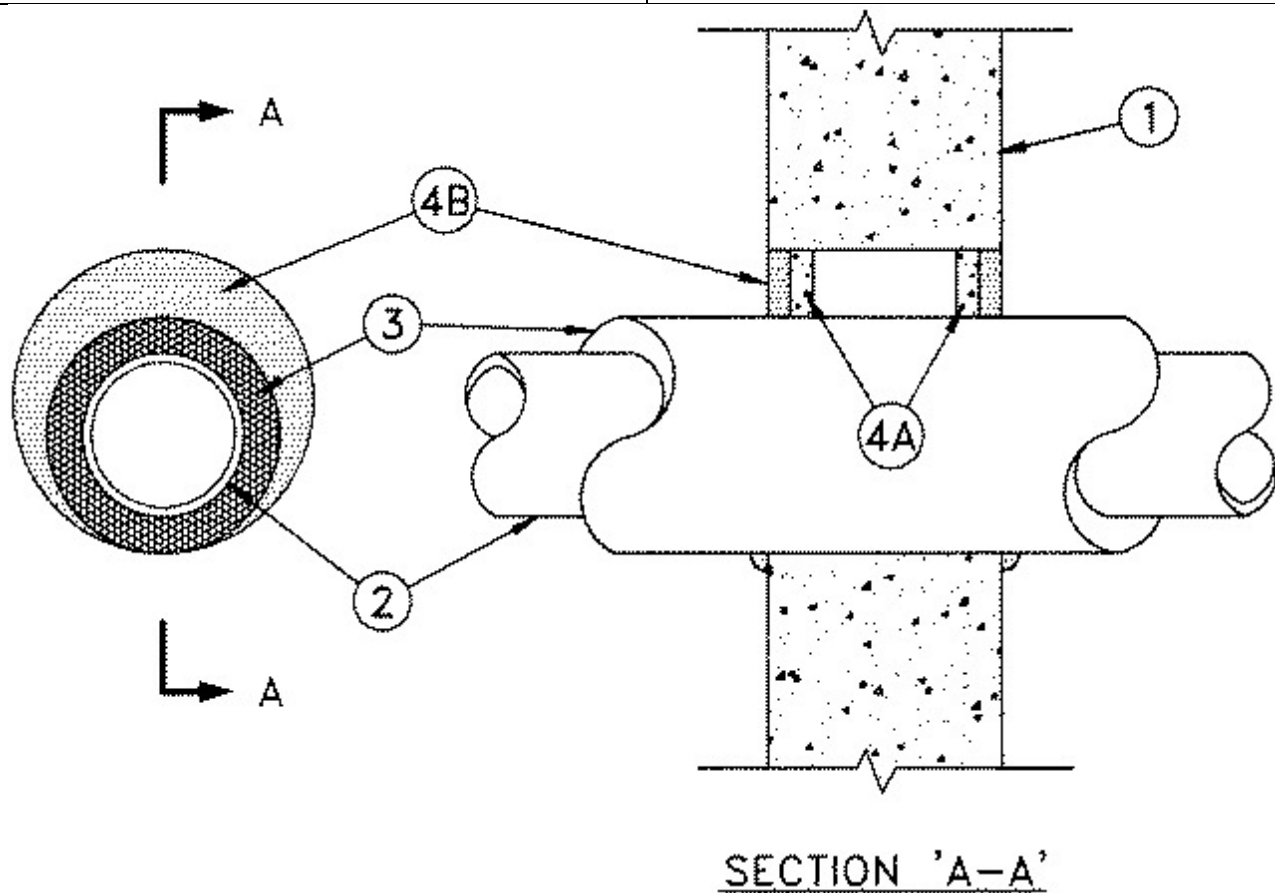
\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



## System No. W-J-5081

July 16, 2014

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



**1. Wall Assembly** — Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks**\*. Max diam of opening is 15-1/4 in. (387 mm). The inside diam of the opening shall be min 1 in. (25 mm) larger than the outside diam of the pipe covering (see Item 3).

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

**2. Through Penetrant** — One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

**A. Steel Pipe** — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

**B. Iron Pipe** — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.



C. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

D. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

The max diam of the through penetrant is dependent upon the type of fill material used, as shown in Item 4B.

3. **Tube Insulation** — Plastics# - Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space between the insulated through penetrant and the periphery of the opening shall be a min of 0 in. ( 0 mm, point contact) to a max 1 in. (25 mm).

See **Plastics+** (QMFZ2) category in the Plastics Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.

4. **Firestop System** — The firestop system shall consist of the following:

A. **Packing Material** — Forms used to prevent leakage of fill material during installation. Forms to be rigid sheet or polyurethane backer rod, cut to fit the contour of the penetrating item and friction fitted into opening on both sides of wall. Forms to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Materials\* - Sealant** — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between insulated through penetrant and periphery of opening, a min 3/8 in. (10 mm) diam bead of fill material shall be applied on both surfaces of wall. The max diam of through penetrant is dependent upon the type of fill material used as shown in the table below:

Type of Fill Material	Max Diam of Through Penetrant, In. (mm)
FlameSafe 900+, Metacaulk MC 150+, Biostop BF 150+	12 (152)
FlameSafe 1900, Metacaulk 1000, Metacaulk 350i, Biostop 350i or Biostop 500+	4 (102)

**RECTORSEAL** — FlameSafe® FS900+, FS 1900, Metacaulk MC 150+, Metacaulk 1000, Metacaulk 350i, Biostop BF 150+, Biostop 350i or Biostop 500+

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

#Bearing the UL Recognized Component Mark

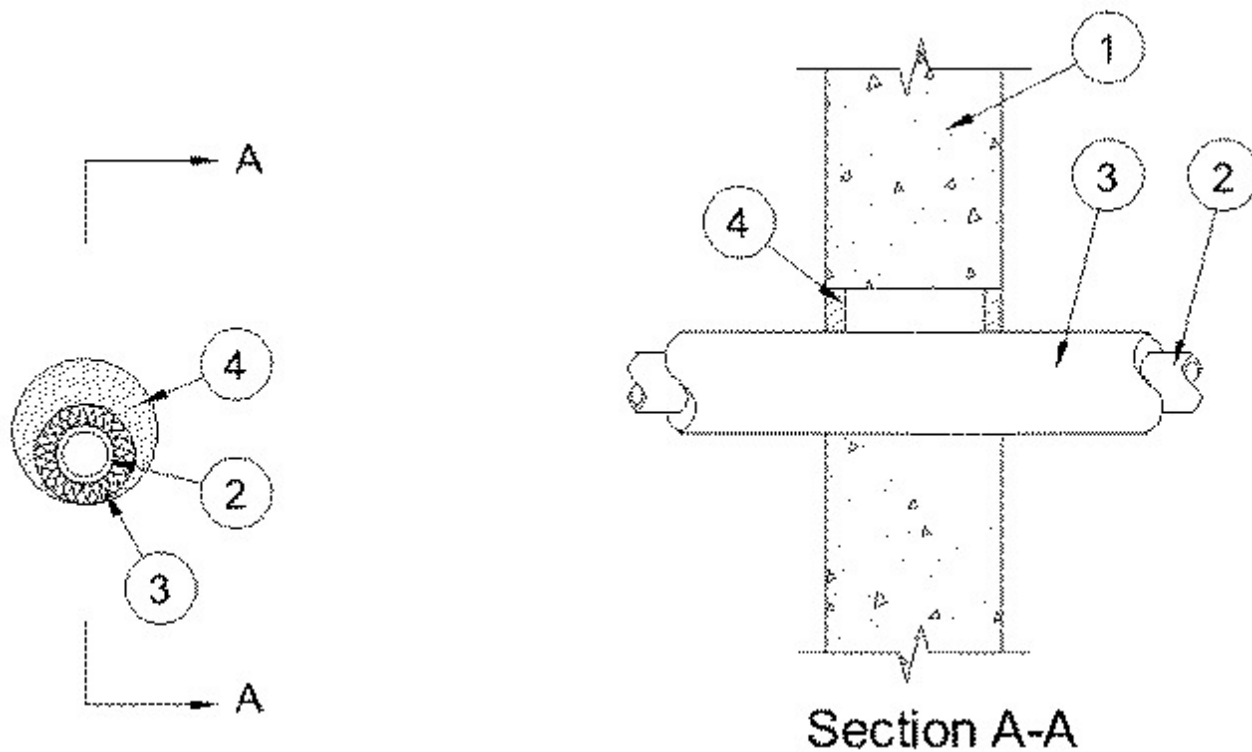


## System No. W-J-5114

February 03, 2005

**F Rating - 2 Hr**

**T Rating - 3/4 Hr**



**1. Wall Assembly** — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks\***. Max diam of opening is 5 in. (127 mm).

**2. Through Penetrants** — One metallic pipe or tube installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of wall assembly. The following types of metallic pipes or tubes may be used:

- A. **Steel Pipe** — Nom 2 in. (51 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. **Iron Pipe** — Nom 2 in. (51 mm) diam (or smaller) cast or ductile iron pipe.
- C. **Copper Tubing** — Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
- D. **Copper Pipe** — Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.

**3. Pipe Covering\* - Plastics+** — Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space shall be min 0 in. (point contact) to max 1-3/8 in. (35 mm).

See Plastics+ (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

**4. Fill, Void or Cavity Materials\* - Caulk** — Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall assembly.

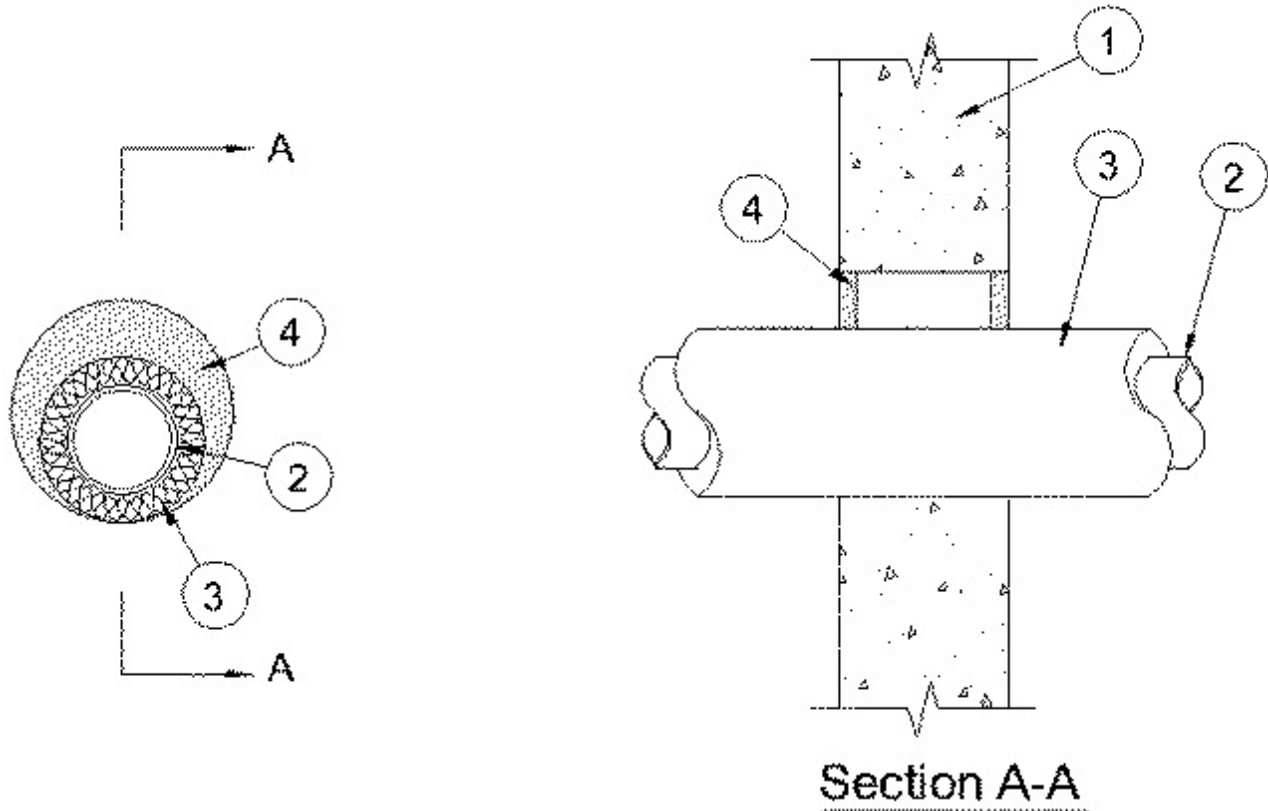
**RECTORSEAL** — MC 150+

\*Bearing the UL Classification Mark



## System No. W-J-5116

February 03, 2005

**F Rating - 2 Hr****T Rating - 1 Hr**

1. **Wall Assembly** — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks\***. Max diam of opening is 8 in. (203 mm).

2. **Through Penetrants** — One metallic pipe, tube or conduit installed within the firestop system. Pipe, tube or conduit to be rigidly supported on both sides of wall assembly. The following types of metallic pipes or tubes may be used:

- A. **Steel Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 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. **Pipe Covering\*** — Nom 1 in. (25 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. An annular space of min 0 in. (point contact) to max 1-7/8 in. (48 mm) is required within the firestop system.

4. **Fill, Void or Cavity Materials\* - Caulk** — Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall assembly.

**RECTORSEAL** — MC 150+

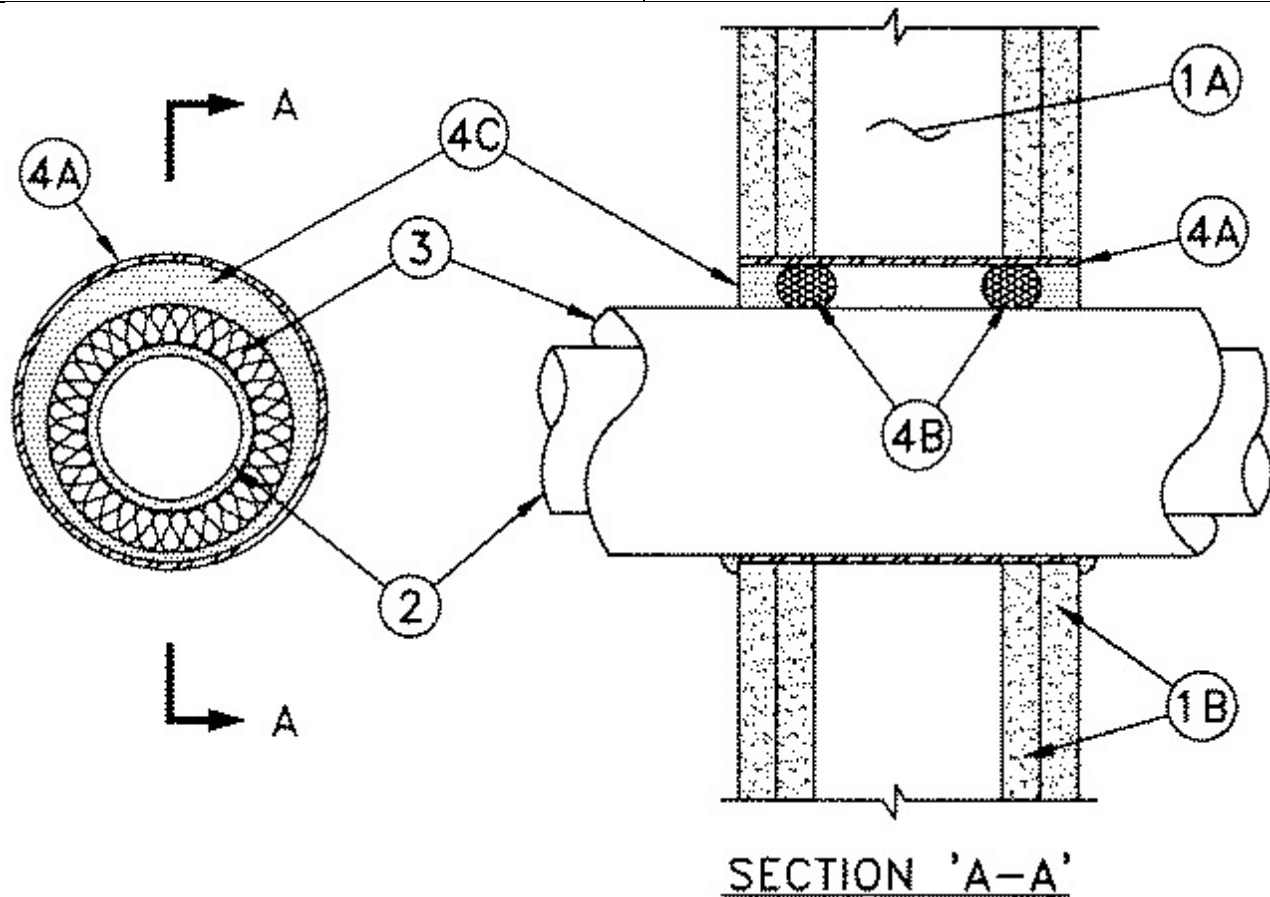
\*Bearing the UL Classification Mark



## System No. W-L-5172

July 16, 2014

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 - 1/2 , 1 and 2 Hr (See Item 1)	FT Ratings - 1/2 , 1 and 2 Hr (See Item 1)
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Ratings - 1 and 2 Hr (See Item 1)
L Rating At 400 F - Less Than 1 CFM/sq ft	FTH Ratings - 1/2 , 1 and 2 Hr (See Item 1)
	L Rating At Ambient - Less Than 1 CFM/sq ft
	L Rating At 400 F - Less Than 1 CFM/sq ft



**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 described 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 shall 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 3-5/8 in. (92 mm) wide and spaced 24 in. (610 mm) OC.

**B. Gypsum Board\*** — 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Designs in the UL Fire Resistance Directory. Max diam of opening in wood stud walls is 14-1/2 in. (368 mm). Max diam of opening in steel stud walls is 18-3/4 in. (476 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.

When copper pipe or tubing is used (see Item 2), the hourly T Rating is 1/2 hr and 1 hr for 1 and 2 hr rated assemblies, respectively.

When iron pipe or steel pipe is used (see Item 2), the hourly T Rating is 1 hr and 2 hr for 1 and 2 hr rated assemblies, respectively.

**2. Through Penetrants** — One metallic pipe or tube installed concentrically or eccentrically within the firestop system. Pipe or tube to be rigidly supported on both sides of the wall. The following types and sizes of through penetrants may be used:

A. **Steel Pipe** — Nom 12 in. (305 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.

B. **Iron Pipe** — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.

D. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

**3. Pipe Covering\*** — One of the following types of pipe coverings shall be used:

A. **Pipe and Equipment Covering Materials\*** — Nom 2 in. (51 mm) thick hollow cylindrical glass fiber units, nom 3.5 pcf (56 kg/m<sup>3</sup>) density, jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or butt tape supplied with the product. The annular space between the insulated through penetrant and the metallic sleeve (Item 4A) shall be min 0 in. (point contact) to max 2 in. (51 mm).

See **Pipe and Equipment Covering Materials\*** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B. **Pipe and Equipment Covering Materials\*** — Nom 2 in. (51 mm) thick unfaced mineral fiber pipe insulation having a nom density of 3.5 pcf (56 kg/m<sup>3</sup>) (or heavier) and sized to the outside diam of the pipe or tube. Pipe insulation secured with min 8 AWG steel wire spaced 12 in. (305 mm) OC. The annular space between insulated penetrating item and the metallic sleeve (Item 4A) shall be min 0 in. (point contact) to max 2 in. (51 mm).

C. **Sheathing Material** — Used in conjunction with Item 3B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3B) with the kraft side exposed. Longitudinal and transverse joints sealed with metal fasteners or butt tape.

See **Sheathing Materials\*** (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

**4. Firestop System** — The firestop system shall consist of the following:

A. **Metallic Sleeve** — Cylindrical sleeve fabricated from min 0018 in. (0.46 mm) thick (No. 28 gauge) galv sheet steel and having a min 1 in. (25 mm) lap along the longitudinal seam. Length of steel sleeve to be equal to thickness of wall. The inside diam of sleeve shall be min 1 in. (25 mm) larger than the outside diam of pipe covering. Sleeve installed by coiling the sheet steel to a diam smaller than the through opening, inserting the coil through the opening and releasing the coil to let it uncoil against the circular cutouts in the gypsum board. Sleeve to be tightly fitted in wall opening with no annular space. The annular space between the insulated through penetrant and the sleeve shall be min 0 in. (point of contact) to max 2 in. (51 mm).

B. **Packing Material** — Nom 1 in. (25 mm) foam backer rod firmly packed into the opening as a permanent form in 2 hr fire-rated wall assemblies to prevent leakage of fill material during installation. Packing material to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.

C. **Fill, Void or Cavity Material\* - Sealant** — Min 1 in. (25 mm) thickness of fill material applied within annulus, flush with each surface of wall. At point contact location, a min 3/8 in. (10 mm) bead of fill material shall be applied to the wall/sleeve/pipe covering interface on both surfaces of the wall.

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

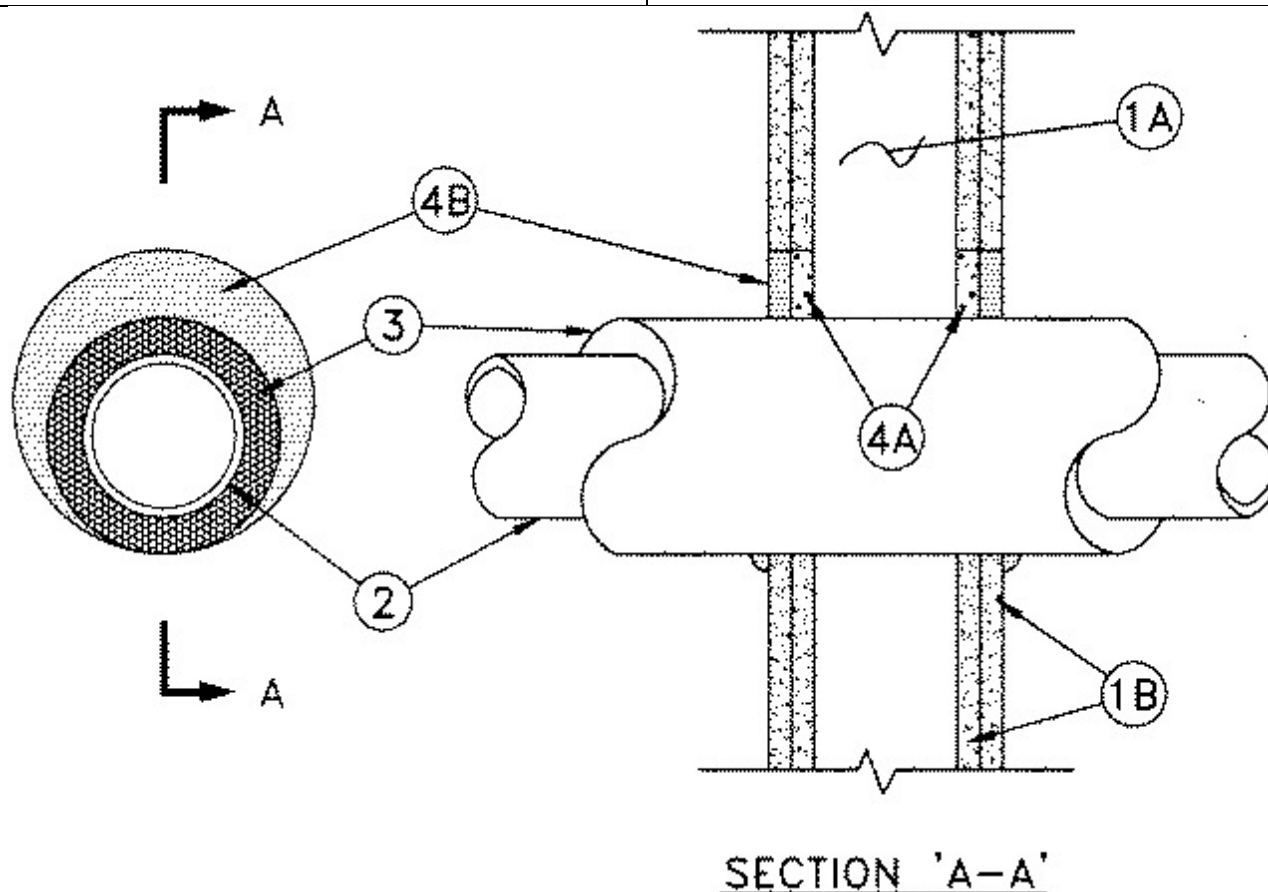




## System No. W-L-5173

July 16, 2014

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 — 1/2 Hr	FT Rating — 1/2 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Rating — 1/2 Hr
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



**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 described 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** — 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 with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.

**B. Gypsum Board\*** — Min 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Designs in the UL Fire Resistance Directory. Max diam of opening in wood stud walls is 14-1/2 in. (368 mm) Max diam of opening in steel stud walls is 18-3/4 in. (476 mm).

**The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.**

**2. Through Penetrants** — One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

- A. **Steel Pipe** — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. **Iron Pipe** — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
- C. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
- D. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

The max diam of the through penetrant is dependent upon the type of fill material used, as shown in Item 4B.

**3. Tube Insulation** — - Plastics# - Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space between the insulated through penetrant and the periphery of the opening shall be a min of 0 in. ( 0 mm, point contact) to a max 1 in. (25 mm).

See **Plastics+** (QMFZ2) category in the Plastics Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.

**4. Firestop System** — The firestop system shall consist of the following:

A. **Packing Material** — Forms Used to prevent leakage of fill material during installation in 2 hr fire-rated wall assemblies. Forms to be rigid sheet or polyurethane backer rod, cut to fit the contour of the penetrating item and friction fitted into opening on both sides of wall. Forms to be recessed from both surfaces of wall as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Materials\* - Sealant** — Min 5/8 in. (19 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point contact location between insulated through penetrant and gypsum board, a min 3/8 in. (10 mm) diam bead of fill material shall be applied at the gypsum board/insulated through penetrant interface on both surfaces of wall. The max diam of through penetrant is dependent upon the type of fill material used as shown in the table below:

Type of Fill Material	Max Diam of Through Penetrant, In. (mm)
FlameSafe 900+, Metacaulk MC 150+, Biostop BF 150+	12 (152)
FlameSafe 1900, Metacaulk 1000, Metacaulk 350i, Biostop 350i or Biostop 500+	4 (102)

**RECTORSEAL** — FlameSafe® FS900+, FS 1900, Metacaulk MC 150+, Metacaulk 1000, Metacaulk 350i, Biostop BF 150+, Biostop 350i or Biostop 500+

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

#Bearing the UL Recognized Component Mark

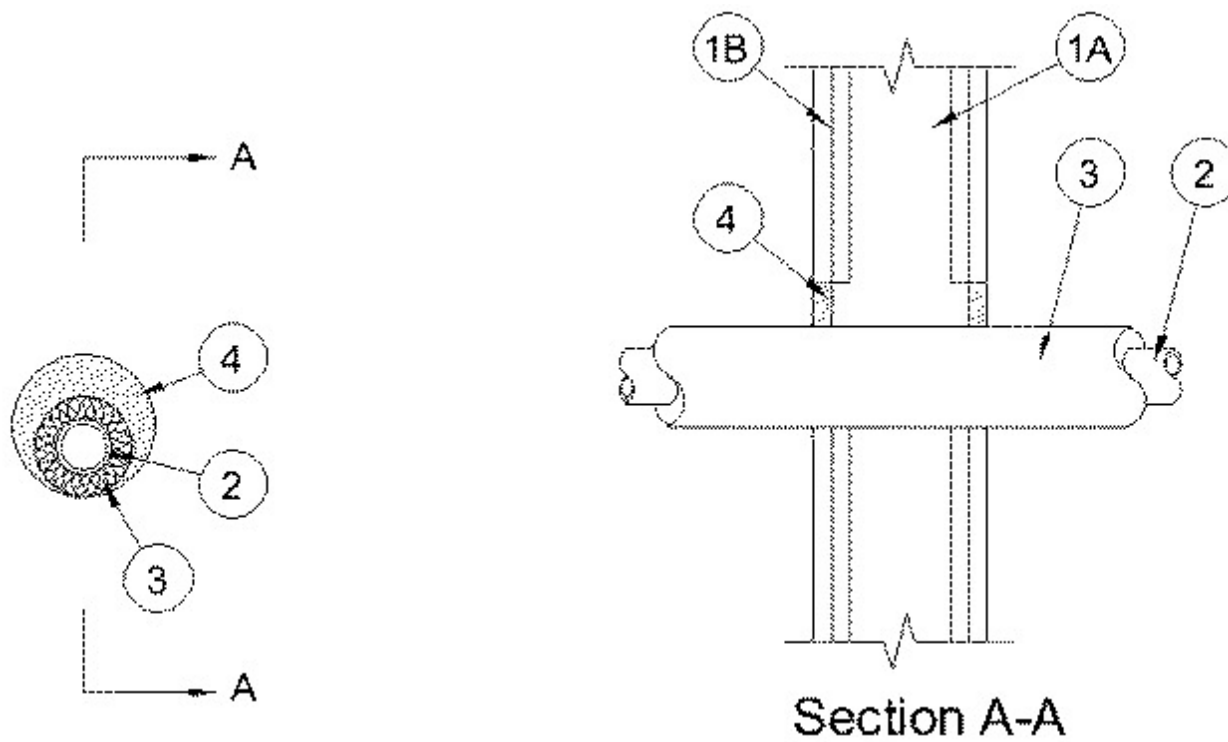


## System No. W-L-5226

February 02, 2005

**F Ratings — 1 or 2 Hr (See item 1)**

**T Rating — 3/4 Hr**



**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 or 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 channel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

**B. Gypsum Board\*** — Nom 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 5 in. (127 mm).

**The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly.**

**2. Through Penetrant** — One metallic pipe or tube installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of wall assembly. The following types of metallic pipes or tubes may be used:

**A. Steel Pipe** — Nom 2 in. (51 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

**B. Iron Pipe** — Nom 2 in. (51 mm) diam (or smaller) cast or ductile iron pipe.

**C. Copper Tubing** — Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.

**D. Copper Pipe** — Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.

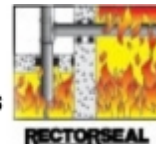
**3. Pipe Covering\* — Plastics+** — Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space shall be min 0 in. (point contact) to max 1-3/8 in. (35 mm).

See **Plastics+** (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

4. **Fill, Void or Cavity Materials\* - Caulk** — Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall assembly.

**RECTORSEAL** — MC 150+

\*Bearing the UL Classification Mark

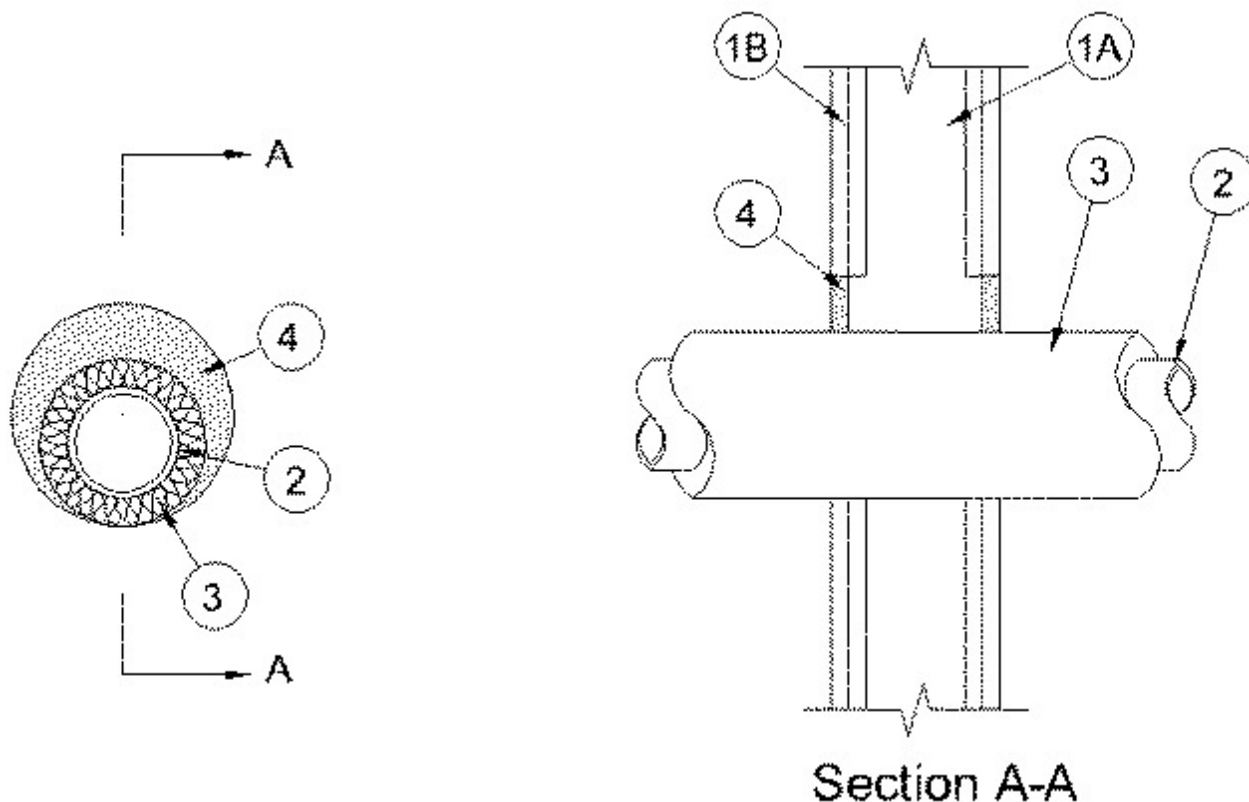


## System No. W-L-5228

February 02, 2005

**F Rating — 1 or 2 Hr (See item 1)**

**T Rating — 1 Hr**



**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 or 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 channel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.

**B. Gypsum Board\*** — Nom 5/8 in. (16 mm) thick, 4 ft. (1.2 m) wide with square or tapered edges. The gypsum board type, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 8 in. (203 mm).

**The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly.**

**2. Through Penetrant** — One metallic pipe, tube or conduit installed within the firestop system. Pipe, tube or conduit to be rigidly supported on both sides of wall assembly. The following types of metallic pipes or tubes may be used:

**A. Steel Pipe** — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

**B. Iron Pipe** — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.

**C. Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 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. Pipe Covering\*** — Nom 1 in. (25 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. An annular space of min 0 in. (point contact) to max 1-7/8 in. (48 mm) is required within the firestop system.

**4. Fill, Void or Cavity Materials\* - Caulk** — Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall assembly.

**RECTORSEAL** — MC 150+

\*Bearing the UL Classification Mark