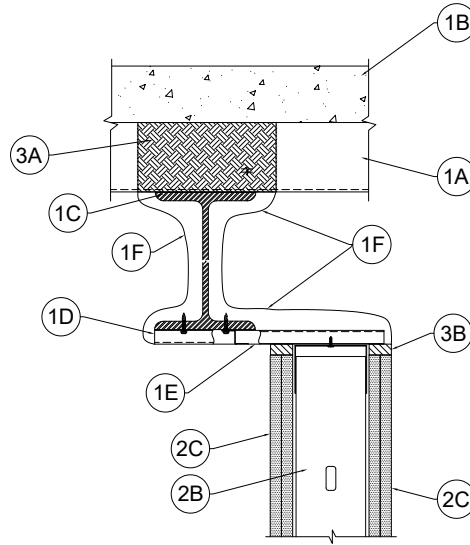


HW-D-0652

CAN/ULC S115
Assembly Ratings - 1 and 2 Hr

Nominal Joint Width - See Chart, Section 3
Class II or III Movement Capabilities - See Chart, Section 3

L Rating at Ambient - Less Than 1.55 L/s/m
L Rating at 203°C - 1.55 L/s/m
The Air Leakage Rating does not apply if item 1E.1 is used



1. **Floor Assembly** — The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Steel Floor And Floor 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 D700 or D900 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and 8 in. (203 mm) max from wall assembly.
- D. **Steel Attachment Clips** — 1 in. (25 mm) wide Z-shaped clips or channels formed from min 20 ga galv or painted steel. Clips to be sized to extend through the thickness of the spray-applied fire-resistant material on the bottom flange of the steel beam with 1-1/2 in. (38 mm) long upper and lower legs. Legs of clips fastened to bottom of beam (prior to application of spray-applied fire-resistant materials) with steel fasteners or welds and to ceiling runner of wall with bolts or screws. Clips spaced max 16 in. (406 mm) OC and extend from steel support beam to flush with non-beam face of wall.
- E. **Steel Plate** — Min 22 Ga sheet steel shall be installed under and attached to the steel attachment clips or channels (Item 1D) to completely cover the exposed area from the flange tip of the steel beam to the framed wall surface. The plate shall be secured with steel fasteners or welds and shall be covered with spray applied fire resistive material (see Item 1F).
 - E1. **Steel Lath** — (Not Shown) As an alternate to 1E above. Nom 3/8 in. (10 mm) diamond mesh expanded steel rib lath having a nominal weight of 3.4 lb/yd² (1.8 kg/m²) shall be installed over and attached to the steel attachment clip bars or channels (Item 1D) to completely cover the exposed area from the flange tip of the steel beam to the end of the bar/channel framing extending beyond the wall surface. The lath shall be secured with steel fasteners or tie wire and shall be fully covered with spray applied fire resistive material (Item 1F).
- F. **Spray-Applied Fire Resistive Material*** — After installation of the steel attachment clips, steel plate, angle, ceiling runners, structural steel support, and steel floor units (as applicable), to be sprayed with the min thickness of material specified in the individual D700 or D900 Series Design. Each steel attachment clip is to be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam. The spaces between the clips and above the steel plate (Item 1E) shall also be fully filled from beam and over the entire thickness of the wall. The spaces between the clips and above and below the steel lath (Item 1E.1) shall also be fully filled from beam and over the entire thickness of the wall. Additional material shall be applied to the web of steel beam on each side of wall. The min total thickness of material applied to each side of steel beam web shall be 13/16 in. (21 mm) for 1 hr Assembly Rating and 1-1/2 in. (38 mm) for 2 hr Assembly Rating. When Item 3A is not used, the flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. For D700 floors, the remainder of the steel floor units shall be sprayed as specified in the individual D700 design.

ISOLATEK INTERNATIONAL — Type 300

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

HW-D-0652

CAN/ULC S115
Assembly Ratings - 1 and 2 Hr

Nominal Joint Width - See Chart, Section 3
Class II or III Movement Capabilities - See Chart, Section 3

L Rating at Ambient - Less Than 1.55 L/s/m
L Rating at 203°C - 1.55 L/s/m
The Air Leakage Rating does not apply if item 1E.1 is used

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 P700 or P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. 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 roof deck.
- C. **Structural Steel Support** — Steel beam, as specified in the individual P700 or P900 Series Design, used to support steel floor units. Structural steel support oriented parallel to and 8 in. (203 mm) max from wall assembly.
- D. **Steel Attachment Clips** — 1 in. (25 mm) wide Z-shaped clips or channels formed from min 20 ga galv or painted 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 1-1/2 in. (38 mm) long upper and lower legs. Legs of clips fastened to bottom of beam (prior to application of spray-applied fire-resistive materials) with steel fasteners or welds and to ceiling runner of wall with bolts or screws. Clips spaced max 16 in. (406 mm) OC and extend from steel support beam to flush with non-beam face of wall.
- E. **Steel Plate** — Min 22 Ga sheet steel shall be installed under and attached to the steel attachment clips or channels (Item 1D) to completely cover the exposed area from the flange tip of the steel beam to the framed wall surface. The plate shall be secured with steel fasteners or welds and shall be covered with spray applied fire resistive material (see Item 1F).
 - E1. **Steel Lath** — (Not shown) As an alternate to 1E above. Nom 3/8 in. (10 mm) diamond mesh expanded steel rib lath having a nominal weight of 3.4 lb/yd² (1.8 kg/m²) shall be installed over and attached to the steel attachment clip bars or channels (Item 1D) to completely cover the exposed area from the flange tip of the steel beam to the end of the bar/channel framing extending beyond the wall surface. The lath shall be secured with steel fasteners or tie wire and shall be fully covered with spray applied fire resistive material (Item 1F).
- F. **Spray-Applied Fire Resistive Material*** — After installation of the steel attachment clips, steel plate, angles, ceilingrunners, structural steel support, and roof deck (as applicable), to be sprayed with the min thickness of material specified in the individual P700 or P900 Series Design. Each steel attachment clip is to be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam. The spaces between the clips and above steel plate (Item 1E) shall also be fully filled from beam and over the entire thickness of the wall. The spaces between the clips and above and below the steel lath (Item 1E.1) shall also be fully filled from beam and over the entire thickness of the wall. Additional material shall be applied to the web of steel beam on each side. The min total thickness of material applied to each side of steel beam web shall be 13/16 in. (21 mm) for 1 hr Assembly Rating and 1-1/2 in. (38 mm) for 2 hr Assembly Rating. When Item 3A is not used, the flutes of the roof deck are to be filled with material across the entire top flange of the steel beam. For P700 roof-ceiling assemblies, the remainder of the roof deck shall be sprayed as specified in the individual P700 design.

ISOLATEK INTERNATIONAL — Type 300

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

1B. Floor Assembly — (Not Shown) — Min 4-1/2 in. thick reinforced lightweight or normal weight (100 to 150 pcf) structural concrete.

2. Wall Assembly — The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Steel Floor and Ceiling Runners** — Floor runner U-shaped, sized to accommodate steel studs (Item 2B), fabricated from 20 ga galv steel. Runners attached to steel attachment clips through steel plate (Item 1E) with min 2 in. (51 mm) long steel fasteners, minimum one fastener per clip. The ceiling runners are provided with a fill, void or cavity material on both legs of runner and are described in Item 3. Legs are to be min 1/4 in. (6 mm) longer than the maximum joint width. Ceiling runner to be installed parallel with structural steel support and located such that a max clearance of 8 in. (203 mm) is present between the finished wall and the flange of the steel beam (Item 1C).
 - A1. **Light Gauge Framing* — Slotted Ceiling Track** — (Not Shown) - As an alternate to the Item 2A, a ceiling track consisting of galv steel channel with slotted flanges may be used when Configuration C and Item 3B.2 or configuration D Item 3B.1 fill material is utilized. Slotted ceiling track sized to accommodate steel studs (Item 2B). Legs are to be min 1/4 in. (6 mm) longer than the maximum joint width. Attached to steel deck with steel fasteners or welds spaced max 24 in. (610 mm) OC.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST, CST 325

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

- B. **Studs** — Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 5/8 to 1-1/4 in. (16 to 32 mm) less in length than assembly height with bottom nesting in and secured to floor runner. Steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at mid-height of exposed slot. Studs spaced max 24 in. (610 mm) OC.

HW-D-0652

CAN/ULC S115
Assembly Ratings - 1 and 2 Hr

Nominal Joint Width - See Chart, Section 3
Class II or III Movement Capabilities - See Chart, Section 3

L Rating at Ambient - Less Than 1.55 L/s/m
L Rating at 203°C - 1.55 L/s/m
The Air Leakage Rating does not apply if item 1E.1 is used

- C. Gypsum Board* — Gypsum board 1/2 or 5/8 in. (13 or 16 mm) thick, applied on both sides of wall as specified in the individual Wall and Partition Design except that a max 5/8 in. (16 mm) gap shall be maintained between the top of the gypsum board and the bottom of the floor-ceiling assembly. The screws attaching the gypsum board layer(s) to the studs shall be located 4 to 5 in. (102 to 127 mm) down from deck at time of installation. No gypsum board attachment screws shall be driven into the ceiling runner.

The hourly rating of the joint system is equal to the hourly fire rating of the wall.

3. **Joint System — Max separation between floor or roof deck or bottom of spray-applied fire resistive material on steel floor or roof unit and top of wall (at time of installation of joint system) is 5/8 in. (16 mm). When Item 3B.2 is used the nominal width is 1/2 in. (13 mm) or max 3/4 in. (19 mm), when Item 3B.3 is used the max nominal joint width is 3/8 in. (10 mm). The joint system is designed to accommodate a max 80 percent compression and or 30 percent extension from its installed width of 5/8 or less, or 80% compression only when joint is installed at 3/4 in (19 mm). When Item 3A4 is used the joint will accommodate 100 percent compression and extension from nominal 3/8 in. (10 mm) installed width. When Item 3B8 is used the joint will accommodate 100 % compression/extension for nominal 1/2 in. (12 mm) gaps or compression only for nominal 1 in. (25 mm) gaps. When Item 3B9 is used the joint will accommodate 100% compression/ extension for nominal 3/4 in. (19 mm) gaps or compression only for 1-1/2 in. (38 mm) gaps. When item 3B9 is used the joint will accommodate 100% compression/extension for nominal 1/4 in. (6mm) gaps or compression only for 1/2 in.(12mm) gaps.**

- A. **Forming Material*** — Min 4 pcf (64 kg/m3) mineral wool insulation cut to the shape of the fluted steel floor or roof deck units, approx 33% larger than the area of the flutes. Pieces compressed and inserted into and completely filling the flutes above the structural support member. As an option, the spray-applied fire resistive material described in Item 1 can be used in place of the packing material.

Item	Product	Max Gap	Movement
3B1	DDA (CEMCO)	5/8"	80% Comp 30% Ext
3B2	DDA-1 (CEMCO)	1/2"	80% Comp 30% Ext
3B3	FAS Track 1000, FAS Track 1000DL (CEMCO, MARINO/WARE)	3/8"	80% Comp 30% Ext
3B4	HOTROD XL (CEMCO, MARINO/WARE)	3/4"	80% Comp 30% Ext
3B5	HOTROD Type-X (CEMCO)	3/4"	80% Comp 30% Ext
3B6	HOTROD Type-X (CEMCO)	1/2"	75% Comp 25% Ext
3B7	Fire Gasket 1 (CEMCO, MARINO/WARE, TRIM-TEX)	1/2"	100% Comp 100% Ext
3B7	Fire Gasket 1 (CEMCO, MARINO/WARE, TRIM-TEX)	1"	100% Comp 0% Ext
3B8	Fire Gasket 1.5 (CEMCO, MARINO/WARE, TRIM-TEX)	3/4"	100% Comp 100% Ext
3B8	Fire Gasket 1.5 (CEMCO, MARINO/WARE, TRIM-TEX)	1-1/2"	100% Comp 0% Ext
3B9	Fire Gasket 0.5 (CEMCO, MARINO/WARE, TRIM-TEX)	1/4"	100% Comp 100% Ext
3B9	Fire Gasket 0.5 (CEMCO, MARINO/WARE, TRIM-TEX)	1/2"	100% Comp 0% Ext

- C. **Fill, Void or Cavity Material* — Sealant** — (Optional, Not Shown) -Sealant may be used to seal any gaps at end joints between ceiling runners, and gaps above ceiling runner, to attain L Ratings.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB. Firestop Joint Spray

SPECIFIED TECHNOLOGIES INC — SpecSeal AS200 Elastomeric Spray

UNITED STATES GYPSUM CO — Type AS

- D. **Packing Material — (Not Shown)** - When item 3B.1, 3B.2, or 3B.3 is used, continuous length of open cell polyurethane foam with a nominal diameter of 1/8 in. (3.2 mm) greater than the max width of the joint. The foam shall have a nominal density of 1.7 pcf. The foam is to be placed in the joint above the top edge of the drywall between the beam. Any splices are to be tightly butted. A layer of tape and joint compound can then be applied over the open cell foam.

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

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

HW-D-0652

CAN/ULC S115
Assembly Ratings - 1 and 2 Hr

Nominal Joint Width - See Chart, Section 3
Class II or III Movement Capabilities - See Chart, Section 3

L Rating at Ambient - Less Than 1.55 L/s/m
L Rating at 203°C - 1.55 L/s/m
The Air Leakage Rating does not apply if item
1E.1 is used

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2021 UL LLC"