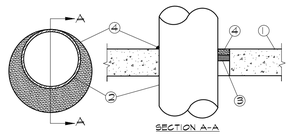
System No. C-AJ-1001

December 03, 1999
(Formerly System No. 49)
F Rating - 3 Hr
T Rating - 0 Hr



1. **Floor or Wall Assembly** Min 4-1/2 in. thick lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam. of circular through opening is 22-1/2 in.

See **Concrete Blocks** (CAZT) category in the Fire Resistant Directory for names of manufacturers.

1A. **Steel Sleeve** (Optional, not shown) - Nom 12 in. diam (or smaller) Schedule 40 (or heavier) steel pipe sleeve cast into concrete floor or wall. Sleeve to be flush with or project max 2 in. from top surface of floor or from both surfaces of wall.

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. (point contact) to max 1-3/8 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** Nom 30 in. diam (or smaller) Schedule 10 (or (heavier) steel pipe.

A1. Iron Pipe Nom 30 in. diam (or smaller) cast or ductile iron pipe.

B. Conduit Nom 6 in. diam (or smaller) rigid steel conduit.

C. Conduit Nom 4 in. diam (or smaller) steel electrical metallic tubing.

3. **Packing Material** Polyethylene backer rod or nom 1 in. thickness of tightly-packed ceramic (alumina silica) fiber blanket, mineral wool batt or glass fiber insulation material used as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of solid concrete or concrete block wall as required to accomodate the required thickness of caulk fill material (Item 4). As an alternate when max pipe size is 10 in. diam and when max annular space is 1 in., a min 1 in. thickness of tightly packed ceramic fiber blanket or mineral wool batt packing material may be recessed min 1/2 in. from bottom surface of floor or from either side of solid concrete wall.

4. Fill, Void or Cavity Materials* - Caulk Applied to fill the annular space to the min thickness shown in the following table:

Max Pipe Diam In.	Max Annular Space In.	Packing Mtl Type (a)	Min Caulk Thkns In.
10	1	BR, CF, CF or MW	1/2 (b)
10	1	CF or MW	1/2 (c)
20	2-1/2	BR, CF, CF or MW	1 (b)

(a) BR = Polyethylene backer rod.

CF = Ceramic fiber blanket.

GF = Glass fiber insulation.

MW = Mineral-wool batt.

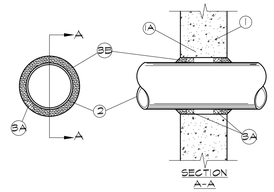
(b) Caulk installed flush with top surface of floor or both surfaces of wall

(c) Caulk installed flush with bottom surface of floor or one surface of solid (non-concrete block) wall

MINNESOTA MINING & MFG CO - Type CP 25WB+

System No. W-J-1025

December 17, 1996
F Rating - 2 Hr
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft



1. **Wall Assembly** Min 6 in. thick reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 6 in.

See **Concrete Blocks** (CAZT) category in the Fire Resistant Directory for names of manufacturers.

2. **Through Penetrants** One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space within the firestop system is dependent upon the type of through penetrant, use of the packing material, and pack and thickness of fill materials as tabulated in Item 3B. 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 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe** Nom 4 in. diam (or smaller) cast or ductile iron pipe.

C. **Conduit** Nom 4 in. diam (or smaller) steel electrical metallic tubing or rigid steel conduit.

D. **Copper Tubing** Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.

E. **Copper Pipe** Nom 4 in. diam (or smaller) Regular (or heavier) copper type.

3. **Firestop System** The firestop system shall consist of the following:

A. **Packing Material - Pipe and Equipment Covering Materials*** Nom 1 in. thick by min 2-1/2 in. long hollow cylindrical heavy density (min 3.5 pcf) unfaced glass fiber units wrapped around pipe and secured together by means of No. 24 AWG steel tie wire on both sides of the wall. Packing material shall be recessed from both surfaces of wall as required to accomodate the required thickness of fill material. The use of packing material within the firestop system is dependent upon the type of through penetrant and type and thickness of fill material within the firestop system used as tabulated in Item 3B.

See **Pipe and Equipment Covering - Material** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specification and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoked Developed Index of 50 or less may be used.

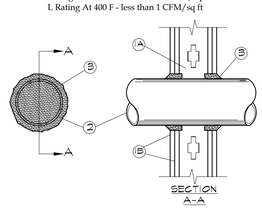
B. **Fill, Void or Cavity Material* - Caulk or Putty** Fill material applied within the annulus, on both surfaces of wall. Additional fill material to be installed such that a min 1/4 in. crown is formed around the through penetrant. At the point contact location between through penetrant and concrete, a min 3/8 in. diam bead of fill material shall be applied at the concrete/through penetrant interface on both surfaces of wall. The type and thickness of fill material is dependent upon the the type of through penetrant, annular within the firestop system and use of packing material within the firestop system as tabulated below:

Type of Through Penetrant	Nom Annular Space In.	Min Max Annular In.	Use of Packing Mtl	Type of Fill Mtl	Min Thkns of Fill Mtl In.
Steel or Iron Pipe	--	0, 1-1/2	Optional	Sealant	5/8
Steel or Iron Pipe	3/4	--	Required	Putty	3/4
Steel Conduit or Tubing	--	0, 1-1/2	Optional	Sealant	5/8
Steel Conduit or Tubing	3/4	--	Required	Putty	3/4
Copper Pipe or Tubing	3/4	--	Required	Sealant	3/4
Copper Pipe or Tubing	3/4	--	Required	Putty	3/4

SPECIFIED TECHNOLOGIES INC -- SpecSeal 100. 101 102 or 105 Sealant and SpecSeal Putty

System No. W-L-1001

January 18, 1999
(Formarly System No. 147)
F Rating - 1, 2, 3 and 4 Hr (See Items 2 and 3)
T Rating - 0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating At Ambient - less than 1 CFM/sq ft
L Rating At 400 F - less than 1 CFM/sq ft



1. **Wall Assembly** The 1, 2, 3 and 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 Partitions 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 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.

B. **Gypsum Board*** Nom 1/2 or 5/8 in. thick, 4 ft. 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 13-1/2 in.

2. **Pipe or Conduit** Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 12 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) Class 50 (or heavier) ductile iron pressure pipe, nom 6 in. diam (or smaller) steel conduit, nom 4 in. diam (or smaller) steel electrical metallic tubing, nom 6 in. diam (or smaller) Type L or (or heavier) copper tubing or nom 1 in. diam (or smaller) flexible steel conduit. **When copper pipe is used, max F Rating of firestop system (Item 3) is 2 h. Steel pipes or conduit larger than nom 4 in. diam may only be used in walls constructed using steel channel studs. A max of one pipe or conduit is permitted is the firestop system. Pipe or conduit to be installed near center of stud cavity width and to be rigidly supported on both sides of wall assembly.**

3. **Fill, Void or Cavity Material*** -- Caulk fill material to be installed to completely fill annular space between pipe or conduit and gypsum wallboard and with a min 1/4 in diam bead of caulk applied to perimeter of pipe or conduit at its egrees from the wall. Caulk installed symmetrically on both sides of wall assembly. 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 bellow:

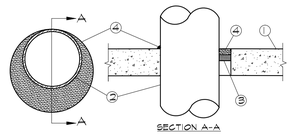
Max Pipe or Conduit Diam In.	Annular Space In.	F Rating Hr	T Rating Hr
1	0 to 3/16	1 or 2	0+, 1 or 2
1	1/4 to 1/2	3 or 4	3 or 4
4	0 to 1-1/2	1 or 2	0
6	1/4 to 1/2	3 or 4	0
12	3/16 to 3/8	1 or 2	0

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

MINNESOTA MINING & MFG CO - CP 25WB+.

System No. C-AJ-1141

July 31, 1996
F Rating - 3 Hr
T Rating - 0 Hr



(100-150 pcf) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 14 in.

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Through Penetrants** One metallic pipe, conduit or tube to be installed concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 1-3/8 in. Pipe, conduit or tube to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:

A. **Steel Pipe** Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Conduit** Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.

C. **Copper Tubing** Nom 3 in. diam (or smaller) Type L (or heavier) copper tubing.

3. **Packing Material** Min 2-1/2 in. thickness of min 4.0 pcf 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 as required to accomodate the required thickness of fill material.

4. **Fill, Void or Cavity Material* -- Sealant** Min 1 in. thickness of sealant applied within the annulus, flush with top surface of floor or with both surfaces of wall. A min 3/4 in. diam bead of sealant shall be applied at the pipe/concrete slab interface for a min 3 in. length on both sides of the point contact location.

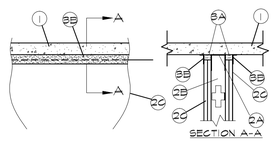
NPC SEALANT, DIV OF
NU-PUTTIE CORP -- NPC 50 Firestop

ELCO TEXTRON INC
CONSTRUCTION PRODUCTS DIV -- CFP Blaze Block

H9 | SYSTEM NO. C-AJ-1141

System No. HW-D-0170

September 28, 2001
Assembly Rating - 1 & 2 Hr (See Items 2 & 3A)
L Rating at Ambient - Less than 1 CFM/Lin Ft.
L rating at 400 F - Less than 1 CFM/Lin Ft.
Nominal Joint Width - in.
Class II Movement Capabilities - 25% Compression & Extension



1. **Floor Assembly** Min 4-1/2 in thick steel-reinforced lightweight or normal weight (100-150 pcf) structural concrete.

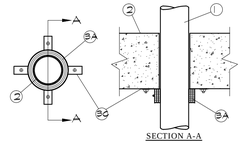
2. **Wall Assembly** The 1 or 2 hr fire rated gypsum wallboard/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400-Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor And Ceiling Runners** Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with min 1-1/2 in. flanges. Ceiling runner is secured to floor with steel masonry fasteners spaced max 24 in. OC.
A1. **Light Gauge Framing* - Slotted Ceiling Runner** As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Ceiling runner secured to floor with steel masonry fasteners spaced max 24 in. OC.
SLIPTRACK SYSTEMS INC -- SLP-TRK
B. **Studs** Steel studs to be min 3-1/2 in. wide. Studs cut 1/2 to 3/4 in. less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner is used, steel studs secured to runner with No. 8 by 1/2 in. long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in OC.
C. **Gypsum Board*** Gypsum board sheets installed to a min total thickness of 5/8 in. and 1-1/4 in. on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. gap shall be maintained between the top of the gypsum board and the lower surface of the floor and the top row of screws shall be installed into the studs 1 in. below the bottom of the ceiling runner. The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. **Joint System Max separation between bottom of floor and top of wall is 1 in. The joint system is designed to accommodate a max 25 percent compression or extension from its installed width.**
The joint system consists of the following:
A. **Forming Material*** Min 3/8 and 1 in. wide strips of min 4 pcf mineral wool batt insulation for 1 and 2 hr rated assemblies, respectively. Mineral wool strips to be compressed approximately 33 percent in thickness to fill the max 1 in. gap between top of gypsum board and bottom of floor on both sides of the wall and recessed from each surface of wall to accommodate the required thickness of fill material.
FIBREX INSULATIONS INC -- FBX Safing Insulation
OWENS CORNING HT INC, DIV OF
OWENS CORNING -- Safing Insulation/MW
ROCK WOOL MANUFACTURING CO -- Delta Board or Delta -8
ROXUL INC -- Type Safe
THERMAFIBER L L C -- Type SAF
B. **Fill, Void or Cavity Material* - Sealant** Min 1/4 in. thickness of sealant installed on each side of the wall between the top of the wallboard and the bottom of the floor to completely cover mineral wool. An additional min 1/8 in. thickness of sealant to overlap onto gypsum board a min of 1/2 in.

3M COMPANY -- FireBarrier 1000 NS
*Bearing the UL Classification Mark

System No. C-AJ-2001

October 03, 1997
(Formerly System No. 64-A)
F Rating - 2 Hr
T Rating - 0, 1-1/2 and 2 Hr (See Item 3)
L Rating at Ambient - 7 CFM/sq ft (See Item 3B)
L Rating at 400 F - 1CFM/sq ft (See Item 3B)



1. **Floor or Wall Assembly** Lightweight or normal weight (100-150 pcf) concrete. Except as footnoted for floor assembly in table under Item 3, min thickness of solid concrete floor or wall assembly is 4-1/2 in. Floor assembly may also be constructed of any min 6 in. thick UL Classified hollow core **Precast Concrete Units***. Wall may also be constructed of any UL Classified **Concrete Blocks***. Diam of opening through floor or wall to be 0 to 1/4 in. larger than the outside diam of nom 2 in. diam or smaller pipes or conduits. Diam of opening to be 0 to 1/2 in. larger than the outside diam of nom 2-1/2 in. diam and larger pipes or conduits. Max diam of opening is 7 in.

See **Concrete Blocks** (CAZT) and **Precast Concrete Units** (CFTV) categories in Fire Resistance Directory for names of manufacturers.

2. **Through Penetrants** One nonmetallic pipe or conduit to be centered in the through opening. Pipe or conduit to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

A. **Polyvinyl Chloride (PVC) Pipe** Nom 6 in. diam (or smaller) Schedule 40 solid-core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

B. **Cellular -- Core Polyvinyl Chloride (ccPVC) Pipe** Nom 4 in. diam (or smaller) Schedule 40 cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** Nom 6 in. diam (or smaller) SDR 17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

D. **Acrylonitrile Butadiene Styrene (ABS) Pipe** Nom 4 in. diam (or smaller) Schedule 40 solid-core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

E. **Cellular Core Acrylonitrile Butadiene Styrene (ccABS) Pipe** Nom 4 in. diam (or smaller) Schedule 40 cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

F. **Polybutylene (PB) Pipe** Nom 3 in. diam (or smaller) SDR11 (or heavier) PB pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

G. **Rigid Nonmetallic Conduit++** Nom 4 in. diam (or smaller) (Schedule 40 or 80) PVC conduit installed in accordance with Article 347 of the National Electric Code (NFPA No. 70).

H. **Flame Retardant Polypropylene (FRPP) Pipe** Nom 4 in. diam (or smaller) Schedule 40 (or heavier) FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

See Rigid Nonmetallic Conduit (DZKT) category in UL Electrical Construction Materials Directory for names of manufacturers.

3. **Firestop System** The details of the firestop system shall be as follows:

A. **Fill, Void or Cavity Materials* -- Wrap Strip** Nom 1/4 in. thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 1 and 2 in. wide strips. Strips tightly wrapped around nonmetallic pipe (foil side exposed) with the edges butted against the underside of the concrete floor or both sides of wall surface. Sufficient layers of wrap strip shall be installed to lap a min of 3/16 in. on the concrete around the entire perimeter of the through opening. The min wrap strip width and the min number of layers of wrap required is dependent upon the pipe type, the nom pipe diam, the wall of floor floor thickness and the hourly T Rating required, as shown in the following table:

Type of Through Penetrant	Nom Annular Space In.	Min Max Annular In.	Use of Packing Mtl	Type of Fill Mtl	Min Thkns of Fill Mtl In.
PVC, ccPVC or CPVC	1/2 to 1-1/2	2-1/2	1	1	0
ABS, ccABS or FRPP(a)	1/2 to 1-1/2	2-1/2	1	1	1
PVC, ccPVC or CPVC	1/2 to 2	2-1/2	2	1	0
PVC, ccPVC or CPVC	2	2-1/2	1	2	0
ABS, ccABS or FRPP(a)	2	2-1/2	1	2	1
PVC, ccPVC or CPVC	2-1/2 to 3	2-1/2	2	2	0
PVC, ccPVC or CPVC	3-1/2 to 4	2-1/2	2	3	0
PVC, ccPVC or CPVC	1/2 to 1-1/2	4-1/2	1	1	2
ABS, ccPVC or FRPP(a)					
PVC, ccPVC CPVC, ABS	2	4-1/2	1	2	2
ABS, ccABS or FRPP(a)					
PVC, ccPVC CPVC	2-1/2 to 3	4-1/2	1	3	2
ABS, ccABS or FRPP(a)					
PVC, ccPVC CPVC, ABS	2-1/2 to 3	4-1/2	2	2	2
ccABS, PB or FRPP(a)					
PVC, ccPVC CPVC	3-1/2 to 4	4-1/2	2	2	1-1/2
PVC, ccPVC CPVC	3-1/2 to 4	4-1/2	2	3	2
ABS, ccABS or FRPP(a)					
PVC	6(c)	4-1/2	3	3	0

System No. C-AJ-2001 (Continues)

(a) - Requires use of aluminum tape detailed in Item 3E.

(b) - Requires use of pipe covering detailed in Item 3D.

(c) - For nom 6 in. diam pipe, 1 in. and 2 in. wide wrap strips are "Stacked" to attain nom 3 in. wrap strip width.

Each layer of wrap strip to be installed with butted seam with butted seams in succesive layer staggered. Wrap strip layers temporarily held in position using aluminum foil tape, steel wire tie, or equivalent. In wall assemblies, the wrap strip is to be installed in the same manner used for floor assemblies, but it shall be installed symmetrically on both sides of the wall assembly.

MINNESOTA MINING & MFG CO - FS-195+

B. **Fill, Void or Cavity Materials* - Caulk or Putty** (Not Shown) - Generous bead of caulk or putty to be applied to outer perimeter or wrap strip at its interface with floor or wall surface(s).

MINNESOTA MINING & MFG CO - CP 25WB+ Caulk; Type MPS-2+ Putty. (Note: L Ratings apply only when type CP 25WB+ caulk is used.)

C. **Steel Collar** Nom 1, 2 or 3 in. deep collar, dependent upon wrap strip width, with 1-1/4 in. wide by 2 in. long anchor tabs and min 1/2 in. long tabs to retain wrap strip layers. Coils of precut 0.016 in. thick (28 gauge) galv sheet steel available from wrap strip manufacturer. As an alternate, collar may be field-fabricated from min 0.016 in. thick (28 gauge) galv sheet steel in accordance with instruction sheet supplied by wrap strip manufacturer. Steel collar, with anchor tabs bent outward 90 deg. wrapped tightly around wrap strip layers with min 1 in. overlap at seam. Anchor tabs to be pressed tightly against floor or wall surface(s), and collar to be compresed around wrap strip layers using a min 1/2 in. wide by 0.028 in. thick stainless steel band clamp at the collar midheight. Two band clamps are required for 3 in. high collar on nom 6 in. diam pipe. As an alternate to the band clamps, 1 in. and 2 in. deep collars may be secured by a means No. 10 by 1/2 in. long sheet metal screws installed in the vertical axis at the center of the 1 in. overlap along the perimeter joint of the collar. a min of two and three screws are required for 1 and 2 in. deep collars, respectively.

Collar to be secure to floor or wall surface(s) with 1/4 in. diam by min 1-1/2 in. long steel expansion bolts, or equivalent, in conjuction with steel nuts and min 1-1/4 in. diam steel fender washers. Anchor bolts to be used with every other anchor tab or as described in the following which ever is greater. Two anchor bolts, symmetrically located, required for nom 1/2 in. to nom 2 in. diam pipes. Three anchor bolts, symmetrically located, required for nom 2-1/2 to 3 in. diam pipes. Four anchor bolts, symmetrically located, required for nom 3-1/2 and 4 in. diam pipes. For 6 in. diam pipes, anchor bolts to be used with each anchor tab. Retainer tabs to be bent 90 deg toward pipe to lock wrap strip layers in position.

D. **Pipe Covering*** (Not Shown) - Nom 1 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. When required (see table), min 6 in. length of pipe covering installed around pipe at its egress from the steel collar (Item C) on the underside of floor or on both sides of wall. Pipe covering secured to pipe with steel wire ties spaced max 4 in. OC. Edge of pipe covering abutting steel collar to be sealed with a min 1/4 in. diam bead of caulk or putty (Item B).

See **Pipe and Equipment Covering - Materials** (BRGU) category in Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classifications Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

E. Firestop Device* (Not Shown) - As an alternate to Items A and C when nom 1-1/2, 2, 3, 4 or 6 in. diam nonmetallic pipes are used, a firestop device consisting of a sheet-steel split collar lined with intumescent material and provided with steel clips for attachment may be used. Firestop device to be installed on underside of floor or on both sides of wall in accordance with the accompanying installations instructions. The firestop device type to be used is dependent upon the wall of floor thickness, the pipe type and nom pipe diam, as tabulated below:

Pipe Type	Nom Pipe Diam In.	Min Wall or Floor Thkns In.	Firestop Device
PVC, ccPVC or CPVC	1-1/2	2-1/2	PPD 1.5 or PPD 150
ABS, ccABS or FRPP(a)			
PVC, ccPVC or CPVC	2	2-1/2	PPD 2 or PPD 200
ABS, ccPVC or FRPP(a)			
PVC, ccPVC or CPVC	3	2-1/2	PPD 300
PVC, ccPVC or CPVC	4	2-1/2	PPD 400
PB	1-1/2	4-1/2	PPD 150
PB	2	4-1/2	PPD 200
PVC, ccPVC or CPVC	3	4-1/2	PPD 3 or PPD 300
ABS, ccABS or FRPP(a)			
PB	3	4-1/2	PPD 300
PVC, ccPVC or CPVC	4	4-1/2	PPD 4 or PPD 400
ABS, ccPVC or FRPP(a)	4	4-1/2	PPD 400
PVC	6	4-1/2	PPD 6

(a) - Requires use of aluminum tape detailed in Item 3E.
(b) - Requires use of pipe covering detailed in Item 3D.
MINNESOTA MINING & MFG CO
++Bearing the UL Listing Mark

*Bearing the UL Classification Mark

A1 | SYSTEM NO. C-AJ-1001
A3 | SYSTEM NO. W-J-1025
A6 | SYSTEM NO. W-L-1001
A9 | SYSTEM NO. HW-D-0170
A12 | SYSTEM NO. C-AJ-2001

REVISION
ISSUE FOR PERMIT 4/8/16

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Date 4/4/16

A4.1