



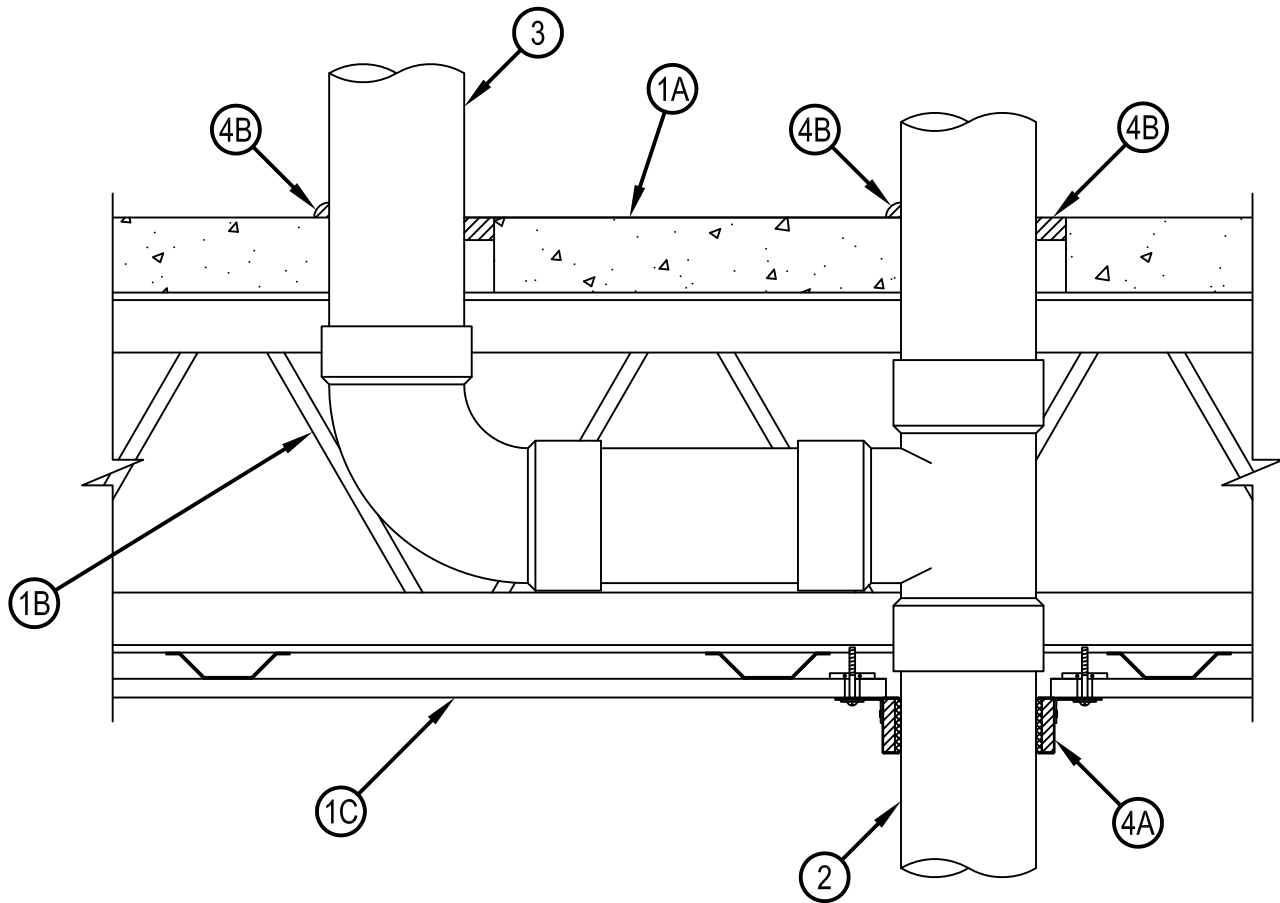
Classified by  
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to UL 1479

## System No. F-E-2033

F Rating — 1 Hr

T Rating — 1 Hr

FE 2033



1. Floor-Ceiling Assembly — The 1 hr fire rated concrete and steel joist Floor-Ceiling assembly shall be constructed of the materials and in the manner described in the individual G500 Series Design in the UL Fire Resistance Directory, as summarized below:
  - A. Concrete Floor — Normal weight or lightweight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete over metal lath or steel deck as specified in the individual G500 Series Design. Diam of floor opening to be min 1/2 in. (13 mm) to max 1 in. (25 mm) larger than diam of pipe. Max diam of opening is 5 in. (127 mm).
  - B. Joists — Steel joists or Structural Steel Members\* as specified in the individual G500 Series Design.
  - C. Gypsum Board\* — Min 5/8 in. (16 mm) thick, screw-attached to furring channels as specified in the individual G500 Series Design. Diam of ceiling opening to be max 1/2 in. (13 mm) larger than diam of pipe. Max diam of opening is 5 in. (127 mm).
2. Through Penetrant — One nonmetallic pipe to be installed within the firestop system. Pipe to be located approx midway between joists and 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. (13 mm). 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. 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.



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3. Branch Piping — (Optional) — One nonmetallic pipe with or without nom 4 in. (102 mm) diam (or smaller) toilet flange (not shown) connected to through penetrant (Item 2) within concealed space above ceiling and installed concentrically or eccentrically within opening in concrete floor. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Branch piping may terminate in a max 4 in. (102 mm) 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. (102 mm) diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

B. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 4 in. (102 mm) 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.

4. Firestop System — The details of the firestop system shall be as follows:

A. Firestop Device\* — Firestop Collar — Steel collar lined with an intumescent material sized to fit the specific diam of pipe shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to underside of ceiling using the anchor hooks provided with the collar. Min two anchor hooks required for 1-1/2 (38 mm) and 2 in. (51 mm) diam pipes and min three anchor hooks required for 3 in. (76 mm) and 4 in. (102 mm) diam pipes. The anchor hooks are to be secured to the ceiling with 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) long steel toggle bolts in conjunction with min 3/4 in. (19 mm) diam steel washers.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 643 50/1.5"N, CP643 63/2"N, CP 643 90/3"N or CP643 110/4"N Firestop Collar

B. Fill, Void or Cavity Material\* - Sealant — Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor. Min 1/4 in. (6 mm) diam bead of sealant applied at point contact locations at pipe/floor interface.

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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