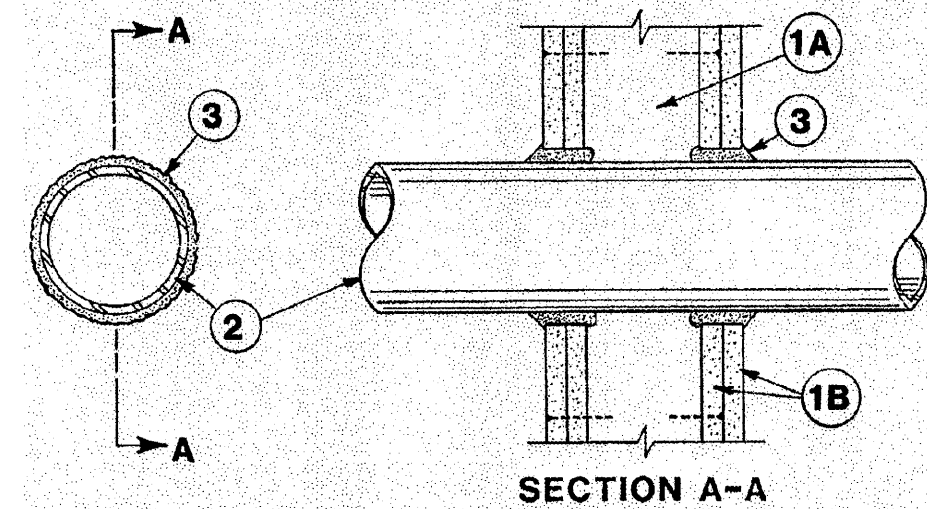


System No. W-L-1001
(Formerly System No. 147)
F Ratings—1, 2, 3 and 4 Hr (See Items 2 and 3)
T Ratings—0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating At Ambient—less than 1 CFM/sq ft
L Rating At 400 F—less than 1 CFM/sq ft

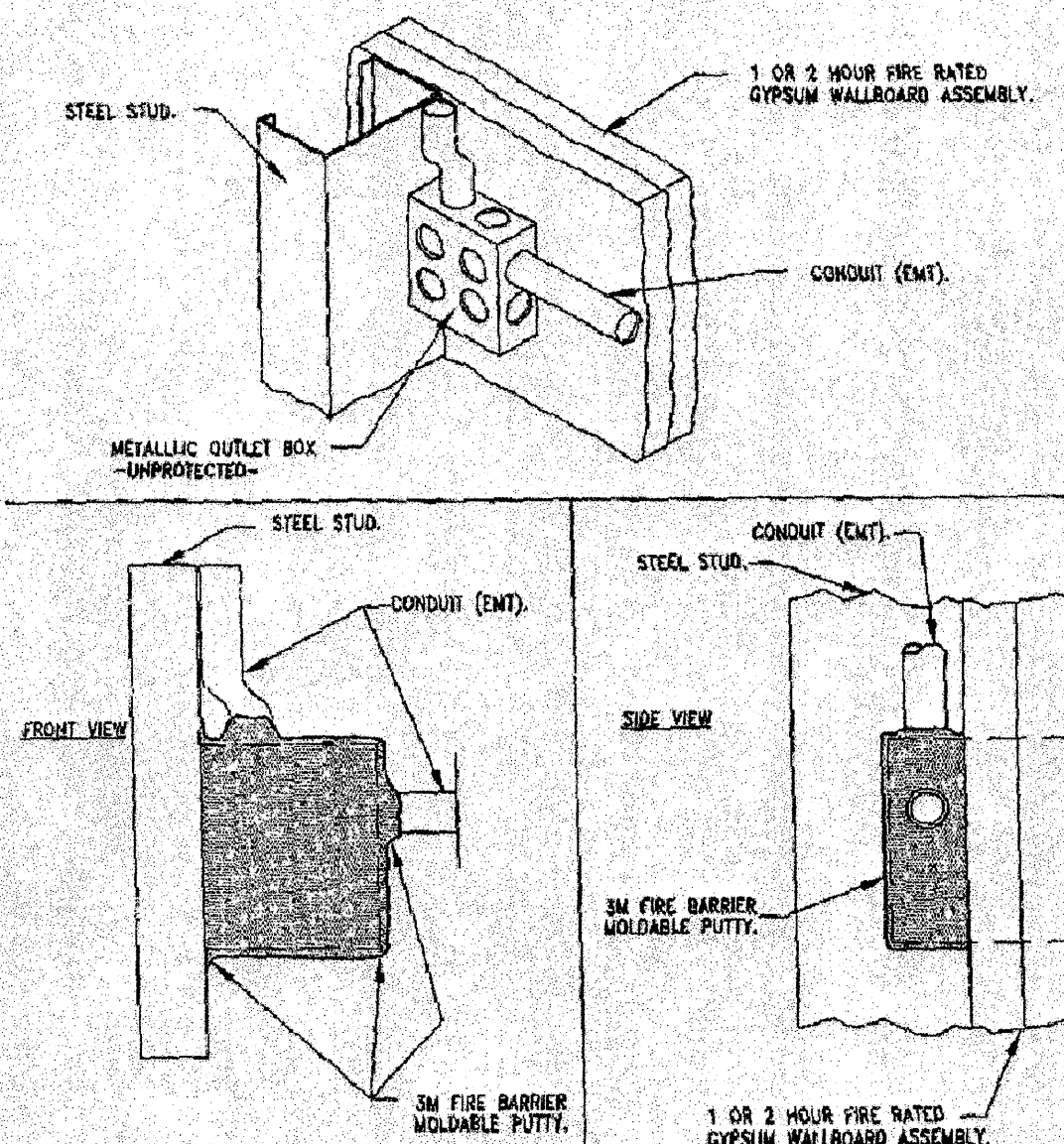


- Wall Assembly**—The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - 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. 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.
 - Wallboard, Gypsum***—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.
- Pipe or Conduit**—Nom 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 12 in. diam (or smaller) Class 50 (or heavier) cast iron soil pipe, nom 12 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 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 hr. Steel pipes or conduits larger than nom 4 in. diam may only be used in walls constructed using steel channel studs. A max one pipe or conduit is permitted in 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.**
- Fill, Void or Cavity Material***—Caulk—Caulk fill material 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 egress 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 below:

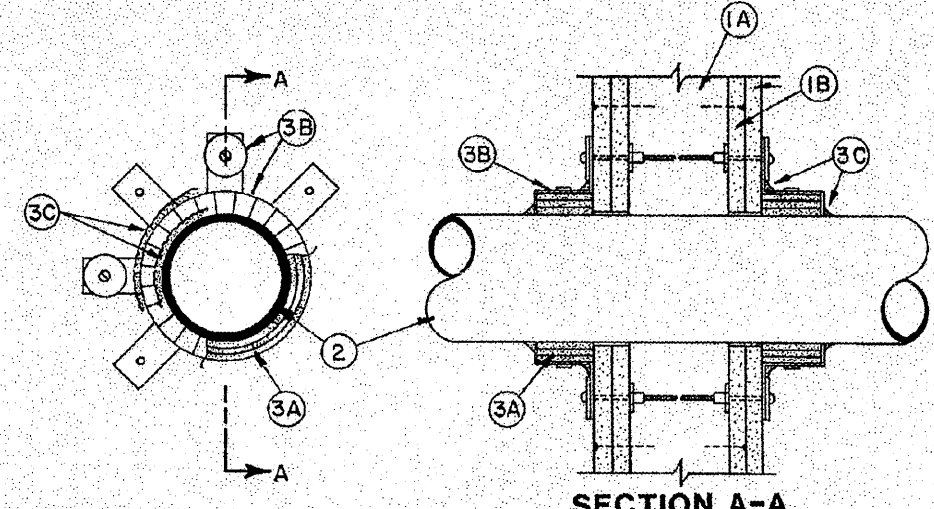
Max Pipe or Conduit Diam, In	Annular Space, In	F Rating, Hr	T Rating, Hr
1	0 to 3/16	1 or 2	0, 1 or 2
1	1/4 to 1/2	3 or 4	3 or 4
4	0 to 1-1/2	1 or 2	0
4	3/4 to 1/2	3 or 4	0
12	3/16 to 3/8	1 or 2	0

*When copper pipe is used, T Rating is 0 hr.
Minnesota Mining & Mfg. Co.—CP 25WB+.
*Bearing the UL Classification Marking

System No. CLIV



System No. W-L-2002
(Formerly System No. 149)
F Ratings—1, 1-1/2 and 2 Hr (See Item 3)
T Ratings—3/4, 1, 1-1/2 and 2 Hr (See Item 3)
L Rating At Ambient—7 CFM/sq ft (See Item 3C)
L Rating At 400 F—1 CFM/sq ft (See Item 3C)



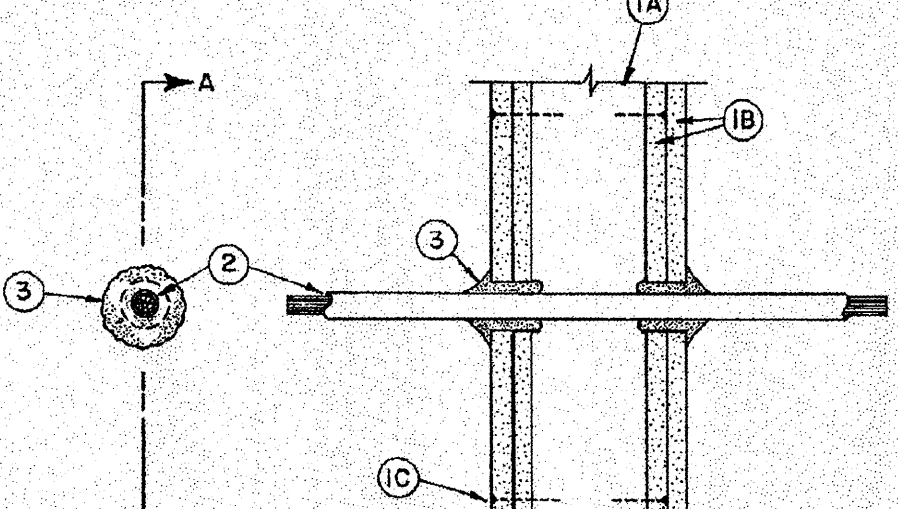
- Wall Assembly**—The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs**—Wall framing may consist of either wood studs 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.
 - Wallboard, Gypsum***—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 7 in.
- Nonmetallic Pipe or Conduit**—One nonmetallic pipe or conduit is centered within 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. The following types and sizes of nonmetallic pipes or conduit may be used:
 - Nom 6 in. diam (or smaller) Schedule 40 solid-core polyvinyl chloride (PVC) pipe.
 - Nom 4 in. diam (or smaller) Schedule 40 cellular core polyvinyl chloride (PVC) pipe.
 - Nom 4 in. diam (or smaller) Schedule 40 solid-core acrylonitrile-butadiene-styrene (ABS) pipe.
 - Nom 4 in. diam (or smaller) Schedule 40 fire retardant polypropylene (FRPP) pipe.
 - Nom 4 in. diam (or smaller) Rigid Nonmetallic Conduit formed of PVC.
 - Nom 1 in. diam (smaller) Electrical Nonmetallic Tubing formed of PVC.
 - Nom 6 in. diam (or smaller) Schedule 40 chlorinated polyvinyl chloride (CPVC) pipe.
- Firestop System**—Installed symmetrically on both sides of wall assembly, bend retainers tabs 90 deg toward pipe to lock wrap strip layers in position.
- Fill, Void or Cavity Material***—Caulk or Putty—Generous bead of caulk applied to outer perimeter of wrap strip at interface with wall surface and to perimeter of pipe or conduit at its egress from the wrap strip layers.
 - Minnesota Mining & Mfg. Co.—CP 25WB+ Caulk and MPS-2+ Putty (Note: L Ratings apply only when Type CP-25WB+ caulk is used.)
 - See Rigid Nonmetallic Conduit (DNKT) and Electrical Nonmetallic Tubing (FKHU) categories in UL Electrical Construction Materials Directory for names of manufacturers.
- Firestop Device***—(Not shown)—As an alternate to Items A, B and C for nom 1-1/2, 2, 3 or 4 in. diam nonmetallic pipes, 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 both sides of wall in accordance with the accompanying installation instructions.
 - Minnesota Mining & Mfg. Co.—Types PPD 150, PPD 200, PPD 300, PPD 400

*Bearing the UL Classification Marking

UL APPROVED WALL OPENING PROTECTIVE MATERIALS (CLIV)

R9700 MINNESOTA MINING & MFG CO 3M CENTER ST PAUL, MN 55144 USA Types MPP-1+, MPP-4S+, MPP-5S+ moldable putty pads for use with max 4-11/16 by 4-11/16 in. flush device UL Listed Metallic Outlet Boxes installed with steel cover plates for use in 1 or 2 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide wood or steel studs and constructed as specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory. Outlet boxes secured to wood studs by means of two nailing tabs in conjunction with nails supplied with the outlet box. Types MPP-1+, MPP-4S+, MPP-5S+ moldable putty pads for use with max 12 by 4 by 2-1/2 in. deep flush device UL Listed Metallic Outlet Boxes installed with steel cover plates for use in 1 or 2 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide steel studs and constructed as specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory. Types MPP-1+, MPP-4S+, MPP-5S+ moldable putty pads for use with max 4 by 3-3/4 by 3 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Carlon Electrical Products, made of PVC and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. Boxes installed with steel cover plates, for use in 1 or 2 hr rated gypsum board wall assemblies framed with min 3-5/8 in. wide wood studs and constructed as specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory. Types MPP-1+, MPP-4S+, MPP-5S+ moldable putty pads for use with max 4 by 3-3/4 by 3 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Carlon Electrical Products, made of PVC and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. Boxes installed with plastic cover plates, for use in 1 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. wide wood studs and constructed as specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory. Types MPP-1+, MPP-4S+, MPP-5S+ moldable putty pads for use with max 4 by 3-1/4 by 3-3/4 in. deep UL Listed Nonmetallic Outlet Boxes manufactured by Thomas & Betts Corp., made of polycarbonate, Type 1052 and bearing a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory. Boxes installed with steel cover plates. For use in 2 hr fire rated gypsum board wall assemblies framed with min 3-1/2 in. wide steel studs and constructed as specified in the individual U300 or U400 Series Wall and Partition Designs in the Fire Resistance Directory. Moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) including maling tabs and completely seal against the exterior of each box. A min 1/8 in. thickness of putty material is required on the exterior surfaces of flush device boxes in 1 and 2 hr fire rated Wall and Partition Designs. When the moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. provided that the outlet boxes are not installed back to back.

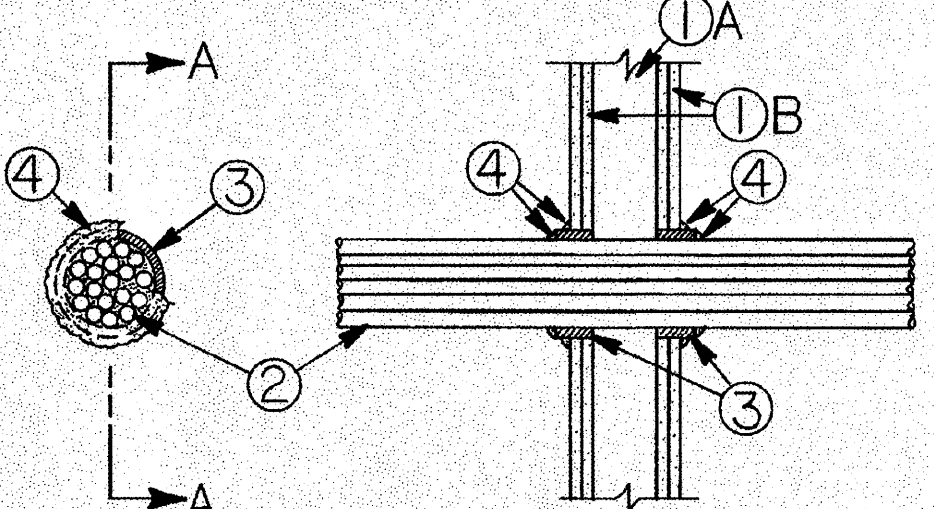
System No. W-L-3001
(Formerly System No. 571)
F Ratings—1 and 2 Hr (See Item 1)
T Ratings—3/4, 1, 1-1/2 and 2 Hr (See Item 2)
L Rating At Ambient—15 CFM/sq ft (See Item 3)
L Rating At 400 F—less than 1 CFM/sq ft (See Item 3)



- Wall Assembly**—The 1 or 2 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 Design in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs**—Wall framing may consist of either wood studs 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.
 - Wallboard, Gypsum***—Nom 1/2 or 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers and sheet orientation shall be as specified in the individual Wall or Partition Design. Diam of circular through opening to be 3/8 in. to 5/8 in. larger than outside diam of cable or cable bundle.
 - Fasteners**—When wood stud framing is employed gypsum wallboard layers attached to studs with cement coated nails as specified in the individual Wall or Partition Design. When steel channel stud framing is employed, gypsum wallboard attached to studs with Type 5 self-drilling, self-tapping bugle-head steel screws as specified in the individual Wall or Partition Design.
- The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
- Cables**—Individual cable or max 1 in. diam cable bundle installed in through opening with an annular space of min 0 in. (point contact) to max 3/4 in. Cable to be rigidly supported on both sides of wall assembly. The following types and sizes of cables may be used:
 - Max 150 pair No. 24 AWG copper conductor telephone cable with polyvinyl chloride (PVC) insulation and jacket materials. When max 25 pair telephone cable is used, T Rating is 2 hr. When 50 to 150 pair telephone cable is used in 1 hr fire rated wall, T Rating is 3/4 hr. When 50 to 150 pair telephone cable is used in 2 hr fire rated wall, T Rating is 1 hr.
 - Max No. 10 AWG multiple conductor type NM ("Romex") nonmetallic sheathed cable with PVC insulation and jacket materials. When Type NM cable is used, max T Rating is 1-1/2 hr.
 - Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 5/8 in. When fiber optic cable is used, max T Rating is 2 hr.
 - Max 12 AWG multiconductor (max seven conductors) power/control cable with cross-linked polyethylene (XLPE) insulation and XLPE or PVC jacket materials. When multiconductor power/control cable is used, max T Rating is 2 hr.
 - Max four conductor with ground No. 2 AWG (or smaller) aluminum SER cables with polyvinyl chloride insulation and jacket materials.
- Fill, Void or Cavity Material***—Caulk or Putty—Caulk or putty fill material installed to completely fill annular space between cable and gypsum wallboard on both sides of wall and with a min 1/4 in. diam bead of caulk or putty applied to perimeter of cable(s) at its egress from each side of the wall.
 - Minnesota Mining & Mfg. Co.—MPS-2+ Putty, CP 25WB+ Caulk. (Note: L Ratings apply only when Type CP 25WB+ caulk is used.)

*Bearing the UL Classification Marking

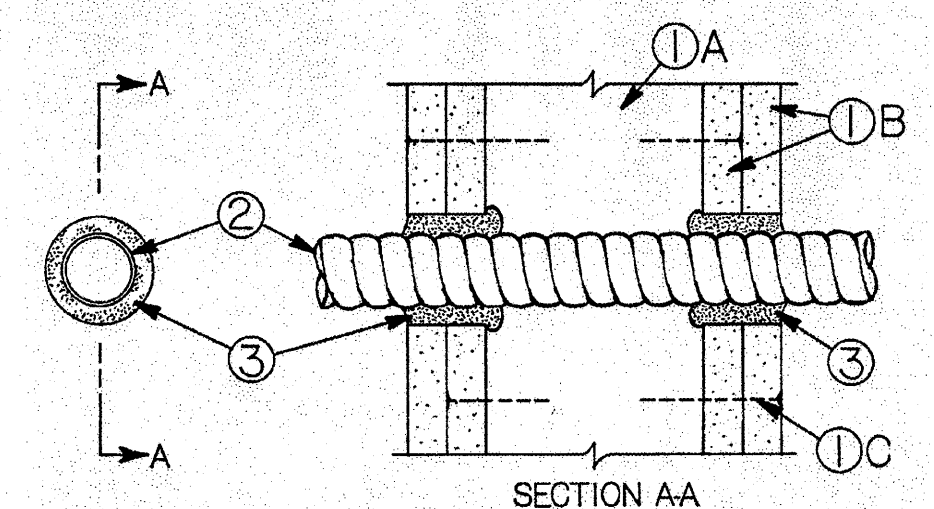
System No. W-L-3030
(Formerly System No. 571)
F Ratings—1 and 2 Hr (See Item 1)
T Rating—1/2 Hr
L Rating At Ambient—76 CFM/sq ft (See Item 4)
L Rating At 400 F—7 CFM/sq ft (See Item 4)



- Wall assembly**—The 1 or 2 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:
 - Studs**—Wall framing may consist of either wood studs 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.
 - Wallboard, Gypsum***—Nom 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design. Diam of circular cutout in gypsum wallboard layers on each side of wall to be 1/2 to 3/4 in. larger than diam of tight cable bundle (Item 2). Max diam of cutouts is 4-1/2 in.
- The hourly F Rating of the firestop system is 1 hr when installed in a 1 hr fire rated wall and 2 hr when installed in a 2 hr fire rated wall.**
 - Cables**—Max 4 in. diam tight bundle of cables centered in circular cutouts in gypsum wallboard and rigidly supported on both sides of wall assembly. Any combination of the following types and sizes of copper conductor cables may be used:
 - Max 350 kcmil single-conductor power cables; cross-linked polyethylene (XLPE) or polyvinyl chloride (PVC) insulation.
 - Max 7/8 No. 12 AWG cables; PVC insulation and jacket.
 - Max 3/4 No. 2/0 AWG multiconductor power and control cables; XLPE or PVC insulation, XLPE or PVC jacket.
 - Max 200 pair No. 24 AWG telecommunication cables; PVC insulation and jacket.
 - Max 6/94 Fiber Optic (F.O.) cable; PVC insulation and jacket.
 - Fill, Void or Cavity Material***—Wrap Strip—Nom 1/4 in. thick intumescent elastomeric material faced on one side with aluminum foil, supplied in nom 2 in. wide strips. Nom 2 in. wide strip tightly wrapped around cable bundle (foil side out) with seam butted. Wrap strip layer securely bound with steel wire tie and slid into annular space approx 1-3/4 in., such that approx 3/4 in. of the wrap strip width protrudes from the wall surface on each side of the assembly.

Minnesota Mining & Mfg. Co.—FS-195+
*Bearing the UL Classification Marking

System No. W-L-3015
(Formerly System No. 328)
F Ratings—1 and 2 Hr (See Item 3)
T Ratings—0, 3/4 and 2 Hr (See Item 2)
L Rating at ambient—less than 1 CFM per sq ft. (See Item 3)
L Rating at 400 F—less than 1 CFM per sq ft. (See Item 3)



- Wall Assembly**—The 1 or 2 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:
 - Studs**—Wall framing may consist of either wood studs 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.
 - Wallboard, Gypsum***—Nom 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of openings cut in gypsum wallboard is 2 in.
 - Fasteners**—When wood stud framing is employed, gypsum wallboard attached to studs with cement coated nails as specified in the individual Wall or Partition Design. When steel channel stud framing is employed, gypsum wallboard attached to studs with Type 5 self-drilling, self-tapping bugle-head steel screws as specified in the individual Wall or Partition Design.
- The hourly F Rating of the firestop system is 1 hr when installed in the individual Wall or Partition Design.**
 - Through Penetrating Product***—Max four copper conductor No. 2 AWG (or smaller) aluminum or steel Armored Cable+ or Metal-Clad Cable+. Max one armored cable or metal clad cable to be installed near center of circular opening in gypsum wallboard. Through penetrating product to be rigidly supported on both sides of wall assembly. When installed in 1 hr fire rated wall assembly, T Rating is 0 hr. When installed in 2 hr fire rated wall assembly, T Rating is 3/4 hr when max No. 2 AWG cable is used and 2 hr when max 12 AWG cable is used.
 - Fill, Void or Cavity Material***—Caulk—Caulk fill material forced into annular space around entire circumference of through penetrating product to completely fill opening in gypsum wallboard on each side of the wall assembly. A min 5/8 in. thickness of caulk is required for the 1 hr F Rating. A min 1-1/4 in. thickness of caulk is required for the 2 hr F Rating.

Minnesota Mining & Mfg. Co.—CP 25WB+.
*Bearing the UL Classification Marking

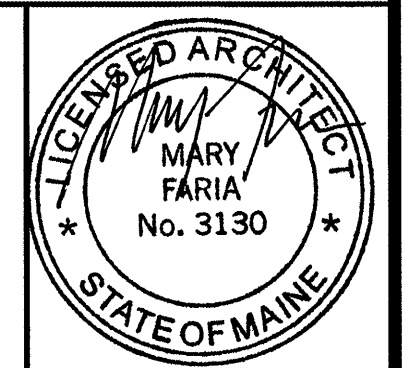
NOTE: THESE SYSTEMS ARE BASED ON "3M FIRE PROTECTION PRODUCTS" SUBMIT SHOP DRAWINGS FOR ALL TYPES OF PENETRATIONS THROUGH RATED ASSEMBLIES AND FIRE STOPPING METHODS.

PENETRATING MATERIAL	TYPE	ASSEMBLY TYPE	FIRE RATING	3M ASSEMBLY
2" - 4" CAST IRON	SANITARY, WASTE VENT AND DRAIN PIPING	GYPSUM STUD WALL	2 HOUR	W-L-1001
2" - 4" CAST IRON	SANITARY, WASTE VENT AND DRAIN PIPING	CONCRETE AND STEEL DECK FLOOR/CEILING	2 HOUR	CAJ-1175
1/2" - 2" COPPER	WATER	GYPSUM STUD WALL	2 HOUR	W-L-1001
4" COPPER	WATER	CONCRETE AND STEEL DECK FLOOR/CEILING	2 HOUR	CAJ-1175
4" PVC	HEATING/WATER	GYPSUM STUD WALL	2 HOUR	W-L-2002
5" PVC	HEATING/WATER	CONCRETE AND STEEL DECK FLOOR/CEILING	2 HOUR	FA-2002
1 1/2" - 2 1/2" SCHEDULE 10	SPRINKLER PIPING	GYPSUM STUD WALL	2 HOUR	W-L-1001
4" SCHEDULE 40 STEEL	GAS PIPING	GYPSUM STUD WALL	2 HOUR	W-L-1001
4" SCHEDULE 40 STEEL	GAS PIPING	CONCRETE AND STEEL DECK FLOOR/CEILING	2 HOUR	CAJ-1175
INDIVIDUAL CABLE	TELEPHONE / ROMEX PVC INSULATED	GYPSUM STUD WALL	2 HOUR	W-L-3001
BUNDLE OF CABLES - 4" MAX.	VARIOUS CABLES - PVC INSULATED	GYPSUM STUD WALL	1 HOUR	W-L-3030
BUNDLE OF CABLES - 4" MAX.	VARIOUS CABLES - PVC INSULATED	CONCRETE AND STEEL DECK FLOOR/CEILING	2 HOUR	CAJ-3030
BX CABLE	ARMORED CABLE (BX)	GYPSUM STUD WALL	2 HOUR	W-L-3015
BX CABLE	ARMORED CABLE (BX) SINGLE AND MULTIPLE	CONCRETE AND STEEL DECK FLOOR/CEILING	2 HOUR	CAJ-3111
ELECTRIC OUTLET BOX ***	METAL	GYPSUM STUD WALL	2 HOUR	CLIV PUTTY

NOTES:
*** BACK TO BACK ELECTRICAL BOXES LESS THAN 24" APART PENETRATING THROUGH UL FIRE RATED WALLS SHALL RECEIVE "3M FIRE BARRIER MOLDABLE PUTTY" + OR EQUAL PER MANUFACTURERS INSTALLATION REQUIREMENTS TO ENSURE FIRE RATED SEAL.

PERMIT ISSUE - 09/27/07

NO.	REVISION	DATE
SCALE: As Noted	DRAWN BY: AVS	
DATE:	CHECKED BY: JR	



PROJECT

RESIDENCE INN BY MARRIOTT

PORTLAND, ME

JOB# 802

TITLE

FIRE SEPARATION DETAILS

GROUP ONE

21 W. THIRD STREET, BOSTON, MA 02127
TEL: (617)268-7000 FAX: (617)268-0209

DRAWING NO.

A0.4A