

FIRESTOP SUBMITTAL PACKAGE

PROJECT:

SUBMITTED BY:



Mechanical

Wood Floor-Ceilings

SYSTEM	DESCRIPTION	PRODUCT(S)
F-C-1074	Max. 4 in. steel, iron or copper. Optional chase wall. Caulk only.	LCI Sealant
F-C-2032	Max. 2 in. PVC, CPVC, 1-1/2 in. ABS, 1 in. PB or PEX. Caulk only.	LCI Sealant
F-C-2158	Max. 4 in. PVC, CPVC or ABS pipe with optional branch pipe.	LCC Collar
F-C-5043	Max. 4 in. steel, iron or copper with 1-1/2 in. fiberglass or 1 in. AB/PVC.	LCI Sealant
F-C-7014	Max. 10 in. round steel duct. Caulk only.	LCI Sealant
F-C-7023	Max. 64 sq in. rectangular steel duct. Caulk only.	LCI Sealant
F-C-8021	Multiple Air Conditioner Line Sets. Caulk only.	LCI Sealant

Gypsum Board Walls

SYSTEM	DESCRIPTION	PRODUCT(S)
W-L-1222	Max. 12 in. steel, iron or 4 in. copper. Caulk only.	LCI Sealant
W-L-2241	Max. 2 in. PVC, CPVC or 1-1/2 in. ABS pipe (DWV or closed). Caulk only.	LCI Sealant
W-L-2237	Max. 4 in. PVC, CPVC or ABS pipe (DWV or closed).	LCC Collar
W-L-5121	Max. 4 in. steel, iron or copper with 2 in. fiberglass. Caulk only.	LCI Sealant
W-L-5122	Max. 4 in. steel, iron or 2 in. copper with 3/4 in. AB/PVC. Caulk only.	LCI Sealant
W-L-7060	Max. 24 by 30 in. steel duct. Caulk only.	LCI Sealant
W-L-7061	Max. 8 in. round steel duct. Caulk only.	LCI Sealant
W-L-7062	Max. 8 by 8 in. steel duct. Caulk only.	LCI Sealant
W-L-8025	Air Conditioner Line Set. Caulk only.	LCI Sealant

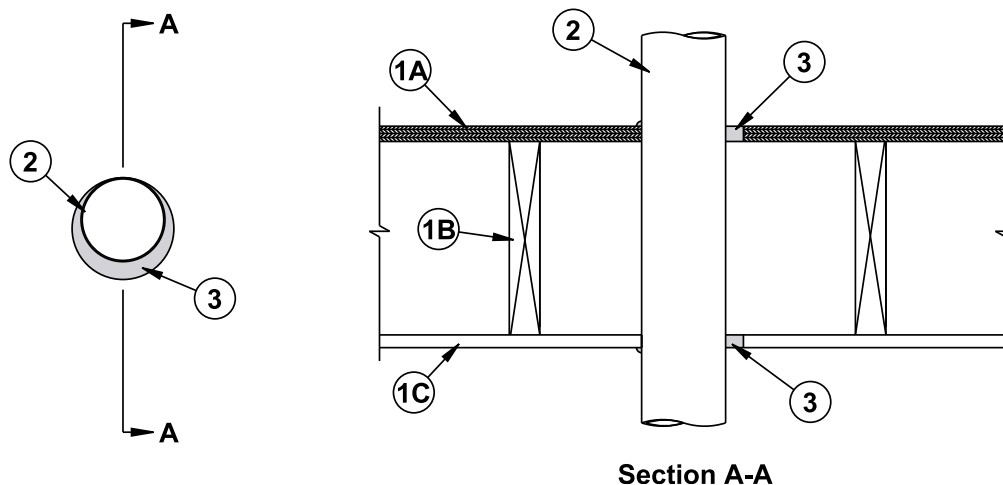
General Certificate of Conformance

Product Data Sheets

Series LCI Intumescent Sealant
Series LCC Intumescent Firestop Collars

Material Safety Data Sheets

Series LCI Intumescent Sealant
Series LCC Intumescent Firestop Collars



System No. F-C-1074

October 04, 2000

F Ratings — 1 and 2 Hr (See Item 1)

T Ratings — 1/4, 1/2 and 1 Hr (See Item 2)

1. **Floor - Ceiling Assembly** — The 1 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Designs in the UL Fire Resistance Directory. The 2 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in Design Nos. L505, L511 or L536 in the UL Fire Resistance Directory. **The F Rating of the firestop system is equal to the fire rating of the floor-ceiling assembly.** The general construction features of the floor assembly are 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. Diam of opening to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe.
 - B. **Wood Joists** — Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required and with ends firestopped.
 - C. **Gypsum Board*** — Thickness, type, number of layers and fasteners as required in the individual Floor-Ceiling Design. Diam of opening to be max 1 in. greater than diam of pipe.
 - D. **Furring Channel** — (Not Shown) — In 2 hr fire-rated assemblies, resilient galv steel furring channels installed perpendicular to wood joists between base and face layers of gypsum board (Item C). Furring channels spaced max 24 in. OC with additional short lengths of furring channel installed adjacent to and max 3 in. from two opposing sides of penetrant.
- 1A. **Chase Wall** — (Optional, Not Shown) — The through penetrant (Item 2) may be routed through a 1 or 2 hr fire rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1 in. greater than the diameter of the through penetrant (Item 2). The chase wall shall be 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 4 in., 2 by 6 in. or double nom 2 by 4 in. lumber studs.
 - B. **Sole Plate** — Nom 2 by 4 in., 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity is 5-1/2 in.
 - C. **Top Plate** — The double top plate shall consist of two nom 2 by 4 in., two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity is 5-1/2 in.
 - D. **Steel Plate** — When lumber plates are discontinuous, nom 1-1/2 in. wide No. 20 gauge (or heavier) galv steel plates shall be installed to connect discontinuous lumber plates and to provide a form for the fill material. Steel plates sized to lap 2 in. onto each discontinuous lumber plate and secured to lumber plates with steel screws or nails.
 - E. **Gypsum Board*** — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.
2. **Through Penetrant** — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the opening. Annular space to be min 0 in. (point contact) to max 1 in. Penetrant to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipe, conduit or tubing may be used:
 - A. **Steel Pipe** — Nom 4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 4 in. diam (or smaller) cast or ductile iron pipe.

(System No. F-C-1074 Continued)

(System No. F-C-1074 Continued)

- C. **Conduit** — Nom 4 in. diam (or smaller) steel conduit, steel electrical metallic tubing or flexible steel conduit.
D. **Copper Pipe or Tube** — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe or Type L (or heavier) copper tube.

The T Rating is 1/4 hr when copper pipe or tube is used in 1 hr fire-rated assemblies.

The T Rating is 1/2 hr when copper pipe of tube is used in 2 hr fire-rated assemblies.

When steel pipe, iron pipe, steel conduit or flexible metal piping (Item 2A) is used, T Rating is 1 hr.

- 2A. **Through Penetrating Product* — Flexible Metal Piping** — As an alternate to Item 2, one nom 2 in. diam (or smaller) steel flexible metal pipe to be installed either concentrically or eccentrically within the firestop system. Annular space to be min 0 in. (point contact) to max 1 in. Penetrant to be rigidly supported on both sides of floor-ceiling assembly.

OMEGA FLEX INC

TITEFLEX CORP

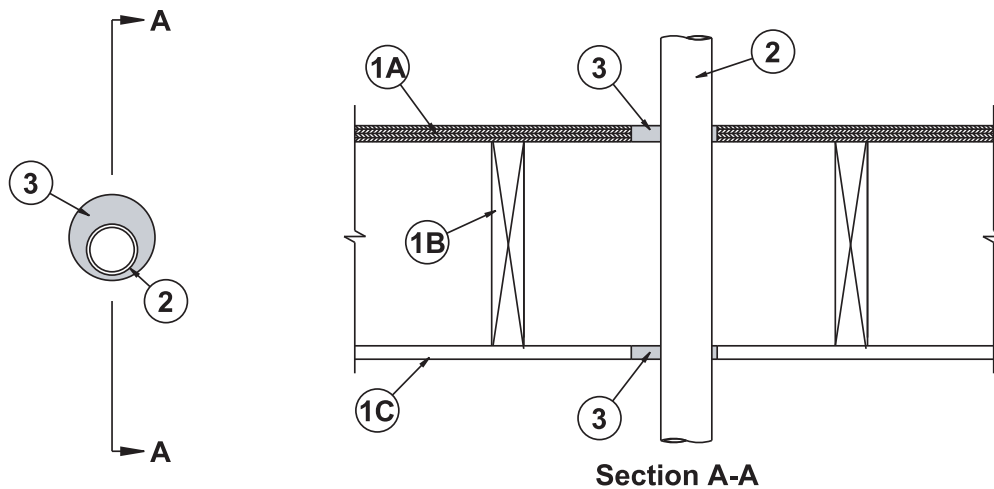
A BUNDY CO

WARD MFG INC

3. **Fill, Void or Cavity Material* — Sealant** — Min 3/4 in. thickness of fill material applied within the annulus, flush with the top surface of the floor or sole plate. Min 5/8 in. thickness of fill material applied within the annulus, flush with bottom surface of ceiling or top plate. Min 1/4 in. diam bead of fill material applied at point contact location on the top surface of floor or sole plate and at the penetrant/ceiling or top plate interface.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Mark



System No. F-C-2032

November 30, 2001

F Rating — 1 Hr

T Ratings — 1/4 and 1 Hr (See Item 2)

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. The general construction details of the floor-ceiling assembly are 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 4 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 and with ends firestopped.
 - C. **Furring Channels** — (Not Shown) — Resilient galv steel furring installed perpendicular to wood joists (Item 1B) between gypsum board (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. Gypsum board secured to wood joists or furring channels as specified in the individual Floor-Ceiling Design. Max diam of ceiling opening is 4 in.
 - 1.1 **Chase Wall** — (Not Shown) — When required (See table under Item 2), the through penetrant (Item 2) shall be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1/2 in. greater than diam of opening cut in sole and top plates to accommodate the through penetrant (Item 2). The chase wall shall be 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 4 in., 2 by 6 in. or double 2 by 4 in. lumber studs.
 - B. **Sole Plate** — Nom 2 by 4 in., 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 2 by 4 in. or 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 4 in.
 - D. **Gypsum Board*** — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
- The use of the chase wall is dependent upon the type of through penetrant used as specified in Item 2.**
2. **Through Penetrants** — One nonmetallic pipe, conduit or tubing to be installed within the firestop system. Diam of openings hole-sawed through flooring system and through gypsum wallboard ceiling to be 1/4 in. to 1-5/8 in. larger than the outside diam of through-penetrant. Pipe, conduit or tubing to be rigidly supported on both sides of the floor-ceiling assembly. The following types and sizes of nonmetallic pipes, conduits or tubing may be used:
 - A. **Polyvinyl Chloride (PVC) Pipe** — Nom 2 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. **Rigid Nonmetallic Conduit(RNC)+** — Nom 2 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).
 - C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 2 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 1-1/2 in. diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - E. **Polybutylene (PB) Pipe** — Nom 1 in. diam (or smaller) SDR 11 PB pipe for use in closed (process or supply) piping systems.
 - F. **Cross Linked Polyethylene Aluminum-Cross Linked Polyethylene (PEX AL-PEX) Tubing** — Nom 1 in. diam (or smaller) SDR 5 PEX-AL-PEX tubing for use in closed (process or supply) piping systems.

(System No. F-C-2032 Continued)

(System No. F-C-2032 Continued)

- G. **Cross Linked Polyethylene (PEX) Tubing** — Nom 1 in. diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems
- H. **Electrical Nonmetallic Tubing (ENT)+** — Nom 2 in. diam (or smaller) PVC tubing installed in accordance with Article 331 of the National Electrical Code (NFPA No. 70).
- The use of the chase wall (Item 1.1) is dependent upon the type and diam of through penetrant and type of piping system used as tabulated below:

Type of Through Penetrant	Max Diam of Through Penetrant In.	Type of Piping System	Use of Chase Wall
PVC pipe (a)	2	Closed or Vented	Optional
RNC	2	Not Applicable	Optional
CPVC pipe (a)	2	Closed or Vented	Optional
ABS pipe	1-1/2	Closed or Vented	Optional
PB pipe	1	Closed	Optional
PEX-AL-PEX tubing	1	Closed	Required
PEX tubing	1	Closed	Optional
ENT	2	Not Applicable	Optional

(a)When nom diam of pipe exceeds 1 in. and chase wall (Item 1.1) is not used , T Rating is ¼ hr.

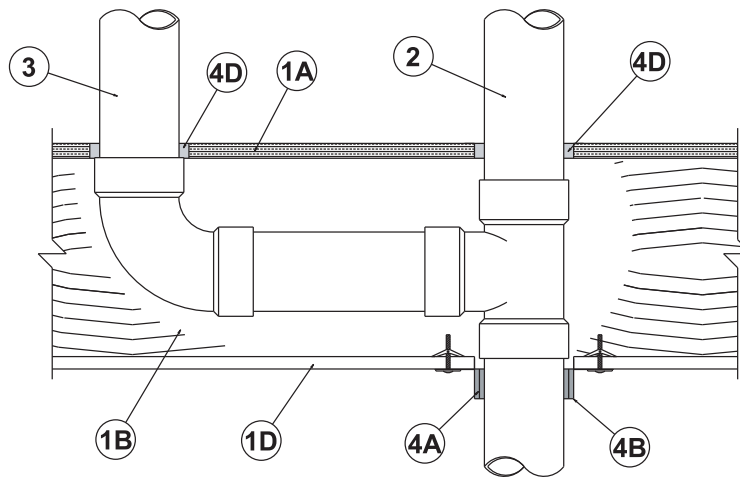
When 2A, 2B, 2C, 2E, 2F, 2G or 2H is used, the annular space shall be min 0 in. (point contact) to max 1-5/8 in. When 2D is used, the annular space shall be min 1/8 in. to max 1 in. unless the pipe is contained within a chase wall, in which case the minimum annular space is 0 in. (point contact).

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 through penetrant on bottom surface of ceiling or lower plate of chase wall assembly.

SPECIFIED TECHNOLOGIES INC — SpecSeal 100, 101, 102, 105, 120 or 129 Sealant, SpecSeal LCI

+Bearing the UL Listing Mark

*Bearing the UL Classification Marking



System No. F-C-2158

November 30, 2001

F Ratings — 1 and 2 Hr (See Item 1)

T Ratings — 1 and 2 Hr (See Item 1)

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. The 2 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in Design Nos. L505, L511 or L536 in the UL Fire Resistance Directory. **The F and T Ratings of the firestop system are equal to the rating of the floor-ceiling assembly.** The general construction features of the floor-ceiling assembly are 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. Diam of opening hole-sawed in flooring shall be max 1 in. larger than diam of through penetrant (Item 3) or branch piping (Item 4). As an option, the opening for the branch piping (Item 4) may be rectangular, 8 in. by 12 in. max, for 1 hr rated assemblies only. Cutout to be patched on underside of subfloor using one layer of min 3/4 in. thick plywood or min 5/8 in. thick gypsum wallboard (Item 1C) sized to lap min 2 in. beyond each edge of rectangular cutout. Diam of opening hole sawed through patch to accommodate branch piping (Item 4) to be max 1 in. larger than diam of branch piping. Patch split into two pieces at opening hole-sawed for branch piping. Two pieces positioned around branch piping, with cut edges tightly-butted, and screw attached to the underside of subfloor using 1-1/4 in. long Type S steel screws spaced max 6 in. OC.
 - B. **Wood Joists*** — For 1 hr fire-rated floor-ceiling assemblies nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required and with ends firestopped. For 2 hr fire-rated floor-ceiling assembly, nom 2 by 10 in. lumber joists spaced 16 in. OC with nom 1 by 3 in. lumber bridging with ends firestopped.
 - C. **Furring Channels** — (Not Shown) — Resilient galv steel furring installed perpendicular to wood joists between first and second layers of gypsum board (Item 1D) in 2 hr fire-rated assembly.
 - D. **Gypsum Board*** — Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design. First layer of gypsum board nailed to wood joists. Second layer of gypsum board (2 hr fire-rated assembly) screw-attached to furring channels. Diam of opening shall be max 1 in. larger than nom diam of through penetrant (Item 3).
2. **Chase Wall** — (Optional, Not Shown) — The through-penetrant (Item 3) may be routed through a 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board 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 which includes 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. Diam of opening hole-sawed in sole plate to be max 1 in. larger than diam of through penetrant (Item 3).
 - C. **Top Plate** — The double top plate shall consist of two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening shall be max 1 in. larger than diam of through penetrant (Item 3).
 - D. **Gypsum Board*** — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall or Partition Design.
3. **Through-Penetrant** — One nonmetallic pipe to be centered within the firestop system. Pipe to be rigidly supported on both sides of floor-ceiling assembly. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. Pipe may be installed with continuous point contact where it passes through gypsum board ceiling. The following types and sizes of nonmetallic pipes may be used:
 - A. **Polyvinyl Chloride (PVC) Pipe** — Nom 4 in. 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 system.
 - B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 4 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
 - C. **Acrylonitrile Butadiene Styrene (ABS) Pipe** — Nom 4 in. diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

(System No. F-C-2158 Continued)

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Created or Revised: 02/21/02

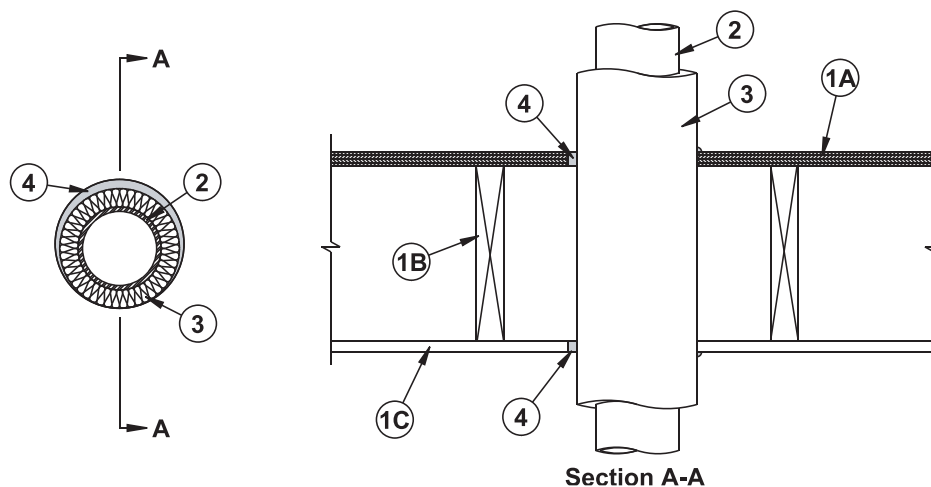
Specified Technologies, Inc., Somerville, NJ (800) 992-1180

FOD-3308

(System No. F-C-2158 Continued)

4. **Branch Piping** — (Optional) — One nonmetallic pipe with or without nom 4 in. diam (or smaller) toilet flange (not shown) connected to through penetrant (Item 3) within concealed space above ceiling and centered within opening in subfloor. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. Branch piping may terminate in a max 4 in. diam toilet flange that corresponds to the type of branch piping. The following types and sizes of nonmetallic pipes may be used:
- A. **Polyvinyl Chloride (PVC) Pipe** — Nom 4 in. 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 system.
 - B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 4 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
 - C. **Acrylonitrile Butadiene Styrene (ABS) Pipe** — Nom 4 in. diam (or smaller) Schedule 40 cellular or solid core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
5. **Firestop System** — The details of the firestop system shall be as follows:
- A. **Fill, Void or Cavity Material* — Wrap Strip** — Nom 1/4 in. thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. or 2 in. wide strips. Nom 1-1/2 in. or 2 in. wide strips tightly wrapped around through penetrant (Item 3) with the edges butted against the underside of the gypsum board ceiling (Item 1D) or top plate of chase wall (Item 2C) around the entire perimeter of the hole-sawed opening. For nom 1/2 in. to 2 in. diam pipes, a min of one layer of wrap strip is required. For nom 2-1/2 in. to nom 4 in. diam pipes, a min of two layers of wrap strip is required. Each layer of wrap strip to be installed with butted seams, butted seams in successive layers to be staggered or aligned. Wrap strip layer(s) secured together with masking tape.
SPECIFIED TECHNOLOGIES INC — SpecSeal RED Wrap Strip or SpecSeal BLU Wrap Strip
 - B. **Steel Collar** — Collar fabricated from coils of precut 0.016 in. thick (30 MSG) galv sheet steel available from wrap strip manufacturer. Collar shall be nom 1-1/2 in. or 2 in. deep dependent upon wrap strip width with 1 in. wide by 2 in. long anchor tabs for attachment to underside of ceiling or top plate. Retainer tabs, 3/4 in. wide tapering down to 1/4 in. wide and located opposite the anchor tabs, folded 90 degrees toward through penetrant surface to maintain the annular space and to retain the wrap strips. Collar wrapped around wrap strips and through-penetrant with a 1 in. wide overlap along its perimeter joint and secured with a min 1/2 in. wide by 0.028 in. thick stainless steel hose clamp at the 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. long. For steel collars incorporating two or more layers of wrap strip, the length of the steel screws shall be 3/8 in. long. Collar secured to the bottom of ceiling with min 3/16 in. diam by 2 in. long toggle bolts in conjunction with min 1/4 in. by 1-1/4 in. steel fender washers. Collar secured to bottom of chase wall top plate with min 3/4 in. long steel wood screws in conjunction with min 1/4 in. by 1 in. steel fender washers, respectively. The number of screws is dependent upon the nom diam of the through penetrant. Two screws, symmetrically located, are required for nom 1/2 in. through 2 in. diam through-penetrants. Three screws, symmetrically located, are required for nom 2-1/2 in. and 3 in. diam through-penetrants. Four screws, symmetrically located, are required for nom 3-1/2 in. and 4 in. diam through-penetrants. Steel collar is not required to be installed around branch piping at the underside of the flooring.
 - C. **Firestop Device*** — (Not Shown) — As an alternate to Items 5A and 5B for through-penetrant (Item 3), a firestop device consisting of a steel collar lined with intumescent material and sized to fit the specific diam of the nonmetallic pipe may be used. Firestop device to be installed on underside of ceiling or top plate in accordance with the accompanying installation instructions.
SPECIFIED TECHNOLOGIES INC — SpecSeal Firestop Collar, SpecSeal LCC Collar
 - D. **Fill, Void or Cavity Material* — Sealant** — Min 3/4 in. thickness of fill material applied within annular space around perimeter of through penetrant (Item 3) and branch piping (Item 4), flush with top surface of floor or top of chase wall sole plate. Min 1/2 in. diam bead applied at point contact locations at pipe/floor interface and the pipe/plate interface.
SPECIFIED TECHNOLOGIES INC — SpecSeal 100, 101, 102, 105, 120 or 129 Sealant, SpecSeal LCI Sealant

*Bearing the UL Classification Mark



System No. F-C-5043

F Ratings — 1 Hr and 2 Hr (See Items 1, 3A and 3D)

T Ratings — 3/4 and 1 Hr (See Item 3)

1. **Floor-Ceiling Assembly** — The 1 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Designs in the UL Fire Resistance Directory. The 2 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in Design Nos. L505, L511 or L536 in the UL Fire Resistance Directory. **The F Rating of the firestop system is equal to the fire rating of the floor-ceiling assembly.** The general construction features of the floor assembly are 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. Diam of opening to be max 1 in. larger than diam of insulated pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the insulated pipe.
 - B. **Wood Joists** — Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required and with ends firestopped.
 - C. **Gypsum Board*** — Thickness, type, number of layers and fasteners as required in the individual Floor-Ceiling Design. Diam of opening is to be max 1 in. larger than diam of insulated metallic pipe.
 - D. **Furring Channel** — (Not Shown) — In 2 hr fire-rated assemblies, resilient galv steel furring channels installed perpendicular to wood joists between base and face layers of gypsum board (Item C). Furring channels spaced max 24 in. OC with additional short lengths of furring channel installed adjacent to and max 3 in. from two opposing sides of penetrant.
- 1A. **Chase Wall** — (Optional, Not Shown) — The through penetrant (Item 2) may be routed through a 1 or 2 hr fire rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1 in. greater than the diameter of the insulated pipe (Item 2). The chase wall shall be 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 4 in., 2 by 6 in. or double nom 2 by 4 in. lumber studs.
 - B. **Sole Plate** — Nom 2 by 4 in., 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of insulated metallic pipe. As an alternate for pipes insulated with max 1 in. thick glass fiber insulation (Item 3A), the opening may be square-cut with a max dimension 1 in. greater than the diam of the insulated pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity is 7 in.
 - C. **Top Plate** — The double top plate shall consist of two nom 2 by 4 in., two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of insulated metallic pipe. As an alternate for pipes insulated with max 1 in. thick glass fiber insulation (Item 3A), the opening may be square-cut with a max dimension 1 in. greater than the diam of the insulated pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity is 7 in.
 - D. **Steel Plate** — (Not Shown) — When lumber plates are discontinuous, nom 1-1/2 in. wide No. 20 gauge (or heavier) galv steel plates shall be installed to connect discontinuous lumber plates and to provide a form for the fill material. Steel plates sized to lap 2 in. onto each discontinuous lumber plate and secured to lumber plates with steel screws or nails.
 - E. **Gypsum Board*** — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.
2. **Through Penetrants** — One metallic pipe or tubing to be installed either concentrically or eccentrically within the opening. Penetrants to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipe or tubing may be used:
 - A. **Steel Pipe** — Nom 4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 4 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Pipe or Tube** — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe or Type L (or heavier) copper tube.
3. **Pipe Covering*** — One of the following types of pipe coverings may be used:

(System No. F-C-5043 Continued)

(System No. F-C-5043 Continued)

- A. **Pipe and Equipment Covering Materials*** — Nom 1 in. or 1-1/2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or butt tape supplied with the product. The annular space between the insulated through penetrant and periphery of opening shall be min 0 in. (point contact) to max 1 in. When 1-1/2 in. thick insulation is used, max F Rating is 1 hr. When 1 in. thick insulation is used, max F Rating is 2 hr.

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

- B. **Pipe Covering Materials*** — Max 1 in. thick unfaced mineral fiber pipe insulation having a nom density of 3.5 pcf (or heavier) and sized to the outside diam of pipe or tube. Pipe insulation secured with min No. 8 AWG steel wire spaced max 12 in. OC. The annular space between the insulated through penetrant and periphery of opening shall be min 0 in. (point contact) to max 1 in.

OWENS CORNING HT INC, DIV OF OWENS CORNING — High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT or High Temperature Pipe Insulation Thermaloc.

- C. **Sheathing Material*** — Used in conjunction with Item 3B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3B) with the kraft side exposed. Longitudinal joints and transverse joints sealed with metal fasteners or butt tape.

See **Sheathing Materials** (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

- D. **Tube Insulation — Plastics#** — Nom 1 in. thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space between the insulated through penetrant and periphery of opening shall be min 0 in. (point contact) to max 1 in. When AB/PVC insulation is used, max F Rating is 1 hr.

See **Plastics** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

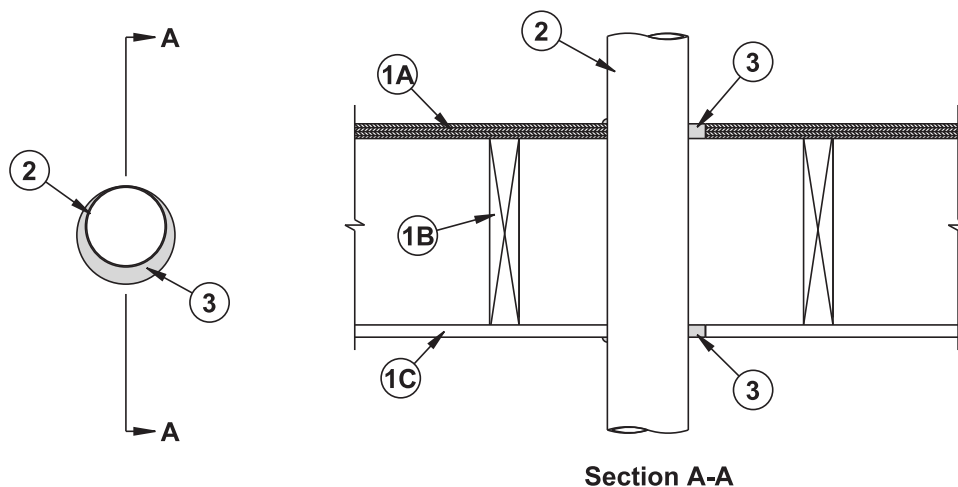
When Item 3A or 3B pipe covering is used, T Rating is 1 hr. When Item 3D pipe covering is used, T Rating is 3/4 hr.

4. **Fill, Void or Cavity Material* — Sealant** — Min 3/4 in. thickness of fill material applied within the annulus, flush with the top surface of the floor or sole plate. Min 5/8 in. thickness of fill material applied within the annulus, flush with bottom surface of ceiling or top plate. Min 1/4 in. diam bead of fill material applied at point contact location on the top surface of floor or sole plate and at the insulated metallic pipe/ceiling or top plate interface.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Mark

#Bearing the UL Recognized Component Mark



System No. F-C-7014

October 04, 2000

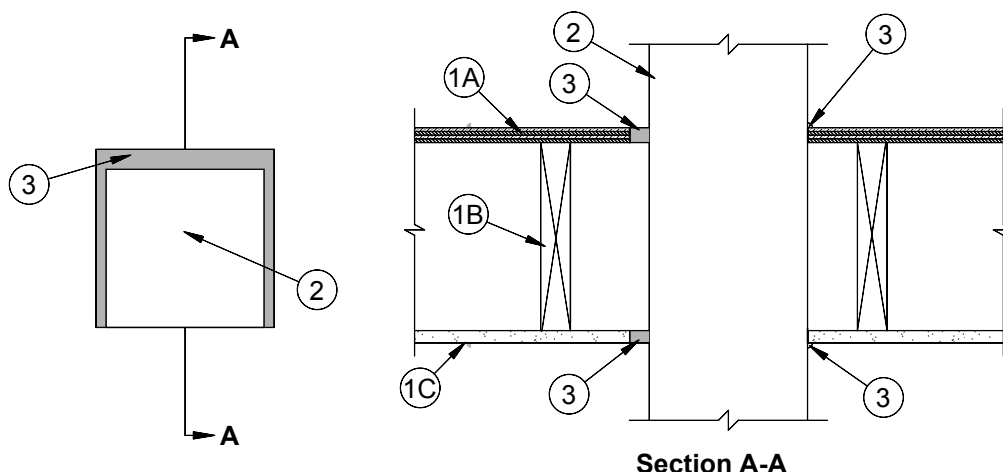
F Rating — 1 Hr

T Rating — 1 Hr

1. **Floor - Ceiling Assembly** — The 1 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 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. Diam of opening is to be max 1 in. larger than diam of steel duct.
 - B. **Wood Joists** — Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
 - C. **Gypsum Board*** — Thickness, type, number of layers and fasteners as required in the individual Floor-Ceiling Design. Diam of opening is to be max 1 in. larger than diam of steel duct.
- 1A. **Chase Wall** — (Optional, Not Shown) — The through penetrant (Item 2) may be routed through a 1 hr fire rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1/2 in. greater than diameter of opening cut in sole and top plates to accommodate the through penetrant (Item 2). The chase wall shall be 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 4 in., 2 by 6 in. or double nom 2 by 4 in. lumber studs.
 - B. **Sole Plate** — Nom 2 by 4 in., 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of steel pipe.
 - C. **Top Plate** — The double top plate shall consist of two nom 2 by 4 in., two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of steel duct.
 - D. **Gypsum Board*** — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.
2. **Steel Duct** — One Nom 4 in. diam (or smaller) No. 30 GA (or heavier) steel duct or one nom 10 in. diam (or smaller) No. 28 GA (or heavier) steel duct to be installed either concentrically or eccentrically within the opening. Annular space to be min 0 in. (point contact) to max 1 in. 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 the annulus, flush with the top surface of the floor or sole plate. Min 5/8 in. thickness of fill material applied within the annulus, flush with bottom surface of ceiling or top plate. Min 1/4 in. diam bead of fill material applied at point contact location on the top surface of floor or chase wall sole plate and at the penetrant/ceiling or chase wall top plate interface.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Mark



System No. F-C-7023

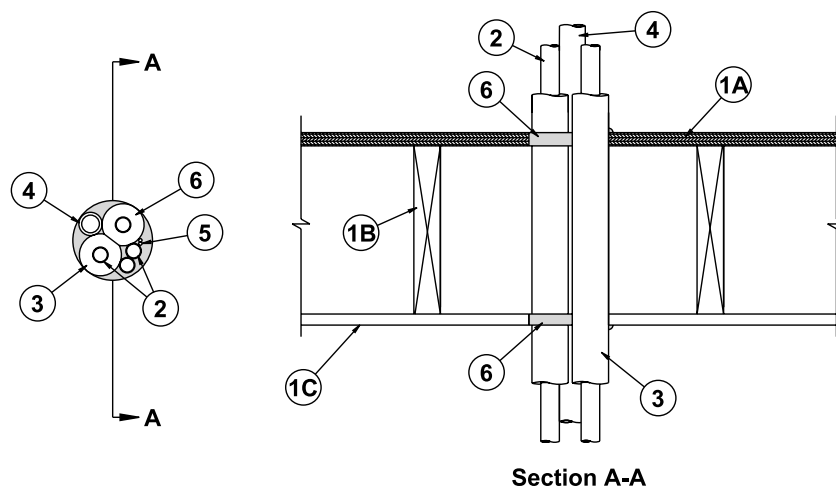
F Rating — 1 Hr

T Rating — 1/4 Hr

1. **Floor-Ceiling Assembly** — The 1 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 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. Square or rectangular opening made to accommodate steel duct (Item 2) to be centered between wood joists. Max area of opening is 81 sq in. Length and width dimensions of opening to be max 1 in. larger than outside dimensions of steel duct. Long dimension of rectangular opening to be perpendicular to direction of wood joists.
 - B. **Wood Joists** — Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required and with ends firestopped.
 - C. **Gypsum Board*** — Thickness, type, number of layers and fasteners as required in the individual Floor-Ceiling Design. Max area of opening in gypsum board ceiling is 100 sq in. Length and width dimensions of opening to be max 1 in. larger than outside dimensions of steel duct.
- 1A. **Chase Wall** — (Optional, Not Shown) — The steel duct may be routed through a 1 hr fire rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1/2 in. greater than width of opening cut in sole and top plates to accommodate the steel duct. The chase wall shall be 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. Max area of opening is 100 sq in. Length and width dimensions of opening to be max 1 in. larger than each side of steel duct.
 - C. **Top Plate** — The double top plate shall consist of two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Length and width dimensions of opening to be max 1 in. larger than each side of steel duct.
 - D. **Gypsum Board*** — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.
2. **Steel Duct** — Square or rectangular duct formed from No. 28 gauge (or heavier) galvanized steel. Max cross-sectional area of duct to be 64 sq in. with a maximum dimension of 12 in. Annular space between the steel duct and the periphery of the opening shall be min 0 in. (point contact) to max 1 in. 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 the annulus, flush with the top surface of the floor or sole plate. Min 5/8 in. thickness of fill material applied within the annulus, flush with bottom surface of gypsum board ceiling or top plate. Min 1/4 in. diam bead of fill material applied at point contact location on the top surface of floor or chase wall sole plate and at the penetrant/ceiling or penetrant/chase wall top plate interface.

Specified Technologies Inc.— SpecSeal LCI Sealant

* Bearing the UL Classification Marking



Section A-A

System No. F-C-8021

October 04, 2000

F Rating — 1 Hr

T Ratings — 1/2 and 1 Hr (See Item 2)

1. **Floor-Ceiling Assembly** — The 1 hr fire-rated wood joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 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 opening is 4-1/2 in.
 - B. **Wood Joists** — Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or **Structural Wood Members*** with bridging as required and with ends firestopped.
 - C. **Gypsum Board*** — Thickness, type, number of layers and fasteners as required in the individual Floor-Ceiling Design. Max diam of opening is 4-1/2 in.
- 1A. **Chase Wall** — (Optional, Not Shown) — The through penetrant (Item 2) may be routed through a 1 hr fire rated single, double or staggered wood stud/gypsum board chase wall. Depth of chase wall stud cavity to be min 1/2 in. greater than diameter of opening cut in sole and top plates to accommodate the through penetrant (Item 2). The chase wall shall be 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 4 in., 2 by 6 in. or double nom 2 by 4 in. lumber studs.
 - B. **Sole Plate** — Nom 2 by 4 in., 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 4-1/2 in.
 - C. **Top Plate** — The double top plate shall consist of two nom 2 by 4 in., two nom 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Max diam of opening is 4-1/2 in.
 - D. **Gypsum Board*** — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.
2. **Through Penetrants** — One or more metallic pipes, conduits or tubing to be installed either concentrically or eccentrically within the opening. Pipes, conduits or tubing to be spaced min 0 in. (point contact) to max 1 in. apart. The space between the pipes, conduits or tubing and the periphery of the opening shall be min 0 in. (point contact) to max 1 in. Penetrants to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipe, conduits or tubing may be used:
 - A. **Steel Pipe** — Nom 3/4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 3/4 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Conduit** — Nom 3/4 in. diam (or smaller) steel conduit or steel electrical metallic tubing.
 - D. **Copper Pipe or Tube** — Nom 3/4 in. diam (or smaller) Regular (or heavier) copper pipe or Type L (or heavier) copper tube.

When metallic pipe, conduit or tubing without insulation is used, T Rating is 1/2 hr. Otherwise, T Rating is 1 hr.
3. **Tube Insulation — Plastics#** — Nom 1 in. thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. Tube insulation to be installed on a max of two metallic pipes or tubes. Insulated pipe or tubing to be spaced 0 in. (point contact) to 1 in. from other through penetrants (Items 2, 4 and 5). The space between the insulated pipe or tube and the periphery of the opening shall be min 0 in. (point contact) to max 1 in.
 See **Plastics** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
4. **Nonmetallic Through Penetrant** — One nonmetallic pipe, conduit or tube to be installed within the firestop system. Pipe, conduit or tube to be spaced min 0 in. (point contact) to max 1 in. from the insulated through penetrants and min 1/2 in. to max 1 in. from non-insulated through penetrants. The space between the pipe, conduit or tube and the periphery of the opening shall be min 0 in. (point contact) to max 1 in. Pipe, conduit or tube to be rigidly supported on both sides of floor-ceiling assembly. One of the following types and sizes of nonmetallic through penetrants may be used:

(System No. F-C-8021 Continued)

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FOD-3429

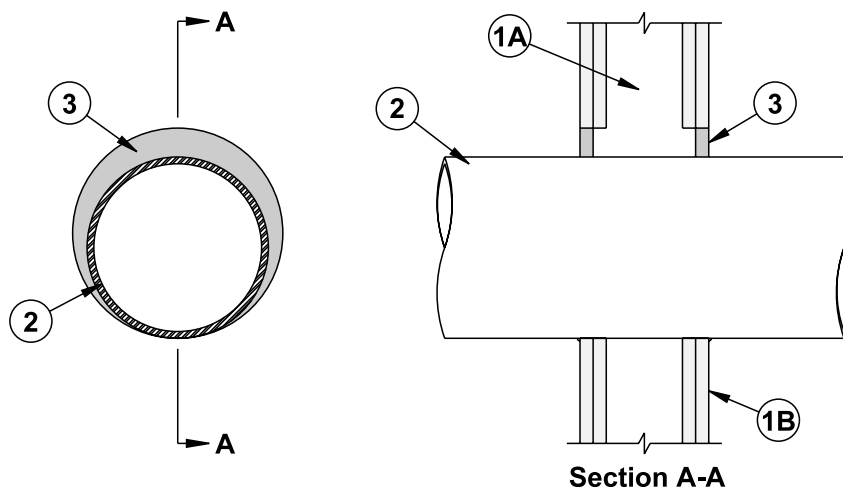
(System No. F-C-8021 Continued)

- A. **Polyvinyl Chloride (PVC) Pipe** — Nom 1-1/4 in. diam (or smaller) Schedule 40 PVC pipe for use in vented (drain, waste or vent) or closed (process or supply).
 - B. **Chlorinated Polyvinyl (CPVC) Pipe** — Nom 1-1/4 in. diam (or smaller) SDR17 CPVC pipe for use in vented (drain, waste or vent) or closed (process or supply).
 - C. **Rigid Nonmetallic Conduit*** — Nom 1-1/4 in. diam (or smaller) PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA 70).
 - D. **Electrical Nonmetallic Tubing (ENT)** — Nom 1-1/4 in. diam (or smaller) PVC tubing installed in accordance with Article 331 of the National Electrical Code (NFPA 70).
 - E. **Cross Linked Polyethylene (PEX) Tubing** — Nom 1 in. diam (or smaller) SDR9 PEX tubing for use in closed (process or supply) piping systems.
5. **Cables** — Max two 4 pair No. 18 AWG (or smaller) cables with PVC insulation and jacketing. Cables to be spaced min 0 in. (point contact) to max 1 in. from the other through penetrants. The space between the cables and the periphery of the opening shall be min 0 in. (point contact) to max 1 in. Cables to be rigidly supported on both sides of the floor-ceiling assembly.
6. **Fill, Void or Cavity Material* — Sealant** — Min 3/4 in. thickness of fill material applied within the annulus, flush with the top surface of the floor or sole plate. Min 5/8 in. thickness of fill material applied within the annulus, flush with bottom surface of ceiling or top plate. Additional fill material forced into grouped penetrant interstices to max extent possible. At point contact locations, min 1/4 in. diam bead of fill material applied at grouped penetrant bundle/subfloor or sole plate interface and at grouped penetrant bundle/ceiling or top plate interface.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Marking

#Bearing the UL Recognized Component Mark



System No. W-L-1222

October 04, 2000

F Ratings — 1 and 2 Hr (See Item 1)

T Ratings — 1/4, 3/4 and 1 Hr (See Item 2)

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design 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 3-5/8 in. wide and spaced max 24 in. OC.
- B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 10-5/8 in.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrant** — One metallic pipe, conduit or tube to be installed eccentrically or concentrically within the firestop system. The annular space between the pipe, conduit or tube and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. Pipe, conduit or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of metallic pipes, conduits and tubes may be used:

- A. **Steel Pipe** — Nom 8 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
- B. **Iron Pipe** — Nom 8 in. diam (or smaller) cast or ductile iron pipe.
- C. **Conduit** — Nom 6 in. diam (or smaller) rigid steel conduit, nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) or nom 4 in. diam (or smaller) flexible steel conduit.
- D. **Copper Pipe** — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
- E. **Copper Tube** — Nom 4 in. diam (or smaller) Type L (or heavier) copper tube.

Type of Penetrant	Max Diam	T Rating
Steel or iron pipe, steel conduit or EMT	2 in.	1 hr
Steel or iron pipe, steel conduit or EMT	8 in.	3/4 hr
Copper pipe or tube	4 in.	1/4 hr

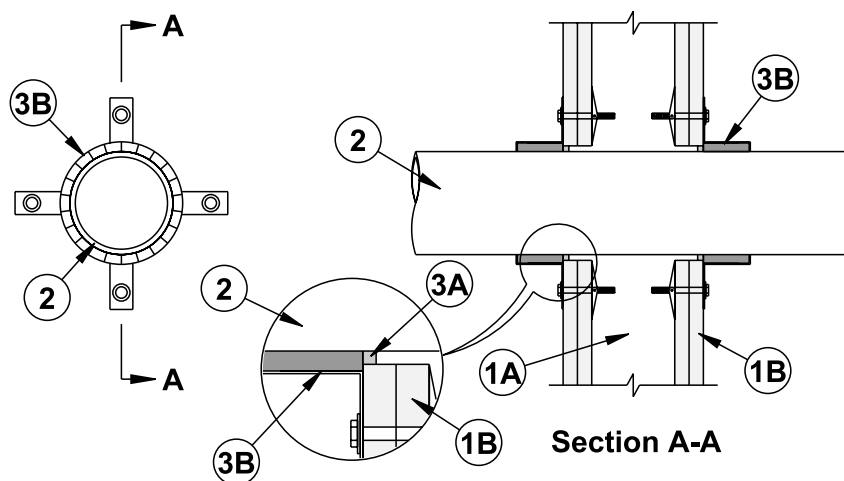
- 2A. **Through Penetrating Product* — Flexible Metal Piping** — As an alternate to Item 2, one nom 1-1/4 in. diam (or smaller) steel flexible metal pipe to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe and the periphery of the opening shall be min 0 in. (point contact) to max 2 in. Pipe to be rigidly supported on both sides of the wall assembly.

**OMEGA FLEX INC
TITEFLEX CORP
A BUNDY CO
WARD MFG INC**

3. **Fill, Void or Cavity Material* — Sealant** — Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. diam bead of fill material applied at metallic pipe/gypsum board interface on both surfaces of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Marking



System No. W-L-2237

October 13, 2000

F Ratings — 1 and 2 Hr (See Item 1)

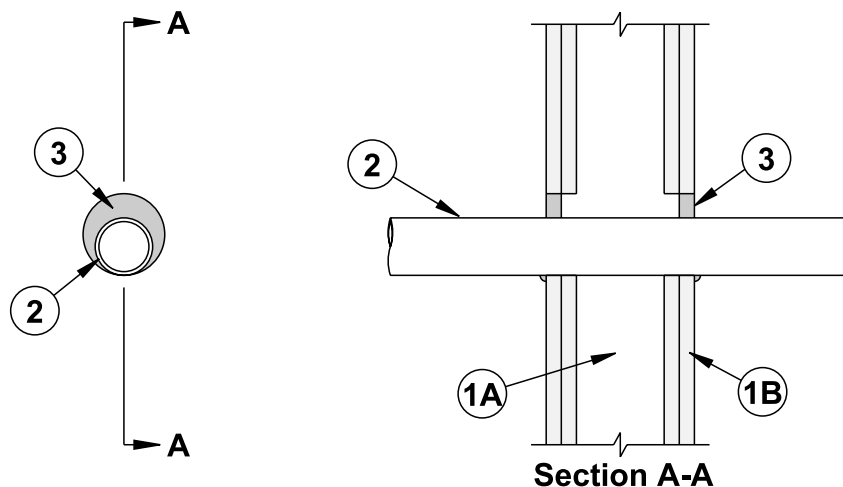
T Ratings — 1 and 2 Hr (See Item 1)

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate 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 3-5/8 in. wide and spaced max 24 in. OC.
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Designs. For nom 2-1/2 in. diam and smaller pipes and conduits, diam of opening shall be max 1/4 in. larger than nom pipe diam. For pipes and conduits greater than nom 2-1/2 in. diam of opening shall be max 1/2 in. larger than nom pipe diam.

The hourly F and T Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrants** — One nonmetallic pipe or conduit to be centered within opening with a max annular space between pipe or conduit and periphery of 1/8 in. for nom 2-1/2 in. diam and smaller pipes and conduits and 1/4 in. for pipes and conduits greater than 2-1/2 in. diam. Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes and conduits may be used.
 - A. **Polyvinyl Chloride (PVC) Pipe** — Nom 4 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 4 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - C. **Acrylonitrile Butadiene Styrene (ABS) Pipe** — Nom 4 in. diam (or smaller) Schedule 40 solid or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - D. **Rigid Nonmetallic Conduit+** — Nom 4 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA 70).
3. **Firestop System** — The firestop system consists of the following:
 - A. **Fill, Void or Cavity Material* — Sealant** — Min 1/4 in. thickness applied within annulus, flush with both surfaces of wall.
SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant
 - B. **Firestop Device*** — Galv steel collar lined with an intumescent material sized to fit the specific diam of the through penetrant. Device shall be installed around through penetrant in accordance with the accompanying installation instructions. Device incorporates anchor tabs for securement to both surfaces of wall assembly by means of 3/16 in. diam steel toggle bolts in conjunction with min 1-1/4 in. diam steel fender washers.
SPECIFIED TECHNOLOGIES INC — SpecSeal LCC Collar

*Bearing the UL Classification Marking

+Bearing the UL Listing Mark



System No. W-L-2241

October 04, 2000

F Ratings — 1 and 2 Hr (See Item 1)

T Ratings — 0, 1/4, 1 and 1-3/4 Hr (See Item 2)

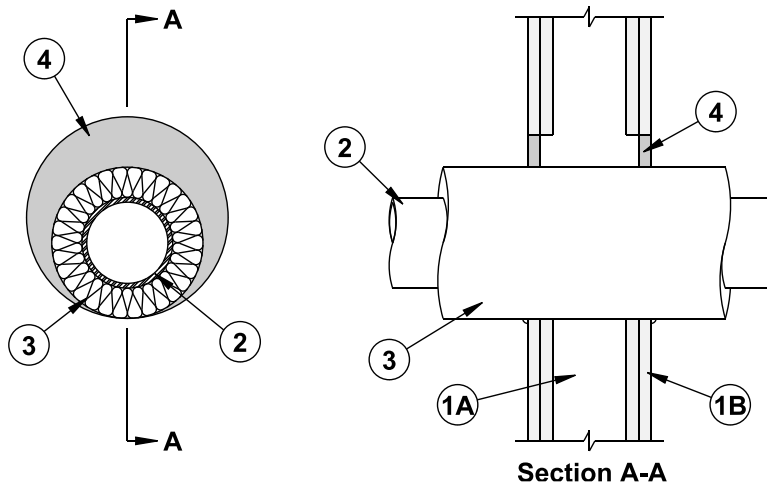
1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - 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 3-5/8 in. wide and spaced max 24 in. OC.
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 3-3/8 in.
2. **Through Penetrant** — One nonmetallic pipe, conduit or tube to be installed eccentrically or concentrically within the firestop system. Pipe, conduit or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes, conduits and tubes may be used:
 - A. **Polyvinyl Chloride (PVC) Pipe** — Nom 2 in. diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in.
 - B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 2 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in.
 - C. **Rigid Nonmetallic Conduit*** — Nom 2 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA 70). Annular space shall be min 0 in. (point contact) to max 1 in.
 - D. **Electrical Nonmetallic Tubing*** — Nom 2 in. diam (or smaller) PVC tubing installed in accordance with Article 331 of the National Electrical Code (NFPA 70). Annular space shall be min 0 in. (point contact) to max 1 in.
 - E. **Cross Linked Polyethylene (PEX) Tubing** — Nom 1 in. diam (or smaller) SDR9 PEX tubing for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (point contact) to max 1 in.
 - F. **Acrylonitrile Butadiene Styrene (ABS) Pipe** — Nom 1-1/2 in. diam (or smaller) Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Annular space shall be min 1/4 in. to max 3/4 in.

When Item 2A or 2B is used, the T Rating is 1/4 hr. When Item 2C, 2D, or 2E is used, the T Rating is 1 hr and 1-3/4 hr for 1 hr and 2 hr fire rated walls, respectively. When Item 2F is used, T Rating is 0 hr.

3. **Fill, Void or Cavity Material*** — Sealant — Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. diam bead of fill material applied at nonmetallic pipe/gypsum board interface on both surfaces of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Marking



System No. W-L-5121

F Ratings — 1 and 2 Hr (See Item 1)

T Rating — 1 Hr

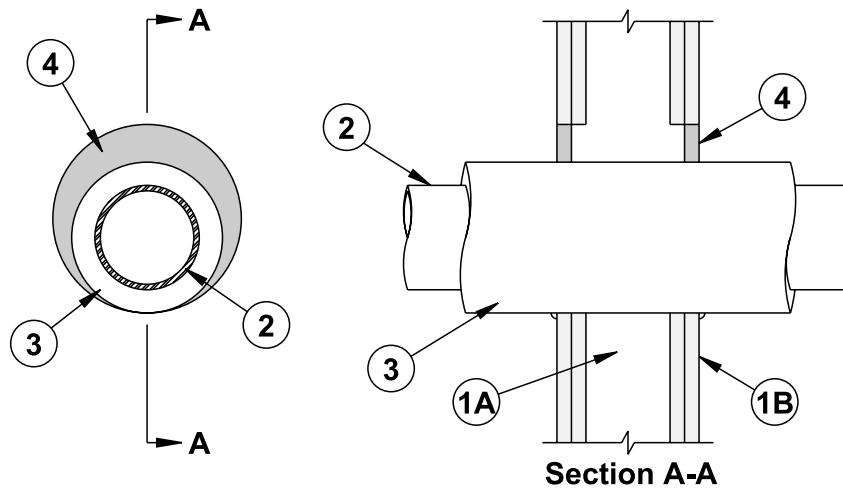
1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
 - 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 3-5/8 in. wide and spaced max 24 in. OC.
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 12 in.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. **Through Penetrant** — One metallic pipe or tube to be installed eccentrically or concentrically within the firestop system. Pipe or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of metallic pipes and tubes may be used:
 - A. **Steel Pipe** — Nom 6 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 6 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Pipe** — Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
 - D. **Copper Tube** — Nom 4 in. diam (or smaller) Type L (or heavier) copper tube.
3. **Pipe Coverings** — One of the following types of pipe coverings shall be used:
 - A. **Pipe and Equipment Covering Materials*** — Nom 2 in. thick hollow cylindrical heavy density (min 3.5 pcf) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or butt tape supplied with the product. The annular space between the insulated through penetrant and periphery opening shall be min 0 in. (point contact) to max 1-1/2 in.
 See **Pipe and Equipment Covering Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
 - B. **Pipe Covering Materials*** — Nom 2 in. thick unfaced mineral fiber pipe insulation sized to the outside diam of pipe or tube. Pipe insulation secured with min No. 8 AWG steel wire spaced max 12 in. OC. The annular space between the insulated through penetrant and periphery opening shall be min 0 in. (point contact) to max 1-1/2 in.
OWENS CORNING HT INC, DIV OF
OWENS CORNING — High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT or High Temperature Pipe Insulation Thermaloc.
 - C. **Sheathing Material*** — Used in conjunction with Item 3B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3B) with the kraft side exposed. Longitudinal joints and transverse joints sealed with metal fasteners or butt tape.
 See **Sheathing Materials** (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
4. **Fill, Void or Cavity Material*** — **Sealant** — Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. diam bead of fill material applied at insulated metallic pipe/gypsum board interface on both surfaces of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Mark



System No. W-L-5122

October 04, 2000

F Ratings — 1 and 2 Hr (See Item 1)

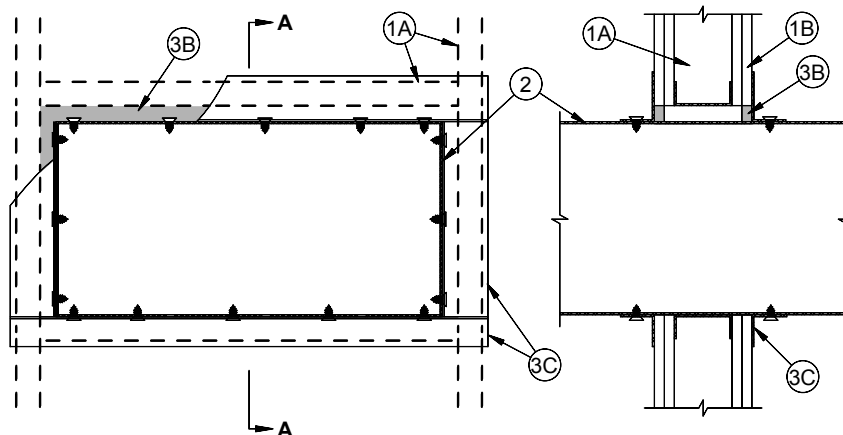
T Rating — 1/4 Hr

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design 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 3-5/8 in. wide and spaced max 24 in. OC.
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 7-1/2 in.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrant** — One metallic pipe or tube to be installed eccentrically or concentrically within the firestop system. Pipe or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of metallic pipes and tubes may be used:
 - A. **Steel Pipe** — Nom 4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 4 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Pipe** — Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.
 - D. **Copper Tube** — Nom 2 in. diam (or smaller) Type L (or heavier) copper tube.
3. **Tube Insulation — Plastics#** — Nom 3/4 in. thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. Annular space shall be min 0 in. (point contact) to max 1-1/2 in.
See **Plastics** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
4. **Fill, Void or Cavity Material* — Sealant** — Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. diam bead of fill material applied at insulated metallic pipe/gypsum board interface on both surfaces of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Marking



Section A-A

System No. W-L-7060

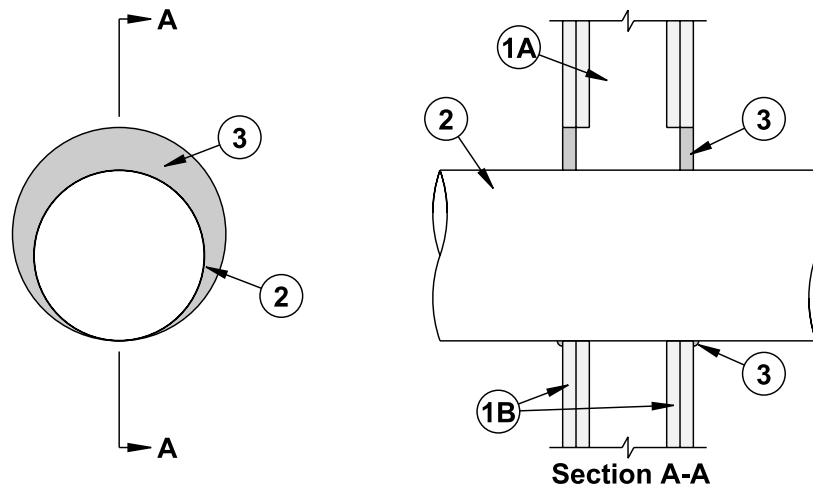
F Ratings — 1 and 2 Hr (See Item 1)

T Rating — 1/2 Hr

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design 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 3-5/8 in. wide and spaced max 24 in. OC. Additional horizontal framing members installed to form a rectangular box around the steel duct (Item 2).
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. When wood studs are used, interior of through opening to be lined with sheets of gypsum board around entire periphery to a total thickness of 5/8 in. or 1-1/4 in. for 1 or 2 hr wall assemblies, respectively. Max area of opening is 952 sq in. with a max dim of 32 in.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Steel Duct** — Nom 24 by 30 in. (or smaller) No. 24 gauge (or heavier) galv steel duct installed eccentrically or concentrically within opening. Annular space between duct and periphery of opening to be min 0 in. (point contact) to max 2 in. Duct to be rigidly supported on both sides of the wall assembly.
3. **Firestop System** — The firestop system shall consist of the following:
 - A. **Packing Material** — (Optional, Not Shown) — Mineral wool batt insulation, foam backer rod or glass fiber insulation installed as a permanent form to facilitate installation of fill material (Item 3B).
 - B. **Fill, Void or Cavity Material* — Sealant** — Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. diam bead of fill material applied at steel duct/gypsum board interface on both surfaces of wall.
SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant
 - C. **Retaining Angles** — Min 16 GA galv steel angles sized to lap duct a min of 2 in. and lap periphery of opening a min 1 in. Angles attached to all four sides of steel duct on both surfaces of wall with No. 10 (or larger) steel sheet metal screws spaced 1 in. from each end and max 4 in. OC.

*Bearing the UL Classification Mark



System No. W-L-7061

October 04, 2000

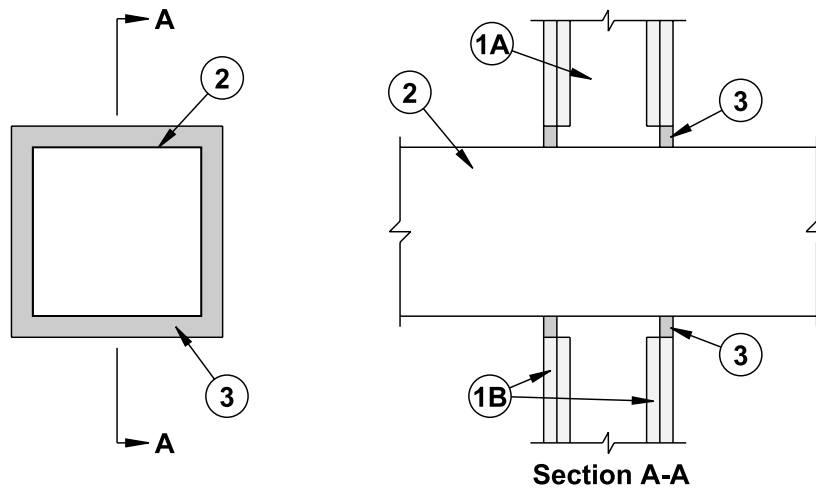
F Ratings — 1 and 2 Hr (See Item 1)

T Rating — 3/4 Hr

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design 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 3-5/8 in. wide and spaced max 24 in. OC.
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 2 in. larger than OD of steel duct (Item 2).
2. **Steel Duct** — Nom 8 in. diam (or smaller) No. 28 gauge (or heavier) or nom 4 in. diam (or smaller) No. 30 gauge (or heavier) spiral wound or long seam galv steel duct. Annular space between duct and periphery of opening to be min 0 in. (point contact) to max 2 in. Duct to be rigidly supported on both sides of the wall assembly.
3. **Fill, Void or Cavity Material* — Sealant** — Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. diam bead of fill material applied at steel duct/gypsum board interface on both surfaces of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Marking



System No. W-L-7062

October 04, 2000

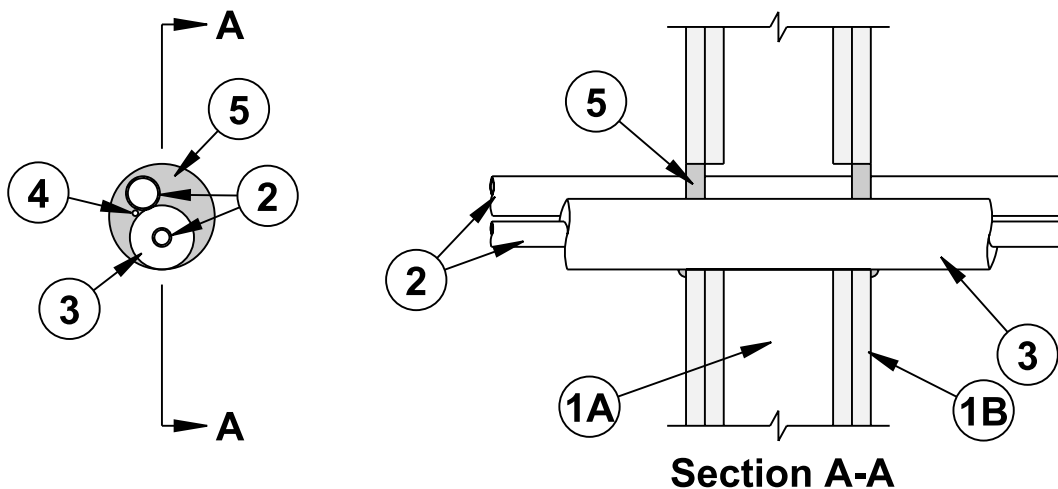
F Ratings — 1 and 2 Hr (See Item 1)

T Rating — 0 Hr

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design 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 3-5/8 in. wide and spaced max 24 in. OC.
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max area of opening is 100 sq in. with a max dim of 10 in.
2. **Steel Duct** — Nom 8 by 8 in. diam (or smaller) No. 28 gauge (or heavier) galv steel duct. Annular space between duct and periphery of opening to be nom 1 in. Duct to be rigidly supported on both sides of the wall assembly.
3. **Fill, Void or Cavity Material* — Sealant** — Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall assembly.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant

*Bearing the UL Classification Marking



System No. W-L-8025

October 11, 2000

F Ratings — 1 and 2 Hr (See Item 1)

T Rating — 1/4 Hr

1. **Wall Assembly** — The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design 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 3-5/8 in. wide and spaced max 24 in. OC.
 - B. **Gypsum Board*** — Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 3-1/2 in.

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. **Through Penetrant** — A max of two pipes or tubes to be installed within the opening. Of the two pipes or tubes, only one may have a nom diam greater than 1/2 in. Annular space between pipes or tubing and periphery of opening shall be min 0 in. (point contact) to max 1-1/2 in. Separation between uninsulated pipes or tubes shall be min 0 in. (point contact) to max 1-1/2 in. Pipes or tubing to be rigidly supported on both sides of the wall assembly. The following types and sizes of through penetrants may be used:
 - A. **Steel Pipe** — Nom 1 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
 - B. **Iron Pipe** — Nom 1 in. diam (or smaller) cast or ductile iron pipe.
 - C. **Copper Pipe** — Nom 1 in. diam (or smaller) Regular (or heavier) copper pipe.
 - D. **Copper Tube** — Nom 1 in diam (or smaller) Type L (or heavier) copper tube.
3. **Tube Insulation — Plastics#** — Nom 3/4 in. thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The tube insulation may be installed on a max of one pipe or tube. The annular space between the insulated penetrating item and the periphery of the opening shall be min 0 in. (point contact) to max 1/2 in. The space between insulated and uninsulated pipes or tubing shall be 0 in. (point contact).
See **Plastics** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.
4. **Cable** — One 4 pair No. 18 AWG (or smaller) thermostat cable with polyvinyl chloride (PVC) insulation and jacket materials. Cable to be spaced min 0 in. (point contact) to max 1/2 in. from the other penetrants. The space between the cable and the periphery of the opening shall be min 0 in. (point contact) to max 1/2 in. Cable to be rigidly supported on both sides of wall assembly.
5. **Fill, Void or Cavity Material* — Sealant** — Min 5/8 in thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. diam bead of fill material applied at through penetrant/gypsum board interface on both surfaces of wall. Additional fill material forced into grouped penetrant interstices to max extent possible.

SPECIFIED TECHNOLOGIES INC — SpecSeal LCI Sealant.

*Bearing the UL Classification Marking

#Bearing the UL Recognized Component Marking



Specified
Technologies
Inc.

200 Evans Way, Suite 2
Somerville, N.J. 08876
Phone: (908) 526-8000
Fax: (908) 526-9623
Toll Free: (800) 992-1180

GENERAL CERTIFICATE of CONFORMANCE

Description: SpecSeal® Firestop Products

Included Products:

Series SSS Intumescent Sealant
Series LCI Intumescent Sealant
Series LC Latex Endothermic Sealant
Series SSP Intumescent Putty
Series EP Power Shield™ Box Insert
Series SSWRED Intumescent Wrap Strips
Series SSWBLU Intumescent Wrap Strips
Series SSC Intumescent Firestop Collars
Series LCC Intumescent Firestop Collars

Series SSB Intumescent Firestop Pillows
Series AS100 Elastomeric Spray
Series AS200 Elastomeric Spray
Series ES100 Elastomeric Sealant
Series SSM Firestop Mortar
Pensil Series PEN200 Silicone Foam
Pensil Series PEN300 Silicone Sealant
Pensil Series PEN300SL Silicone Sealant

These products are tested to the following standards where applicable:

ASTM STANDARD:

E 814	Fire Tests of Through-Penetration Fire Stops
E 119	Fire Tests of Building Construction and Materials
E 1966	Fire-Resistive Joint Systems
E 84	Surface Burning Characteristics of Building Materials
E 1399	Cyclic Movement and Measuring the Minimum and Maximum Joint Widths of Architectural Joint Systems

UL STANDARD

1479	Fire Tests of Through-Penetration Firestops
263	Fire Tests of Building Construction and Materials
2079	Tests for Fire-Resistance of Building Joint Systems
723	Tests for Surface Burning Characteristics of Building Materials

Chemical Content Statements:

No asbestos, PCB's or water-soluble intumescent ingredients are used or contained in these products.

James P. Stahl, Jr.
Technical Manager

February 1, 2002

Date



Specified Technologies, Inc.

PRODUCT DATA SHEET



Series LCI Intumescent Sealant



1. PRODUCT DESCRIPTION

SpecSeal® LCI Sealant is a versatile and economical intumescent product intended for firestopping a wide array of applications in small commercial or grouped residential construction and other structures with similar applications. SpecSeal® LCI Sealant is available in a single grade that has excellent caulking properties as well as high build properties on vertical or overhead surfaces. This single grade may be caulked (standard cartridge or bulk loaded), knifed or troweled. In addition, SpecSeal® LCI does not contain PCB's or asbestos.

SpecSeal® LCI Sealant is storage stable (when stored according to the manufacturer's recommendations), is asbestos free and will not separate or shrink when dried. SpecSeal® LCI Sealant will adhere to all common construction and penetrant materials and contains no solvents that might adversely effect plastic pipes or cable jackets.

2. APPLICATIONS

See Table A for a summary application list.

SpecSeal® LCI Sealant has a broad application base designed to seal a wide variety of common penetrations in light commercial and grouped residential construction. Penetrant types include insulated and non-insulated metallic pipes and tubes, non-metallic pipes and tubes, and common electrical service and power distribution, telephone, data, and TV cabling. This product is also used in conjunction with other SpecSeal® Products such as SpecSeal® Firestop Collars and Wrap Strips to protect larger plastic pipes.

3. PHYSICAL PROPERTIES

See Table B.

4. PERFORMANCE

SpecSeal® LCI Sealant is the basis for systems that meet the exacting criteria of ASTM E814 (UL1479) as well as to the time-temperature requirements of ASTM E119 (UL263). LCI provides up to a 2-hour fire rating for typical service penetrations through concrete or wood floors, concrete or masonry walls, as well as gypsum board walls (3-hour for metallic pipe, conduit and tubing). LCI meets Class A finish requirements for Flame Spread and Smoke Development when tested in accordance with ASTM E84 (UL723). LCI Sealant is also acoustically tested, demonstrating excellent sound attenuation properties.

5. SPECIFICATIONS

The firestopping sealant shall be a water-resistant, intumescent latex sealant. The sealant when exposed to high heat or flame shall exhibit a free expansion of up to 8 times its original volume. The firestopping sealant shall contain no water soluble nor hygroscopic ingredients and shall be acoustically tested. The sealant shall be UL Classified and tested to the requirements of ASTM E814 (UL1479) and shall meet Class A finish requirements when tested in accordance with ASTM E84 (UL723).

SPECIFIED DIVISIONS

DIV.	7	07840	Through-Penetration Firestopping
DIV.	13	13900	Special Construction Fire Suppression & Supervisory Systems
DIV.	15	15250	Mechanical Insulation – Fire Protection
DIV.	16	16050	Basic Electrical Materials & Methods

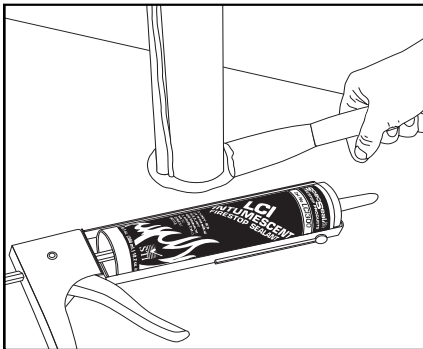


Call STI's automated faxing system for the latest Product and System Information toll-free at 888-526-6800!

STI Product Data Sheet • Series LCI Intumescent Sealant • FOD-5062 03/2003

www.stifirestop.com • Toll Free 800-992-1180

Page 1 of 4



FILL, VOID OR CAVITY MATERIALS CLASSIFIED BY UNDERWRITERS LABORATORIES INC. ® FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS.

SEE UL FIRE RESISTANCE DIRECTORY



CLASSIFIED FILL, VOID, OR CAVITY MATERIALS FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS. SEE UL DIRECTORY OF PRODUCTS CERTIFIED FOR CANADA AND UL FIRE RESISTANCE DIRECTORY



FEATURES

- **Economical** High performance without the high price!
- **Highly Intumescent** Expands up to 10X.
- **Excellent Smoke Seal**
- **Safe** for contact with plastics.
- **Water Resistant** Will not re-emulsify when dry.
- **Water-Based** for easy installation, cleanup, and disposal.
- **Acoustically Tested** Reduces noise transmission
- **Safe...** Low VOC's, No Solvents, Non-Halogenated



Specified Technologies, Inc.

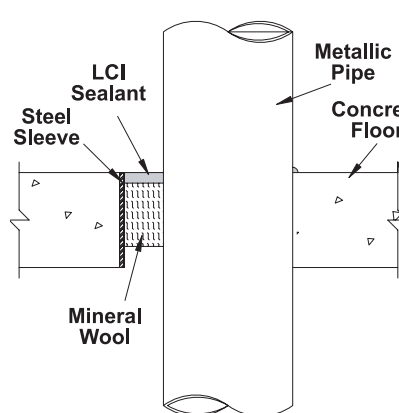
Table A:
APPLICATIONS

- **Metallic Pipes**
including steel, iron, or copper pipe and tubing.
- **Nonmetallic Pipes, Conduits & Tubing**
including PVC, CPVC, ABS, and PEX.
- **Electrical & Electronic Cabling**
including service entrance, power distribution, computer, telephone, and television.
- **Metal Ductwork**
including HVAC, bath and dryer vents.
- **Insulated Pipes**
including heating, cooling, and condensation applications.
- **Complete Wood Floor**
firestopping package for electrical, plumbing, HVAC, telephone, and television.

Table B: Physical Properties

Product Name	Series LCI Sealant
Color	Pale Red
Odor	Mild Latex
Density	9.0 Lb/Gal
pH	9.0
Expansion Begins	320°F (160°C)
Volume Expansion	10X Free Expansion
In-Service Temp.	≤ 130°F (54°C)
Flame Spread	0*
Smoke Development	5*
STC Rating	50
VOC Content**	0.00lbs/gal (0.0 g/l)
* Tested to ASTM E84 (UL723) at 14% surface coverage (modified test for sealants and caulks)	
**ASTM D 3960 and EPA Federal Reference Method 24	

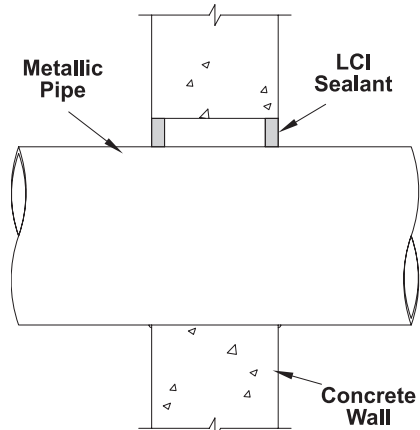
Fig 1: METALLIC PIPES - Concrete/Masonry Floors & Walls



UL System No. C-AJ-1353

F Rating: 3 Hr • T Rating: 0 Hr
Steel or Iron Pipe: <12", Copper Pipe: <4"
Annulus: 0" to 2"
Sealant Depth: 1/4"

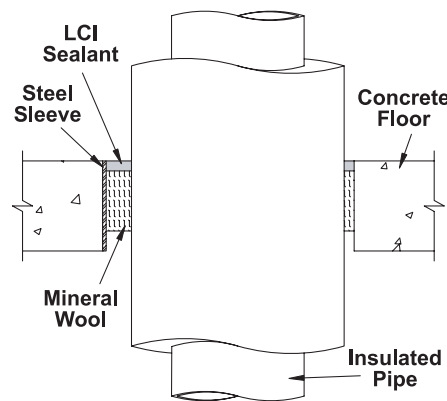
Forming Material: Nom 4 pcf mineral wool (2 1/4" Depth)



UL System No. W-J-1098

F Rating: 2 Hr • T Rating: 1/4, 3/4 & 1 Hr
Steel or Iron Pipe: <8", Copper Pipe: <4"
Steel or Iron Pipe: <12", Copper Pipe: <4"
Annulus: 0" to 2"
Sealant Depth: 5/8"

Fig 2: INSULATED METALLIC PIPES - Concrete/Masonry Floors & Walls



UL System No. C-AJ-5138

F Rating: 2 Hr • T Rating: 3/4 or 1 Hr
Steel or Iron Pipe: 6", Copper Pipe: 4"
Pipe Covering: Max. 2" fiber glass or mineral wool pipe insulation.
Annulus: 1/4" to 1-5/8" • Sealant: 1/2"
Forming: Nom. 4 pcf mineral wool (3" depth)

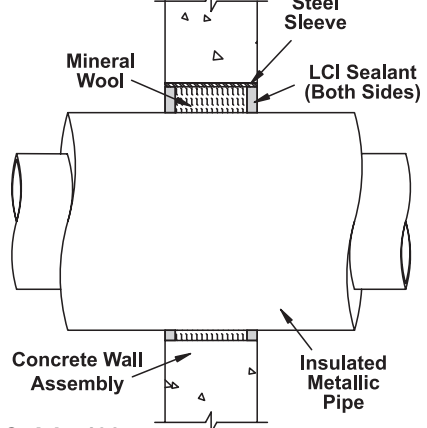
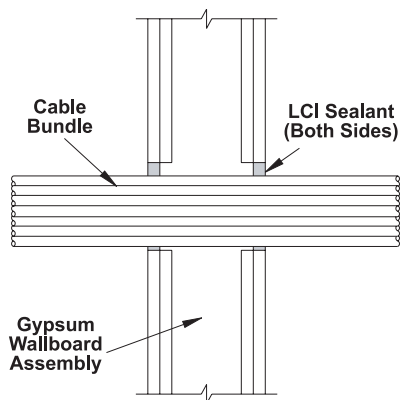


Table C: SEALANT REQUIREMENTS IN CUBIC INCHES PER 1/4 INCH OF INSTALLED DEPTH*

Pipe Size		Diameter of Opening (in.)											
Trade Size	Pipe O.D.	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0	10	12	14	26
0.5"	0.840	0.3	0.6	1.6	3.0	4.8	6.9	9.5	12.4	19.5	28.1	38.3	132.6
1"	1.315	0.1	0.4	1.4	2.8	4.6	6.7	9.3	12.2	19.3	27.9	38.1	132.4
1.5"	1.900			1.1	2.4	4.2	6.4	8.9	11.9	18.9	27.6	37.8	132.0
2"	2.375			0.7	2.0	3.8	6.0	8.5	11.5	18.5	27.2	37.4	131.6
2.5"	2.875			0.1	1.5	3.3	5.4	8.0	10.9	18.0	26.7	36.9	131.1
3"	3.500				0.7	2.5	4.7	7.2	10.2	17.2	25.9	36.1	130.3
3.5"	4.000					1.8	3.9	6.5	9.4	16.5	25.1	35.3	129.6
4"	4.500					0.8	3.0	5.6	8.5	15.6	24.2	34.4	128.7
6"	6.625	*Different Sealant Depth? 1/2" Multiply by 2 5/8" Multiply by 2.5 1" Multiply by 4 1-1/4" Multiply by 5											
8"	8.625												
10"	10.750												
12"	12.750												
24"	24.000											6.6	100.8
													19.6

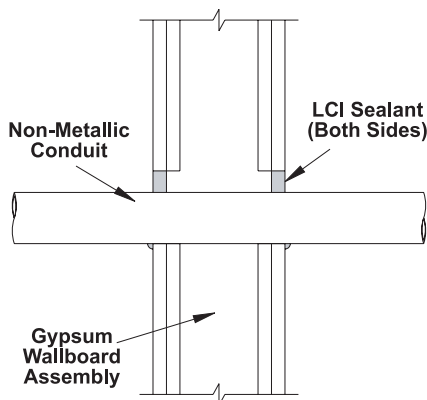
IMPORTANT NOTE: This table is for estimation purposes only. Consult UL Fire Resistance Directory or STI Product & Application Guide for specific installation requirements and limitations

Fig. 3: ELECTRICAL, DATA OR COMMUNICATIONS - Gypsum Walls



UL System No. W-L-3169

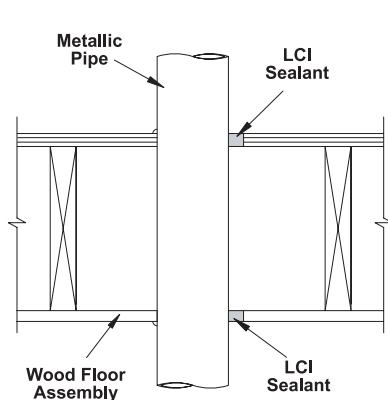
F Rating: 1, 2 Hr • T Rating: ¼ and ¾
Up to 4" cable bundle
Annulus: 0" to 4½" • Sealant: 5/8"



UL System No. W-L-2241

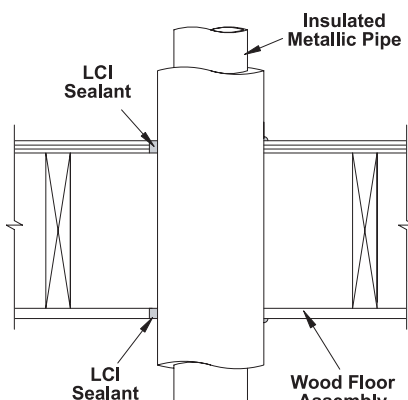
F Rating: 1, 2 Hr • T Rating: ¼, 1, 1-3/4
<2" Rigid PVC or ENMT, CPVC, ABS
Annulus: 0-1" • Sealant 5/8"

Fig. 4: BARE & INSULATED METALLIC PIPES - Wood Floor Assemblies



UL System No. F-C-1074

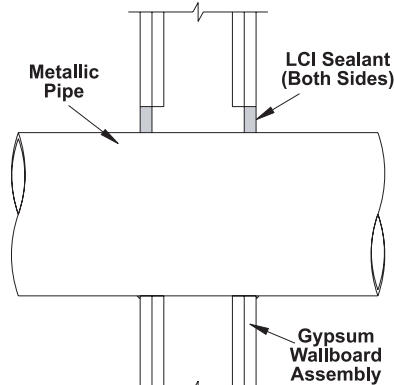
F Rating: 1 & 2 Hr • T Rating: ¼, ½ and 1 Hr
Steel, Iron or Copper: 4" • Chase wall optional.
Annulus: 0" to 1" • Sealant: 5/8" bottom, ¾" top



UL System No. F-C-5043

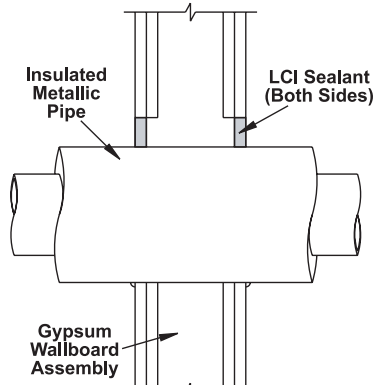
F Rating: 1 Hr • T Rating: ¾ and 1 Hr
Steel, Iron or Copper: 4"
Pipe covering: 1" Fiber Glass, Mineral fiber
or AB/PVC • Chase wall optional.
Annulus: 0" to 1" • Sealant: 5/8" bottom, ¾" top.

Fig. 5: BARE & INSULATED METALLIC PIPES - Gypsum Walls



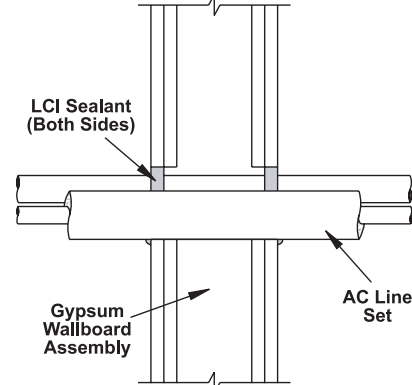
UL System No. W-L-1222

F Rating: 1, 2 Hr • T Rating: ¼, ¾, 1 Hr
Steel or Iron pipe: 8", Copper pipe: 4"
Annulus: 0" to 2" • Sealant: 5/8"



UL System Nos. W-L-5121, W-L-5122

F Rating: 1, 2 Hr • T Rating: ¾ and 1 Hr
Steel or Iron pipe: 6", Copper pipe: 4"
Pipe covering: Max. 2" fiber glass,
¾" AB/PVC or 2" mineral fiber
Annulus: 0" to 1-1/2" • Sealant: 5/8"



UL System No. W-L-8025

F Rating: 1, 2 Hr • T Rating: ¼ Hr
AC Line Set: Two copper tubes,
one with ¾" AB/PVC and thermostat wire
Annulus: 0" to 1" • Sealant 5/8"

6. INSTALLATION INSTRUCTIONS

GENERAL: Areas to be protected must be clean and free of oil, loose dirt, rust or scale. Installation temperatures must be between 35°F (2°C) and 100°F (38°C). Allow product to dry a minimum of 24 hours before exposure to moisture.

SYSTEM SELECTION: Selection of an appropriate firestop system design is critical to the fire protection process. Space limitations preclude highly detailed information pertaining to individual application systems. Please consult the Product & Application Guide as well as the UL® Fire Resistance Directory for additional information.

FORMING: Some installations may require forming as either an integral part of the system or as an option to facilitate installation. In systems where forming is required, mineral wool batts with a minimum nominal density of 4 PCF are generally required. Cut forming material oversize to allow for tight packing. Position forming material to allow for the proper depth of fill material.

FILL MATERIAL: SpecSeal® LCI may be installed by caulking using a standard caulking gun or from bulk containers using a bulk loading caulk gun, or by manually troweling using a mason's trowel or putty knife. If the sealant tends to pull back from a surface, clean the surface with a damp rag or sponge and reapply. Work sealant into all areas exercising care to eliminate voids or seams. The surface of the sealant can be smoothed using a putty knife dipped in water. Adding water to the sealant itself is not recommended. Sealant (when dry) may be painted using most non-solvent based paints.



In gypsum wallboard penetrations, apply a minimum cove bead of 1/4" at the interface of the penetrant with both exterior wall surfaces.

SMOKE SEALING: In some applications including firestop collars, SpecSeal® LCI Sealant is recommended as a smoke seal. It is suggested in these applications that the sealant be applied to both sides of walls. In floor applications, a sealing bead is suggested top and bottom.

LIMITATIONS: SpecSeal LCI Sealant is water-based and cures through the evaporation of water. Low temperatures as well as high humidity may retard drying. Non-porous or impermeable backing materials, plates, or coatings may retard the drying process. Do not paint or seal in any way that prevents contact with air until sealant has dried through completely.

7. MAINTENANCE

No maintenance is normally required, however a periodic inspection of rated barriers is recommended to make sure that any new openings, modifications of previously installed firestops, or areas exhibiting physical damage, have been properly sealed or repaired. Subsequent sealing or repairs should be accomplished using SpecSeal® products per the original approved design.

RETROFIT: When adding or removing penetrants, care should be taken to minimize damage to the seal. Reseal using SpecSeal® products per the approved design. **NOTE:** New penetrants of a different nature than the original design may require a totally new firestop design or extensive modifications to the existing design. Reseal all openings as per the requirements of the modified design.

8. TECHNICAL SERVICE

Specified Technologies Inc. provides toll free technical support to assist in product selection and appropriate installation design. UL Systems, Material Safety Data Sheets and other technical information is available at the Technical Library at www.stifirestop.com or through STI's automated attendant fax back system at 888-526-6800.

9. PRECAUTIONARY INFORMATION

Consult Material Safety Data Sheet for additional information on the safe handling and disposal of this material.

10. AVAILABILITY

SpecSeal® Series LCI Sealant is available from authorized STI distributors. Consult factory for the names and locations of the nearest sales representatives or distributors. Available packages and additional SpecSeal® Products are listed below.

TABLE D: ORDERING INFORMATION

CAT. NO.	DESCRIPTION	
LCI300	Sealant 10.1 oz Tube	18.2 Cu In (300 ml)
LCI305	Sealant 5 Gal Pail	1,155 Cu In (19.0 Liters)
LCI320	Sealant 20 oz Sausage	36 Cu in. (592 ml)
LCI329	Sealant 29 oz Quart Tube	52 Cu in. (858 ml)



Additional SpecSeal Products...

Series SSS Sealant

The industry's most versatile sealant provides the firestopping solutions for a wide range of combustible and noncombustible applications. Water-based intumescent sealant expands up to 8X!

Intumescent Wrap Strips

Two grades of intumescent wrap strips provide an unmatched combination of flexibility, economy, and expansion (up to 30X). Systems for plastic pipes including FR Polypropylene up to 8" trade size!

SSC & LCC Firestop Collars

Easy to install, economical protection for ABS and PVC pipes (both solid and foam core) as well as CPVC, PVDF, and FRPP. LCC Collars are available up to 4" and SSC Collars are available up to 6" trade size.

Firestop Mortar

Lightweight, versatile and economical! The best choice for large or complex installations.

SSP Firestop Putty

Available both in bar form and in pads, putty provides easy retrofit for through-penetrations and economical protection for electrical boxes.

Pensil® Silicones

Sealants and foam for through-penetrations and construction joints. Unexcelled aging characteristics and flexibility.

Elastomeric Joint Seals

New economical products for sealing construction joints. Choose caulk or spray applied products tested to UL2079.

CITY OF NEW YORK MEA 130-96M

Important Notice: All statements, technical information, and recommendations contained herein are based upon testing believed to be reliable, but the accuracy and completeness thereof is not guaranteed.

WARRANTY: Specified Technologies Inc. manufactures its goods in a manner to be free of defects. Should any defect occur in its goods (within one year), Specified Technologies Inc., upon prompt notification, will at its option, exchange or repair the goods or refund the purchase price.

Limitations and Exclusions: THIS WARRANTY IS IN LIEU OF ALL OTHER REPRESENTATIONS EXPRESSED OR IMPLIED (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE) AND UNDER NO CIRCUMSTANCES SHALL SPECIFIED TECHNOLOGIES INC. BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL PROPERTY DAMAGE OR LOSSES. PRIOR TO USE, THE USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND THE USER ASSUMES ALL RISKS AND LIABILITY FOR SUBSEQUENT USE.

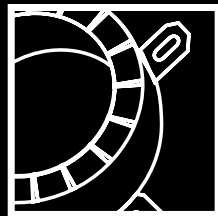
No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

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STI on the WEB: www.stifirestop.com





SpecSeal
FIRESTOP PRODUCTS

SERIES LCC FIRESTOP COLLARS

Product
Data
Sheet



FEATURES

- **Rapid Expansion:**
Closes off burning pipes quickly.
- **Small Profile:**
Use it in all the tight spots!
- **Flexible & Durable:**
No loose flakes
(eye hazards).
- **Water Resistant:**
No water soluble or
hygroscopic ingredients.
- **Economical:**
Lower installed cost.
- **High Volume Char:**
Expands up to 60 times!



FIRESTOP DEVICE CLASSIFIED BY
UNDERWRITERS LABORATORIES INC. ®
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS. SEE UL FIRE
RESISTANCE DIRECTORY

Table A: PHYSICAL PROPERTIES

Available Sizes

1.5", 2", 3", and 4"

Shell Construction

Galvanized Steel

Expansion Begins

320°F (160°C)

Volume Expansion

32 to 64X (free expansion)

In Service Temp

≤120°F (49°C)

1. PRODUCT DESCRIPTION

The SpecSeal® Series LCC Firestop Collar is a factory-manufactured device designed to protect plastic pipes penetrating fire-rated walls and floors. Utilizing a heavy gauge galvanized metal collar to house a molded intumescent insert, the SpecSeal® LC Collar is specifically sized to fit 1-1/2", 2", 3", and 4" trade sized pipes. When exposed to temperatures in excess of 320°F (160°C), the SpecSeal® LC Collar's molded insert begins to expand (intumesce) rapidly to form a dense, highly insulative char. Its free expansion ranges from 32-64 times original (pre-expanded) volume. Expansion continues up to 1,000°F.

2. APPLICATIONS

SpecSeal® LC Collars are used to protect a variety of plastic pipes including PVC, PVC Foam Core (ccPVC), CPVC, ABS, and ABS Foam Core (ccABS) in both vented (DWV) and closed (electrical conduit and water supply) installations.

SpecSeal® LC Collars are suitable for use in all common constructions including concrete floors, concrete over steel deck, concrete walls, concrete block walls, gypsum board walls, as well as wood floor assemblies.

3. PHYSICAL PROPERTIES

See Table A. This material is extremely stable. Long term aging studies indicate no significant loss of physical properties nor significant change in expansion properties after elevated temperature and/or humidity testing. Consult factory for additional information.

4. PERFORMANCE

SpecSeal® LC Collars are the basis for systems that meet the exacting criteria of ASTM E814 (UL1479). Systems have been tested for all common forms of masonry construction and the most common plastic pipes with ratings up to two hours. Consult factory for information not available in UL Fire Resistance Directory as of this printing.

5. SPECIFICATIONS

The firestop system shall be a factory assembled firestop collar utilizing a molded, flexible intumescent insert. The intumescent insert shall provide a minimum of 30X free expansion and shall contain no water soluble expansion ingredients. The specified material shall be approved for a wide range of applications including PVC, PVC Foam Core, CPVC, ABS, and ABS Foam Core pipes when used by itself or in combination with other products from the same manufacturer. The collar shall be UL Classified and tested to the requirements of ASTM E814 (UL1479).

SPECIFIED DIVISIONS

DIV. 7 07840 Thermal & Moisture Protection – Firestopping
DIV. 13 13900 Special Construction Fire Suppression & Supervisory Systems
DIV. 15 15250 Mechanical Insulation – Fire Protection
DIV. 16 16050 Basic Electrical Materials & Methods

6. INSTALLATION

GENERAL: The installation of this product may require the application of a smoke seal utilizing SpecSeal® Series LCI Sealant as well as suitable mechanical fasteners for attachment to the floor or wall surface. Sealant and floor or wall attachment hardware must be purchased separately. SpecSeal® LC Collars are very compact in design and therefore require relatively small cored openings. See Table C for collar dimensions and recommended opening sizes.

SYSTEM SELECTION: Proper methods and materials are critical to firestopping. A number of methods have been developed to suit a wide variety of firestopping applications. Consult the UL Fire Resistance Directory, STI's LC Intumescent Product & Application Guide, or the Technical Library at www.stifirestop.com for the latest in tested application designs. Additional product literature or information may also be obtained by calling your local distributor, sales rep. or STI toll free at (800) 992-1180.

SMOKE SEALING: Some applications may require the application of sealant into the annulus around the pipe as a smoke seal. Consult the UL Classified design for installation requirements including depth and location of caulking. Where required, apply sealant to a clean surface, free of dirt, oil, rust, or scale. Caulk annulus completely shut. Sealant may be smoothed out or the collar may be set directly into the wet sealant.

**For the latest Product and System Information, Call STI'S FACTS-ON-DEMAND
automated information attendant system by dialing toll-free (888)526-6800!**

PACKING MATERIALS: In some applications where the collar diameter is insufficient to completely cover the opening around the pipe, some tested designs may require mineral wool packing material to be installed into the annulus prior to the installation of the collar.

FASTENERS: Always use the correct type of fasteners shown in the appropriate UL Classified design. All fasteners should be steel (lead or plastic fasteners are unsuitable and should not be used). 1 1/4" or 1 1/2" fender washers are used in conjunction with all wall or floor fasteners. All fasteners should be installed as per the recommendations of the manufacturer.

CONCRETE: Expanding wedge type anchors (1/4" x 1 3/4") are recommended. Self-tapping steel concrete fasteners are also approved for some installations. Powder activated fasteners may be used at the discretion of the installer and subject to the recommendations of the fastener manufacturer.

GYPSUM WALLBOARD: Toggle bolts or molly-type expanding anchors are suitable for collar attachment.

GYPSUM BOARD-WOOD FLOOR FLOOR/CEILING ASSEMBLIES: Toggle bolts are suggested for gypsum wallboard ceiling attachment. Collars mounted internally and fastened to wood may use standard #8 x 1/2" round head wood screws for attachment.

INSTALLATION FOR SURFACE MOUNTING:

1. Install SpecSeal® Firestop Sealant (if required).
2. With anchor tabs facing the mounting surface, flex collar open and wrap around pipe (See Fig. 1)
3. Collar uses a double hook tab and slot closure. Overlap collar so that the slots align over hook tabs (See Fig. 2)
4. Press slots down and back (towards mounting surface) over hooks and lock into the closed position (See Fig. 3)
5. Slide collar to mounting surface and mark fastener locations. Rotate collar or slide away from mounting surface to allow holes to be drilled. Reposition collar and install fasteners and fender washers. Tighten fasteners completely to finish collar installation.

7. MAINTENANCE

INSPECTION: Installations should be inspected periodically for subsequent damage. Any damage should be repaired using SpecSeal® products per the original approved design.

8. TECHNICAL SERVICE

Specified Technologies Inc. provides toll free technical support to assist in product selection and appropriate installation design. UL System designs suitable for submittal or specification purposes are available on request. A complete library of technical information is provided at the company's website www.stifirestop.com.

9. PRECAUTIONARY INFORMATION

No unusual hazards are known or expected. Observe normal safety procedures during installation.

10. AVAILABILITY

SpecSeal® Firestop Collars are available from authorized STI distributors nationwide. Consult factory for the names and locations of the nearest sales representatives or distributors.

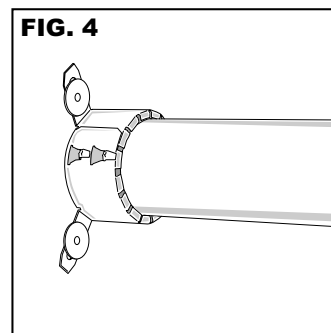
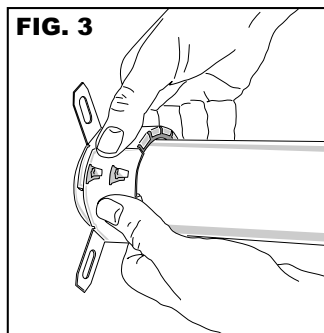
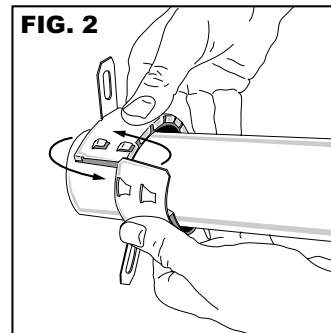
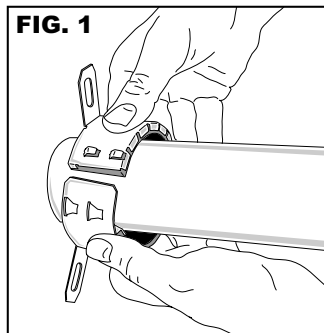
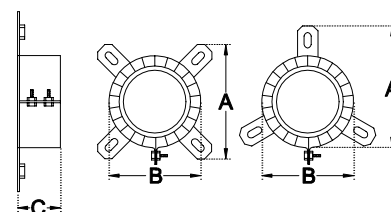


Table B: COLLAR DIMENSIONS & RECOMMENDED CORE SIZES



The following dimensions are provided for installation purposes only. All dimensions have been rounded up to the next 1/10th in.

Cat No. LCC	150	200	300	400
Trade Size	1.5"	2"	3"	4"
Opening Size	2"	2.5"	4"	5"
A	4"	4.4"	5.4"	6.2"
B	2.3"	2.8"	4.3"	5.5"
C	1.5"	1.5"	1.5"	1.5"

Table D: ORDERING INFORMATION

Cat. No.	Description
LCC150	For 1.5" Trade Size Plastic Pipe
LCC200	For 2.0" Trade Size Plastic Pipe
LCC300	For 3.0" Trade Size Plastic Pipe
LCC400	For 4.0" Trade Size Plastic Pipe

Additional SpecSeal Products...

Series LCI Sealant: A versatile and economical intumescent product for firestopping a wide array of applications in small commercial or grouped residential construction.

Important Notice: All statements, technical information, and recommendations contained herein are based upon testing believed to be reliable, but the accuracy and completeness thereof is not guaranteed.

WARRANTY: Specified Technologies Inc. manufactures its goods in a manner to be free of defects. Should any defect occur in its goods (within one year), Specified Technologies Inc., upon prompt notification, will at its option, exchange or repair the goods or refund the purchase price.

Limitations and Exclusions: THIS WARRANTY IS IN LIEU OF ALL OTHER REPRESENTATIONS EXPRESSED OR IMPLIED (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE) AND UNDER NO CIRCUMSTANCES SHALL SPECIFIED TECHNOLOGIES INC. BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL PROPERTY DAMAGE OR LOSSES.

PRIOR TO USE, THE USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND THE USER ASSUMES ALL RISKS AND LIABILITY FOR SUBSEQUENT USE.

No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

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Inc.**

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Facts-On-Demand: (888) 526-6800
STI on the WEB: www.stifirestop.com



Material Safety Data Sheet

01-JAN-2003

SpecSeal® TYPE LCI SEALANT

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

PRODUCT NAME.....SpecSeal® LCI Sealant

CHEMICAL FAMILY.....Mixture

Company Identification

MANUFACTURER/DISTRIBUTOR

Specified Technologies, Inc.
200 Evans Way
Somerville, NJ 08876

PHONE NUMBERS

Product Information : 1-908-526-8000

Emergency : 1-800-255-3924

COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME

Proprietary mixture

CAS NUMBER

HAZARDS IDENTIFICATION

*****EMERGENCY OVERVIEW*****

* Possible skin and eye irritant. Pale, red paste. *

Potential Health Effects:

EYE: Contact may cause irritation.

SKIN: Contact may cause irritation.

INGESTION: Relatively non-toxic.

INHALATION: Irritation of the nose, throat, and lungs may result from over-exposure to vapors or mist.

CHRONIC (CANCER) INFORMATION: Not classified as carcinogenic.

LONG TERM TOXIC EFFECTS: None known.

FIRST AID MEASURES

First Aid

INHALATION: Remove to fresh air.

SKIN CONTACT: Wash thoroughly.

EYE CONTACT: Irrigate eyes with running water for at least 15 minutes. Get medical attention if irritation develops.

INGESTION: None applicable.

FIRE FIGHTING MEASURES

Not a fire hazard.

EXTINGUISHING MEDIA.....Dry Chemical; Carbon Dioxide; Foam; Water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES:As for surrounding fire.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

HANDLING AND STORAGE

Store under ambient conditions. No special handling required.

EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION REQUIREMENTS:.....Safety glasses/goggles.

SKIN PROTECTION REQUIREMENTS:Gloves.

RESPIRATOR REQUIREMENTS:None.

VENTILATION REQUIREMENTS:.....If needed, use local exhaust ventilation to keep airborne concentrations below the TLV.

Exposure Guidelines

Exposure Limits

PEL(OSHA) : Particulates (Not Otherwise Classified) 15 mg/m³, 8 Hr. TWA, total dust 5 mg/m³, 8 Hr. TWA, respirable dust

TLV(ACGIH): None Established

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM Pale, red paste with minimal odor

SPECIFIC GRAVITY..... 1.10

PERCENT VOLATILES..... 22

EVAPORATION RATE..... >1

BOILING POINT 100 deg. C

SOLUBILITY IN WATER..... Infinitely dilutable

STABILITY AND REACTIVITY

STABILITY: This is a stable material.

CONDITIONS TO AVOID..... Storage >55 deg. C

HAZARDOUS POLYMERIZATION:..... Will not occur.

INCOMPATIBILITIES:.....None special.

TOXICOLOGICAL INFORMATION

Mixture not tested but based on components:

May be irritating to skin and eyes and may aggravate existing skin and eye conditions.

None of the components are listed as carcinogens.

ECOLOGICAL INFORMATION

No data.

DISPOSAL CONSIDERATIONS

Waste Disposal:

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

TRANSPORTATION INFORMATION

DOT – not regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status: Reported/Included.

Section 313 Supplier Notifications.

This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372:

OTHER INFORMATION

NPCA-HMIS Rating

Health : 1

Flammability : 0

Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

STATE RIGHT-TO-KNOW LAWS

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): NJTSRN-LCI300

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER: Possible traces of formaldehyde, ethyl acrylate, acetaldehyde, acrylamide and acrylonitrile.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: None known.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the data compiled. However, no representation, warranty, or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information.

Responsibility for MSDS :

Specified Technologies, Inc.
200 Evans Way
Somerville, NJ 08876



Material Safety Data Sheet

01-JAN-2003

SpecSeal® LCC FIRESTOP COLLAR

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

PRODUCT NAME.....SpecSeal® LCC Firestop Collar

CHEMICAL FAMILY.....Does not apply

Company Identification

MANUFACTURER/DISTRIBUTOR

Specified Technologies, Inc.
200 Evans Way
Somerville, NJ 08876

PHONE NUMBERS

Product Information : 1-908-526-8000

Emergency : 1-800-255-3924

COMPOSITION/INFORMATION ON INGREDIENTS

Metal collar with contained rubber strip.

HAZARDS IDENTIFICATION

*****EMERGENCY OVERVIEW*****

* Non-hazardous metal collar with contained rubber strip. *

Potential Health Effects:

EYE: Contact may cause physical irritation.

SKIN: None anticipated.

INGESTION: Not likely.

INHALATION: None anticipated.

CHRONIC (CANCER) INFORMATION: None known.

LONG TERM TOXIC EFFECTS: None known.

FIRST AID MEASURES

First Aid

INHALATION: None applicable.

SKIN CONTACT: None applicable.

EYE CONTACT: Irrigate eyes with running water for at least 15 minutes. Get medical attention if irritation develops.

INGESTION: None applicable.

FIRE FIGHTING MEASURES

Flash point: Not established.

EXTINGUISHING MEDIA.....Dry Chemical; Carbon Dioxide; Foam; Water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES:As for surrounding fire.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

HANDLING AND STORAGE

Store under ambient conditions. No special handling required.

EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION REQUIREMENTS:.....Safety glasses/goggles.

SKIN PROTECTION REQUIREMENTS:None.

RESPIRATOR REQUIREMENTS:None.

VENTILATION REQUIREMENTS:.....If needed, use local exhaust ventilation to keep airborne concentrations below the TLV.

Exposure Guidelines

Exposure Limits

None.

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM Solid

SPECIFIC GRAVITY NA

PERCENT VOLATILES..... 0

SOLUBILITY IN WATER..... Insoluble

STABILITY AND REACTIVITY

STABILITY: This is a stable material.

CONDITIONS TO AVOID:..... None.

HAZARDOUS POLYMERIZATION:..... Will not occur.

INCOMPATIBILITIES:.....None special.

TOXICOLOGICAL INFORMATION

Mixture not tested but based on components:

Should only cause physical irritation only.

Components not designated as carcinogens by IARC, ACGIH, OSHA and NTP.

ECOLOGICAL INFORMATION

No data but not anticipated to be an environmental hazard.

DISPOSAL CONSIDERATIONS

Waste Disposal:

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

TRANSPORTATION INFORMATION

DOT – not regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status: Article.

Section 313 Supplier Notifications.

This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372:

OTHER INFORMATION

NPCA-HMIS Rating

Health : 0

Flammability : 1

Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

STATE RIGHT-TO-KNOW LAWS

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): NJTSRN-LCC.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER: May contain traces of substances known to the State of California to cause cancer.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: None known.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the data compiled. However, no representation, warranty, or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information.

Responsibility for MSDS :

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