

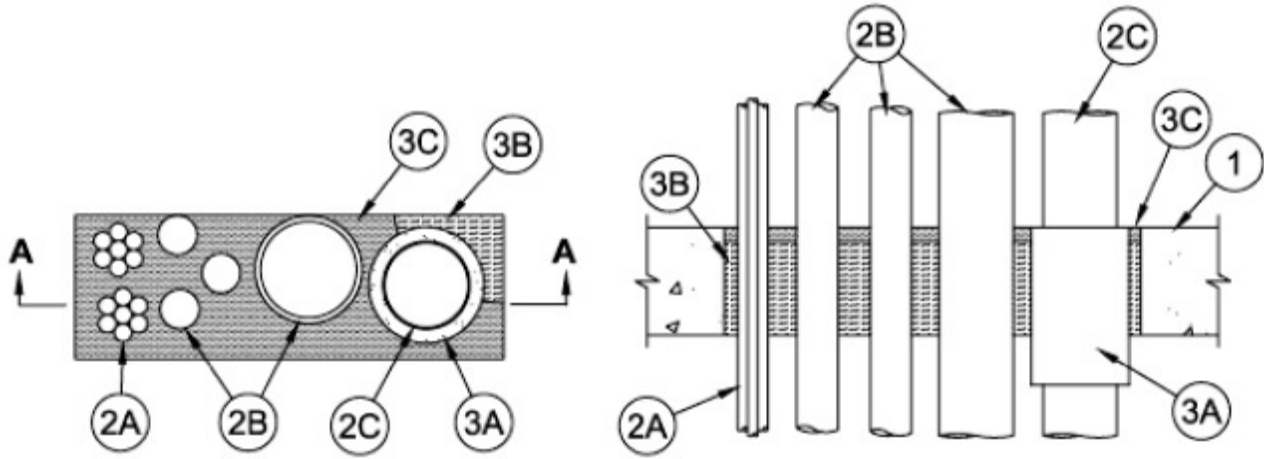


### System No. C-AJ-8204

March 10, 2011

F Rating — 3 Hr

T Rating — 0 Hr



**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/m<sup>3</sup>) concrete. Max area of opening is 216 in.<sup>2</sup> (1394 cm<sup>2</sup>) with a max dimension of 36 in. (914 mm).

2. **Through Penetrants** — Pipes, conduit or cables to be installed within the opening. The annular space between penetrants shall be min 1/2 in. (13 mm) to max 6 in. (152 mm). The space between penetrants and periphery of opening shall be min 0 in. (point contact) to max 6 in. (152 mm). Penetrants to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:

A. **Cables** — A max of two 3 in. (76 mm) diam (or smaller) cable bundles. The following types and sizes of cables may be used:

1. Max 300 pair No. 22 AWG (or smaller) copper conductor with polyvinyl chloride (PVC) insulation and jacketing material.
2. Max 1/C No. 4/0 AWG (or smaller) copper conductor cable with cross-linked polyethylene (XLPE) or PVC jacket.
3. Max 7/C No. 12 AWG (or smaller) copper conductor power and control cables with XLPE or PVC insulation with XLPE or PVC jacket.
4. Max 3/C No. 3/0 AWG (or smaller) copper or aluminum conductor SER cables with PVC insulation and jacket.
5. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
6. Max 110/125 fiber optic (F.O.) cable with PVC insulation and jacket.
7. Max 3/C with ground No. 8 AWG (or smaller) copper conductor NM cable with PVC insulation and jacket.
8. RG/U coaxial cable with fluorinated ethylene (FE) or PVC insulation and jacket.

9. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with Hylar jacket and insulation.

10. Max three conductor No. 12 AWG (or smaller) MC (BX) copper cable with polyvinyl chloride insulation and jacket materials.

11. **Through Penetrating Product\***-Any cables, **Armored Cable+** or **Metal Clad Cable+** currently Classified under the **Through Penetrating Product** category.

See **Through Penetrating Product** (XHLY) category in the Fire Resistance Directory for names of manufacturers

**B. Metallic Pipes** — A max of four pipes or conduits installed within opening. The following types and sizes of metallic pipes or conduits or tubing may be used:

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

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

**C. Nonmetallic Pipes** — A max of one nonmetallic pipe or conduit installed within opening. The following types and sizes of nonmetallic pipes or conduits may be used:

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

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

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

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

**B. Packing Material** — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall to accommodate the required thickness of fill material.

**C. 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 with both surfaces of wall. A min 1/2 in. (13 mm) diam bead of sealant to be applied at the penetrant/concrete interface at the point contact locations on top surface of floor or on both surfaces of wall.

\*Bearing the UL Classification Mark