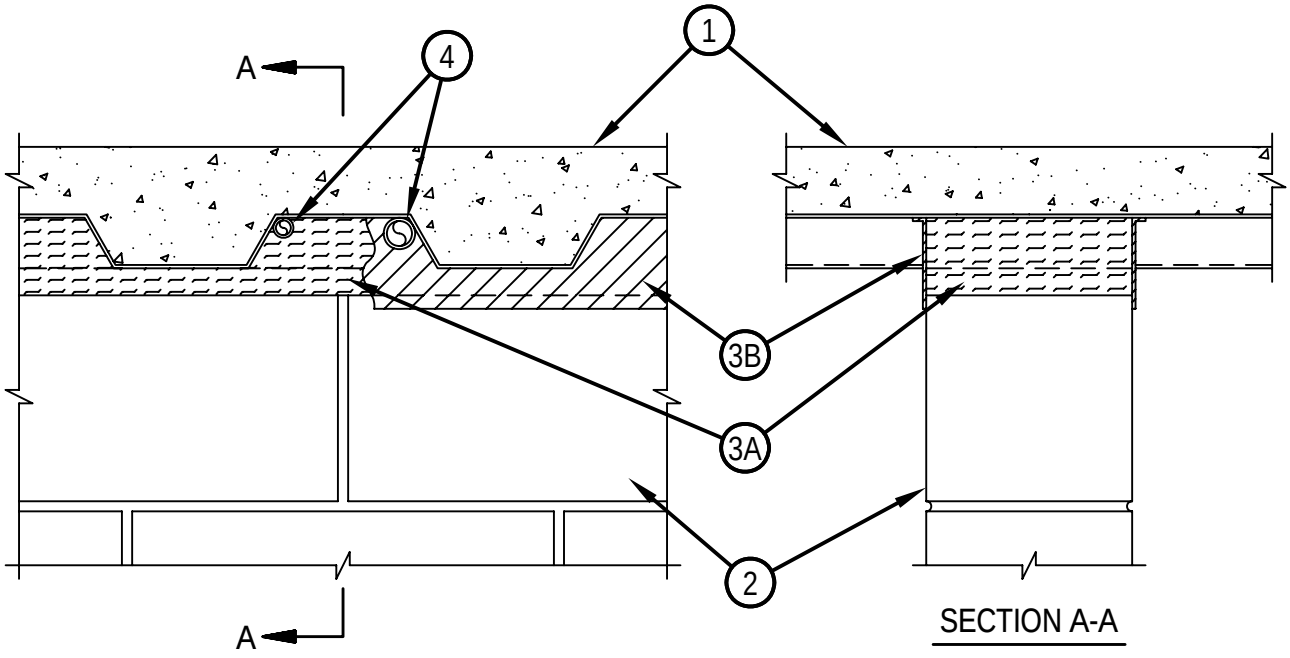
Classified by
Underwriters Laboratories, Inc.
to UL 2079 and CAN/ULC-S115

System No. HW-D-0098

Assembly Rating — 1 and 2 Hr (See Item 4)
Nominal Joint Width - 1 in.
L Rating At Ambient — Less Than 1 CFM/Lin Ft (See Item 4)
L Rating At 400°F — Less Than 1 CFM/Lin Ft (See Item 4)
Class II and III Movement Capabilities - 12.5% Compression or Extension



SECTION A-A

1. Floor Assembly — The fire rated fluted steel unit/concrete floor assembly shall be constructed of the materials and in a manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. Steel Floor and Form Units* — Max 3 in. (76 mm) deep galv steel fluted floor units.
   B. Concrete — Min 2-1/2 in. (64 mm) thick reinforced concrete as measured from top plane of the floor units.
   C. Spray-Applied Fire Resistive Materials* — (Optional)—(Not Shown)—Prior to the installation of the forming material and fill, void or cavity material (Items 3A, 3B) the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (44 mm) thickness of fire resistive material.
      W R GRACE & CO - CONN — Type MK-6-HY
      ISOLATEK INTERNATIONAL — Type 300

1A. Roof Assembly — (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
   A. Steel Roof Deck — Max 3 in. (76 mm) deep galv steel fluted roof deck.
   B. Roof Insulation — Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. Roof Assembly — As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
   A. Steel Roof Deck — Max 3 in. (76 mm) deep galv steel fluted roof deck.
   B. Spray—Applied Fire Resistive Materials* — (Not Shown)—Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

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2. Wall Assembly — Min 6 in. (152 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) structural concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.

   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. Joint System — Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 1 in (25 mm) . The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width. The joint system shall consist of the following:

   A. Forming Material — Nom 4 pcf (64 kg/m3) mineral wool batt insulation compressed and firmly packed to completely fill the flutes and the gap between the top of the wall and bottom of the floor or roof as a permanent form. Batt insulation cut to the shape of the fluted steel deck, approx 33 percent larger than the flutes. Pieces compressed and installed vertically into the flutes above the top of the wall. Additional pieces of batt insulation, min 6 in. wide, installed edge-first into joint opening between bottom of fluted steel deck and top of wall, parallel with joint direction, such that batt sections are compressed min 33 percent in thickness. Compressed batt sections are flush with both surfaces of wall. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. (1.22 m) apart along the length of the joint.
   ROCK WOOL MANUFACTURING CO — Delta Board

   A1. Forming Material*—Plugs — (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall be flush with both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and the bottom of the steel floor units.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

   B. Fill, Void or Cavity Material* — Min 1/8 in. (3.2 mm) wet thickness (min 1/16 in. or 1.6mm dry thickness) of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. (13 mm) onto wall and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel deck, the fill material is to overlap the wall a min of 1/2 in. (14 mm) and to overlap the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of wall. When through-penetrants (Item 4) are installed within flute, the fill material shall overlap a min 1/2 in. (13 mm) onto the periphery of each penetrant, on both sides of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

4. Through-Penetrants — Max of two penetrants may be installed parallel with and within the flutes of the steel floor or roof deck. The annular space between penetrants and steel deck or spray-applied fire resistive material on steel deck shall be min 0 in. (point contact) and the annular space between penetrants within the flute shall be min 2 in. (51 mm). Penetrants to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of penetrants may be used:

   A. Polyvinyl Chloride (PVC) Pipe — Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) piping systems.

   B. Rigid Nonmetallic Conduit+ — Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA 70).

   C. Steel Conduit or Tubing — Nom 1/2 in. (13 mm) diam rigid steel conduit or steel electrical metallic tubing (EMT) installed in accordance with the National Electrical Code (NFPA No. 70).

   When Through-Penetrant(s) installed in flute of steel deck, the hourly rating of the joint system is 1 hr.

   When Through-Penetrant(s) installed in flute of steel deck, L Ratings do not apply.

*Bearing the UL Classification Mark