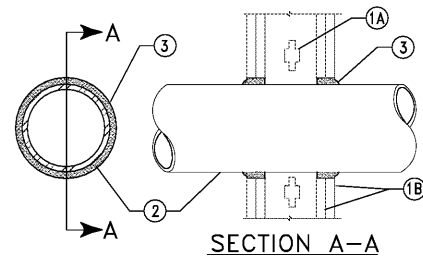


SYSTEM NO. W-L-1001

F Ratings - 1, 2, 3 and 4 Hr (See Items 2 and 3)
 T Ratings - 0, 1, 2, 3, and 4 Hr (See Item 3)
 L Rating @ Ambient - less than 1 CFM/sq ft
 L Rating @ 400° F - less than 1 CFM/sq ft



1. Wall Assembly - The 1, 2, 3 or 4 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 Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. Studs** - Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) 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 with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
- B. Gypsum Board*** - Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard 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).

2. Through Penetrant - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 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 conduits may be used:

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

3. Fill, Void or Cavity Material* - Caulk or Sealant - Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

| Max Pipe or Conduit Diam In | F Rating Hr | T Rating Hr |
|-----------------------------|-------------|-------------------------|
| 1 (25) | 1 or 2 | 0 ^a , 1 or 2 |
| 1 (25) | 3 or 4 | 3 or 4 |
| 4 (102) | 1 or 2 | 0 |
| 6 (152) | 3 or 4 | 0 |
| 12 (305) | 1 or 2 | 0 |

+When copper pipe is used, T Rating is 0 hr.

3M COMPANY - CP 25WB + or FB-3000 WT, *

*Bearing the UL Classification Marking

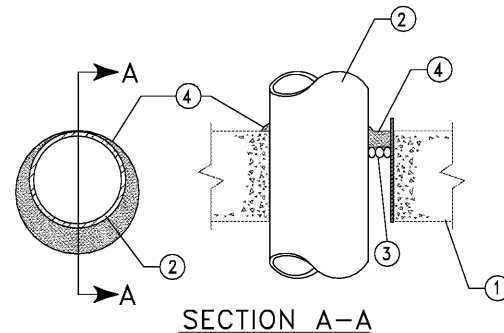
CONDUIT PENETRATION OF FIRE WALL (UL SYSTEM No W-L-1001)

NOT TO SCALE

ELECTRICAL DETAILS
 SCALE: N.T.S.

SYSTEM NO. C-AJ-1044

F Ratings - 2, 3, and 4 Hr (See Item 2A and 4)
 T Rating - 0 Hr
 L Rating @ Ambient - 2 CFM/sq ft
 L Rating @ 400° F - less than 1 CFM/sq ft
 W Rating - Class I (See Item 4)



1. Floor or Wall Assembly - Lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Except as noted in table under Item 4, min thickness of solid 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***. When floor is constructed of hollow core precast concrete units, packing material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is in solid lightweight or normal weight concrete. Floor is 32 in. (813 mm). Max diam of opening in floor 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.

1A. Steel Sleeve (Optional, not shown) - Nom. 16 in. (406 mm) diam. (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. (51 mm) above floor or below either surface of wall. As an alternate, nom. 16 in. (406 mm) diam. (or smaller) min 0.028 (0.71 mm) galvanized sheet steel sleeve cast or grouted into floor or wall assembly flush with floor or wall surface.

2. Through Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Max annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 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. Conduit** - Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
- B. Conduit** - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

3. Packing Material - Polyethylene backed min 1 in. (25 mm) thickness densely-packed mineral wool batt or glass fiber insulation firmly packed into opening as a permanent fire blocking material. To be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of caulk fill material (Item 4).

3A. Forming Material - As an alternate to the packing material in Item 3, nom. 4 in. (102 mm) wide strips of min. 1/2 in (13 mm) thick compressible material, stacked to a thickness greater than the width of the annular space and compression-fit edge-first, to fill the annular space to a min. 4 in. (102 mm) depth. As an option, the strips of min. 1/2 in. (13 mm) thick compressible material, divided in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression-fit edge-first, to fill the annular space to a min. 2 in. (51 mm) depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material.

3M COMPANY - Fire Barrier Packing Material.

4. Fill, Void or Cavity Material* - Caulk, Sealant - Applied to fill the annular space flush with top surface of floor. In wall assemblies, required caulk thickness to be installed symmetrically on both sides of wall, flush with wall surface. At point contact location between penetrant and sleeve or between penetrant and concrete, a min 1/4 in. (6 mm) diam bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min required caulk thicknesses are dependent upon a number of parameters, as shown in the following table:

| Max Floor or Wall Thkns In. (mm) | Nom Pipe Tube or Conduit Diam in. (mm) | Max Annular Space in. (mm) | Min Caulk Thkns in. (mm) | F Rating Hr |
|----------------------------------|--|----------------------------|--------------------------|-------------|
| 2-1/2 (64) | 1/2-12 (13-305) | 1-3/8 (35) | 1/2 (13) | 2 |
| 2-1/2 (64) | 1/2-12 (13-305) | 3-1/4 (83) | 1 (25) | 2 |
| 4-1/2 (114) | 1/2-6 (13-152) | 1-3/8 (35) | 1/4 (6) (a) | 2 |
| 4-1/2 (114) | 1/2-12 (13-305) | 1-1/4 (32) | 1/2 (13) | 3 |
| 4-1/2 (114) | 1/2-20 (13-508) | 2 (51) | 1 (25) | 3 |
| 4-1/2 (114) | 1/2-20 (13-508) | 2 (51) | 1 (25) | 3 |
| 4-1/2 (114) | 1/2-12 (13-305) | 3-1/4 (83) | 1 (25) | 3 |
| 4-1/2 (114) | 22-30 (558-762) | 2 (51) | 2 (51) | 3 |
| 5-1/2 (140) | 1/2-6 (13-152) | 1-3/8 (35) | 1 (25) (b) | 4 |

- a. Min 2 in. (51 mm) thickness of mineral wool batt insulation or forming material (Item 3A) required in annular space.
- b. Min 1 in. (25 mm) thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min 1 in. (25 mm) thickness of caulk to be installed flush with each surface of floor or wall assembly.

3M COMPANY - CP 25WB + or FB-3000 WT. (Note: W Rating applies only when FB-3000 WT sealant is used.)

*Bearing the UL Classification Marking

CONDUIT PENETRATION OF FIRE RATED FLOOR/WALL (UL SYSTEM No C-AJ-1044)

NOT TO SCALE

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 Fax: (727)-821-3361
 Certificate of Authorization #3173

Date: 06-15-2017
 Drawn: HH
 Designed: HH
 EOR: JAR
 Job no.: 17049

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 DEPARTMENT
 PLANNING AND DESIGN DIVISION
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DPW FILE NUMBER

DPW NUMBER
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ISSUE DATE
 07-28-2017

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REVISIONS
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SEAL

Jose A Rosario, P.E. FL. 74457

SCALE: N.T.S.

ELECTRICAL DETAILS 4/4

SHEET NUMBER

E4.4

X OF X

