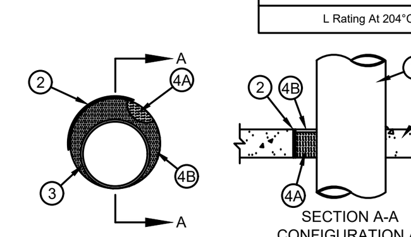
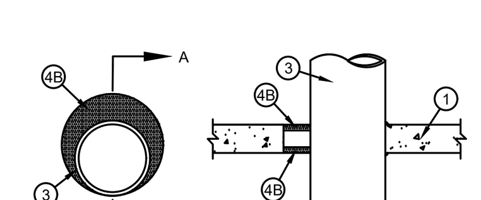
Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. C-AJ-1752**

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 2 and 3 Hr (See Item 4B)	F Ratings - 2 and 3 Hr (See Item 4B)
T Rating - 0 Hr	FT Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Ratings - 2 and 3 Hr (See Item 4B)
L Rating At 400°F - Less Than 1 CFM/sq ft	FTH Rating - 0 Hr
	L Rating At Ambient - Less Than 5.1 L/s/m2
	L Rating At 204°C - Less Than 5.1 L/s/m2



SECTION A-A
CONFIGURATION A



SECTION A-A
CONFIGURATION B

1. **Floor or Wall Assembly -**Reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Except as footnoted in the table under Item 4, min thickness of concrete floor or wall assembly is 4-1/2 in. (114 mm). 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 32 in. (813 mm). Max diam of opening in floors constructed of hollow-core precast concrete units is 7 in. (178 mm).
   See **Concrete Blocks** (CAZT) and **Precast Concrete Units** (CFTV) categories in the Fire Resistance Directory for names of manufacturers.

2. **Steel Sleeve -**(Optional) - Nom 32 in. (813 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe sleeve or No. 26 ga (0.022 in. or 0.56 mm thick) sheet steel sleeve with square anchor flange spot welded to the sleeve at approx mid-height. Sleeve cast or grouted in place flush with floor or wall surfaces. Steel pipe sleeve may project max 3 in. (76 mm) from floor or wall surfaces.
3. **Through Penetrants -**One metallic pipe, conduit or tube to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tube and the periphery of the opening or sleeve shall be min 0 in. (point contact). The max annular space is 2 in. or 3 in. (51 or 76 mm) as shown in the table in Item 4B. Pipe, conduit or tube to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe -**Nom 30 in. (762 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. **Iron Pipe -**Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Conduit -**Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit, nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing (EMT) or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
   D. **Copper Tubing -**Nom 6 in. (152 mm) diam (or smaller) Type M (or heavier) copper tubing.
   E. **Copper Pipe -**Nom 6 in. (152 mm) diam (or smaller) Regular or heavier copper pipe.
4. **Firestop System -**The firestop system shall consist of the following:
   A. **Packing Material -**When required as shown in the table in Item 4B, min 4 pcf (64 kg/m^3) mineral wool batt insulation firmly packed into opening to min 2-1/4 in. (57 mm) thickness as a permanent form. Packing material recessed from top surface of floor/sleeve or from both surfaces of wall/sleeve as required to accommodate fill material (Item 4B). In floors constructed of hollow-core precast concrete units, packing material to be recessed from both top and bottom surfaces of floor/sleeve, as required to accommodate fill material (Item 4B). When steel sleeve projects from top of floor or from both sides of wall, the thickness of mineral wool batt packing material should be increased by an amount equal to the distance that the sleeve extends past the floor or wall surface. For Configuration A, packing material is required as specified in the table in Item 4B. For Configuration B, packing material is optional and mineral wool or glass fiber insulation or polyethylene foam backer rod may be used as a permanent form to facilitate installation of the fill material.
   B. **Fill, Void or Cavity Material* - Sealant -**Fill material applied within the annulus, flush with top surface of floor or top edge of steel sleeve. In walls, fill material applied symmetrically on both sides of wall flush with wall or both ends of steel sleeve. When floor is constructed of hollow-core precast concrete units or when required as shown in the table below, fill material is to be installed symmetrically on both sides of floor, flush with floor surfaces or both ends of steel sleeve. At the point contact location between penetrating item and concrete, a min 1/4 in. (6 mm) thick bead of fill material shall be applied at the concrete through penetrating item interface on top surface of floor, both surfaces of wall, both surfaces of hollow-core precast concrete floor, or both surfaces of floor when fill material is required to be installed symmetrically as shown in the table below. The min fill material thickness and the location of the sealant at top or bottom of floor assembly are dependent upon the parameters as shown in the following table:

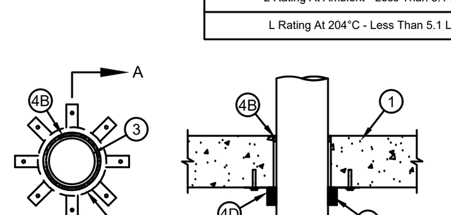
Through Penetrant	Min Floor Thickness, in. (mm)	Min Wall Thickness, in. (mm)	Max Through Penetrant Diam, in. (mm)	Steel Sleeve	Max Through Penetrant Diam, in. (mm)	Packing Material	Min Fill Material Thickness in. (mm)	Sealant Flush with Top or Bottom	Packing Material
Steel or Iron Pipe	2-1/2 (64)	2-3/4 (70)	30 (762)	Optional	2 (51)	Required	1/4 (6)	Top	2 hr
Steel Conduit	2-1/2 (64)	2-3/4 (70)	6 (152)	Optional	2 (51)	Required	1/4 (6)	Top	2 hr
Steel EMT	2-1/2 (64)	2-3/4 (70)	4 (102)	Optional	2 (51)	Required	1/4 (6)	Top	2 hr
Copper Pipe or Tube	2-1/2 (64)	2-3/4 (70)	6 (152)	Optional	2 (51)	Required	1/4 (6)	Top	2 hr
Steel or Iron Pipe	4-1/2 (114)	4-1/2 (114)	6 (152)	No	3 (76)	Optional	1/2 (13)	Top and Bottom	3 hr
Steel Conduit	4-1/2 (114)	4-1/2 (114)	6 (152)	No	3 (76)	Optional	1/2 (13)	Top and Bottom	3 hr
Steel EMT	4-1/2 (114)	4-1/2 (114)	4 (102)	No	3 (76)	Optional	1/2 (13)	Top and Bottom	3 hr
Flexible Steel Conduit	4-1/2 (114)	4-1/2 (114)	1 (25)	No	3 (76)	Optional	1/2 (13)	Top and Bottom	3 hr
Copper Pipe or Tube	4-1/2 (114)	4-1/2 (114)	4 (102)	No	3 (76)	Optional	1/2 (13)	Top and Bottom	3 hr

SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro

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

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. C-AJ-2926**

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 2 and 3 Hr (See Item 4C)	F Ratings - 2 and 3 Hr (See Item 4C)
T Ratings - 0, 1, 2 and 3 Hr (See Item 4C)	FT Ratings - 0, 1, 2 and 3 Hr (See Item 4C)
L Rating At Ambient - Less Than 1 CFM/ft2	FH Ratings - 2 and 3 Hr (See Item 4C)
L Rating At 400°F - Less Than 1 CFM/ft2	FTH Ratings - 0, 1, 2 and 3 Hr (See Item 4C)
	L Rating At Ambient - Less Than 5.1 L/s/m2
	L Rating At 204°C - Less Than 5.1 L/s/m2



Section A-A

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

1. **Floor or Wall Assembly -**Lightweight or normal weight (100-150 pcf or 1600-2400 kg/ m^3) concrete. Except as footnoted in the table under Item 4C, min thickness of concrete floor or wall assembly is 4-1/2 in. (114 mm). Floor may also be constructed of any min 6 in. (152 mm) thick hollow-core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Diam of opening to be min 1/8 in. (3.2 mm) to max 1-1/2 in. (38 mm) larger than outside diam of pipe or conduit.
   See **Concrete Blocks** (CAZT) or **Precast Concrete Units** (CFTV) categories in the Fire Resistance Directory for names of manufacturers.
2. **Steel Sleeve -**(Optional, Not Shown) - Nom 5 in. (127 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe or nom 5 in. (127 mm) diam (or smaller) No. 26 ga (0.022 in. or 0.56 mm thick) sheet steel sleeve with nom 2 in. wide square or circular anchor flange spot welded to the sleeve at its approx mid-height. Sleeve cast or grouted into min 4-1/2 in. (114 mm) thick floor or wall assembly, flush with floor or wall surfaces.
3. **Through Penetrants -**One nonmetallic pipe or conduit to be installed eccentrically or concentrically within the firestop system. Pipe or conduit to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. **Polyvinyl Chloride (PVC) Pipe -** Nom 6 in. (152 mm) diam (or smaller) solid or cellular core Schedule 40 polyvinyl chloride (PVC) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe -** Nom 6 in. (152 mm) diam (or smaller) SDR 13.5 chlorinated polyvinyl chloride (CPVC) pipe for use in closed (process or supply) piping systems.
   C. **Rigid Nonmetallic Conduit+ -** Nom 6 in. (152 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA 70).

   D. **Acrylonitrile Butadiene Styrene (ABS) Pipe -** Nom 6 in. (152 mm) diam (or smaller) solid or cellular core Schedule 40 acrylonitrile butadiene styrene (ABS) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   E. **Fire Retardant Polypropylene (FRPP) Pipe -** Nom 6 in. (152 mm) diam (or smaller) solid or cellular core Schedule 40 fire retardant polypropylene (FRPP) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   F. **High Density Polyethylene (HDPE) Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 40 HDPE pipe for use in closed (process or supply) piping systems.
4. **Firestop System -**The firestop system shall consist of the following:
   A. **Packing Material -**(Not Shown) - When required, min 4 pcf (64 kg/m^3) mineral wool batt insulation compressed and installed to the thickness specified in the table under Item 4C. Packing material to be recessed from top surface of floor or both surfaces of wall as required to accommodate sealant (Item 4B).
   B. **Fill, Void or Cavity Material* - Sealant -** Fill material installed flush with top surface of floor or both surfaces of wall, as specified in the table under Item 4C.
   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro
   C. **Fill, Void or Cavity Material* - Wrap Strip -** Nom 1/8 in. (3.2 mm) by 1-1/2 in. (38 mm) wide (RED2), nom 1/4 in. (6 mm) thick by 1-1/2 in. (38 mm) wide (RED), 3/16 in. (4.8 mm) by 2 in. (51 mm) wide (BLU) or 1/8 in. (3.2 mm) by 2 in. (51 mm) wide (BLU2) intumescent strips faced on both sides with a plastic film. Strips tightly wrapped around nonmetallic pipe with edges butted against the underside of the floor or both surfaces of the wall. The wrap strips may be installed with butted seams with butted seams in successive layers aligned or offset or continuously wrapped around through penetrant. Wrap strips are temporarily held in place with masking tape. The min number of layers required is dependent upon the pipe type, nom pipe diam, floor or wall thickness and the hourly F, T, FT, FH and FTH Ratings required, as shown in the following table:

Pipe Type	Max Pipe in. (mm)	Min Concrete Thickness, in. (mm)	Wrap Strip Type	Min No of Wrap Strip Layers	F, FH Rating, hr	T, FT, FTH Rating, hr	Min Packing Material Depth, in. (mm)	Min Fill Material Depth, in. (mm)	Max Annular Space, in. (mm)
PVC, ccPVC, CPVC, RNC, ABS, ccABS	2 (51)	2-1/2 (64)	RED, RED2, BLU or BLU2	1	2	1	NA	1/2 (13)	1/16 (1.6)
HDPE	2 (51)	2-1/2 (64)	RED, RED2, BLU or BLU2	1	2	2	NA	1/2 (13)	1/16 (1.6)
PVC, ccPVC, CPVC, RNC, ABS, ccABS	2 (51)	2-1/2 (64)	RED, RED2, BLU or BLU2	1	2	1	2 (51)	1/2 (13)	3/4 (19)
HDPE	2 (51)	2-1/2 (64)	RED, RED2, BLU or BLU2	1	2	2	2 (51)	1/2 (13)	3/4 (19)
PVC, ccPVC, CPVC, RNC, ABS, ccABS	4 (102)	2-1/2 (64)	RED, RED2, BLU or BLU2	2	2	1	2 (51)	1/2 (13)	3/4 (19)
HDPE	4 (102)	2-1/2 (64)	RED, RED2, BLU or BLU2	2	2	2	2 (51)	1/2 (13)	3/4 (19)
PVC, ccPVC, CPVC, RNC	2 (51)	4-1/2 (114)	RED, RED2, BLU or BLU2	1	3	2	NA	1/4 (6)	1/4 (6)
HDPE	2 (51)	4-1/2 (114)	RED, RED2, BLU or BLU2	1	2	2	BA	1/4 (6)	1/4 (6)
PVC, ccPVC, CPVC, RNC	3 (76)	4-1/2 (114)	RED, RED2, BLU or BLU2	2	3	2	NA	1/4 (6)	1/4 (6)
HDPE	3 (76)	4-1/2 (114)	RED, RED2, BLU or BLU2	2	2	2	NA	1/4 (6)	1/4 (6)
PVC, ccPVC, CPVC, RNC	4 (102)	4-1/2 (114)	RED, RED2, BLU or BLU2	3	3	2	NA	1/4 (6)	1/4 (6)
HDPE	4 (102)	4-1/2 (114)	RED, RED2, BLU or BLU2	3	2	2	NA	1/4 (6)	1/4 (6)

PVC, ccPVC, CPVC, RNC	6(152)	4-1/2 (114)	RED, RED2,	3(a)	3	0	NA	1/4 (6)	1/2 (13)
PVC, ccPVC, CPVC, RNC	6(152)	4-1/2 (114)	RED, RED2, BLU or BLU2	4*	3	3	4 (102)	1/2 (13)	1/4 (6)
PVC, ccPVC, CPVC, RNC, FRPP	6(152)	4-1/2 (114)	BLU or BLU2	3(a)	3	2	NA	1/4 (6)	3/16 (4.8)
ABS, ccABS	2 (51)	4-1/2 (114)	RED, RED2	1	3	0	NA	1/4 (6)	1/2 (13)
ABS, ccABS	2 (51)	4-1/2 (114)	BLU or BLU2	1	3	2	NA	1/4 (6)	1/2 (13)
ABS, ccABS	3 (76)	4-1/2 (114)	RED, RED2	2	2	0	NA	1/4 (6)	1/2 (13)
ABS, ccABS	3 (76)	4-1/2 (114)	BLU or BLU2	2	3	2	NA	1/4 (6)	1/2 (13)
ABS, ccABS	4 (102)	4-1/2 (114)	RED, RED2	3	2	0	NA	1/4 (6)	1/2 (13)
ABS, ccABS	4 (102)	4-1/2 (114)	BLU or BLU2	3	3	2	NA	1/4 (6)	1/2 (13)
ABS, ccABS	6(152)	4-1/2 (114)	RED, RED2, BLU or BLU2	4*	2	2	4 (102)	1/2 (13)	1/4 (6)
ABS, ccABS	6(152)	4-1/2 (114)	RED, RED2,	3(a)	3	0	NA	1/2 (13)	3/8 (10)
ABS, ccABS, FRPP	6(152)	4-1/2 (114)	BLU or BLU2	3(a)	3	3	NA	1/2 (13)	3/8 (10)

(a) Where indicated, two sets of three wrap strip layers are "stacked" to attain a 3 in. (76 mm) wrap strip width for RED or RED2 wrap strip or a 4 in. (102 mm) wrap strip width for BLU or BLU2 wrap strip

* One stack of four layers of wrap strip, two layers of steel collar. See Item 4D.

SPECIFIED TECHNOLOGIES INC - SpecSeal RED Wrap Strip, SpecSeal RED2 Wrap Strip, SpecSeal BLU Wrap Strip or SpecSeal BLU2 Wrap Strip

D. **Steel Collar -**Nom 1-1/2 in. (38 mm), 2 in. (51 mm), 3 in. (76 mm) or 4 in. (102 mm) deep collar, dependent upon wrap strip width, with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for attachment to concrete and min 3/4 in. (19 mm) wide retaining tabs tapering down to 1/4 in. (6 mm) wide and located opposite the anchor tabs. Steel collar, with anchor tabs bent outward 90 deg, wrapped tightly around wrap strip layers with min 1 in. (25 mm) overlap at seam. Retainer tabs to be bent 90 deg toward pipe to lock wrap strips in position. Anchor tabs to be pressed tightly against floor or wall surface(s), and collar to be secured in place with one 1/2 in. (13 mm) wide by 0.028 in. (0.7 mm) thick stainless steel hose clamp. Two band clamps are required for 3 in. high (or higher) collar on 6 in. (152 mm) pipe. As an alternate to the hose clamps on 1-1/2 in. (38 mm) and 2 in. (51 mm) deep collar, collar secured together by means of three No. 8 by 1/4 in. (6 mm) long steel screws. Collar to be secured to floor or wall surface(s) with 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel concrete screws in conjunction with min 1 in. (25 mm) diam steel fender washers. As an alternate to the steel concrete screws, nom 1-1/4 in. (32 mm) long steel powder actuated fasteners provided with 3/4 in. (19 mm) diam steel washers or nom 3/4 in. (19 mm) long steel powder actuated fasteners provided with 1 in. (25 mm) diam steel washers may be used to secure anchor tabs. The number of fasteners is dependent upon the nom diam of the through penetrant. Min two fasteners , symmetrically located, are required for nom 1-1/2 in. (38 mm) through 2 in. (51 mm) diam through penetrants. Min three fasteners , symmetrically located, are required for nom 2-1/2 in. (64 mm) through 3 in. (76 mm) diam through penetrants. Min four fasteners , symmetrically located, are required for nom 3-1/2 in. (89 mm) through 4 in. (102 mm) diam through penetrants. Min six fasteners , symmetrically located, are required for nom 6 in. (152 mm) diam through penetrants.

*When using one stack of four layers of wrap strip for nom 6 in. (152 mm) diam pipes, two layers of nom 1-1/2 or 2 in. (38 or 51 mm) deep collar (dependent upon wrap strip width) is to be wrapped around wrap strip and penetrant with min 1 in. (25 mm) overlap.

E. **Firestop Device* -**(Not Shown) - As an alternate to Items 4C and 4D, a firestop device consisting of a galv steel collar lined with an intumescent material sized to fit the specific diam of the through penetrant may be used. Device shall be installed around through-penetrant in accordance with the accompanying installation instructions. Device incorporates anchor tabs for securement to bottom surface of floor or both surfaces of wall assembly by means of 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel concrete screws in conjunction with min 1 in. (25 mm) diam steel fender washers. As an alternate to the steel concrete screws, nom 1-1/4 in. (32 mm) long steel powder actuated fasteners provided with 3/4 in. (19 mm) diam steel washers or nom 3/4 in. (19 mm) long steel powder actuated fasteners provided with 1 in. (25 mm) diam steel washers may be used to secure anchor tabs.

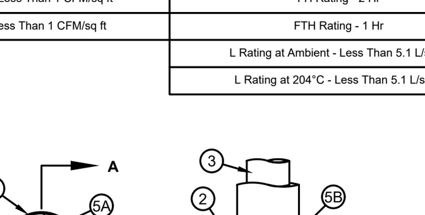
SPECIFIED TECHNOLOGIES INC - SpecSeal LCC Firestop Collar or SpecSeal SSC Firestop Collar

+Bearing the UL Listing Mark

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

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. C-AJ-5451**

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 2 Hr	F Rating - 2 Hr
T Rating - 1 Hr	FT Rating - 1 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 Hr
	L Rating at Ambient - Less Than 5.1 L/s/m2
	L Rating at 204°C - Less Than 5.1 L/s/m2



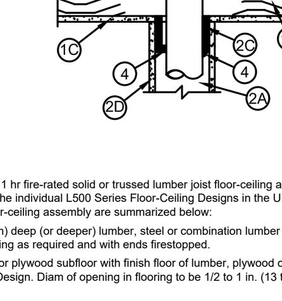
Section A-A

1. **Floor or Wall Assembly -** Min 4-1/2 in. (114 mm) thick reinforcement lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete floor or min 5 in. (127 mm) thick reinforced lightweight 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***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 8 in. (204 mm). In floors constructed of hollow core precast concrete units, max diam of opening is 7 in. (178 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 8 in. (204 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe sleeve cast or grouted into floor or wall assembly flush with floor or wall surfaces.
3. **Through Penetrants -**One metallic pipe or tube to be installed either eccentrically or concentrically within the firestop system. Pipe or tube to be rigidly supported on both sides of floor or wall assembly. One of the following types and sizes of metallic pipe or tubing may be used:
   A. **Steel Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Copper Pipe -** Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. **Copper Tube -** Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tube.

4. **Pipe Covering* -** Nom 1 in. (25 mm) thick hollow cylindrical heavy density (min 3.5 pcf (56 kg/m^3) 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. The annular space within the firestop system shall be min 1/4 in. (6 mm) to max 1-5/8 in. (41 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^3) mineral wool batt insulation 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 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 or both surfaces of wall assembly.
   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro
   *** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. F-C-1196**

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 1 Hr	F Rating - 1 Hr
T Ratings - 1/4 and 1 Hr (See Item 2)	FT Ratings - 1/4 and 1 Hr (See Item 2)
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Rating - 1 Hr
L Rating at 400°F - Less Than 1 CFM/sq ft	FTH Ratings - 1/4 and 1 Hr (See Item 2)
	L Rating at Ambient - Less Than 5.1 L/s/m2
	L Rating at 204°C - Less Than 5.1 L/s/m2

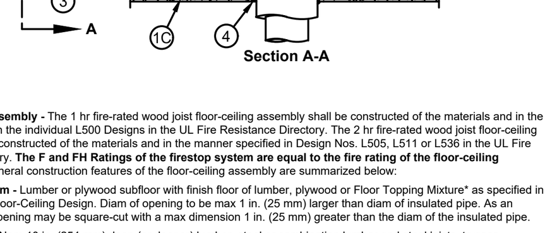


1. **Floor-Ceiling Assembly -** The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:
   A. **Joists -** Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, wood trusses or **Structural Wood Members*** with bridging as required and with ends firestopped.
   B. **Flooring System -** Lumber or plywood subfloor with finish floor of lumber, plywood or **Floor Topping Mixture*** as specified in the individual Floor-Ceiling Design. Diam of opening in flooring to be 1/2 to 1 in. (13 to 25 mm) larger than the outside diam of the through penetrant (Item 3).
   C. **Gypsum Board* -** Thickness, type, number of layers and fasteners shall be as specified in the individual Floor-Ceiling Design. Diam of opening in ceiling to be min 1/2 in. (13 mm) to max 1 in. (25 mm) larger than outside diameter of penetrant. Max diam of ceiling opening is 5 in. (127 mm).

2. **Chase Wall -** (Optional) - The through penetrant (Item 3) may be routed through a single, double or staggered wood stud/gypsum board chase wall which includes the following construction features:
   A. **Studs -** Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm), 2 by 8 in. (51 by 203 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.
   B. **Sole Plate -** Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or 2 by 8 in. (51 by 203 mm) lumber plates or double nom 2 by 4 in. (51 by 102 mm) lumber plates tightly butted together. Circular opening to be centered in sole plate. Sole plate to be min 1 in. (25 mm) wider than diam of opening. Diam of opening in sole plate to be min 1/2 in. (13 mm) to max 1 in. (25 mm) larger than outside diameter of penetrant. Max diam of opening in sole plate is 5-1/2 in. (140 mm).
   C. **Top Plate -** The single or double top plate shall consist of one or two nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or 2 by 8 in. (51 by 203 mm) lumber plates or one or two sets of nom 2 by 4 in. (51 by 102 mm) lumber plates tightly butted together. Circular opening to be centered in top plate. Top plate to be min 1 in. (25 mm) wider than diam of opening. Diam of opening in top plate to be min 1/2 in. (13 mm) to max 1 in. (25 mm) larger than outside diameter of penetrant. Max diam of opening in top plate is 5-1/2 in. (140 mm).
   D. **Gypsum Board* -** Min 1/2 in. (13 mm) thick rated or non-rated gypsum board.
   When through penetrant is routed through a 1 hr fire rated chase wall the T, FT and FTH Ratings are 1 hr. Otherwise, T, FT and FTH Ratings are 1/4 hr.
3. **Through Penetrants -**One metallic pipe, conduit or tube to be installed either eccentrically or concentrically within the firestop system. The annular space between the penetrant and the periphery of the opening shall be min 0 in. (point contact) to max 3/4 in. (19 mm). Pipe, conduit or tube to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipes, conduits or tubing 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.
4. **Pipe Covering* - Fill, Void or Cavity Material* - Sealant -** Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with top surface of floor or sole plate. Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with bottom surface of ceiling or top plate. At the point contact location, min 1/2 in. (13 mm) diam bead of fill material applied at the penetrant/top surface of floor or sole plate and at the penetrant/ceiling or top plate interface.
   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro
   *** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. F-C-5098**

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings -1 and 2 Hr (See Items 1, 3A and 3D)	F Ratings - 1 and 2 Hr (See Items 1, 3A and 3D)
T Ratings - 3/4 and 1 Hr (See Item 3)	FT Ratings - 3/4 and 1 Hr (See Item 3)
L Rating At Ambient - Less Than 1 CFM/sq ft	FH Ratings - 1 and 2 Hr (See Items 1, 3A and 3D)
L Rating At 400 F - Less Than 1 CFM/sq ft	FTH Ratings - 3/4 and 1 Hr (See Item 3)
	L Rating at Ambient - Less Than 5.1 L/s/m2
	L Rating at 204°C - Less Than 5.1 L/s/m2



Section A-A

1. **Floor - Ceiling Assembly -** The 1 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Designs in the UL Fire Resistance Directory. The 2 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in Design Nos. L505, L511 or L536 in the UL Fire Resistance Directory. **The F and FH Ratings of the firestop system are equal to the fire rating of the floor-ceiling assembly**. The general construction features of the floor-ceiling assembly are summarized below:
   A. **Flooring System -** Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Diam of opening to be max 1 in. (25 mm) larger than diam of insulated pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. (25 mm) greater than the diam of the insulated pipe.
   B. **Wood Joists -** Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required and with ends firestopped.
   C. **Gypsum Board* -** Thickness, type, number of layers and fasteners as specified in the individual Floor-Ceiling Design. Diam of opening is to be max 1 in. (25 mm) larger than diam of insulated metallic pipe.
   D. **Furring Channel -** (Not Shown) - In 2 hr fire-rated assemblies, resilient galv steel furring channels installed perpendicular to wood joists between base and face layers of gypsum board (Item 1C). Furring channels spaced max 24 in. (610 mm) OC with additional short lengths of furring channel installed adjacent to and max 3 in. (76 mm) from two opposing sides of penetrant.

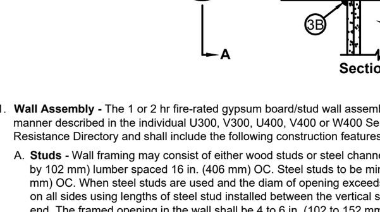
1A. **Chase Wall -** (Optional, Not Shown) - The through penetrant (Item 2) may be routed through a single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1 in. (25 mm) greater than the diameter of the insulated pipe (Item 2). The chase wall shall include the following construction features:
   A. **Studs -** Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.
   B. **Sole Plate -** Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening is to be max 1 in. (25 mm) larger than diam of insulated metallic pipe. As an alternate for pipes insulated with max 1 in. (25 mm) thick glass fiber insulation (Item 3A), the opening may be square-cut with a max dimension 1 in. (25 mm) greater than the diam of the insulated pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity is 7 in. (178 mm).
   C. **Top Plate -** The single or double top plate shall consist of one or two nom 2 by 4 in. (51 by 102 mm), one or two nom 2 by 6 in. (51 by 152 mm) or one or two sets of parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening is to be max 1 in. (25 mm) larger than diam of insulated metallic pipe. As an alternate for pipes insulated with max 1 in. (25 mm) thick glass fiber insulation (Item 3A), the opening may be square-cut with a max dimension 1 in. (25 mm) greater than the diam of the insulated pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity is 7 in. (178 mm).
   D. **Steel Plate -** (Not Shown) - When lumber plates are discontinuous, nom 1-1/2 in. (38 mm) wide No. 20 gauge (or heavier) galv steel plates shall be installed to connect discontinuous lumber plates and to provide a form for the fill material. Steel plates sized to lap 2 in. (51 mm) onto each discontinuous lumber plate and secured to lumber plates with steel screws or nails.
   D. **Gypsum Board* -** Min 1/2 in. (13 mm) thick rated or non-rated gypsum board.
2. **Through Penetrants -**One metallic pipe or tube to be installed either concentrically or eccentrically within the opening. Penetrant to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipe or tubing may be used:
   A. **Steel Pipe -** Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Copper Tubing -** Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   D. **Copper Pipe -** Nom 4 in. (102 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 1 or 1-1/2 in. (25 or 38 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m^3) 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 periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm). When 1-1/2 in. (38 mm) thick insulation is used, max F and FH Ratings are 1 hr. When 1 in. (25 mm) thick insulation is used, max F and FH Ratings are 2 hr.
   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 Covering Materials* -** Max 1 in. (25 mm) thick unfaced mineral fiber pipe insulation having a nom density of 3.5 pcf (56 kg/m^3) (or heavier) and sized to the outside diam of pipe or tube. Pipe insulation secured with min No. 18 AWG steel wire spaced max 12 in. (305 mm) OC. The annular space between the insulated through penetrant and periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm).
   INDUSTRIAL INSULATION GROUP L L C - High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT or High Temperature Pipe Insulation Thermaloc.
   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 joints 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.

D. **Tube Insulation - Plastics# -** Nom 1 in. (25 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 periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm). When AB/PVC insulation is used, max F and FH Ratings are 1 hr.
   See **Plastics** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
   When Item 3A or 3B pipe covering is used, T, FT and FTH Ratings are 1 hr. When Item 3D pipe covering is used, T, FT and FTH Ratings are 3/4 hr.

4. **Fill, Void or Cavity Material* - Sealant -** Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor or sole plate. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with bottom surface of ceiling or top plate. Min 1/4 in. (6 mm) diam bead of fill material applied at point contact location on the top surface of floor or sole plate and at the insulated metallic pipe/ceiling or top plate interface.
   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro
   #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.**

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. W-L-1605**

ANSI/UL1479 (ASTM E814	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr	FT Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/ft2	FH Ratings - 1 and 2 Hr (See Item 1)
L Rating At 400°F - Less Than 1 CFM/ft2	FTH Rating - 0 Hr
	L Rating At Ambient - Less Than 5.1 L/S/m2
	L Rating At 204°C - Less Than 5.1 L/S/m2



Section A-A

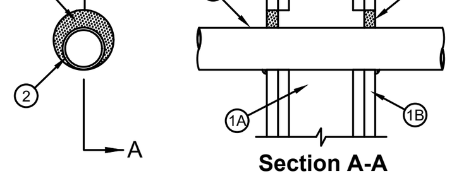
1. **Wall Assembly -** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, V300, U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing in all four sides.
   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, V300, U400, V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 24-5/8 in. (625 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
   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 Penetrant -** One metallic pipe, conduit or tube to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tube may be installed at an angle not greater than 45 degrees from perpendicular. The annular space between pipe, conduit or tube and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Pipe, conduit or tube to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe -** Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. **Iron Pipe -** Nom 24 in. (610 mm) diam (or smaller) cast or ductile iron pipe.
C. **Conduit -** Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit, nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing (EMT) or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
D. **Copper Tubing -** Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.
E. **Copper Pipe -** Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Firestop System -** The firestop system shall consist of the following:
   A. **Packing Material -** (Optional, Not Shown) - Mineral wool batt insulation, foam backer rod or glass fiber insulation installed as a permanent form to facilitate installation of fill material (Item 3B). Packing material recessed from both surfaces of wall as required to accommodate the required thickness of fill material.
   B. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At the point contact location or when the annulus between the through penetrant and wall is 1/8 in. (3 mm) or less, min 1/2 in. (13 mm) diam bead of fill material applied at the through penetrant/gypsum board interface.
   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro
   *** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 **System No. W-L-2816**

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 - 0, 1/4, 1 and 1-3/4 Hr (See Item 2)	FT Ratings - 0, 1/4, 1 and 1-3/4 Hr (See Item 2)
L Rating At Ambient - Less Than 1 CFM/ft2	FH Ratings - 1 and 2 Hr (See Item 1)
L Rating At 400°F - Less Than 1 CFM/ft2	FTH Ratings - 0, 1/4, 1 and 1-3/4 Hr (See Item 2)
	L Rating At Ambient - Less Than 5.1 L/s/m2
	L Rating At 204°C - Less Than 5.1 L/s/m2



Section A-A

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

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, V300, U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board* -** Thickness, type, number of layers, fastener type and sheet orientation as specified in the individual Wall and Partition Design. Diam of opening to be 1 in. to 1-1/8 in. (25 to 29 mm) larger than outside diam of through penetrant.
   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. When Item 2G or 2H is used, the hourly F and FH Ratings are 1 hr.

GENERAL NOTES:

1. Refer to section 07 84 00 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.
2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
   - Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Engineering Judgments shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
4. References:
   - UL Fire Resistance Directory; Current Edition
   - NFPA 101 Life Safety Code
   - All governing local and regional building codes
5. Firestop System installation must meet requirements of ASTM E-814 (UL 1479), ASTM E1966 (UL 1479), ASTM 1966 (UL 2079), ASTM E2307, or ULC-S115 (as required) in tested assemblies that provide a fire rating equal to that of the surrounding construction.

DIVISION 4: Masonry
DIVISION 7: Thermal & Moisture Protection
DIVISION 22: Plumbing

PROJECT NAME:
BLAZEMASTER CAULK & WALK PRO SEALANT

PROJECT LOCATION:
-

ARCHITECT/CONSULTANT:
-

TITLE:
STI FIRESTOP SYSTEMS

Specified Technologies Inc.
210 Evans Way
Somerville, NJ 08876 USA
www.stifirestop.com
Toll Free: 800-992-1180 • T: +1 908-526-8000 • F: +1 908-231-8415
• E: techserv@stifirestop.com • www.stifirestop.com

2. **Through Penetrant** - One nonmetallic pipe, conduit or tube to be installed eccentrically or concentrically within the firestop system. The annular space shall range from min 0 in. (point contact) to max 12 in. (13 mm), dependent upon the pipe, conduit or tube to be installed. Pipe, conduit or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. **Polyvinyl Chloride (PVC) Pipe** - Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in. (25 mm).
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 2 in. (51 mm) diam (or smaller) SDR 13.5 or Schedule 80 CPVC pipe for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in. (25 mm).
   C. **Rigid Nonmetallic Conduit** - Nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA 70). Annular space shall be min 0 in. (point contact) to max 1 in. (25 mm).
   D. **Electrical Nonmetallic Tubing** - Nom 2 in. (51 mm) diam (or smaller) PVC tubing installed in accordance with Article 331 of the National Electrical Code (NFPA 70). Annular space shall be min 0 in. (point contact) to max 1 in. (25 mm).
   E. **Cross Linked Polyethylene (PEX) Tubing** - Nom 1 in. (25 mm) diam (or smaller) SDR9 PEX tubing for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in. (25 mm).
   F. **Acrylonitrile Butadiene Styrene (ABS) pipe** - Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Annular space shall be min 1/4 in. (6 mm) to max 3/4 in. (19 mm).
   G. **Polyvinyl Chloride (PVC) Pipe** - Nom 3 in. (76 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in. (25 mm).
   H. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 3 in. (76 mm) diam (or smaller) SDR 17 CPVC pipe for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in. (25 mm).
   When Item 2A or 2B is used, the T, FT and FTH Ratings are 1/4 hr. When Item 2C, 2D, or 2E is used, the T, FT and FTH Ratings are 1 hr and 0.3/4 hr for 1 hr and 2 hr fire rated walls, respectively. When Item 2F, 2G, or 2H is used, T, FT and FTH Ratings are 0 hr.
3. **Firestop System** - The firestop system shall consist of the following:
   A. **Packing Material** - (Optional, Not Shown) - Mineral wool batt insulation, foam backer rod or glass fiber insulation installed within opening as a permanent form to facilitate installation of fill material. Packing material recessed from both surfaces of wall as required to accommodate the required thickness of fill material.
   B. **Fill, Void or Cavity Material* - Sealant** - Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/2 in. (13 mm) diam bead of fill material applied at nonmetallic pipe/gypsum board interface on both surfaces of wall.

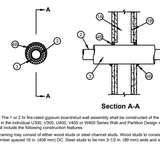
   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro

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

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-L-5380

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 - 0 and 2 Hr (See Item 1)	FT Ratings - 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 - 0 and 1 Hr (See Item 1)
	L Rating At Ambient - Less Than 5.1 L/s/m2
	L Rating At 400 F - Less Than 5.1 L/s/m2



Section A-A

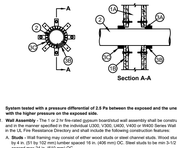
1. **Wall Assembly** - The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in individual U400 Series Floor-Wall Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board*** - Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 7 in. (178 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. The hourly T, FT and FTH Ratings of the firestop system are 0 when installed in a 1 hr rated wall.
2. **Through Penetrant** - One metallic pipe or tube to be installed eccentrically or concentrically within the firestop system. Pipe or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of metallic pipes and tubing may be used:
   A. **Steel Pipe** - Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. **Iron Pipe** - Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Copper Pipe** - Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.
   D. **Copper Tube** - Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tube.

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115

System No. W-L-2817

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, 1-1/2 and 2 Hr (See Items 1 and 3B)	FT Ratings - 1, 1-1/2 and 2 Hr (See Items 1 and 3B)
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, 1-1/2 and 2 Hr (See Items 1 and 3B)
	L Rating At Ambient - Less Than 5.1 L/s/m2
	L Rating At 204°C - Less Than 5.1 L/s/m2



Section A-A

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

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 U305, U309, U403, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board*** - Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Nom diam of opening is 1/4 to 12 in. (6 to 13 mm) larger than OD of through penetrant.

   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. The hourly T, FT and FTH Ratings are equal to the hourly fire rating of the wall in which it is installed except as noted under Item 3B.

2. **Through Penetrant** - One nonmetallic pipe or conduit to be installed eccentrically or concentrically within the firestop system. The annular space shall range from min 0 in. (point contact) to max 12 in. (13 mm), dependent upon the pipe or conduit to be installed. Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. **Polyvinyl Chloride (PVC) Pipe** - Nom 6 in. (152 mm) diam (or smaller) solid or cellular core Schedule 40 PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 6 in. (152 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
   C. **Rigid Nonmetallic Conduit** - Nom 6 in. (152 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA 70).
   D. **Acrylonitrile Butadiene Styrene (ABS) Pipe** - Nom 6 in. (152 mm) diam (or smaller) solid or cellular core Schedule 40 ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   E. **Fire Retardant Polypropylene (FRPP) Pipe** - Nom 6 in. (152 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
3. **Firestop System** - The firestop system shall consist of the following:
   A. **Fill, Void or Cavity Material* - Sealant** - Fill material installed to min 1/4 in. (6 mm) depth within annulus on both sides of wall.

   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro
   B. **Steel Collar** - Nom 1-1/2, 2, 3 or 4 in. (38, 51, 76 or 102 mm) deep collar, dependent upon wrap strip width, with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for securement to gypsum board and min 3/4 in. (19 mm) wide by 2 in. (51 mm) long tabs for securement to concrete, dependent upon wrap strip width. Collar, with anchor tabs bent outward 90 deg, wrapped tightly around wrap strip layers with min 1 in. (25 mm) overlap at seam. Retainer tabs to be bent 90 deg toward pipe to lock wrap strips in position. Anchor tabs to be secured to wall surfaces with 1 in. (25 mm) long steel screws. Collar to be secured to wall surfaces with 1 in. (25 mm) long steel screws. Collar to be secured to wall surfaces with 1/4 in. (6.2 mm) diam by min 2-3/4 in. (70 mm) long steel concrete anchors, symmetrically located, are required for nom 1-1/2 in. (38 mm) and 2 in. (51 mm) diam through penetrants. The number of holes and anchors is dependent upon the nom diam of the through penetrant. Min two hollow wall anchors, symmetrically located, are required for nom 1-1/2 in. (38 mm) and 2 in. (51 mm) diam through penetrants. Min four hollow wall anchors, symmetrically located, are required for nom 3 and 4 in. (76 and 102 mm) diam through penetrants. Min four hollow wall anchors, symmetrically located, are required for nom 3-1/2 in. (89 mm) and 4 in. (102 mm) diam through penetrants. Min six hollow wall anchors, symmetrically located, are required for nom 6 in. (152 mm) diam through penetrants.

      * When using one stack of four layers of wrap strip for nom 6 in. (152 mm) diam pipes, two layers of nom 1-1/2 in. (38 mm) wide by 1/4 in. (6 mm) thick intumescent wrap strip widths is to be wrapped around wrap strip and penetrant with min 1 in. (25 mm) overlap.
   C. **Firestop Device*** (Not Shown) - As an alternate to items 3B and 3C, a firestop device consisting of a galv steel collar lined with an intumescent material sized to fit the specific diam of the through penetrant may be used. Device shall be installed around through-penetrant in accordance with the accompanying installation instructions. Device secured to wall surfaces with fasteners installed through mounting holes spaced max 1-1/8 in. (3.2 mm) diam by 2-3/4 in. (70 mm) long steel molly bolts or toggle bolts in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers.

      SPECIFIED TECHNOLOGIES INC - SpecSeal Firestop Collar, SpecSeal LCC Collar or SpecSeal SSC Collar. When SpecSeal LCC Collar or SpecSeal SSC Collar are used, the max annular space shall be 1/8 in. (3 mm) less than 2-1/2 in. (64 mm) diam pipe and shall be max 1/4 in. (6 mm) for pipe larger than 2-1/2 in. (64 mm) diam.

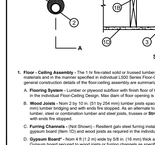
      •Bearing the UL Listing Mark

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

Classified by
Underwriters Laboratories, Inc.
to ASTM E814, UL 1479 (ASTM E814)

System No. F-C-2025

F Rating - 1 Hr
T Ratings - 0, 1/4, 3/4 and 1 Hr (See Item 2)
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft



Section A-A

1. **Floor - Ceiling Assembly** - The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction details of the floor-ceiling assembly are summarized below:
   A. **Flooring System** - Lumber or plywood subfloor with finish floor of lumber, plywood or **Floor Topping Mixture*** as specified in the individual Floor-Ceiling Design. Max diam of floor opening is 4 in. (102 mm).
   B. **Wood Joists** - Nom 2 by 10 in. (51 by 254 mm) lumber joists spaced 16 in. (406 mm) OC with nom 1 by 3 in. (25 by 76 mm) lumber bridging installed at mid-span as required in the individual Floor-Ceiling Design. Wood joists may be sawn lumber, steel or construction A wood I joists, trusses or **Structural Wood Members** with bridging as required and with ends fire stopped.
   C. **Furring Channels** - (Not Shown) - Resilient galv steel furring installed perpendicular to wood joists (Item 1B) between gypsum board (Item 1D) and wood joists as required in the individual Floor-Ceiling Design.
   D. **Gypsum Board*** - Nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Floor-Ceiling Design. Gypsum board secured to wood joists or furring channels as specified in the individual Floor-Ceiling Design. Max diam of ceiling opening is 4 in. (102 mm).

   1.1 Cross Wall - (Optional, Not Shown) - The through penetrant (Item No. 2) may be routed through a fire rated or non-fire rated single, double or staggered wood stud/gypsum board chase wall. When fire rated the chase wall shall be constructed of the materials and in the manner specified in individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
      A. **Studs** - Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or double 2 by 4 in. (51 by 102 mm) lumber studs.
      B. **Sole Plate** - Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, as required.
      C. **Top Plate** - The double top plate shall consist of two nom 2 by 4 in. (51 by 102 mm) or 2 by 6 in. (51 by 152 mm) or two sets of parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly bolted. Max diam of opening is 4 in. (102 mm).
      D. **Gypsum Board*** - Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.

C. **Steel Collar** -Nom 1-1/2, 2, 3 or 4 in. (38, 51, 76 or 102 mm) deep collar, dependent upon wrap strip width, with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for securement to gypsum board and min 3/4 in. (19 mm) wide by 2 in. (51 mm) long tabs for securement to concrete, dependent upon wrap strip width. Collar, with anchor tabs bent outward 90 deg, wrapped tightly around wrap strip layers with min 1 in. (25 mm) overlap at seam. Retainer tabs to be bent 90 deg toward pipe to lock wrap strips in position. Anchor tabs to be secured to wall surfaces with 1 in. (25 mm) long steel screws. Collar to be secured to wall surfaces with 1/4 in. (6.2 mm) diam by min 2-3/4 in. (70 mm) long steel concrete anchors, symmetrically located, are required for nom 1-1/2 in. (38 mm) and 2 in. (51 mm) diam through penetrants. The number of holes and anchors is dependent upon the nom diam of the through penetrant. Min two hollow wall anchors, symmetrically located, are required for nom 1-1/2 in. (38 mm) and 2 in. (51 mm) diam through penetrants. Min four hollow wall anchors, symmetrically located, are required for nom 3 and 4 in. (76 and 102 mm) diam through penetrants. Min four hollow wall anchors, symmetrically located, are required for nom 3-1/2 in. (89 mm) and 4 in. (102 mm) diam through penetrants. Min six hollow wall anchors, symmetrically located, are required for nom 6 in. (152 mm) diam through penetrants.

   * When using one stack of four layers of wrap strip for nom 6 in. (152 mm) diam pipes, two layers of nom 1-1/2 in. (38 mm) wide by 1/4 in. (6 mm) thick intumescent wrap strip widths is to be wrapped around wrap strip and penetrant with min 1 in. (25 mm) overlap.
D. **Firestop Device*** (Not Shown) - As an alternate to items 3B and 3C, a firestop device consisting of a galv steel collar lined with an intumescent material sized to fit the specific diam of the through penetrant may be used. Device shall be installed around through-penetrant in accordance with the accompanying installation instructions. Device secured to wall surfaces with fasteners installed through mounting holes spaced max 1-1/8 in. (3.2 mm) diam by 2-3/4 in. (70 mm) long steel molly bolts or toggle bolts in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers.

   SPECIFIED TECHNOLOGIES INC - SpecSeal Firestop Collar, SpecSeal LCC Collar or SpecSeal SSC Collar. When SpecSeal LCC Collar or SpecSeal SSC Collar are used, the max annular space shall be 1/8 in. (3 mm) less than 2-1/2 in. (64 mm) diam pipe and shall be max 1/4 in. (6 mm) for pipe larger than 2-1/2 in. (64 mm) diam.

   •Bearing the UL Listing Mark

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

2. **Through Penetrant** - One nonmetallic pipe, conduit or tubing to be installed within the firestop system. Diam of openings hole-sawed through flooring system and through gypsum board ceiling to be 1/4 to 1-5/8 in. (6 to 41 mm) larger than the outside diam of through penetrant. Pipe, conduit or tubing to be rigidly supported on both sides of the floor-ceiling assembly. The following types and sizes of nonmetallic pipes, conduits or tubing may be used:
   A. **Polyvinyl Chloride (PVC) Pipe** - Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. **The T Rating for the firestop system when this penetrant is used is 1 hr except that when nom diam of pipe exceeds 1 in. (25 mm), the T Rating is 1/4 hr.**
   B. **Rigid Nonmetallic Conduit (RNC)•** - Nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70). **The T Rating for the firestop system when this penetrant is used is 1 hr except that when nom diam of pipe exceeds 1 in. (25 mm), the T Rating is 1/4 hr.**
   C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 2 in. (51 mm) diam (or smaller) SDR 17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. **The T Rating for the firestop system when this penetrant is used is 1 hr except that when nom diam of pipe exceeds 1 in. (25 mm), the T Rating is 1/4 hr.**
   D. **Acrylonitrile Butadiene Styrene (ABS) Pipe** - Nom 2 in. (51 mm) diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. **The T Rating for the firestop system when this penetrant is used is 0 hr.**
   E. **Polybutylene (PB) Pipe** - Nom 1 in. (25 mm) diam (or smaller) SDR 11 PB pipe for use in closed (process or supply) piping systems. **The T Rating for the firestop system when this penetrant is used is 1 hr.**
   F. **Cross Linked Polyethylene Aluminum-Cross Linked Polyethylene (PEX AL-PEX) Tubing** - Nom 1 in. (25 mm) diam (or smaller) PEX AL-PEX tubing for use in closed (process or supply) piping systems. **The T Rating for the firestop system when this penetrant is used is 3/4 hr.**
   G. **Cross Linked Polyethylene (PEX) Tubing** - Nom 2 in. (51 mm) diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems. **The T Rating for the firestop system when this penetrant is used is 1 hr.**
   H. **Electrical Nonmetallic Tubing (ENT)•** - Nom 2 in. (51 mm) diam (or smaller) PVC tubing installed in accordance with Article 331 of the National Electrical Code (NFPA No. 70). **The T Rating for the firestop system when this penetrant is used is 1 hr except that when nom diam of tube exceeds 1 in. (25 mm), the T Rating is 1/4 hr.**
   I. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 2 in. (51 mm) diam (or smaller) Schedule 80 CPVC pipe for use in closed (process or supply) piping systems. **The T Rating for the firestop system when this penetrant is used is 1 hr except that when nom diam of pipe exceeds 1 in. (25 mm), the T Rating is 1/4 hr.**
   J. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 2 in. (51 mm) diam (or smaller) IPS SLEZMASTER® SDR13.5 CPVC pipe for use in closed (process or supply) piping systems. **The T Rating for the firestop system when this penetrant is used is 1 hr except that when nom diam of pipe exceeds 1 in. (25 mm), the T Rating is 1/4 hr.**

      When 2A, 2B, 2C, 2E, 2F, 2G, 2H, 2I or 2J is used, the annular space shall be min 0 in. (point contact) to max 1-5/8 in. (41 mm). When 2D is used, the annular space shall be min 0 in. (point contact) to max 1 in. (25 mm) except that when nom pipe diam exceeds 2-1/2 in. (64 mm), the annular space shall be 0 in. (point contact) to max 3/4 in. (19 mm).
3. **Fill, Void or Cavity Material* - Sealant** - Min 3/4 in. (19 mm) thickness of fill material applied within annulus on top surface of floor. Min 5/8 in. (16 mm) thickness of fill material applied within annulus on bottom surface of ceiling or lower limb girth of chase wall assembly. Additional fill material to be installed such that a min 1/8 in. (3 mm) crown is formed around the through penetrant at top surface of concrete floor or both surfaces of wood floor assembly.

   SPECIFIED TECHNOLOGIES INC - Blazemaster Caulk & Walk Pro

   •Bearing the UL Listing Mark
   •Bearing the UL Classification Marking

GENERAL NOTES:

1. Refer to section 07 84 00 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.
2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
   - Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Engineering Judgments shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
4. References:
   - UL Fire Resistance Directory; Current Edition
   - NFPA 101 Life Safety Code
   - All governing local and regional building codes
5. Firestop System installation must meet requirements of ASTM E-814 (UL 1479), ASTM E1966 (UL 1479), ASTM 1966 (UL 2079), ASTM E2307, or ULC-S115 (as required) in tested assemblies that provide a fire rating equal to that of the surrounding construction.

DIVISION 4: Masonry
DIVISION 7: Thermal & Moisture Protection
DIVISION 22: Plumbing

PROJECT NAME:
BLAZEMASTER CAULK & WALK PRO SEALANT

PROJECT LOCATION:
-

ARCHITECT/CONSULTANT:
-

TITLE:
STI FIRESTOP SYSTEMS

STI. Specified Technologies Inc.

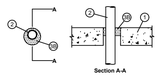
210 Evans Way
Somerville, NJ 08876 USA
www.stifirestop.com

Toll Free: 800-992-1180 ● T: +1 908-526-8000 ● F: +1 908-231-8415
● E: techserv@stifirestop.com ● www.stifirestop.com

Classified by
Underwriters Laboratories, Inc.
to ASTM E814, UL 1479 (ASTM E814)

System No. C-AJ-2945
F Rating - 2 Hr

T Rating - 1-1/4, 1-1/2, 1-3/4 and 2 Hr (See Item 3B)
L Rating At Ambient - 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 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks*** Max diam of opening is 5 in. (127 mm). See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. **Through Penetrant** - One nonmetallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space within the firestop system is dependent upon the max diam of through penetrant used and the min thickness of the fill material as tabulated in the table below. The following types and sizes of nonmetallic pipes or conduits may be used on both sides of floor or wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. **Polyvinyl Chloride (PVC) Pipe** - Nom 3 in. (76 mm) diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in closed (process or supply) piping systems.
   B. **Rigid Nonmetallic Conduit (RNC)•** - Nom 3 in. (76 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).
   C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 3 in. (76 mm) diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) piping systems.
   D. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** - Nom 3 in. (76 mm) diam (or smaller) BLAZEMASTER® SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

3. **Firestop System** – The firestop system shall consist of the following:
   A. **Packing Material** - (Optional, Not Shown) - Mineral wool batt insulation, foam backer rod or glass fiber insulation installed within opening as a permanent form to facilitate installation of fill material (Item 3B). Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
   B. **Fill, Void or Cavity Material* - Sealant** - Fill material applied within the annulus, flush with top surface of concrete floor or with both surfaces of wall. When required as tabulated in the table below, additional fill material to be installed such that a min 1/8 in. (3 mm) or 1/2 in. (13 mm) crown is formed around the penetrant at top surface of concrete floor or both surfaces of wood floor. The min thickness of the fill material as tabulated in the table below is the nom diam of through penetrant, max annular space, and the min thickness of the fill material as tabulated in the table below:

Type of Through Penetrant	Max Diam Of Through Penetrant, In. (mm)	Annular Space, In. (mm)	Min Fill Mat. Thickness, In. (mm)	Fill Crown, In. (mm)	F Rating, Hr
PVC or CPVC Pipe, RNC	2 (51)	1/4 to 3/8 (6 to 10)	1/2 (13)	1/8 (3)	1-1/4
PVC or CPVC Pipe, RNC	3 (76)	5/8 to 7/8 (16 to 22)	2 (51)	NA	1-1/2
CPVC (BLAZEMASTER® SDR13.5) Pipe	2 (51)	1/4 to 3/8 (6 to 10)	1/2 (13)	1/8 (3)	2
CPVC (BLAZEMASTER® SDR13.5) Pipe	2 (51)	5/8 to 1 (16 to 25)	2 (51)	1/2 (13)	2
CPVC (BLAZEMASTER® SDR13.5) Pipe	3 (76)	5/8 to 7/8 (16 to 22)	2 (51)	NA	1-3/4
CPVC (BLAZEMASTER® SDR13.5) Pipe	3 (76)	5/8 to 7/8 (16 to 22)	2-1/2 (64)	1/2 (13)	2

SPECIFIED TECHNOLOGIES INC – Blazemaster Caulk & Walk Pro

•Bearing the UL Listing Mark

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