System No. C-AJ-1044
March 15, 2007

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

Metallic Pipes

1. Floor or Wall Assembly – Lightweight or normal weight (100-150pcf 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 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 top of floor or beyond either surface of wall. As an alternate, nom 16 in. (406 mm) diam (or smaller) min 0.028 (0.71 mm) thick galvanized sheet steel sleeve cast or grouted into floor or wall assembly flush with floor or wall surfaces.

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 edge of through opening or sleeve is dependent on the parameters shown in Item 4. Min annular space between pipe or conduit and edge of through opening is 0 in. (point contact). Max annular space to be as shown in the table in Item 4. 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 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
B. Iron Pipe – Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
C. Conduit – Nom 6 in. (152 mm) diam (or smaller) rigid steel conduit.
D. Conduit – Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.
E. Copper Tubing – Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tube.
F. Copper Pipe – Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Packing Material – Polyethylene backer rod or nom 1 in. (25 mm) thickness of tightly-packed mineral wool batt or glass fiber 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 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 mat to be stacked to a thickness greater than the width of the annular space and compression-fitted, 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. (13mm) thick compressible mat may be folded in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression-fitted, 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:

<table>
<thead>
<tr>
<th>Min Floor or Wall Thkns In. (mm)</th>
<th>Nom Pipe Tube or Conduit Diam In. (mm)</th>
<th>Max Annular Space In. (mm)</th>
<th>Min Caulk Thkns In. (mm)</th>
<th>F Rating Hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1/2 (64)</td>
<td>1/2-12 (13-305)</td>
<td>1-3/8 (35)</td>
<td>1/2 (13)</td>
<td>2</td>
</tr>
<tr>
<td>2-1/2 (64)</td>
<td>1/2-12 (13-305)</td>
<td>3-1/4 (83)</td>
<td>1 (25)</td>
<td>2</td>
</tr>
<tr>
<td>4-1/2 (114)</td>
<td>1/2-6 (13-152)</td>
<td>1-3/8 (35)</td>
<td>1/4(6)(a)</td>
<td>2</td>
</tr>
<tr>
<td>4-1/2 (114)</td>
<td>1/2-12 (13-305)</td>
<td>1-1/4 (32)</td>
<td>1/2 (13)</td>
<td>3</td>
</tr>
<tr>
<td>4-1/2 (114)</td>
<td>1/2-20 (13-508)</td>
<td>2 (51)</td>
<td>1 (25)</td>
<td>3</td>
</tr>
<tr>
<td>4-1/2 (114)</td>
<td>1/2-20 (13-508)</td>
<td>2 (51)</td>
<td>1 (25)</td>
<td>3</td>
</tr>
<tr>
<td>4-1/2 (114)</td>
<td>1/2-12 (13-305)</td>
<td>3-1/4 (83)</td>
<td>1 (25)</td>
<td>3</td>
</tr>
<tr>
<td>4-1/2 (114)</td>
<td>1/2-20 (13-508)</td>
<td>2 (51)</td>
<td>2 (51)</td>
<td>3</td>
</tr>
<tr>
<td>5-1/2 (140)</td>
<td>1/2-6 (13-152)</td>
<td>1-3/8 (35)</td>
<td>1 (25)(b)</td>
<td>4</td>
</tr>
</tbody>
</table>

(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 is used.)

*Bearing the UL Classification Marking*