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PORTLAND
RETIREMENT RESIDENCE
802 OCEAN AVE., PORTLAND, MAINE 04103

FIRE STOPPING
AT
PENETRATION

DATE
8/28/2015

REVISED DATE

SHEET

A7.6

System No. W-L-2098
F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 1 and 2 Hr (see Item 1)
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft

SECTION A-A

- Wall Assembly - The 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 include the following construction features:
 - Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
 - Gypsum Board* - 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Design. Max diam of opening is 4-3/8 in.
- 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.
- Through Penetrants - One nonmetallic pipe installed within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly. The space between pipe and periphery of opening shall be min 3/4 in. to max 1-1/4 in. Pipe to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of nonmetallic pipes may be used:
 - Polyvinyl Chloride (PVC) Pipe - Nom 2 in. diam (or smaller) Schedule 40 PVC pipe for use in closed (process or supply) piping systems.
 - Chlorinated Polyvinyl Chloride (CPVC) Pipe - Nom 2 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) piping systems.
- Fill, Void or Cavity Materials* - Sealant - Installed to completely fill the annular space between the pipes and gypsum wallboard on both sides of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-One Sealant
*Bearing the UL Classification Mark

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System No. F-C-2142
F Rating - 1 Hr
T Rating - 1 Hr

SECTION A-A

2. Chase Wall The through penetrant (Item 3) shall be routed through a 1 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs Nom 2 by 4 in. lumber studs.
 - Sole Plate Nom 2 by 4 in. lumber plates.
 - Top Plate The double top plate shall consist of two nom 2 by 4 in. lumber plates. Max diam of opening is 3 in.
 - Gypsum Board* Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
- Through - Penetrants One nonmetallic pipe to be installed either eccentrically or concentrically within the firestop system. The annular space between the through penetrant and the periphery of the opening shall be a min 0 in. (point contact) to a max of 5/8 in. Pipe to be rigidly supported on both sides of the floor-ceiling assembly. The following types and sizes of nonmetallic pipes may be used:
 - Polyvinyl Chloride (PVC) Pipe Nom 2 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 systems.
 - Acrylonitrile Butadiene Styrene (ABS) Pipe Nom 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.
 - 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.
 - Fill, Void or Cavity Material* - Sealant Min 3/4 in. thickness of fill material applied within the annulus, flush with top surface of floor and flush with bottom surface of lower top plate.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS - ONE Sealant
*Bearing the UL Classification Marking
- Fill, Void or Cavity Material* - Sealant - Min 3/4 in. thickness of fill material applied within the annulus, flush with top surface of floor. A generous bead of fill material also applied within the annulus of the top plate, flush with bottom surface of lower top plate. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS611A Sealant or FS-One Sealant *Bearing the UL Classification Mark

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System No. F-C-2142
F Rating - 1 Hr
T Rating - 1 Hr

SECTION A-A

1. Floor-Ceiling Assembly The 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:
 - 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 3 in.
 - Wood Joists Nom 2 by 10 in. lumber joists spaced 18 in. OC with nom 1 by 3 in. lumber bridging and with ends firestopped. As an alternate to lumber joists, nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required with ends firestopped.
 - Furring Channels (Not shown) - Resilient galv steel furring installed perpendicular to wood joists (Item 1B) and wood joists as required in the individual Floor-Ceiling Design.
 - Gypsum Board* Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design.

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System No. F-C-2160
F Rating - 1 and 2 Hr
T Rating - 1 and 2 Hr

SECTION A-A

1. Floor-Ceiling Assembly The 1 and 2 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:
 - 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 diameter of opening shall be 4 in.
 - 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.
 - Furring Channels (Not Shown) Resilient galv steel furring installed perpendicular to wood joists between first and second layers of wallboard (Item 1D). Furring channels spaced max 24 in.
 - Gypsum Board* Nom 4 ft wide by 5/8 in. thick as specified in the individual Floor-Ceiling Design. First layer of wallboard nailed to wood joists. Second layer of wallboard screw-attached to furring channels. Max diam of ceiling opening is 4 in.
- Through Penetrants One nonmetallic pipe or conduit to be installed concentrically or eccentrically within the firestop system. Annular space between pipe or conduit and edge of opening to be min 1/2 in. and max 1-1/8 in. Pipe or conduit to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
 - 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.
 - Chlorinated Polyvinyl Chloride (CPVC) Pipe Nom 2 in. diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
- Fill, Void or Cavity Materials* - Sealant Fill Material forced into annular space to fill space to max extent possible. Sealant shall be installed flush with both surfaces of floor-ceiling assembly.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE Sealant
*Bearing the UL Classification Mark

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System No. F-C-3012
F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 1 and 2 Hr (See Item 1)

SECTION A-A

2. Chase Wall - The through penetrant (Item 3) shall be routed through a 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:
 - Studs - Nom 2 by 6 in. or double nom 2 by 4 in. lumber studs.
 - Sole Plate - Nom 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted.
 - 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. Max diam of opening for 1 or 2 hr rated assembly is 2-1/2 in. or 2 in., respectively.
 - Gypsum Board* - Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
- Cables - In 1 hr fire-rated assemblies, aggregate cross-sectional area of cables in opening to be max 45 percent of the cross-sectional area of the opening (max 2 in. diam bundle). Cables to be rigidly supported on both sides of floor assembly. Any combination of the following types and sizes of copper conductors may be used:
 - RG 59 coaxial cable with single copper conductor, cellular polyethylene cellular foam insulation and polyvinyl chloride (PVC) jacket.
 - Max 8/C No. 22 AWG telephone cable with polyvinyl chloride (PVC) jacketing.
 - Max 2/C No. 12 AWG cable with polyvinyl chloride (PVC) insulation and jacketing.
 - Max 3/C with ground No. 20 AWG aluminum or copper Type SER cable with polyvinyl chloride (PVC) insulation.
 - Max 3/C with ground No. 20 AWG Type NM cable with polyvinyl chloride (PVC) insulation.
 - Max 3/C No. 12 AWG MC (BX) cable with polyvinyl chloride (PVC) insulation.
 - Max 1 in. diam metal clad TEK cable with PVC jacket.
- Fill, Void or Cavity Material* - Sealant - Min 3/4 in. thickness of fill material applied within the annulus, flush with top surface of floor. A generous bead of fill material also applied within the annulus of the top plate, flush with bottom surface of lower top plate.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS611A Sealant or FS-One Sealant
*Bearing the UL Classification Mark

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System No. F-C-3012
F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 1 and 2 Hr (See Item 1)

SECTION A-A

1. Floor-Ceiling Assembly - The 1 or 2 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:
 - 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 for 1 or 2 hr assembly is 2-1/2 in. or 2 in., respectively.
 - 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.
 - Furring Channels - (Not Shown) - Resilient galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the Fire Resistance Directory.
 - Gypsum Board* - Thickness, type, number of layers and fasteners shall be as specified in the individual Floor-Ceiling Design.

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System No. F-C-3044
F Rating - 1 Hr
T Rating - 1 Hr

SECTION A-A

- 1.1 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:
 - Studs Nom 2 by 4 in. lumber studs.
 - Sole Plate Nom 2 by 4 in. lumber plates.
 - Top Plate The double top plate shall consist of two nom 2 by 4 in. lumber plates. Max diam of opening shall be 3 in.
 - Gypsum Board* Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
- Cables - Aggregate cross-sectional area of cables in opening to be max 25 percent of the cross-sectional area of the opening. The annular space within the firestop system shall be 3/4 in. Cables to be rigidly supported on both sides of floor assembly. Any combination of the following types and sizes of cables may be used:
 - RG 59 coaxial cable with single copper conductor, cellular polyethylene cellular foam insulation and polyvinyl chloride (PVC) jacket.
 - Max 25 pair No. 24 AWG telephone cable with polyvinyl chloride (PVC) jacketing.
 - Max 3/C No. 10 AWG cable (Type NM).
 - Max 3/C with ground No. 2/0 AWG aluminum or copper Type SER cable with polyvinyl chloride (PVC) insulation.
 - Max 24 fiber optic cable.
 - Through Penetrating Products* Three conductor No. 10 AWG Metal-Clad Cable.
AFC CABLE SYSTEMS INC
- Fill, Void or Cavity Materials* - Sealant - Min 3/4 in. thickness of sealant applied within the annular space, flush with top surface of floor. Min 5/8 in. thickness of sealant applied within annular space, flush with bottom surface of the gypsum wallboard or lower top plate. Sealant forced into the interstices of the cables on both sides of the wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE Sealant
*Bearing the UL Classification Marking
*Bearing the UL Listing Mark

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System No. F-C-3044
F Rating - 1 Hr
T Rating - 1 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:
 - 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 3 in.
 - 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.
 - gypsum board* nom 4 ft wide by 5/8 in. thick as specified in the individual floor-ceiling design. max diam of opening shall be 3 in.

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