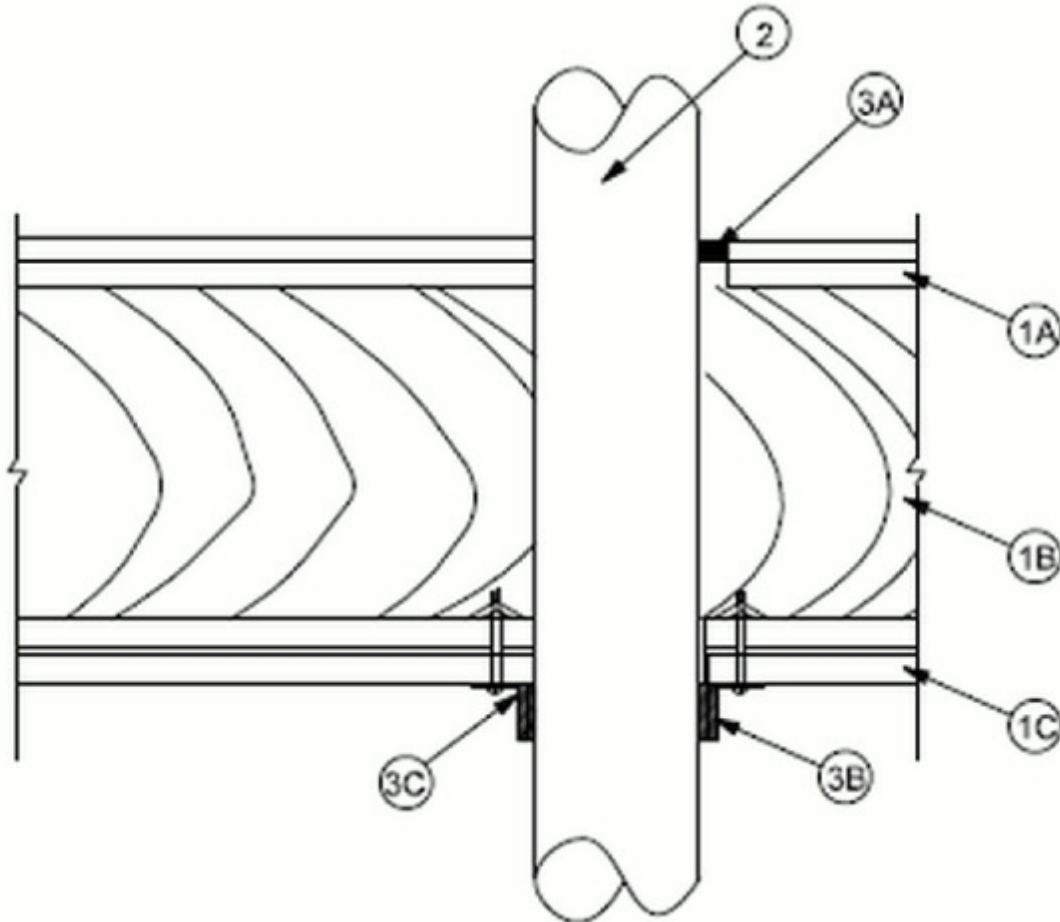




### System No. F-C-2409

March 19, 2013

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



**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 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 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.

**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 floor opening to be max 1/2 in. (13 mm) larger than outside diam of through penetrant (Item 3). Max diam of floor opening is 5 in. (127 mm).

**B. Wood Joists\*** — For 1 hr fire rated floor-ceiling assemblies 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. For 2 hr fire rated floor-ceiling assemblies, 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 and with ends firestopped.

**C. Furring Channels** — (Not Shown) — In 2 hr fire-rated assemblies, resilient galv steel furring installed perpendicular to wood joists between first and second layers of gypsum board (Item 1D). Furring channels spaced max 24 in. (610 mm) OC. In 1 hr fire rated assemblies, resilient galv steel furring (when required) installed perpendicular to wood joists between gypsum board and wood joists as specified in the individual Floor-Ceiling Design. Furring channels spaced max 24 in. (610 mm) OC.

**D. Gypsum Board\*** — Nom 4 ft (1.2 m) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. First layer of gypsum board secured to wood joists or furring channels as specified in the individual Floor-Ceiling Design. Second layer of gypsum board (2 hr fire rated assembly) screw-attached to furring channels as specified in the individual Floor-Ceiling Design. Diam of ceiling opening to be max 1/2 in. (13 mm) larger than outside diam of through penetrant (Item 2). Max diam of ceiling opening is 5 in. (127 mm).

**The F and T Ratings of the firestop system are dependent upon the hourly fire rating of the floor-ceiling assembly and the type of through penetrant as shown in Item 3.**

**2. Through Penetrants** — One nonmetallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The space the between pipe or conduit and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Pipe or conduit to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

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

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

**C. Electrical Nonmetallic Tubing (ENT+)** — Nom 2 in. (51 mm) diam (or smaller) corrugated-wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC) and installed in accordance with the National Electrical Code (NFPA No. 70).

See **Electrical Nonmetallic Tubing (FKHU)** category in the Electrical Construction Materials Directory for names of manufacturers.

**D. 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).

**E. Acrylonitrile Butadiene Styrene (ABS) Pipe** — Nom 3in. (76 mm) diam (or smaller) Schedule 40 solid or cellular core ABS 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\* — Caulk** — Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with bottom surface of ceiling. Min 3/8 in. (10 mm) diam bead of fill material applied at point contact locations.

**RECTORSEAL** — Metacaulk 1000 Biostop 500+, FlameSafe FS1900.

**B. Fill, Void or Cavity Material\* — Wrap Strip** — 1/4 in. (6 mm) thick by 2 in. (51 mm) wide wrap strip shall be used in conjunction with the steel collar (Item 3C). Layers of wrap strip are individually wrapped around the pipe or pipe and coupler with ends butted and held in place with tape. Butted ends in successive layers shall be offset. The edge of the wrap strip shall abut the surface of the ceiling. The pieces of wrap strip shall be temporarily secured in position using masking tape.

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

**C. Steel Collar** — Collar fabricated from coils of precut min 0.016 in. thick (No. 28 gauge) galv steel available from the fill material manufacturer. Collar shall be nom 2 in. deep with 1 in. wide by 1-1/4 in. long anchor tabs on 4 in. centers for securement to the wall. In addition, the collar contains retainer tabs, 3/4 in. wide, located opposite the anchor tabs. The collar shall be

wrapped over the pipe and overlapped min 2 in. The retaining tabs opposite the anchor tabs are folded 90 degrees towards the pipe to maintain the annular space around the pipe and to retain the caulk (Item 3A). Steel collar is slid along the pipe until it butts the bottom surface of the ceiling. Collar secured to surface at each anchor tab with 1-1/2 in. long laminate screws or 1/8 in. by 2 in. long hollow wall anchors. Collar installed on bottom of ceiling only.

**D. Firestop Device\*** — (As an alternate to Items 3B and 3C) Galv steel collar lined with an intumescent material sized to fit specific diam of the through penetrant. Device to be installed around through penetrant in accordance with accompanying installation instructions. Device incorporates anchor tabs for securement to underside of ceiling by means of 1-1/2 in. long laminate screws or 1/8 in. diameter by 2 in. long hollow wall anchors with 3/4 in. washers at each anchor tab. When chase wall is used, device to be secured to bottom of top plate with min 3/4 in. long No. 10 (or larger) wood screws.

**RECTORSEAL** — Metacaulk Pipe Collar, Biostop Pipe collar, FlameSafe Pipe Collar.

\*Bearing the UL Classification Mark