

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in individual L500 Series Floor—Ceiling Designs in the UL Fire Resistance Directory, as summarized below:

A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor—Ceiling Design. Rectangular cutout in flooring to accommodate the bathtub drain piping (Item 2) to be max 8 by 12 in.

B. Wood Joists — Nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1 by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required with ends firestopped.

C. Furring Channels — (Not Shown) — Resilient galv steel furring installed perpendicular to wood joists (Item 1B) between wallboard (Item 1D) and wood joists as required in the individual Floor—Ceiling Design.

D. Gypsum Board* — Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design. Wallboard secured to wood joists as specified in the individual Floor-Ceiling Design. One piece of gypsum wallboard, min 4 in. longer and wider than the cutout in the flooring, screw—attached to bottom of flooring concentric with cutout by means of 1 in. long Type S steel screws spaced max 5 in. OC. Diam of opening hale—sawed through the gypsum wallboard patch to be nom 1 in. larger than outside diam of bathtub drain piping (Item 2).

2. Drain Piping — Nom 1-1/2 in. diam Schedule 40 acrylonitrile butadiene styrene (ABS) pipe and drain fittings cemented together and provided with ABS bathtub waste/overflow fitting. Pipe to be installed either concentrically or eccentrically within the firestop system. The annular space within the firestop system shall be a min 3/8 in. to a max 5/8 in. 3. Firestop System — The firestop system shall consist of the following:

A. Fill, Void or Cavity Materials* — Wrap Strip — Nom 1/4 in. thick intumescent material faced on both sides with a plastic film, supplied in 1 in. wide strips. Nom 1 in, wide strips tightly-wrapped around drain piping and secured together with masking tape and slid into hole—sawed opening in gypsum wallboard patch (Item 1D). Top edge of wrap strip to extend a nom 1/4 in. above top surface of gypsum wallboard patch.

RECTORSEAL — FlameSafe Wrap Strip

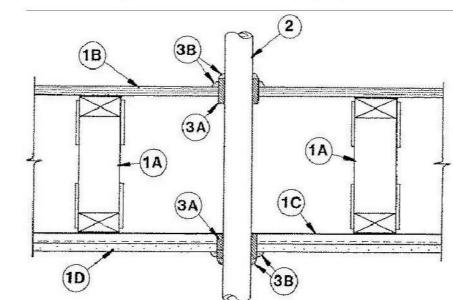
B. Fill, Void or Cavity Materials* — Sealant — Min 5/8 in. thickness of fill material to be applied around outer circumference of wrap strip to fill all gaps between drain fitting and periphery of opening. Additional 1/4 in. crown of fill material around wrap strip layer on both surfaces of the gypsum wallboard patch. RECTORSEAL — FS1900, FS1901, FS1905 and FS1929 Sealant

F-C 2088 1-HR RATED FLR-CLG PENETRATION SCALE: N.T.S.

Through-penetration Firestop Systems See General Information for Through-penetration Firestop Systems System No. F-C-2008 May 20, 2005

> T Rating — 1 Hr L Rating At Ambient — 7 CFM/sq ft (See Item 3B) L Rating At 400 F — Less Than 1 CFM/sq ft (See Item 3B)

F Rating — 1 Hr



. Floor Assembly — The fire rated wood truss or combination wood and steel truss Floor-Ceiling assembly shall be constructed of the materials and in the manner described in the individual L500 Series Design in the UL Fire Resistance Directory and shall include the following construction features:

A. Trusses — Min 12 in. (305 mm) deep parallel chord trusses fabricated from 2 by 4 in. (51 by 102 mm) lumber in conjunction with galv steel truss plates or Structural Wood Members* with bridging as required.

B. Flooring — Nom 3/4 in. (19 mm) thick plywood flooring with or without Floor Topping Mixture*. Diam of hole-sawed opening in flooring to be 1/2 to 3/4 in. (13 to 19 mm) larger than diam of pipe. Max diam of opening in flooring is 3 in. (76 mm).

C. Furring Channels — Rigid or resilient galv steel furring channels installed perpendicular to bottom chord of trusses.

D. Gypsum Board* — Nom 4 ft (1.22 m) wide by 5/8 in. (16 mm) thick, screw—attached to furring channels. Diam of hole—sawed opening in gypsum wallboard ceiling to be 1/2 to 3/4 in. (13 to 19 mm) larger than diam of pipe. Max diam of opening in ceiling is 3 in. (76 mm)

2. Nonmetallic Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 40 polyvinyl chloride (PVC), SDR 13.5 chlorinated polyvinyl chloride (CPVC) or solid-core Schedule 40 acrylonitrile-butadiene-styrene (ABS) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. One pipe to be installed approx midway between trusses and centered in circular openings in flooring and in ceiling. A nom 1/4 in. to 3/8 in. (6 to 10 mm) annular space is required in the firestop system. Pipe to be rigidly supported on both sides of Floor—Ceiling assembly.

2A. Electrical Nonmetallic Tubing+ — Nom 1 in. (25 mm) diam (or smaller) corrugated wall ENT constructed of polyvinyl chloride. ENT to be installed as a complete system with all terminations in junction boxes, outlet boxes or other approved enclosures as specified in the National Electrical Code. Max one ENT per through opening. ENT to be centered in opening and rigidly supported on both sides of the Floor-Ceiling assembly.

See Electrical Nonmetallic Tubing (FKHU) category in 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. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, supplied to 2 in. (51 mm) wide strips. Nom 2 in. (51 mm) wide strip tightly—wrapped around nonmetallic pipe (foil side exposed), secured with two steel tie wires and slid into hole-sawed opening in flooring (Item 1B) and in avosum wallboard ceiling (Item 1D). Bottom edge of wrap strip to project 9/16 to 11/16 in. (14 to 17.5 mm) below bottom surface of flooring and below bottom (ceiling) surface of gypsum

3M COMPANY — Type FS-195+

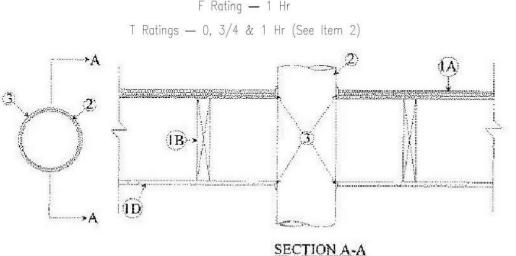
B. Fill, Void or Cavity Materials* — Caulk, Sealant or Putty — Nom 1/4 in. (6 mm) thickness of caulk or putty to be applied to the exposed edge of the wrap strip layer (top of flooring and bottom of gypsum board ceiling). Generous application of caulk or putty to be applied to fill all gaps at the wrap strip/flooring and wrap strip/gypsum board ceiling interfaces.

3M COMPANY — CP 25WB+ Caulk, FB-3000 WT Sealant, MP+ Stix Putty (Note: L Ratings apply only when Type CP 25WB+ caulk or FB-3000 WT sealant is used. CP 25WB+ not suitable for use with CPVC pipes.)

*Bearing the UL Classification Mark

1-HR RATED FLR-CLG PENETRATION FOR MAX 2" NON-METALLIC PIPE

Through-penetration Firestop Systems See General Information for Through-penetration Firestop Systems System No. F-C-1011 July 18, 2001 F Rating — 1 Hr T Ratings — 0, 3/4 & 1 Hr (See Item 2)



1. Floor-Ceiling Assembly — The fire-rated wood joist floor-ceiling assembly shall be constructed

of the materials and in the manner specified in Design Nos. L512, L513 or L514 in the UL Fire

A. Flooring System — Lumber or min 1/2 in. plywood subfloor with lumber or min

B. Wood Joists — Nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1

joists, trusses or Structural Wood Members* with bridging as required with ends

joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel

by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber

C. Furring Channels — (Not Shown) — Resilient galv steel furring installed

perpendicular to wood joists between wallboard (Item 1D) and wood joists and

individual Floor-Ceiling Design. Wallboard attached to wood joists and furring

D. Gypsum Board* — Nom 4 ft wide by 1/2 or 5/8 in. thick as specified in the

channels as specified in the individual Floor-Ceiling Design. Max diam of opening

2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed approximately

midway between wood joist and centered within the firestop system. Diam of openings

hole-sawed through flooring system and through gypsum wallboard ceiling to be nom 1/2

in. larger than the outside diam of through penetrant. Pipe, conduit or tubing to be rigidly

supported on both sides of floor-ceiling assembly. The following types and sizes of metallic

A. Steel Pipe — Nom 6 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.

B. Iron Pipe — Nom 6 in. diam (or smaller) cast or ductile iron pipe.

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

3/4 in. plywood finish floor, or Floor-Topping Mixture* as specified in the

Resistance Directory, and shall include the following construction features:

individual Floor-Ceiling Design. Max diam of opening is 7 in.

spaced max 24 in. OC.

pipes, conduits or tubing may be used:

03. Fill, Void or Cavity Material* — Caulk — On top of assembly, a min 1-1/8 in. depth of fill material applied within annulus on top surface of floor. On bottom of assembly, a min 1/2 in, depth of fill material applied within annulus on bottom surface of ceiling. Additional fill material to be installed such that a min 1/2 in, thick crown is formed around the through penetrant on both sides of floor-ceiling assembly.

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

E. Copper Pipe — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.

The T Rating of the firestop system is dependent upon the type of penetrant and

MAX DIAM OF

4

6

4

4

T RATING HR

1

3/4

0

0

A/D FIRE PROTECTION SYSTEMS INC — A/D FireBarrier Silicone *Bearing the UL Classification Mark

nom diam of penetrant used as tabulated below:

PENETRANT TYPE

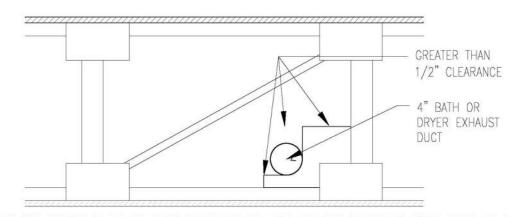
STEEL PIPE

STEEL PIPE

IRON PIPE

COPPER TUBING

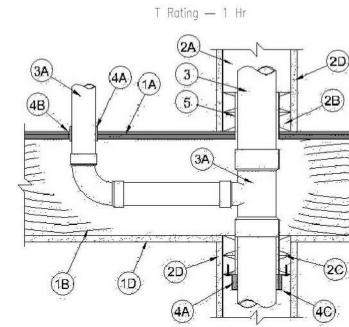
COPPER PIPE



AS PER SECTION 3-21 AIR DUCT CLEARANCE OF NFPA 90A THE CLEARANCE FROM METAL AIR DUCTS TO ASSEMBLIES CONSTRUCTED OF COMBUSTIBLE MATERIALS INCLUDING PLASTER ON WOOD LATH SHALI BE NOT LESS THAN 1/2",OR THE COMBUSTIBLE MATERIAL SHALL BE PROTECTED WITH MINUMUM 1/4" APPROVED INSULATING MATERIAL, THE INTERGRITY OF THE FIRESTOPPING AND SMOKESTOPPING SHALL BE MAINTAINED.

1-HR RATED FLR-CLG PENETRATION FOR MAX 6" METALLIC PIPE

Through-penetration Firestop Systems See General Information for Through—penetration Firestop Systems System No. F-C-2034 November 26, 2012 F Rating — 1 Hr



1. Floor Assembly — The 1 hr fire-rated wood joist or combination wood and steel joist Floor—Ceiling assembly shall be constructed of the materials and in the manner described in the individual L500 Series Design in the UL Fire Resistance Directory, as summarized below: A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling

Design. Max diam of floor opening is 5 in. (127 mm). B. Wood Joists — Nom 2 by 10 in. (51 by 254 mm) lumber joists spaced 16 in. (406 mm) OC with nom 1 by 3 in. (25 by 76 mm) lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required with ends firestopped. C. Furring Channels — Resilient galv steel furring installed perpendicular to wood

joists (Item 1B) between wallboard (Item 1D) and wood joists as required in the individual Floor-Ceiling Design. D. Gypsum Board* — Nom 4 ft (1.2 m) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. Gypsum board secured to wood joists as specified in the individual Floor-Ceiling Design. Max diam of ceiling

opening is 5 in. (127 mm).

2. Chase Wall — (Optional) — The through penetrant (Item 3) may be routed through a 1 hr fire-rated single, double or staggered wood stud/ gypsum board chase wall constructed of the materials and in the manner described in the individual U300 Series Design in the UL Fire Resistance Directory and shall include the following construction features: A. Studs — Nom 2 by 6 in. (51 by 152 mm) or double nom 2 by 4 in. (51 by

102 mm) lumber studs. B. Sole Plate — Nom 2 by 6 in. (51 by 152 mm) or parallel 2 by 4 in. (51 by

102 mm) lumber plates, tightly butted.

C. Top Plate — The double top plate shall consist of two nom 2 by 6 in. (51 by 152 mm) or two sets of parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Max diam of opening is 5 in. (127 mm). D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as

Specified in individual Wall and Partition Design.

of opening hole-sawed through flooring (Item 1B) to be equal to the outside diam of pipe. Diam of circular opening hole-sawed through top plate (Item 2C) to be max 1/2 in. (13 mm) larger than outside diam of pipe through both thicknesses of the lumber top plate. Max one pipe per opening. Pipe to be rigidly supported on both sides of Floor-Ceiling assembly. The following types and sizes of nonmetallic pipes may be used:

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

B. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 4 in. (102 mm) diam Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

3A. Sanitary Tee — (Optional) — The vertical pipe (Item 3) may be provided with a

Schedule 40 PVC or ABS sanitary tee above the top plate of the chase wall for connection of a nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC or ABS drain pipe which penetrates the flooring and runs horizontally through the concealed space above the ceiling. Diam of the circular opening in the flooring shall be nom 1/2 in. (13 mm) larger than the diam of the pipe such that a 1/4 to 3/8 in. (6 to 10 mm) annular space is present between the pipe and the periphery of the opening.

4. Firestop System — The firestop system shall consist of the following: A. Fill, Void or Cavity Materials* — Wrap Strip — Nom 1/4 in. (6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2in. (38 mm) wide strips. Nom 1-1/2 in. (38 mm) wide strips tightly-wrapped around nonmetallic pipe with the edges butted against the underside of the ceiling or top plate around the entire perimeter of the hole-sawed opening. For nom 1/2 in. (13 mm) to nom 2 in. (51 mm) diam pipes, a min of one layer of wrap strip is required. For nom 2-1/2 in. (64 mm) to nom 4 in. (102 mm) diam pipes, a min of two layers of wrap strip is required. Each layer of wrap strip to be installed with butted seam, butted seams in successive layers staggered or aligned. Wrap strip layer (s) held in position using aluminum foil tape. When a max 2 in. (51 mm) diam nonmetallic drain pipe penetrates the flooring (Item 1B) for connection to the sanitary tee (Item 3A), a single layer of nom 1-1/2 in. (38) mm) wide wrap strip shall be tightly-wrapped around the pipe with seam butted. Wrap strip layer secured together with 1-1/2 in. (38 mm) wide aluminum foil tape and slid into annular space such that the top edge of wrap strip extends nom 1/2 in. (13 mm) above the top surface of the flooring.

SPECIFIED TECHNOLOGIES INC — SpecSeal RED Wrap Strip B. Fill, Void or Cavity Materials* — Sealant — (Not shown) When the optional firestop configuration for the max 2 in. (51 mm) diam nonmetallic drain pipe is used, a generous bead of fill material shall be applied to fill the annulus between the wrap strip layer and the flooring. Additional fill material to be installed such that a min 1/8 in. (3 mm) crown is formed around the nonmetallic drain pipe on

SPECIFIED TECHNOLOGIES INC — SpecSeal Series SSS Sealant or SpecSeal LCI

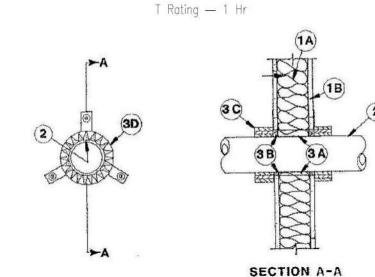
C. Steel Collar — Cöllar fabricated from coils of precut 0.016 in. (0.4 mm) thick galv sheet steel available from wrap strip manufacturer. Collar shall be nom 1-1/2 in. (38 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for securement to underside of ceiling or top plate. Retainer tabs, 3/4 in. (19 mm) wide tapering down to 1/4 in. (6 mm) wide and located opposite the anchor tabs, are folded 90 degrees toward through—penetrant surface to maintain the annular space around the through—penetrant and to retain the wrap strips. Steel collar wrapped around wrap strips and through—penetrant with a 1 in. (25 mm) wide overlap along its perimeter joint and secured together by means of a min 1/2 in. (13 mm) wide by 0.028 in. (0.7 mm) thick stainless steel hose clamp at mid—height of the steel collar. As an alternate to the steel hose clamp, the steel collar may be secured together by means of three No. 8 steel sheet metal screws. The length of the steel screws is dependent upon the number of layers of wrap strip used within the steel collar. For steel collars incorporating a single layer of wrap strip, the length of the steel screws shall be 1/4 in. (6 mm) long. For steel collars incorporating two or more layers of wrap strip, the length of the steel screws shall be 3/8 in. (10 mm) long. Collar secured to bottom of chase wall top plate (Item 2C) using min 3/4 in. (19 mm) long steel wood screws in conjunction with 1/4 in. (6 mm) by 1-1/4 in. (32 mm) diam steel fender washers. Collar secured to bottom of ceiling using nom 3/16 in. (4.8 mm) diam steel toggle bolts in conjunction with nom 1-1/4 in. (32 mm) diam steel fender washers. The number of screws used is dependent upon the nom diam of the through penetrant. Two fasteners, symmetrically located, are required for nom 1-1/2 through 2 in. (38 through 51 mm) diam through penetrants. Three fasteners, symmetrically located, are required for nom 2-1/2 through 3 in. (64 through 76 mm) diam through penetrants. Four fasteners, symmetrically located, are required for nom 3-1/2 through 4 in. (89 through 102 mm) diam through penetrants. When the optional firestop configuration for the max 2 in. (51 mm) diam nonmetallic drain pipe is used, steel collar is not required to be installed around the wrap strip at the underside of the flooring.

5. Firestop Device* — (Not shown) — As an alternate to Items 4A and 4B for nom 4 in. diam nonmetallic pipe (Item 3), a firestop device, consisting of a steel collar lined with intumescent material sized to fit the specific diam of the nonmetallic pipe, may be used. Firestop device to be installed on underside of the ceiling or top plate in accordance with the accompanying installation instructions.

SPECIFIED TECHNOLOGIES INC — SpecSeal Firestop Collar, SpecSeal LCC Collar or SpecSeal SSC Collar. When SpecSeal LCC Collar or SpecSeal SSC Collar are used, the max annular space shall be 1/8 in. (3 mm) for max 2-1/2 in. (64 mm) diam pipe or conduit and shall be max 1/4 in. (6 mm) for pipe or conduit larger than 2-1/2 in. (64 mm) diam. *Bearing the UL Classification Mark

4" NON-METALLIC PIPE 1-HR RATED FLR-CLG PENETRATION

Through-penetration Firestop Systems See General Information for Through-penetration Firestop Systems System No. W-L-2036 March 20, 1998 F Rating — 1 Hr



1. Wall Assembly — The 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 and 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 or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.

B. Batts and Blankets* — Nom 1-1/2 in. thick mineral wool batts friction fitted

to fill interior of stud cavities. C. Gypsum Board* — The gypsum wallboard type, thickness, number of layers and orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 6 in.

2. Nonmetallic Pipe — Nom 4 in. diam (or smaller) Schedule 40 solid core polyvinyl chloride (PVC) pipe or nom 4 in. diam (or smaller) SDR 17 chlorinated polyvinyl chloride (CPVC) pipe for use in closed (process or supply) piping system. A min 5/16 to max 1-1/16 in. annular space is required within the firestop system. Pipe to be rigidly supported on both sides of wall assembly.

insulation firmly packed into opening as a permanent form. Forming material to be

3. Firestop System — The firestop system shall consist of the following: A. Forming Material* — Min 2-1/2 in. thickness of min 3.5 pcf mineral wool batt

recessed from both surfaces of wall to accommodate the required thickness of fill material. THERMAFIBER INC - Type SAF B. Fill, Void or Cavity Material* — Min 1/2 in. thickness of fill material applied

within the annulus, flush with both surfaces of wall. Dry mix material mixed at a rate of 2.1 parts dry mix to 1.0 part water by weight in accordance with the accompanying installation instructions. UNITED STATES GYPSUM CO — Type FC

B1. Fill, Void or Cavity Material* — Not Shown — Two component fill material used as an alternate to Item 3B. Ready-mixed component mixed with accelerator component at a rate of 66 parts of ready-mixed component to 1 part of accelerator component by weight in accordance with the accompanying installation instructions. A min 1/2 in. thickness of fill material applied within the annulus, flush with both surfaces of wall.

UNITED STATES GYPSUM CO — Type RFC

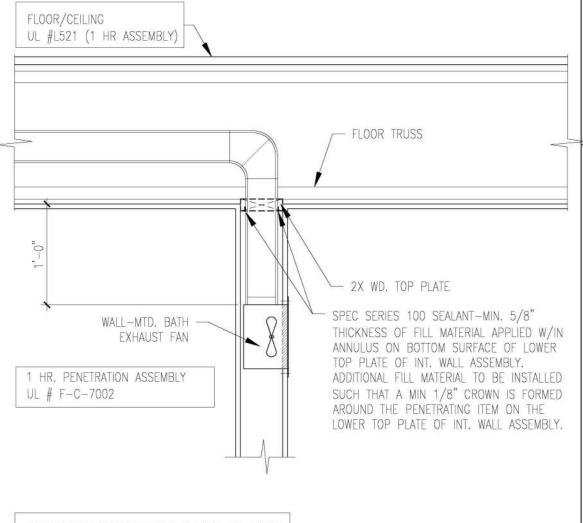
C. Fill, Void or Cavity Material* — Wrap Strip — Nom 1/4 in. thick intumescent elastomeric material faced on one side with aluminum foil, supplied in 2 in. wide strips. Three layers of nom 2 in. wide strips tightly wrapped around nonmetallic pipe or conduit (foil side exposed) with the edges butted against the surface of the wall. Each layer of wrap strip to be installed with butted seam, with butted seams in successive layers staggered. Wrap strip layers temporarily held in position using aluminum foil tape, steel wire tie or equivalent. 3M COMPANY — Type FS-195

D. Steel Collar — Nom 2 in. deep collar with 1-1/4 in. wide by 2 in. long anchor tabs and min 3/4 in. long tabs to retain wrap strip layers. Coils of precut 0.016 in. thick (No. 30 gauge) galvanized sheet steel available from wrap strip manufacturer. As an alternate, collar may be field—fabricated from min 0.016 in. thick (No. 30 gauge) galvanized sheet steel in accordance with instruction sheet supplied by wrap strip manufacturer. Steel collar, with anchor tabs bent outward 90 degrees, wrapped tightly around wrap strip layers with min 1 in. overlap at the seam. With steel collar anchor tabs pressed tightly against wall surface, compress collar around wrap strip layers using a min 1/2 in, wide by 0.028 in, thick stainless steel band clamp with worm drive tightening mechanism at the collar midheight.

As an alternate to the stainless steel band clamp, the steel collar may be compressed using two min 16 SWG (0.0625 in. diam) steel wires secured with multiple twists. Secure collar to wall surface 3/16 in. diam steel toggle bolts (5/8 in. or 1-1/4 in. grip) in conjunction with min 1-1/2 in. diameter steel washers. Three bolts, symmetrically located, required for nom 1/2 in. to nom 3 in. diam pipes. Four bolts, symmetrically located, required for nom 3-1/2 and 4 in. diam pipes. As a final step, bend retainer tabs 90 degrees toward pipe to lock wrap

strip layers in position. *Bearing the UL Classification Mark

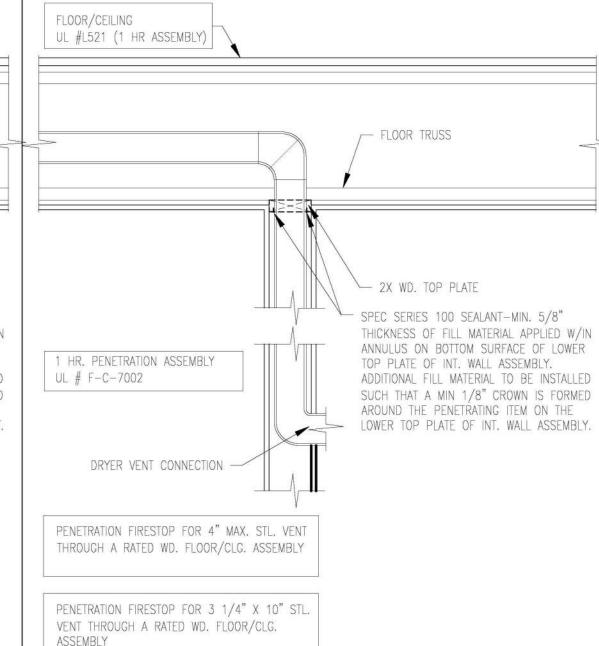
1-HR RATED FLR-CLG PENETRATION FOR MAX 4" NON-METALLIC PIPE



PENETRATION FIRESTOP FOR 4" MAX. STL. VENT THROUGH A RATED WD. FLOOR/CLG. ASSEMBLY PENETRATION FIRESTOP FOR 3 1/4" X 10" STL. VENT THROUGH A RATED WD. FLOOR/CLG.

ASSEMBLY

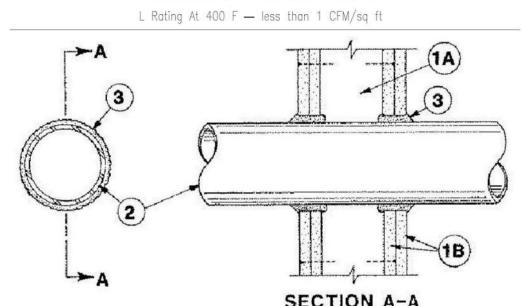
1-HR RATED DRYER EXHAUST VENT THROUGH 1-HR RATED ASSEMBLY



1-HR RATED BATHROOM EXHAUST VENT

Through-penetration Firestop Systems See General Information for Through—penetration Firestop Systems System No. W-L-1001

> June 15, 2005 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



1. Wall Assembly — The 1, 2, 3 or 4 hr fire-rated aypsum 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 h 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

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 metallic pipes, conduits or tubing may be used:

A. Steel Pipe — Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe — Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe. C. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in

(102 mm) diam (or smaller) steel electrical metallic tubing D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing

E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

F. Through Penetrating Product* — Flexible Metal Piping The following types of steel flexible metal gas piping may be used: 1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC 2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITEFLEX 3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall WARD MFG L L C

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

MAX PIPE OR CONDUIT DIAM In (mm)	F RATING HR	T RATING HR
1 (25)	1 OR 2	0+, 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 h. 3M COMPANY - CP 25WB+ or FB-3000 WT. *Bearing the UL Classification Mark

1-4 HR RATED WALL PENETRATION FOR METALLIC PIPE, VARIOUS SIZES SCALE: N.T.S.

THROUGH 1-HR RATED ASSEMBLY

SCALE: 1" = 1'-0"

Through-penetration Firestop Systems See General Information for Through—penetration Firestop Systems System No. F-C-7002 December 08, 2008

butted.

F Rating — 1 Hr T Rating — 3/4 Hr

SECTION A-A

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory, as summarized below: A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling

Design. Max diam of floor opening is 5 in. B. Wood Joists — Nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1 by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required with ends

C. Furring Channels — (Not Shown) — Resilient galv steel furring installed perpendicular to wood joists (Item 1B) between wallboard (Item 1D) and wood joists or furring channels as required in the individual Floor—Ceiling Design. D. Gypsum Board* — Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design. Wallboard secured to wood joists or furring channels as specified in the individual Floor-Ceiling Design. Max diam of ceiling opening is 5 in.

1.1 Chase Wall — (Not Shown, optional) The through penetrant (Item 2) may be routed through a 1 hr fire-rated single, double or staggered wood stud/aypsum wallboard chase wall constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Nom 2 by 6 in. or double nom 2 by 4 in. lumber studs. B. Sole Plate — Nom 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly

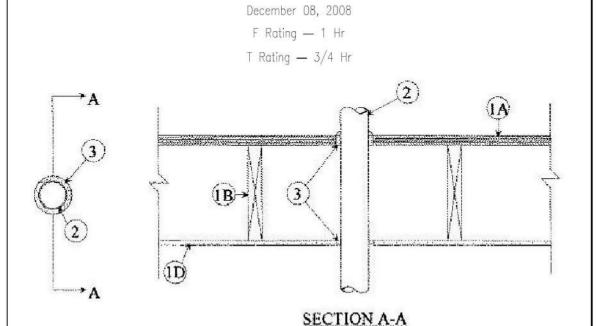
C. Top Plate — The double top plate shall consist of two nom by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 5

D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design. 2. Steel Duct — Nom 4 in. diam (or smaller) No. 30 gauge (or heavier) steel duct. One

duct to be centered within the firestop system. Diam of openings hole—sawed through flooring system and through gypsum wallboard ceiling to the nom 1/2 in. larger than the outside diam of through-penetrant. Steel duct to be rigidly supported on both sides of floor—ceiling assembly. 3. Fill, Void or Cavity Material* — Sealant — Min 3/4 in. thickness of fill material applied

within annulus on top surface of floor. Min 5/8 in. thickness of fill material applied within annulus on bottom surface of ceiling or lower top plate of chase wall assembly. Additional fill material to be installed such that a min 1/8 in. crown is formed around the penetrating item on bottom surface of ceiling or lower top plate of chase wall assembly. SPECIFIED TECHNOLOGIES INC — SpecSeal Series SSS Sealant or SpecSeal LCI Sealant *Bearing the UL Classification Mark

TOILET AND DRYER EXHAUST DUCT PENETRATION



Through-penetration Firestop Systems

System No. F-C-7002

Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor—Ceiling Designs in the UL Fire Resistance Directory, as summarized below: A. Flooring System — Lumber or plywood subfloor with finish floor of lumber,

plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling

Design. Max diam of floor opening is 5 in. B. Wood Joists — Nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1 by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required with ends

C. Furring Channels — (Not Shown) — Resilient galv steel furring installed perpendicular to wood joists (Item 1B) between wallboard (Item 1D) and wood joists or furring channels as required in the individual Floor-Ceiling Design. D. Gypsum Board* — Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design. Wallboard secured to wood joists or furring channels as specified in the individual Floor—Ceiling Design. Max diam of ceiling opening is 5 in.

1.1 Chase Wall — (Not Shown, optional) The through penetrant (Item 2) may be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Nom 2 by 6 in. or double nom 2 by 4 in. lumber studs. B. Sole Plate — Nom 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly

butted.

C. Top Plate — The double top plate shall consist of two nom by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 5). Gvosum Board* — Thickness, type, number of layers and fasteners shall be as

specified in individual Wall and Partition Design. 2. Steel Duct — Nom 4 in. diam (or smaller) No. 30 gauge (or heavier) steel duct. One duct to be centered within the firestop system. Diam of openings hole-sawed through flooring system and through gypsum wallboard ceiling to the nom 1/2 in. larger than the outside diam of through-penetrant. Steel duct to be rigidly supported on both sides of floor-ceiling assembly.

3. Fill, Void or Cavity Material* — Sealant — Min 3/4 in. thickness of fill material applied within annulus on top surface of floor. Min 5/8 in. thickness of fill material applied within annulus on bottom surface of ceiling or lower top plate of chase wall assembly. Additional fill material to be installed such that a min 1/8 in. crown is formed around the penetrating item on bottom surface of ceiling or lower top plate of chase wall assembly. SPECIFIED TECHNOLOGIES INC — SpecSeal Series SSS Sealant or SpecSeal LCI Sealant *Bearing the UL Classification Mark

1-HR RATED METALLIC VENT

THROUGH 1-HR RATED ASSEMBLY



A MULTI-DISCIPLINARY DESIGN FIRM

SOUTH TERRACES

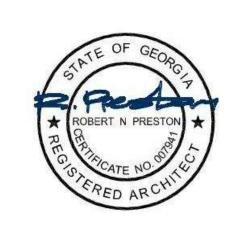
115 PERIMETER CENTER PLACE, SUITE 950

ATLANTA. GEORGIA 30346

TELEPHONE: 770 396 7248

CONSULTANT

FAX: 770 396 2945 WWW.THEPRESTONPARTNERSHIP.COM



RESERVE AT THE BALLPARK, PHASE II, AKA REVEL AT THE **BALLPARK** 2885 CRESCENT PKWY SMYRNA, GA 30080

ATLANTIC REALTY **PARTNERS** 3438 PEACHTREE ROAD

ATLANTA, GA 30326

SUITE 1425

ISSUES & #\[\frac{1}{4}\]- REVISIONS ___ PERMIT SET 05/22/2017 3 BUILDING PERMIT 07/25/2017

05/22/2017 SHEET TITLE **UL ASSEMBLIES**

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