

**System No. F-C-7013**

ANSI/UL1479 (ASTM E814)	CANULC S115
F Rating — 1 Hr	F Rating — 1 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 1 Hr
	FTH Rating — 0 Hr

**SECTION A-A**

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. 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. Max diam of opening shall be 5-1/4 in. (133 mm).

B. Wood Joist\* — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members\* with bridging as required and with ends firestopped.

C. Gypsum Board\* — Nom 4 ft (1.22 m) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 5-1/4 in. (133 mm).

1A. Chase Wall — (Not shown, Optional) The through penetrants (Item 2) may be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall having a fire rating consistent with that of the floor-ceiling assembly. 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. (51 by 102 mm) lumber or double nom 2 by 4 in. (51 by 102 mm) lumber studs.

B. Sole Plate — Nom 2 by 4 in. (51 by 102 mm) lumber or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Max diam of opening shall be 5-1/4 in. (133 mm).

C. Top Plate — The double top plate shall consist of two nom 2 by 4 in. (51 by 102 mm) lumber plates or two sets of nom 2 by 4 in. (51 by 102 mm) lumber plates tightly butted. Max diam of opening is 5-1/4 in. (133 mm).

D. Gypsum Board\* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.

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**System No. F-C-7013**

2. Steel Duct — Nom 4 in. (102 mm) diam (or smaller) No. 28 gauge (or heavier) steel duct to be installed either concentrically or eccentrically within the firestop system. The annular space between duct and periphery of opening shall be min 1/4 in. (6 mm) to max 3/4 in. (19 mm). Steel duct to be rigidly supported on both sides of floor-ceiling assembly.

3. Fill, Void or Cavity Materials\* - Sealant — Min 3/4 in. (19 mm) thickness of sealant applied within the annular space, flush with top surface of floor or sole plate. Min 5/8 in. (16 mm) thickness of sealant applied within annular space, flush with bottom surface of gypsum board or lower top plate.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant  
\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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**System No. F-C-7025**

F Rating — 1 Hr  
T Rating — 0 Hr

**SECTION A-A**

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. 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. Max diam of opening shall be 11 in. (279 mm).

B. Wood Joist\* — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members\* with bridging as required and with ends firestopped.

C. Gypsum Board\* — Nom 4 ft (1.22 m) wide by 5/8 in. (16 mm) 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 opening shall be 11 in. (279 mm).

1A. Chase Wall — (Optional, Not Shown) — The through penetrants (Item 2) may be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall. Depth of chase wall stud cavity to be min 1/2 in. (13 mm) 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. (51 by 102 mm), 2 by 6 in. (51 by 152 mm), 2 by 8 in. (51 by 203 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.

B. Sole Plate — Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or 2 by 8 in. (51 by 203 mm) lumber plates or double nom 2 by 4 in. (51 by 102 mm) lumber plates tightly butted together. Circular opening to be centered in sole plate. Sole plate to be min 1 in. (25 mm) wider than diam of opening. Max diam of opening in top plate is 5-1/2 in. (140 mm).

D. Gypsum Board\* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.

2. Steel Duct — One steel duct to be installed concentrically or eccentrically within the opening. The annular space between the steel duct and the periphery of opening shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm). Steel duct to be rigidly supported on both sides of floor-ceiling assembly. The following sizes of steel ducts may be used:

A. Max 10 in. (254 mm) diam by min 0.019 in. (0.50 mm) thick steel duct.

B. Max 4 in. (102 mm) diam by min 0.016 in. (0.40 mm) thick steel duct.

3. Fill, Void or Cavity Materials\* - Sealant — Min 3/4 in. (19 mm) thickness of sealant applied within the annulus flush with the top surface of the floor or sole plate. Min 5/8 in. (16 mm) thickness of sealant applied within the annulus flush with the bottom surface of gypsum board or lower top plate. A min 1/2 in. (13 mm) diameter bead of sealant to be applied at the duct/subflooring or sole plate interface and the duct/gypsum board or top plate interface.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 Flexible Firestop Sealant  
\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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**System No. F-C-7043**

ANSI/UL1479 (ASTM E814)	CANULC S115
F Rating — 1 Hr	F Rating — 1 Hr
T Rating — 1/4 Hr	FT Rating — 1/4 Hr
	FH Rating — 1 Hr
	FTH Rating — 1/4 Hr

**SECTION A-A**

1. Floor-Ceiling Assembly — The 1 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. 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. Max diam of opening shall be 143 in 2 (923 cm2) with a max dimension of 13 in. (330mm).

B. Wood Joist\* — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members\* with bridging as required and with ends firestopped.

C. Gypsum Board\* — Nom 4 ft (1.22 m) wide by 5/8 in. (16 mm) 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 area of opening shall be 143 in 2 (923 cm2) with a max dimension of 13 in. (330mm).

2. Steel Duct — Max 12 by 10 in. (305 by 254 mm) No. 28 ga. (or heavier) galv steel duct to be installed either concentrically or eccentrically within the firestop system. The space between the steel duct and periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm). Steel duct to be rigidly supported on both sides of the floor-ceiling assembly.

3. Firestop System — Min 3/4 in. (19 mm) thickness of sealant applied within the annulus flush with the top surface of the floor. Min 5/8 in. (16 mm) thickness of sealant applied within the annulus flush with the bottom surface of gypsum board ceiling.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 Flexible Firestop Sealant or FS-ONE Sealant or FS-ONE MAX Intumescent Sealant  
\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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**System No. F-C-8026**

ANSI/UL1479 (ASTM E814)	CANULC S115
F Rating — 1 Hr	F Rating — 1 Hr
T Rating — 1 Hr	FT Rating — 1 Hr
	FH Rating — 1 Hr
	FTH Rating — 1 Hr

**SECTION A-A**

System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

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 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. Max diam of opening shall be 5 in. (127 mm).

B. Wood Joist\* — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members\* with bridging as required and with ends firestopped.

C. Gypsum Board\* — Nom 4 ft (1.22 m) wide by 5/8 in. (16 mm) 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.

1A. Chase Wall — (Optional, Not Shown) — The through penetrants (Item 2) may be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall. Depth of chase wall stud cavity to be min 1/2 in. (13 mm) 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. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.

B. Sole Plate — Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 152 mm) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Max diam of opening is 5 in. (127 mm).

C. Top Plate — The double top plate shall consist of two nom 2 by 4 in. (51 by 102 mm) lumber plates or two sets of nom 2 by 4 in. (51 by 102 mm) lumber plates tightly butted. Max diam of opening is 5 in. (127 mm).

D. Gypsum Board\* — Thickness, type, number of layers and fasteners shall be as specified in the individual Wall and Partition Design.

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**System No. F-C-8026**

2. Through Penetrants — One or more pipes, conduits, tubing and cables to be installed concentrically or eccentrically within the opening. The space between any penetrant, except nonmetallic pipes and uninsulated metallic pipes to be min 0 in. (point contact) to max 1 in. (25 mm). The space between any penetrant and the periphery of the opening shall be min 0 in. (point contact) to max 1 in. (25 mm). Pipes, conduits, tubing and cables to be rigidly supported on both sides of floor-ceiling assembly.

A. Metallic Penetrants — One or more metallic pipes, conduits or tubing to be installed within the firestop system. The following types and sizes of metallic pipes, conduits or tubing may be used:

A1. Steel Pipe — Nom 3/4 in. (19 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

A2. Conduit — Nom 3/4 in. (19 mm) diam (or smaller) steel electrical metallic tubing (EMT) or 3/4 in. (19 mm) diam galv steel conduit.

A3. Copper Tube — Nom 3/4 in. (19 mm) diam (or smaller) Type L (or heavier) copper tube.

A4. Copper Pipe — Nom 3/4 in. (19 mm) diam (or smaller) Regular (or heavier) copper pipe.

B. Tube Insulation - Plastics+ — Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. Tube insulation to be installed on one or more of the metallic pipes or tubes (Item 2A).  
See Plastics+ (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of V-0 or V-1 may be used.

C. Nonmetallic Through Penetrants — One nonmetallic pipe to be installed within the firestop system. Pipe shall be max 1-1/2 in. (38 mm) from non-uninsulated metallic through penetrants. The following types and sizes of metallic pipes may be used:

C1. Polyvinyl Chloride (PVC) Pipe — Nom 1-1/4 in. (32 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

C2. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 1-1/4 in. (32 mm) diam (or smaller) Schedule 40 CPVC pipe for use in closed (process or supply) piping systems.

D. Cables — Max of two 4 pair No. 18 AWG (or smaller) cable with PVC insulation and jacket material.

3. Fill, Void or Cavity Materials\* - Sealant — Min 3/4 in. (19 mm) thickness of sealant applied within the annulus flush with the top surface of the floor or sole plate and min 5/8 in. (16 mm) thickness of sealant applied within the annulus flush with the bottom surface of gypsum board or top plate. A min 1/4 in. (6 mm) diameter bead of sealant applied at the bundle/gypsum board or sole plate interface and the bundle/gypsum board or top plate interface at point contact locations.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant  
\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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**HILTI FIRESTOP DETAILS**

**HOLIDAY INN EXPRESS & SUITES**

INTERSECTION OF HAYNES PLACE & LAMM RD.  
WILSON, NC 27783

STATUS: BIDDING

PROJ. DATE: 06-07-19

PROJ. NO: 18-176

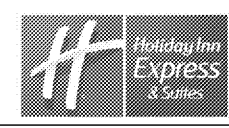
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DRAWN BY: RFF

CHECKED BY: TGC

SHEET NO. **A908**

SCALE: 12" = 1'-0"



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