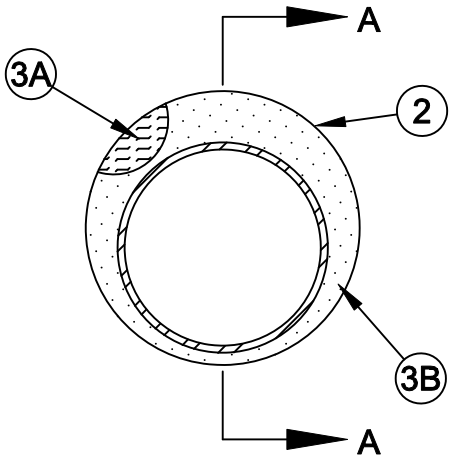
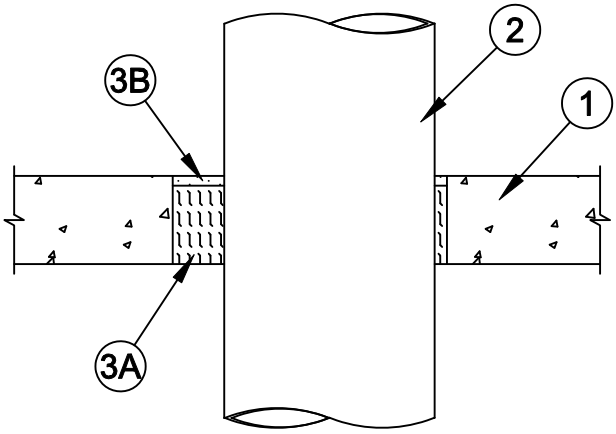
System No. C-AJ-1045

F Rating - 3 Hr
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft
W Rating - Class 1 (See Item 3B)





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/m3) concrete floor or min 5 in. (127 mm) thick reinforced lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 14 in. (356 mm).

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

2. **Through Penetrants -** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 5/8 in. (16 mm) to max 3-1/4 in. (83 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

   A. **Steel Pipe -** Nom 10 in. (254 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.

   B. **Iron Pipe -** Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.

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

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

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

3. **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/m3) 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* - Caulk -** 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.

   MOMENTIVE PERFORMANCE MATERIALS - Pensil 100 Caulk for floors and walls.

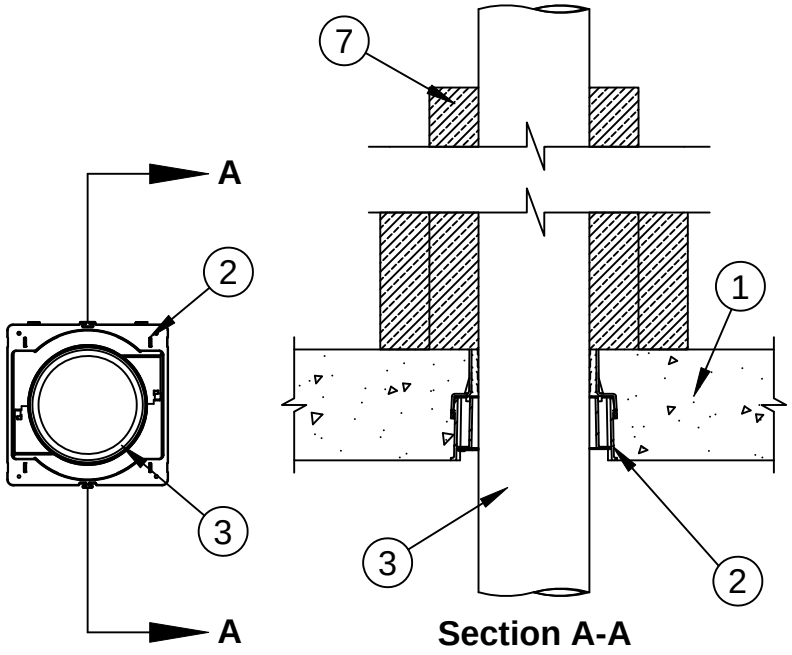
   SPECIFIED TECHNOLOGIES INC - Pensil 100 Sealant for floors and walls, Pensil 300 Sealant or SpecSeal Series SIL300 Sealant for floors and walls and Pensil 300 S/L Sealant or SpecSeal Series SIL300SL Sealant for floors only.

   W Rating applies only when Pensil 300, Pensil 300 S/L, SpecSeal Series SIL300 or SpecSeal Series SIL300SL Sealants are used.

   *Bearing the UL Classification Mark

System No. F-A-1118

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 2 Hr	F Rating - 2 Hr
T Rating - 2 Hr	FT Rating - 2 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft (See Items 3 and 6)	FT Rating - 2 Hr
L Rating At 400 F - Less Than 1 CFM/sq ft (See Items 3 and 6)	FTH Rating - 2 Hr
W Rating - Class 1 (See Item 6)	L Rating At Ambient - Less Than 1 CFM/sq ft (See Items 3 and 6)
	L Rating At 400 F - Less Than 1 CFM/sq ft (See Items 3 and 6)



Section A-A

1. **Floor Assembly -** Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete floor.

1A. **Alternate Floor Assembly -** (Not Shown) - The fire rated unprotected concrete and steel floor assembly shall be constructed of the material and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:

A. **Concrete -** Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete, as measured from the top plane of the steel floor units.

B. **Steel Floor and Form Units* -** Steel Floor and Form Units* - Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.

2. **Firestop Device* -** Cast in place firestop device permanently embedded during the concrete pour or grouted into the concrete assembly in accordance with the accompanying installation instructions. The throat of the firestop device may be cut flush with the top surface of the floor or extend beyond the top surface of the floor.

SPECIFIED TECHNOLOGIES INC - SpecSeal CD200, CD200M, CD300, CD300M, CD400 or CD400M Cast In Firestop Device

2A. **Firestop Device* -** (Not Shown) - When Item 1A is used, a steel deck adapter kit consisting of steel plates and a nonmetallic extension tube is used in conjunction with Item 2. Install the deck adapter in accordance with the accompanying installation instructions.

SPECIFIED TECHNOLOGIES INC - SpecSeal CD200DK, CD300DK, or CD400DK Cast In Firestop Device Deck Adapter

2B. **Firestop Device* -** (Not Shown) - When the concrete thickness exceeds 8 in. (204 mm), a nonmetallic extension tube is used in conjunction with Item 2. Install the extension tube in accordance with the accompanying installation instructions.

SPECIFIED TECHNOLOGIES INC - SpecSeal CD200X, CD300X, or CD400X Cast In Firestop Device Extension

3. **Through Penetrants -** One metallic pipe, tube, or conduit to be installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of the floor assembly. The following types and sizes of the metallic pipes or conduits may be used:

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

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

   C. **Conduit -** Nom 4 in. (102 mm) rigid steel conduit or steel electrical metallic tubing (EMT).

   D. **Copper Pipes or Tubing -** Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) or Regular (or heavier) copper pipe or tube.

Nom Pipe Diam+	Firestop Device
1-1/2 or 2 in. (38 or 51 mm)	CD200 or CD200M
2-1/2 or 3 in. (64 or 76 mm)	CD300 or CD300M
3-1/2 or 4 in. (89 or 102 mm)	CD400 or CD400M

   +When metallic pipe, conduit, or tubing with diam smaller than those shown in the table above are used, packing material and/or fill material shall be installed into the device as described in Items 4 and 5. L Ratings for these penetrants only apply when the fill material is used. Otherwise, the L Rating for each firestop device is less than 1 cfm at ambient and at 400F.

4. **Packing Material -** (Not Shown) - When required under Item 3, min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m3) mineral wool firmly packed into device flush with top edge of device (Item 2). When W or L Ratings are required for penetrants with a diam smaller than those shown in the table above, recess mineral wool 1/4 in. (6 mm) from top edge of device to accommodate sealant (Item 6).

5. **Fill, Void, or Cavity Material* -** Putty - (Not Shown) - When required under Item 3, as an option to Item 4, min 1 in. (25 mm) depth of fill material applied within device flush with top edge of device (Item 2).

   SPECIFIED TECHNOLOGIES INC - SpecSeal Putty

6. **Fill, Void, or Cavity Material* -** (Optional, Not Shown) - To achieve W or L Ratings for penetrants with a diam smaller than those shown in the table of Item 3, apply min 1/4 in. (6 mm) depth of sealant atop packing material (Item 4) flush with top edge of device.

   SPECIFIED TECHNOLOGIES INC - Pensil 300 Silicone Sealant, Pensil 300SL Silicone Sealant, SpecSeal Series SIL 300 Sealant or SpecSeal SIL 300SL Sealant

7. **Duct Wrap Material* -** Nom 2 in. (51 mm) thick duct wrap tightly wrapped around penetrant to extend 36 in. (914 mm) above floor. An additional layer of nom 2 in. (51 mm) thick duct wrap tightly wrapped around the first layer of duct wrap to extend 12 in. (305 mm) (914 mm) above floor. All longitudinal seams of both layers of duct wrap are sealed with foil tape.

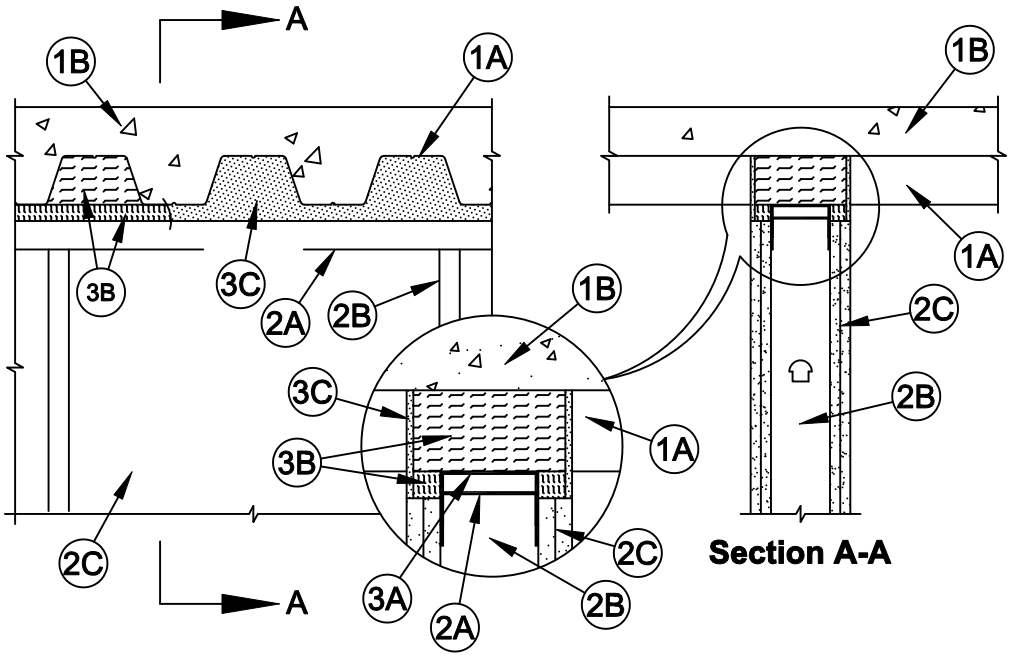
   THERMAL CERAMICS INC - FireMaster FastWrap XL, or Pyroscat Duct Wrap XL

   *Bearing the UL Classification Mark

   +Bearing the UL Listing Mark

System No. HW-D-0034

ANSI/UL2079	CAN/ULC S115
Assembly Ratings - 1 and 2 Hr (See Item 2)	F Ratings - 1 and 2 Hr (See Item 2)
Nominal Joint Width - 1 In.	FT Ratings - 1 and 2 Hr (See Item 2)
Class II Movement Capabilities - 7% or 25% Compression or Extension (See Items 1C, 1A-D)	FH Ratings - 1 and 2 Hr (See Item 2)
L Rating At Ambient - Less Than 1 CFM/sq ft	FTH Ratings - 1 and 2 Hr (See Item 2)
L Rating At 400 F - Less Than 1 CFM/sq ft	Nominal Joint Width - 1 In.
	Class II Movement Capabilities - 7% or 25% Compression or Extension (See Items 1C, 1A-D)
	L Rating At Ambient - Less Than 1 CFM/sq ft
	L Rating At 400 F - Less Than 1 CFM/sq ft



1. **Floor Assembly -** The fire-rated fluted steel deck/concrete 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* -** Max 3 in. (76 mm) deep galv steel fluted floor units.
   - B. **Concrete -** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.
   - C. **Spray-Applied Fire Resistive Material* -** (Optional, Not Shown) - After installation of the ceiling runner (Item 2A) or deflection channel (Item 3A), steel floor units to be sprayed with a min 5/16 in. (8 mm) to max 11/16 in. (17 mm) thickness of material in accordance with the specifications in the individual D700 or D800 Series Design. When spray applied fire resistive material is used, ceiling runner or deflection channel to be provided with 2 in. (51 mm) flanges. Excess material to be scraped from flanges of ceiling runner or deflection channel prior to installation of gypsum board. **When Spray-Applied Fire Resistance Material is used, Class II Movement Capabilities restricted to COMPRESSION ONLY.**

     ISOLATEK INTERNATIONAL - Type 300

     W R GRACE & CO - CONN - MK-6/HY

1A. **Roof Assembly -** (Not Shown) - As an alternate to the floor assembly (Item 1), a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700, P800 or P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the roof assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck -** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation -** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the steel roof deck.

C. **Roof Covering* -** Hot-mopped or cold-application materials compatible with insulating concrete.

D. **Spray-Applied Fire Resistive Material* -** (Optional, Not Shown) - After installation of the ceiling runner (Item 2A) or deflection channel (Item 3A), steel floor units to be sprayed with a min 5/16 in. (8 mm) to max 11/16 in. (17 mm) thickness of material in accordance with the specifications in the individual P700 or P800 Series Design. When spray applied fire resistive material is used, ceiling runner or deflection channel to be provided with 2 in. (51 mm) flanges. Excess material to be scraped from flanges of ceiling runner or deflection channel prior to installation of gypsum board. **When Spray-Applied Fire Resistance Material is used, Class II Movement Capabilities restricted to COMPRESSION ONLY.**

ISOLATEK INTERNATIONAL - Type 300

W R GRACE & CO - CONN - MK-6/HY

1B. **Floor Assembly -** (Not Shown) - As an alternate to the floor assembly (Item 1), min 4-1/2 in. (114 mm) thick structural concrete (100-150 pcf or 1600-2400 kg/m3) or min 6 in. (152 mm) thick hollow-core **Precast Concrete Units***. See **Precast Concrete Units** (CFTV) category in Fire Resistance Directory for names of manufacturers.

2. **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 U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners -** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs. Ceiling runner to be provided with min 1-1/4 in. (32 mm) to max 2 in. (51 mm) flanges. When deflection channel (Item 3A) is used, flange height of ceiling runner is to be equal to or greater than flange height of deflection channel and the ceiling runner is to nest within the deflection channel with a 1/2 to 3/4 in. (13 to 19 mm) gap maintained between the top of the ceiling runner and the top of the deflection channel. When deflection channel is not used, ceiling runner to be provided with min. 1-1/2 in. (38 mm) flanges. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors or welds spaced max 24 in. (610 mm) OC.

A1. **Light Gauge Framing* - Slotted Ceiling Runner -** As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Items 2B). Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS - SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO - CST

CLARKDIETRICH BUILDING SYSTEMS - Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC - Type SLT

QUAIL RUN BUILDING MATERIALS INC - Slotted Deflection Track

SCAFCO STEEL STUD MANUFACTURING CO

STEELER INC - Steeler Slotted Ceiling Runner

TELLING INDUSTRIES L L C - True-Action Deflection Track

A2. **Light Gauge Framing - Floor and Ceiling Runners -** As an alternate to the ceiling and floor runners in Item 2A, 2A1 and 2A2, floor and ceiling runners to consist of galv steel channel sized to accommodate the Light Gauge Framing* Slotted Stud (Item 2B1) or Light Gauge Framing* Slider C-Clip System (Item 2B2). Floor and ceiling runners to be provided with min 1-1/4 in. and 3 in. (32 and 76 mm) flanges, respectively. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 12 in. (305 mm) OC. When ceiling runner is used, deflection channel (Item 3A) shall not be used.

STEELER INC - Floor and Ceiling Runners

A3. **Light Gauge Framing*- Notched Ceiling Runner -** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used.

OLMAR SUPPLY INC - Type SCR

A4. **Steel Framing Members* - Sound Isolation Clips -** (Not Shown) - As an alternate attachment means for the ceiling runner to the bottom of the floor or roof assembly when no deflection channel (Item 3A) is used, sound isolation clips installed in accordance with the accompanying installation instructions. Sound isolation clip installed through nom 1 in. (25 mm) diam hole in ceiling runner and attached to top of ceiling runner using four min No. 8 by 1/2 in. (13 mm) long self-tapping galv steel screws. Sound isolation clips to be installed adjacent to every stud location but not more than 24 in. (610 mm) OC and attached to the underside of floor or roof assembly using min 3/16 in. (5 mm) diam by 2-1/2 in. (64 mm) long steel masonry anchors.

PAC INTERNATIONAL INC - Type RSIC-U-HD

B. **Studs -** Steel studs to be min 3-1/2 in (89 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When deflection channel (Item 3A) is used, steel studs attached to ceiling runner with sheet metal screws located 1/2 in. (13 mm) below the bottom to the deflection channel. When deflection channel is not used, studs to nest in ceiling runner without attachment. When slotted ceiling runner (Item 2A2) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.

B1. **Light Gauge Framing* - Slotted Studs -** Slotted steel stud to be used in conjunction with **Light Gauge Framing* - Floor and Ceiling Runners** (Item 2A3). Slotted steel studs to be min 3-1/2 in. (89 mm) wide. Slotted steel studs cut 1 in. (25 mm) less in length than assembly height with bottom nesting in and secured to both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted steel stud spacing not to exceed 24 in. (610 mm) OC.

STEELER INC - Slotted Stud

B2. **Light Gauge Framing* - Slider C-Clip System -** As an alternate to the **Light Gauge Framing* - Slotted Steel Studs** (Item 2B1), a Slider C-Clip System consisting of a C shaped steel clip with a slotted opening and a steel stud to be used in conjunction with **Light Gauge Framing - Floor and Ceiling Runners** (Item 2A3). Steel clips and studs to be min 3-1/2 in. (89 mm) wide. Steel clip inserted into inside flange of steel stud without attachment. Total length of steel stud cut 1 in. (25 mm) less than assembly height with bottom of steel stud nesting in and secured to floor runner. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Ceiling runner secured to steel C-Clip by means of No. 10 by 3/4 in. (19 mm) long pan head steel screw located 3/8 in. (10 mm) below top of ceiling runner. Top row of gypsum board screws shall be centered within the preformed slot of the C-Clip. Steel stud and steel clips spacing not to exceed 24 in. (610 mm) OC.

STEELER INC - Slider C Clip System

C. **Gypsum Board* -** Gypsum board sheets installed to a min total thickness of 5/8 in. or 1-1/4 in. (16 or 32 mm) on each side of wall for 1 hr or 2 hr fire rated wall, respectively. Wall to be constructed in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that a nom 1 in. (25 mm) gap shall be maintained between the top of the wallboard and the bottom surface of the steel floor or roof deck. The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 in. (25 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner or into the optional deflection channel

The hourly fire rating of the joint system is dependent upon the hourly fire rating of the wall assembly in which it is installed.

2A. **Through Penetrant -** (Optional, Not Shown) - Nom 3/8 in. or 1/2 in. (10 or 13 mm) diam rigid steel conduit, steel electrical metallic tubing (EMT) or 1-1/2 in. (38 mm) Sch 40 PVC conduit may be installed within the flutes of the steel floor or roof deck. The conduit or EMT shall be located near the middepth of the steel deck with a clearance of 1/2 to 1-1/2 in. 13 to 38 mm) between the conduit or EMT and the steel deck. A max of one conduit or EMT is permitted in an individual flute. **When conduit or EMT is installed in flute of steel deck, the hourly rating of the joint system is 1 hr.**

3. **Joint System - Max separation between bottom of floor or roof deck and top of wall (at time of installation of joint system) is 1 in. (25 mm). The joint system is designed to accommodate a max 7% (for SpecSeal LC150 Sealant) or 25 % (for SpecSeal ES Sealant) compression or extension from its installed width.** The joint system shall consist of forming and fill materials, with or without a deflection channel (Item 3A), as follows:

   A. **Deflection Channel -** (Optional) - Max 2 in. (51 mm) deep min 24 gauge galv steel channel sized to accommodate ceiling runner (Item 2A). Deflection channel installed perpendicular to direction of fluted steel deck and secured to valleys of with steel masonry anchors or welds spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1/2 to 3/4 in. (13 to 19 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner nests inside the deflection channel without attachment.

   B. **Forming Material* -** Min 4-1/4 in. or 5-5/8 in. (108 or 149 mm) depth, for 1 hr or 2 hr fire rated wall, respectively, of 4 pcf (64 kg/m3) mineral wool batt insulation cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into the flutes of the steel floor or roof deck between the top of the deflection channel and the steel floor or roof deck. When sound isolation clips (Item 2A5) are used, the space between the top of the ceiling runner and the underside of the floor or roof shall be tightly packed with mineral wool batt insulation. Additional 2 in. (51 mm) thick by 1 in. (25 mm) wide sections of mineral wool batt insulation are compressed 50 percent and installed cut edge first to fill the 1 in. (25 mm) gap between the top of the wall and bottom of the steel floor or roof deck. The forming material shall be recessed from each surface of wall to accommodate the required thickness of fill material.

      THERMAFIBER INC - Type SAF

      ROCK WOOL MANUFACTURING CO - Delta Safing

      ROCKWOOL MALAYSIA SDN BHD - Safe

      ROXUL INC - Safe

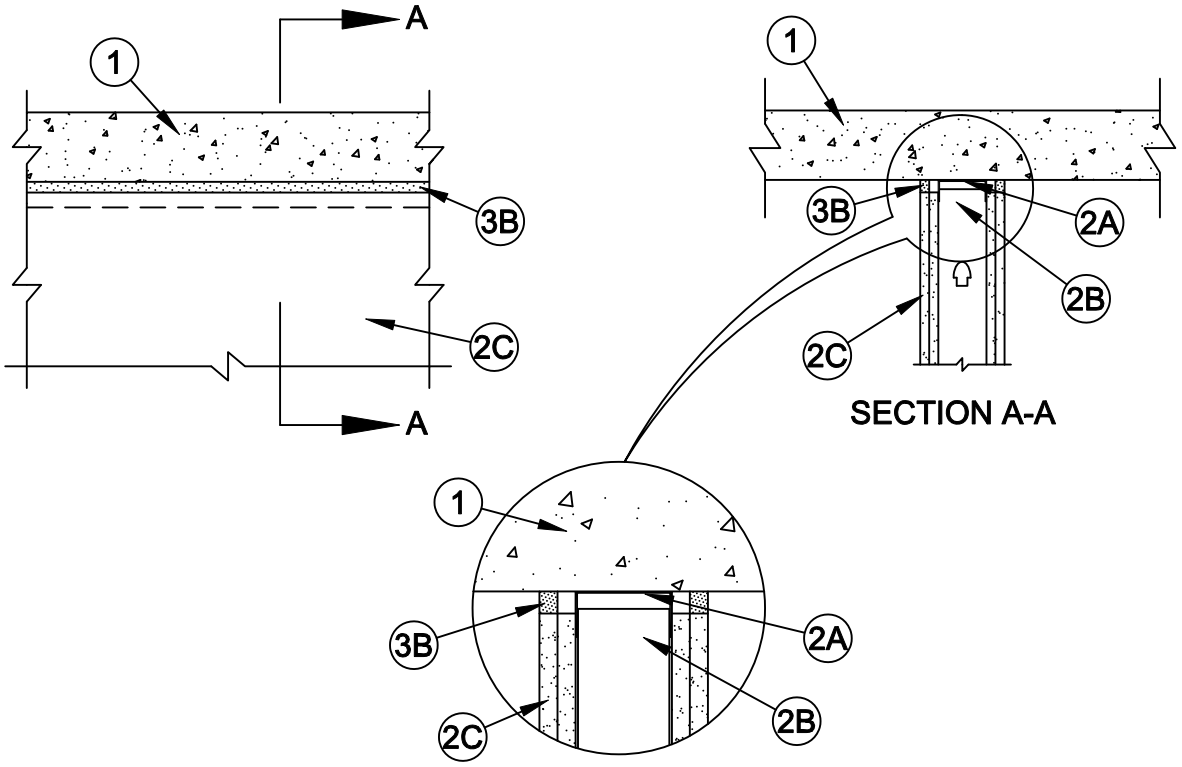
   C. **Fill, Void or Cavity Material* - Sealant -** Min 1/4 in. (6 mm) thickness of fill material installed on each side of the wall in the flutes of the steel floor or roof deck and between the top of the wall and the bottom of the steel floor or roof deck, flush with each surface of wall.

      SPECIFIED TECHNOLOGIES INC - SpecSeal ES Sealant, SpecSeal LC150 Sealant

      *Bearing the UL Classification Mark

System No. HW-D-0079

Assembly Ratings - 1 and 2 Hr (See Item 2)
Joint Width - 3/4 in. Maximum
L Rating At Ambient - Less Than 1 CFM/Lin Ft
L Rating At 400°F - Less Than 1 CFM/Lin Ft
Class II Movement Capabilities - 25% Compression



1. **Floor Assembly -** Min 4-1/2 in. (114 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) structural concrete. Floor may also be constructed of any min 6 in. thick (152 mm) UL Classified hollow-core **Precast Concrete Units***.
   See **Precast Concrete Units** (CFTV) category in Fire Resistance Directory for names of manufacturers.
2. **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 U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Steel Floor and Ceiling Runners -** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B) with min 1-1/4 in. (32 mm) long flanges. Ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC.
   A1. **Light Gauge Framing* - Slotted Ceiling Runner -** As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Items 2B). Ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC.
   CALIFORNIA EXPANDED METAL PRODUCTS CO - CST
   BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS - SLP-TRK
   MARINO/WARE, DIV OF WARE INDUSTRIES INC - Type SLT
   A2. **Light Gauge Framing* - Vertical Deflection Ceiling Runner -** As an alternate to the ceiling runner in Item 2A, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clip provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC.
   THE STEEL NETWORK INC - VertiTrack VTD358, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* - Notched Ceiling Runner -** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner secured to concrete floor slab with steel masonry anchors spaced max 24 in. (610 mm) OC.

OLMAR SUPPLY INC - Type SCR

A4. **Steel Framing Members* - Sound Isolation Clips -** (Not Shown) - As an alternate attachment means for the ceiling runner to the underside of the floor assembly, sound isolation clips installed in accordance with the accompanying installation instructions. Sound isolation clip installed through nom 1 in. (25 mm) diam hole in ceiling runner and attached to top of ceiling runner using four min No. 8 by 1/2 in. (13 mm) long self-tapping galv steel screws. Sound isolation clips to be installed adjacent to every stud location but not more than 24 in. (610 mm) OC and attached to the underside of floor assembly using min 3/16 in. (5 mm) diam by 2-1/2 in. (64 mm) long steel masonry anchors.

PAC INTERNATIONAL INC - Type RSIC-U-HD

B. **Studs -** Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 in. (13 mm) to 3/4 in. (19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When deflection channel (Item 3A) is used, steel studs attached to ceiling runner with sheet metal screws located 1/2 in. (13 mm) below the bottom of the deflection channel. When slotted ceiling runner (Item 2A2) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A3) is used, steel studs secured to slotted vertical deflection clips, through bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board* -** Gypsum board sheets installed to a min total thickness of 5/8 in. (16 mm) and 1-1/4 in. (32 mm) on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 3/4 in. (19 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the floor. In addition, the top row of screws shall be installed into the steel studs 1/2 to 1 in. (13 to 25 mm) below the bottom edge of the ceiling runner flange.

The hourly fire rating of the joint system is dependent on the hourly fire rating of the wall assembly in which it is installed.

3. **Joint System - Max separation between bottom of floor and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 25 percent compression from its installed width.** . The joint system consists of the following:

A. **Forming Material* -** (Not Shown) - In 2 hr fire rated wall assemblies, polyethylene backer rod, mineral wool batt insulation or fiberglass batt insulation friction fit into joint opening. When sound isolation clips (Item 2A5) are used to secure ceiling runner to underside of floor in 1 or 2 hr fire rated wall assemblies, the space between the top of the ceiling runner and the underside of the floor shall be tightly packed with mineral wool batt insulation. The forming material shall be recessed from each surface of wall to accommodate the required thickness of fill material.

ROCK WOOL MANUFACTURING CO - Delta Safing

ROCKWOOL MALAYSIA SDN BHD - Safe

ROCKWOOL - Safe

THERMAFIBER INC - Type SAF

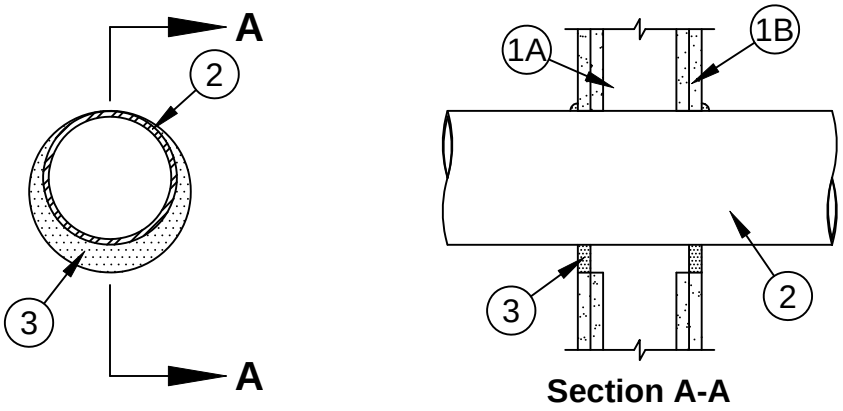
B. **Fill, Void or Cavity Material* - Sealant -** Min 1/2 in. (13 mm) thickness of fill material applied within joint opening on both sides of wall, flush with both surfaces of wall. As an option in 1 hr fire rated walls, bond breaker tape applied to ceiling channel (Item 2A) prior to installation of fill material.

SPECIFIED TECHNOLOGIES INC - SpecSeal ES Sealant

* 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-1049

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



Section A-A

1. **Wall Assembly -** The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition 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 3-5/8 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 on all four sides.

   B. **Gypsum Board* -** 5/8 in. (16 mm) thick, 4 ft (1.22 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 Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 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.

1A. **Metallic Sleeve -** (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) to max 0.105 in. (2.7 mm) thick sheet steel. Length of steel sleeve to be equal to the thickness of wall. Longitudinal seam of sleeve welded or overlapped min 1 in. (25 mm). The ends of the steel sleeve shall be flush or recessed max 1/4 in. (6 mm) from wall surfaces.

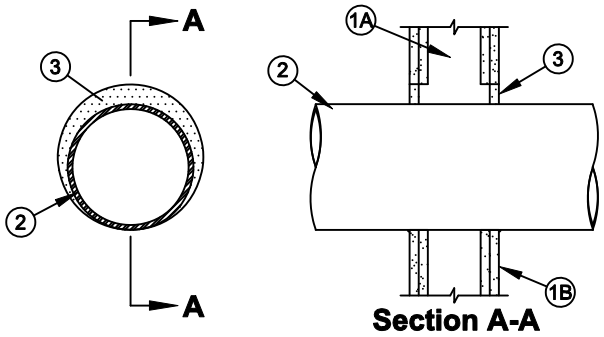
2. **Through Penetrant -** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). For maximum 16 in. (406 mm) diam (or smaller) pipes, annular space shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). Pipe, conduit or tubing 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 36 in. (914 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 36 in. (914 mm) diam (or smaller) cast or ductile iron pipe.
   C. **Conduit -** Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing, nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
   D. **Copper Tubing -** Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. **Copper Pipe -** Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At the point contact location between through penetrant and gypsum board, a min 3/8 in. (10 mm) diam bead of fill material shall be applied at the gypsum board/through penetrant interface on both surfaces of wall.

   SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

   *Bearing the UL Classification Mark

System No. W-L-1222

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



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

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

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

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

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

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

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

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

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

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

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

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

OMEGA FLEX INC

GASTITE, DIV OF TITEFLEX

WARD MFG L L C

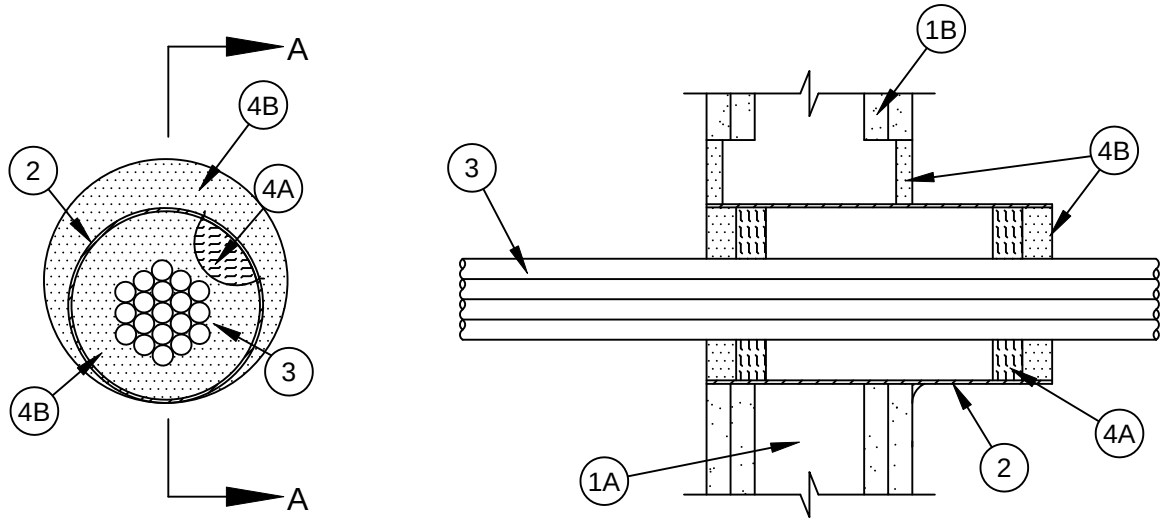
3. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. (6 mm) diam bead of fill material applied at metallic pipe/gypsum board interface on both surfaces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

SPECIFIED TECHNOLOGIES INC - SpecSeal LCI Sealant

*Bearing the UL Classification Mark

System No. W-L-3210

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



Section A-A

1. **Wall Assembly -** The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (76 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board* -** Thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400 , V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-1/2 in. (165 mm).
   The hourly F rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Steel Sleeve - (Optional) -** Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT), steel conduit, Schedule 5 (or heavier) steel pipe sleeve or min 0.016 in. thick (0.41 mm, No. 28 ga) galv steel sleeve installed flush with wall surfaces. The annular space between the steel sleeve and periphery of opening shall be min 0 in. (continuous point contact) to max 2 in. (51 mm). When Schedule 5 steel pipe or EMT is used, sleeve may be installed flush with or extend up to 18 in. (46 cm) beyond one or both wall surfaces. Steel sleeve may be installed at an angle not greater than 45 degrees from perpendicular. Schedule 5 steel pipe or EMT sleeves may extend continuously beyond one wall surface. Sleeve to be rigidly supported when extending from the wall surfaces.

3. **Cables -** Aggregate cross-sectional area of cables in steel sleeve to be max 48 percent of the aggregate cross-sectional area of the sleeve. Cables to be bundled and rigidly supported on both sides of wall assembly. The annular space between the cables and the sleeve shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). Cable bundle, using cables described below, may penetrate the wall at an angle not greater than 45 degrees. Any combination of the following types and sizes of copper conductor cable may be used:
   A. Max 200 pair No. AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.
   B. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
   C. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
   D. Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
   E. Max RG/U (or smaller) coaxial cable with fluorinated ethylene or plenum-rated insulation and jacketing.
   F. Max 62.5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.
   G. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.
   H. Max 4/C No. 2/0 aluminum or copper conductor aluminum or steel Metal-Clad# or Armored-Clad# cable.
4. **Firestop System -** The firestop system shall consist of the following:
   A. **Packing Material -** When required (See table in Item 3B), min 1 in. (25 mm) thickness of min 4.0 pcf (64 kg/m3) mineral wool batt insulation firmly packed into each end of sleeve as a permanent form. Packing material to be recessed from each end of sleeve as required to accommodate the required thickness of fill material.
   B. **Fill, Void or Cavity Material* - Sealant or Putty -** Fill material applied to appropriate thickness within steel sleeve, flush with edges of steel sleeve on both surfaces of wall. Min 1/2 in. (13 mm) thickness of fill material installed into annular space between sleeve and wall flush with both surfaces of the wall. Min 1/2 in. (13 mm) diam bead of sealant or "rope" of putty shall be applied around the perimeter of the sleeve on each side of the wall when sleeve extends beyond surface of wall and is installed at continuous point contact. See table below for fill material thickness requirements around cables.

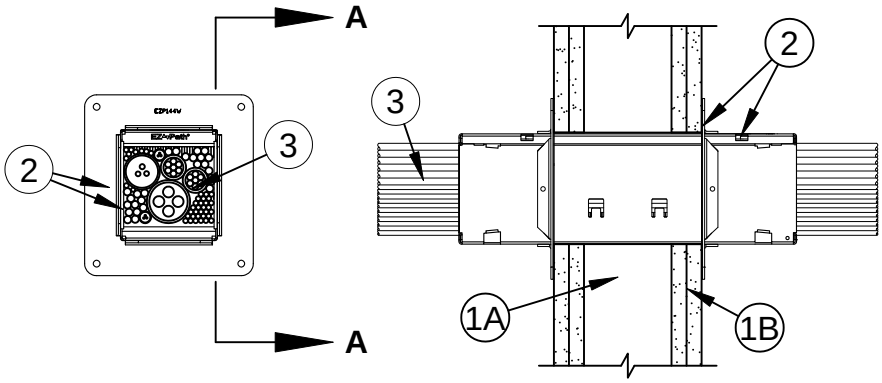
Sealant or Putty Type	Thickness, In. (mm)	Packing Material Required
SpecSeal Series SSS Sealant or LCI Sealant	1/2 in. (13)	Yes
SpecSeal Series SSS Sealant or LCI Sealant	1 in. (25)	No
SpecSeal Putty	1 in. (25)	No

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

*Bearing the UL Classification Mark

System No. W-L-3356

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 1 or 2 Hr (See Item 1)	F Rating - 1 or 2 Hr (See Item 1)
T Ratings - 0, 1/2, 1, 1-1/2 and 2 Hr (See Item 3)	FT Ratings - 0, 1/2, 1, 1-1/2 and 2 Hr (See Item 3)
L Rating At Ambient -2.3 CFM/Device Module	FH Rating - 2 Hr
L Rating At 400 F -2.3 CFM/Device Module	FTH Ratings - 0, 1/2, 1, 1-1/2 and 2 Hr (See Item 3)
	L Rating At Ambient -2.3 CFM/Device Module
	L Rating At 400 F - 2.3 CFM/Device Module)



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 within the individual U300, U400, V400 or W400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall incorporate 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 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 and fasteners as specified in the individual Wall and Partition Design. Opening in wall to be 6 in. (152 mm) diam or max 4-1/8 in. (105 mm) by 4-3/4 in. (121 mm).

The hourly F and FH Ratings are dependent upon the hourly rating of the wall in which it is installed.

2. **Firestop Device* -** The firestop device module consists of a 4 by 4-5/8 by 14 in. (102 by 118 by 356 mm) long galv steel tube with an intumescent material lining. Firestop device module to be installed in accordance with the accompanying installation instructions. The space between the firestop device and the periphery of the opening shall be min 0 in. (0mm, point contact) to max 1/4 in. (6 mm). Firestop device module secured in place by means of steel wall plates installed with gasketing material supplied with product. Steel wall plates installed on both sides of wall and secured to each device by means of steel screws provided with device. Firestop device module is to be installed with ends projecting an equal distance beyond each surface of the wall assembly.

   SPECIFIED TECHNOLOGIES INC - EZ PATH Series 44+ Fire Rated Pathway

2A. **Firestop Device* - Extension Module -** (Optional, Not Shown) - Module attached to ends of firestop device (Item 2) to increase its length to facilitate installation in thicker walls. Each module consists of a 4 by 4-5/8 by 6 in. (102 by 118 by 152 mm) long galv steel tube with an intumescent material lining. Extension module to be installed in accordance with the accompanying installation instructions. When module is used, firestop device (Item 2) and extension module secured in place by means of steel plates installed with gasketing material supplied with product. Steel plates installed on both sides of wall and secured to each device or extension module by means of steel set screws provided with plates. Firestop device and extension module assembly to be installed with ends projecting an equal distance beyond each surface of the wall assembly.

   SPECIFIED TECHNOLOGIES INC - EZ PATH Series 44+ Extension

3. **Cables -** Cables may represent a 0 to max 100 percent visual fill within the loading area for the firestop device module. Cables to be rigidly supported on both sides of the wall assembly. Any combination of the following types of cables may be used:

   A. Max 400 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.

   B. Max 750 kcmil single copper conductor power cable with XLPE jacket and insulation

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

   D. Max 3/C No. 2/0 AWG metal clad or armored cable with steel or aluminum jacket.

   E. Max 3/C No. 8 AWG NM cable (Romex) with PVC insulation and jacket.

   F. Max four pair No. 22 AWG (or smaller) copper conductor data cable with PVC or plenum rated jacketing and insulation.

   G. Coaxial cable with fluorinated ethylene or PVC insulation and jacketing having a max diam of 5/8 in. (16 mm).

   H. Optical fiber cable with PVC or polyethylene (PE) jacket and insulation and having a max diam of 5/8 in. (16 mm).

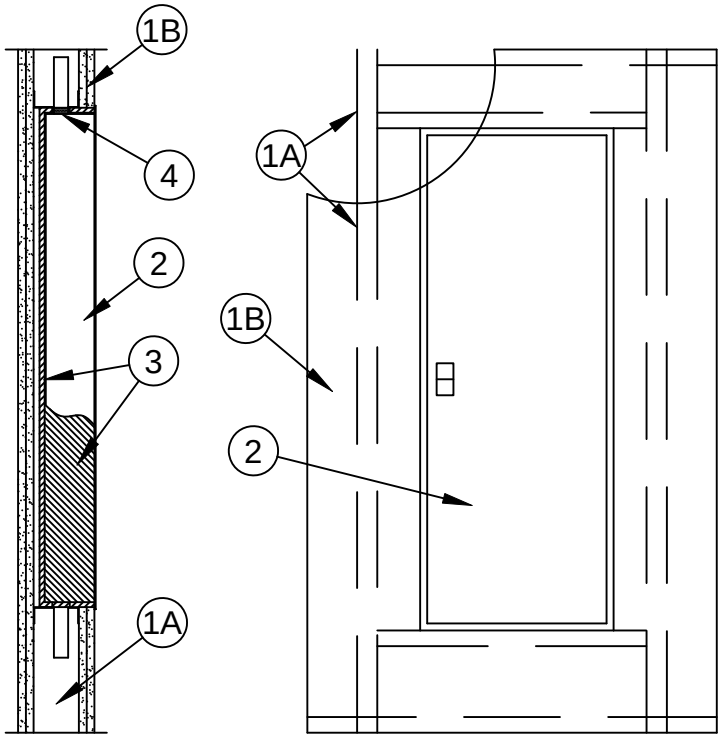
   For the Series 44+ firestop device and when Item 3A, 3B, 3C, 3D or 3E is used, the T, FT and FTH Ratings are 1 hr. When Item 3F or 3G is used, the T, FT and FTH Ratings 1-1/2 Hr. When Item 3H is used, the T, FT and FTH Ratings are 2 Hr. When device is empty, the T, FT and FTH Ratings are 1-1/2 Hr.

   +Bearing the UL Listing Mark

   *Bearing the UL Classification Mark

System No. W-L-7212

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



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 U400, V400 or W400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A **Studs -** Wall framing may consist of steel channel studs. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. Additional stud(s) installed horizontally or vertically as required for steel box attachment.
   B **Gypsum Board* -** Gypsum board type, thickness, number of layers, and orientation shall be as specified in the individual Wall and Partition Design. Size of cutout made to accommodate steel box (Item 2) and wrap material (Item 3). **The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.**
2. **Steel Box -** Max 14-3/8 in. (365 mm) wide by 39-1/8 in. (994 mm) steel electrical panel box, steel utility box, or steel med-gas valve box with hinged steel door and mounting flange. Steel box attached to wall framing using steel screws after application of wrap material (Item 3). Sides of steel box may be penetrated by min two min ½" (13 mm) diam steel pipe, iron pipe, copper pipe or tube, steel conduit or EMT. Steel conduit connectors may be used at interface with steel box. Open ends of pipes, tubes or conduits which terminate inside the box to be plugged with sealant or putty (Item 4).

3 **Fill, Void or Cavity Materials* - Wrap -** Nom 0.4 in. (10 mm) thick flexible sheet material. One layer sized to cover back and four sides of steel box. At corners of steel box, wrap cut horizontally or vertically, extending from corner of steel box to edge of wrap material. Circular openings made in wrap material to accommodate pipes, tubes or conduits sized max ½ in. (13 mm) larger than the outside diameter of the pipe, tube, or conduit. Wrap material folded to maintain contact with back and four sides of steel box. Corners of wrap folded to overlap wrap at opposing sides. At overlap, nom 5/8 in. (16 mm) for 1 Hr and 1-1/2 in. (32 mm) strip of wrap removed. Cut edges and seams of wrap material covered with one layer of aluminum foil tape. Prior to application of wrap material, a bead of construction adhesive to be applied to the back and side of steel box at edge.

SPECIFIED TECHNOLOGIES INC - Thermal Barrier Wrap.

4 **Fill, Void or Cavity Materials* - Putty or Sealant -** Min ½ in. (13 mm) thickness of sealant or putty applied into ends of pipes, tubes or conduits that terminate inside box. Additional putty or sealant to fill circular cutouts made to accommodate pipes, tubes or conduits. A min ¼ in. (6 mm) diam bead or sealant applied to exposed edge of wrap material.

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

*Bearing the UL Classification Mark

Fire Protection Worksheet

Project:

Contractor: CONSTRUCTION JOINTS

FIRESTOPPING SOLUTIONS

Construction Joint	Type of Assembly	Assembly Rating	Tested System #	Material Needed	Notes

Michael S. Bartkowski - Healthcare Specialist

Specified Technologies, Inc. *STI Firestop*

708-280-1161 mbartkowski@stifirestop.com

Fire Protection Worksheet

Project:

Contractor:

FIRESTOPPING SOLUTIONS

Through Penetrant	Assembly Penetrated	Insulated Y/N	Sleeved Y/N	Hourly Rating	U.L. Design	Material	Notes

Michael S. Bartkowski - Healthcare Specialist - Specified Technologies, Inc.

STI Firestop *708-280-1161* mbartkowski@stifirestop.com

Fire Protection Worksheet

Project:

Contractor: CONSTRUCTION JOINTS

FIRESTOPPING SOLUTIONS

Construction Joint	Type of Assembly	Assembly Rating	Tested System #	Material Needed	Notes
HEAD OF WALL	GYPSUM WALL TO FLUTED PAN DECK	1, 2-HR.	HW-D-0034	ES SEALANT	PERPENDICULAR
HEAD OF WALL	GYPSUM WALL TO FLUTED PAN DECK	1, 2-HR.	HW-D-0136	AS SPRAY	PERPENDICULAR
HEAD OF WALL	GYPSUM WALL TO FLUTED PAN DECK	1, 2-HR.	HW-D-0210	ES SEALANT	PARALELL
HEAD OF WALL	GYPSUM WALL TO FLUTED PAN DECK	1, 2-HR.	HW-D-0137	AS SPRAY	PARALELL
HEAD OF WALL	GYPSUM WALL TO FLUTED PAN DECK	1, 2-HR.	HW-D-0153	AS SPRAY	STRUCTURAL STL. SUPPORT
HEAD OF WALL	GYPSUM WALL TO FLUTED PAN DECK	1, 2-HR.	HW-D-0103	ES SEALANT	SCULPTED' GYPSUM
HEAD OF WALL	GYPSUM WALL TO CONCRETE DECK	1, 2-HR.	HW-D-0079	ES SEALANT	
HEAD OF WALL	GYPSUM WALL TO CONCRETE DECK	1-4-HR.	HW-D-0491	ES SEALANT	
HEAD OF WALL	CONCRETE / CMU TO FLUTED PAN DECK	2-HR.	HW-D-0236	ES SEALANT	PARALELL
HEAD OF WALL	CONCRETE / CMU TO FLUTED PAN DECK	2-HR.	HW-D-0054	AS SPRAY	PARALELL
HEAD OF WALL	CONCRETE / CMU TO FLUTED PAN DECK	2-HR.	HW-D-0442	AS SPRAY	PERPENDICULAR
HEAD OF WALL	CONCRETE / CMU TO CONCRETE DECK	1-4-HR.	HW-D-0086	ES SEALANT	
WALL TO WALL	CONCRETE TO CONCRETE	3-HR.	WW-D-1007	ES SEALANT	
WALL TO WALL	CONCRETE TO CONCRETE	2-HR.	WW-D-1006	AS SPRAY	
FLOOR TO FLOOR	CONCRETE TO CONCRETE	4-HR.	FF-D-0016	SIL300	
FLOOR TO FLOOR	CONCRETE TO CONCRETE	1 & 2-HR.	FF-D-1010	SIL300	

Michael S. Bartkowski - Terrtory Manager

Specified Technologies, Inc. *STI Firestop*

708-280-1161 mbartkowski@stifirestop.com

Fire Protection Worksheet

Project:

Contractor: DATA-COM & HTO'S / GYPSUM BARRIERS

FIRESTOPPING SOLUTIONS

Through Penetrant	Assembly Penetrated	Insulated Y/N	Sleeved Y/N	Hourly Rating	U.L. Design	Material	Notes
CABLE BUNDLE	GYPSUM	NO	PATHWAY	1 & 2-HR.	W-L-3356	EZ PATH SERIES 44+	100% CABLE FILL
CABLE BUNDLE	GYPSUM	NO	PATHWAY	1 & 2-HR.	W-L-3306	EZP 44+ - "GANGED"	100% CABLE FILL
CABLE BUNDLE	GYPSUM	NO	PATHWAY	1 & 2-HR.	W-L-3377	EZ PATH SERIES 33	100% CABLE FILL
CABLE BUNDLE	GYPSUM	NO	PATHWAY	1 & 2-HR.	W-L-3218	EZP 33 - "GANGED"	100% CABLE FILL
CABLE BUNDLE	GYPSUM	NO	YES	1 & 2-HR.	W-L-3275	READY SLEEVE	48% CABLE FILL
CABLE BUNDLE	GYPSUM	NO	YES	1 & 2-HR.	W-L-3210	SSP - PUTTY	48% CABLE FILL
SINGLE CABLE	GYPSUM	NO	GROMMET	1 & 2-HR.	W-L-3370	FIRESTOP GROMMET	
TWO CABLES	GYPSUM	NO	GROMMET	1 & 2-HR.	W-L-3379	FIRESTOP GROMMET	
CABLE BUNDLE	GYPSUM	NO	Y/N	1 & 2-HR.	W-L-3435	EZ PATH RETRO	OVERFILL FIX

Michael S. Bartkowski - Territory Manager - Specified Technologies, Inc.

STI Firestop ***708-280-1161*** mbartkowski@stifirestop.com