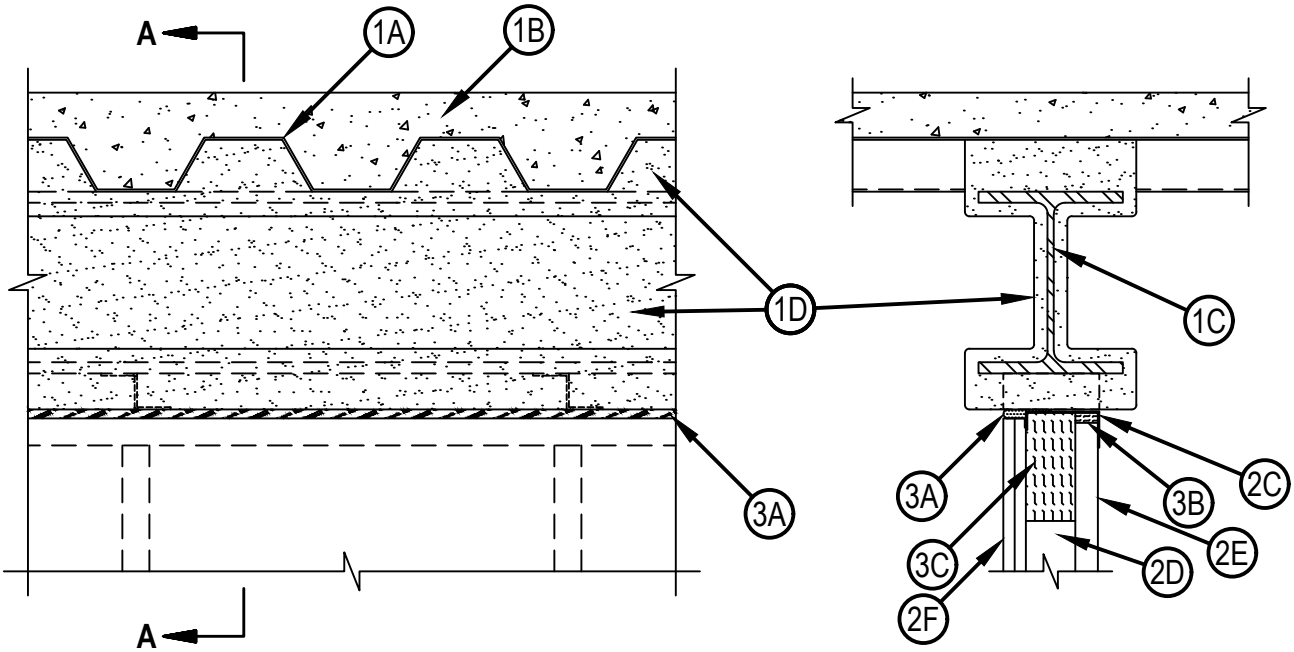
Classified by
Underwriters Laboratories, Inc.
to UL 2079 and CAN/ULC-S115

System No. HW-D-0883

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Items 1 and 2)	F Ratings — 1 and 2 Hr (See Items 1 and 2)
Nominal Joint Width - 1/2 in.	FT Ratings — 1 and 2 Hr (See Items 1 and 2)
Class II Movement Capabilities — 50% Compression or Extension	FH Ratings — 1 and 2 Hr (See Items 1 and 2)
L Rating at Ambient — Less than 1 CFM/Lin Ft	FTH Ratings — 1 and 2 Hr (See Items 1 and 2)
L Rating at 400°F — Less than 1 CFM/Lin Ft	Nominal Joint Width - 13 mm
	Class II Movement Capabilities — 50% Compression or Extension
	L Rating at Ambient — Less than 1.55 L/s/m
	Rating at 204°F — Less than 1.55 L/s/m



SECTION A-A

Hilti Firestop Systems

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1. Floor Assembly — The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the 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 the top plane of the floor units.
   C. Structural Steel Support — Steel beam, as specified in the individual D900 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support centered over and parallel with wall assembly.
   D. Spray-Applied Fire Resistive Material* — Structural steel supports to be sprayed in accordance with the specifications in the individual D900 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. Additional material shall be applied to the web of the steel beam on each side of the wall. For a 1 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 13/16 in. (21 mm). For a 2 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 1-3/8 in. (35 mm).
   GCP APPLIED TECHNOLOGIES INC — Types MK-6-HY or MK-10HB
   D1. Spray-Applied Fire Resistive Material* — Structural steel support to be sprayed with the min thickness of material specified in the individual D900 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. Additional material shall be applied to the web of the steel beam on each side of the wall. For a 1 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 11/16 in. (18 mm). For a 2 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 1-1/2 in. (38 mm).
   ISOLATEK INTERNATIONAL — Type 300, Type 400
2. Shaft Wall Assembly — The 1 hr or 2 hr fire rated gypsum board/steel stud shaft wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. Floor and Wall Runners — (Not Shown) - J-shaped runner, equal in width to steel studs (Item 2C), with unequal legs of 1 in. (25 mm) and 2 in. (51 mm), fabricated from 20 MSG galv steel. Runners positioned with short leg toward finished side of wall. Runners attached to floor with steel masonry anchors, steel fasteners or welds located not greater than 2 in. (51 mm) from ends and not greater than 24 in. (610 mm) OC.
   B. Steel Attachment Clips — (Not Shown) — "Z"-shaped clips formed from strips of min 20 ga galv steel. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom flange of the steel beam with 2 in. (51 mm) long upper and lower legs. Legs of clips fastened to bottom of beam (prior to application of spray-applied fire-resistive materials) and top of ceiling runner, after installation of the Top Track Seal (Item 3A), with steel fasteners. Clips spaced max 24 in. (610 mm) OC.
   C. Ceiling Runner — Ceiling runner of wall assembly shall consist of J-shaped runner, equal in width to steel studs (Item 2C), with unequal legs of min 1 in. (25 mm) and 2 in. (51 mm), fabricated from 20 MSG galv steel. Ceiling runner is secured to steel beam (Item 1C) through the thickness of the spray-applied fireproofing material (Item 1D) with steel attachment clips (Item 2B) spaced max 24 in. (610 mm) OC. Ceiling runner to be centered beneath and parallel with bottom flange of steel beam. Ceiling runner attached after installation of the Top Track Seal (Item 3A).
   D. Steel Studs — C-H or -T shaped studs, min 4 in. (102 mm) wide, fabricated from min 20 MSG galv steel, cut to lengths 1/2 in. (13 mm) less than floor to ceiling height and spaced max 24 in. (610 mm) OC.
   E. Gypsum Board* — Nom 1 in. (25 mm) thick gypsum board liner panels. Panels cut 3/4 in. (19 mm) less in length than floor to ceiling height. Vertical edges inserted in H-shaped section of C-H or -T studs. At the ends of the assembly, the free edge of the end panels are attached to the long leg of vertical J-runners (Item 2A) with 1-5/8 in. (41 mm) long Type S steel screws spaced max 12 in. (305 mm) OC.
   F. Gypsum Board* — Nom 5/8 in. (16 mm) thick Type C gypsum board applied in one or two layers for 1 hr and 2 hr fire rated assemblies, respectively, in accordance with the individual Wall and Partition Design except that a maximum 1/2 in. high gap shall be maintained between the top edge of the gypsum board and the bottom surface of the spray applied fire resistive material on the structural steel support. The screws attaching the gypsum board layers to the C-H studs shall be located 3-1/2 to 5-1/2 in. (89 to 140 mm) below the top surface of the ceiling runner. No gypsum board attachment screws are to penetrate the ceiling runner.
   The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

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3. Joint System — Max separation between the spray-applied fire resistive material on bottom of structural steel support and top of finished side wall is 1/2 in. (13 mm) at time of installation. The joint system is designed to accommodate a max 50 percent compression or extension from its installed width. The joint system consists of the following:

A. Fill, Void or Cavity Material* — Top Track Seal — Factory supplied foam seal installed over the ceiling runner (Item 2A) on finished side of wall prior to attachment to underside of structural steel support in accordance with the installation instructions. Butt joints in the Top Track Seal shall be compressed min 1/2 in. (13 mm).

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-TTS MD OS Firestop Top Track Seal

B Forming Material* — — Min 4 pcf (64 kg/m3/) mineral wool batt insulation cut into 1 in. (25 mm) wide by 1-1/2 in. (38 mm) thick strips. Mineral wool to be compressed 50 percent in thickness and installed edge first into gap between top of gypsum liner panel and ceiling runner.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing
JOHNS MANVILLE — Safing
ROCK WOOL MANUFACTURING CO — Delta Board or Delta -8
ROCKWOOL MALAYSIA SDN BHD — Type Safe
ROCKWOOL — Type Safe
THERMAFIBER INC — Type SAF

C. Forming Material* — — MMin 4 pcf (64 kg/m3/) mineral wool batt insulation cut into 6 in. (152 mm) wide pieces with a thickness equal to the width of the ceiling runner. Mineral wool to be compressed in thickness and installed edge first between 1 in. (25 mm) leg of ceiling runner and gypsum liner panel.

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ROCK WOOL MANUFACTURING CO — Delta Board or Delta -8
ROCKWOOL MALAYSIA SDN BHD — Type Safe
ROCKWOOL — Type Safe
THERMAFIBER INC — Type SAF

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.