



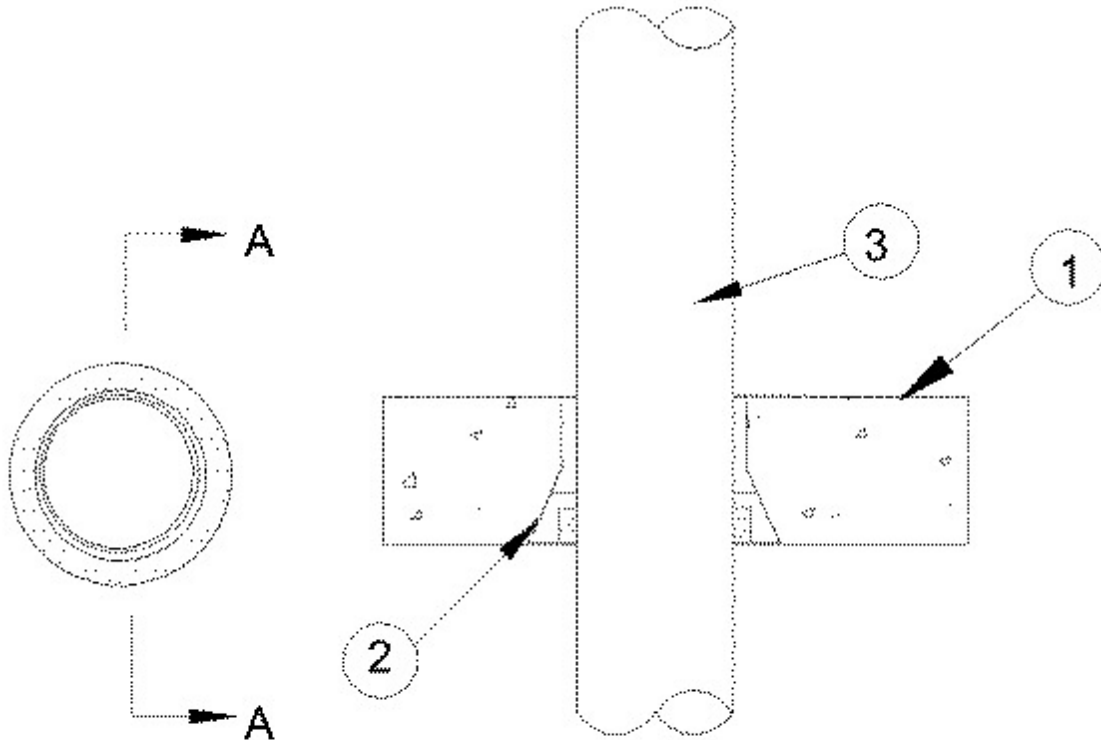
# System No. F-A-2149

December 27, 2007

F - Ratings — 2, 3 and 4 Hr (See Items 1 and 3)

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

W Rating — Class 1 (See Item 5)



## Section A-A

1. **Floor Assembly** — Min 2-1/2 in. (64 mm) and min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete.

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

A. **Concrete** — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete.

B. **Steel Floor and Form Units\*** — Composite or noncomposite max 3 in. (76 mm) deep fluted galv units as specified in the individual Floor-Ceiling design.

**The F Rating of the firestop system is dependent of the min thickness of the floor assembly and the type of through penetrant. See Item 3.**

2. **Firestop Device\*** — Cast in place firestop device permanently embedded during concrete placement in accordance with accompanying installation instructions. The device may project up to a max of 3-1/2 in. above top surface of floor or trimmed flush with top surface of floor. The devices are provided in three sizes, nom 2-1/2 in. (64 mm), nom 4 in. (102 mm) and nom 6 in. (152 mm) diam.

**2A. Metal Deck Adapter Kit** — (Not Shown) - Nom 2-1/2 in. (64 mm) or 4 in. (102 mm) adapter kit installed through opening in deck and secured with four sheet metal screws to deck in accordance with installation instructions. Adapter kit for use when installation is in metal decks and consists of a cardboard concrete form of the same size as the firestop device (Item 2).

**3. Through Penetrants** — One nonmetallic pipe or conduit installed within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor assembly. The nom pipe or conduit size shall be max 2-1/2 in. (64 mm) for the nom 2-1/2 in. (64 mm) device. The nom pipe or conduit size shall be max 4 in. (102 mm) for the nom 4 in. (102 mm) device. The nom pipe or conduit size shall be max 6 in. (152 mm) for the nom 6 in. (152 mm) device. A min 1/2 in. (13 mm) annular space shall be maintained between the penetrant and the sidewall of the device. The following types of metallic pipes or conduits may be used:

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

**B. Rigid Nonmetallic Conduit (RNC)+** — Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).

**C. Chlorinated Polyvinyl Chloride (CPVC) Pipe** — SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

**D. Acrylonitrile Butadiene Styrene (ABS) Pipe** — Schedule 40 solid core ABS or cellular core ABS (ccABS) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

**E. Fire Retardant Polypropylene (FRPP) Pipe** — Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

**The hourly F and T Ratings of the firestop system are dependent on the criteria shown in the table below:**

Min Floor Thickness, in. (mm)	Max Nom Penetrant Size, in. (mm)	Penetrant Type	F Rating, Hr	T Rating, Hr
2-1/2 (64)	4 (102)	A,B,C,D	2	1-1/4
4-1/2 (114)	4 (102)	A,B,C,D	3	3
4-1/2 (114)	2 (51)	E	3	3
4-1/2 (114)	4 (102)	E	2	2
4-1/2 (114)	6 (152)	A,B,C,D,E	3	3
4-1/2 (114)	6 (152)	A	4	3-1/2

**4. Packing Material** — (Not shown) - When penetrant less than nom 3 in. (76 mm) is installed within the nom 4 in. (102 mm) device and when penetrant less than nom 2 in. (51 mm) is installed within the nom 2-1/2 in. (64 mm) device, a min 3 in. (76 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation shall be firmly packed into the annular space between the penetrant and device as a permanent form. The packing material is to be installed flush with the top surface of the floor in min 4-1/2 in. (114 mm) thick floors. In min 2-1/2 in. (64 mm) floors, the firestop device (Item 2) shall extend min 2 in. (51 mm) above the top surface of floor and the packing material is to be recessed 1-1/2 in. (38 mm) below the top surface of the floor and extend upward a min of 2 in. (51 mm) above the top surface of the floor. When optional caulk (Item 5) is used, packing material to be recessed from top of device to accommodate the required thickness of caulk.

**5. Fill, Void or Cavity Material\* — Caulk** — (Optional, Not Shown) - Min 1/4 in. (6 mm) thickness for 2-1/2 in. (64 mm) and 4 in. (102 mm) CIP device and min 3/8 in. (10 mm) thickness for 6 in. (152 mm) CIP device. Caulk applied within device, flush with top surface of device.

**RECTORSEAL** — Biotherm 100, Biotherm 200SL or Biostop 750 with 2-1/2 in. (64 mm) CIP device only.

**W Rating only applies when the optional caulk is used.**

\*Bearing the UL Classification Mark