



BXUVC.I525 Fire-resistance Ratings

[Page Bottom](#)

BXUVC - Fire-resistance Ratings

[See General Information for Fire-resistance Ratings](#)

Design No. I525

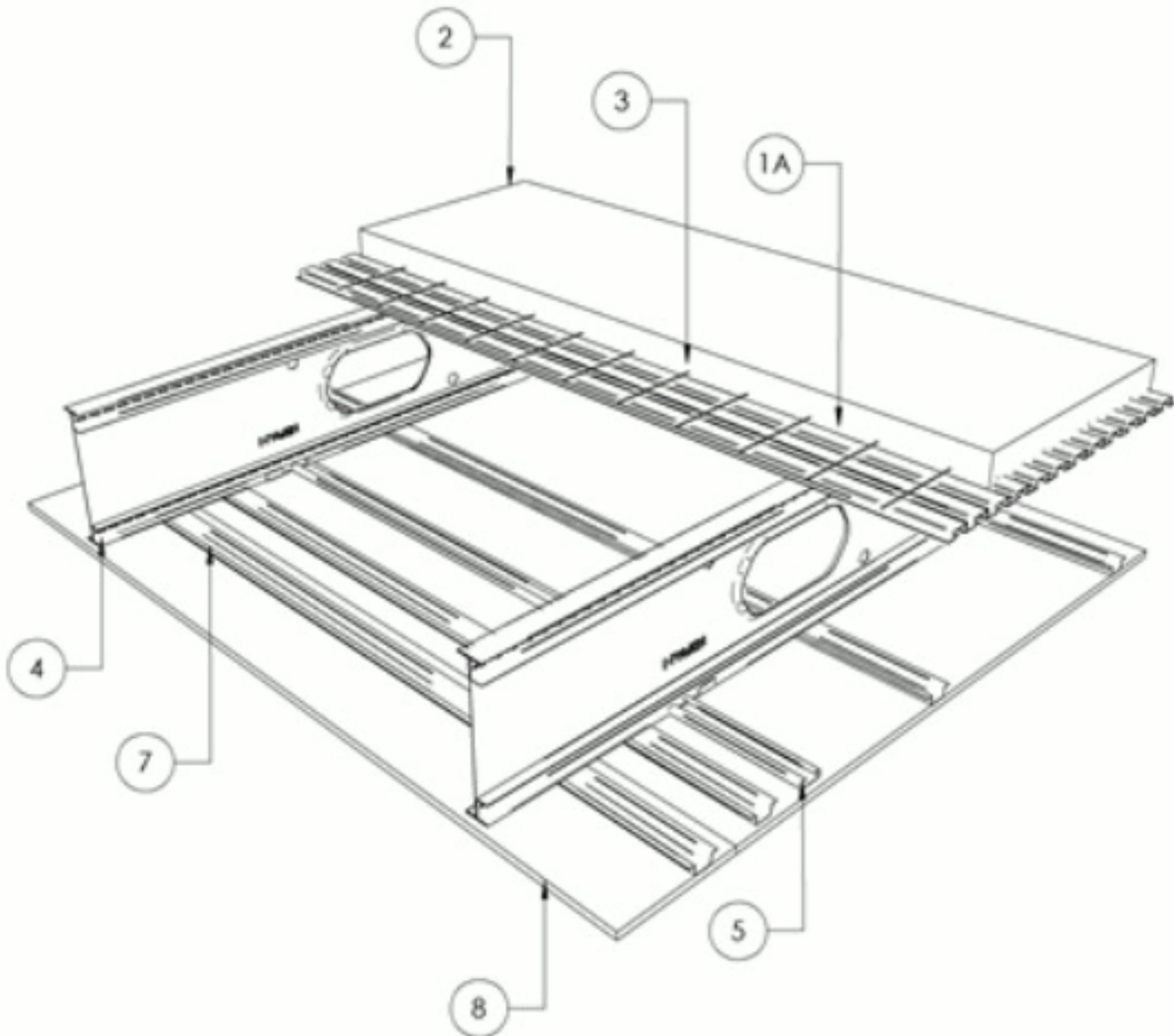
November 23, 2016

Unrestrained Assembly Rating – 1 and 2 h

Restrained Assembly Rating – 1 and 2 h

Unrestrained Beam Ratings – 1 and 2 h.

Load Restricted – Optional Beam evaluated in accordance with Working Stress Design methods, for use under Limit States Design methods; refer to information under Guide BXUVC.



Beam - (Not Shown) - W250x33, min size. The underside of the bottom flange of the beam shall not be lower than the underside of the bottom of the TotalJoist™ Structural Component (Item 4.).

System A

1. **Steel Deck** — Total-Lewis-Deck - Min. 1.8 mm. deep, 25 MSG galv deck. Overlapped 1/2 corrugation at each side and attached to each joist with 3/4 in. long #10-16 self-drilling, self-tapping screws @ 254 mm OC max. Along steel deck sidelap, 3/4 in. long #10-16 self-drilling, self-tapping screws are installed at 605 mm OC max.

ISPAN SYSTEMS LP — Total-Lewis-Deck™

System B

1A. **Steel Deck** — Min 14 mm. deep, 22 MSG galv corrugated fluted steel deck. Overlapped one corrugation at each side and attached to each joist with 19 mm long #10-16 self-drilling, self-tapping screws 254 mm OC max. At steel deck overlap over joist three 19 mm long #10-16 self-drilling, self-tapping screws are installed into the joist one screw in the center flute and one on each adjacent flute.

1B. **Multi-Shear Connectors*** — TotalJoist™ MultiShear Connectors installed through the steel deck to the top flange of the Joist with 1-# 12-25mm. long self-drilling, self-tapping Screw. MultiShear Connectors spaced at 305 mm OC., along the length of the joist and located adjacent to the joist web.

ISPAN SYSTEMS LP — TotalJoist™ MultiShear Connector

2. **Concrete** — Normal Weight Concrete, 2400 kg/m³ unit weight, 20 MPa minimum compressive strength. Minimum thickness shall be 56 mm as measured from the top plane of the deck.

3. **Welded Wire Fabric** — Minimum 150 mm x 150 mm MW18.7 x MW18.7 placed in the middle of the concrete (Item 2).

3A. **Fiber Reinforcement** — As an alternate to Item 3. Engineered synthetic fibers added to concrete mix to control shrinkage cracks in concrete. See Fiber Reinforcement (CBXQC) Category for rate that fibers are added to concrete mix.

BASF CONSTRUCTION CHEMICALS L L C — Type MasterfiberMAC Matrix, MasterFiber MAC 2200CB, MasterFiber MAC 100, MasterFiber MAC 100 Plus.

FORTA CORP — Type Forta Ferro fiber.

GCP APPLIED TECHNOLOGIES INC — Type Strux 90/40

4. **Structural Components** — (CIZTC). TotalJoist™ Joist, minimum 205 mm deep, minimum 16 ga. thick, spaced maximum 1220 mm OC.

ISPAN SYSTEMS LP — TotalJoist™ Joist

5. **Bridging** — Total Joist™ Snap-On Bridging, 48 mm. by 16 mm. by minimum 20 GA. bridging attached to bottom chords on each joist and located 2440 mm. apart or at mid-point of joist for shorter spans. Bridging attached to chords of each joist using 1 #12, 19 mm. long, self drilling, self-tapping screw. Alternatively bridging shall be attached to the chords of each joist using two 2.54 mm. by 19 mm. long pneumatically driven steel pins.

ISPAN SYSTEMS LP — Total Joist™ Snap-On Bridging.

5A. **Alternative Bridging** — Total Joist™ Bridging, 48 mm. by 16 mm. by minimum 20 GA. Bridging installed perpendicular to joists through web holes and located 2440 mm. apart or at mid-point of joist for shorter spans. Bridging attached to flange of web hole in each joist using 1 hex head, self-drilling, self-tapping #10 screw, 19 mm. long. Alternatively, bridging may be attached to joists using minimum 19 mm. by 19 mm. by 20 GA. clip angle. Clip angle fastened to joist web and to bridging using 1 hex head, self-drilling, self-tapping #10 screw, 19 mm. long.

ISPAN SYSTEMS LP — Total Joist™ Bridging.

6. **Blocking** — Total Joist™ Blocking, 18 GA. Blocking attached between joists using 2-#12, 25.4 mm. long, self drilling screws. Blocking spaced at every fifth bay and at end bays.

ISPAN SYSTEMS LP — Total Joist™ Blocking

6A. **Alternative Blocking (Not shown)** — TotalJoist™ 18 ga. cut to fit the space between the two adjacent joists and attached to joists with 16 ga. 150 mm by 75 mm angle connected to blocking and joist with 2 #12-14, 25 mm long. self-drilling, self-tapping screws on each leg of the angle. Blocking spaced at every fifth bay and at end bays.

ISPAN SYSTEMS LP — Total Joist™ Joist

6B. Alternative Blocking (not shown) — Cross bridging with TotalJoist™ Bridging, 48 mm. by 16 mm by minimum 20 ga. cut to fit the space between the two adjacent joists and attached to joists with 1 #10-19 mm long self-drilling, self-tapping screw. Blocking spaced at every fifth bay and at end bays.

ISPAN SYSTEMS LP — TotalJoist™ Bridging

7. Resilient Channels — Minimum 25 GA thick, 22 mm deep hat-shaped galvanized steel channels. Channels shall be spaced maximum 610 mm apart and attached to the bottom flange of each joist with two double strand 18 gauge steel wire. At locations where gypsum board end joints occur, additional resilient channels shall be installed to provide screw attachments for the gypsum board ends. These additional channels shall be positioned so that the distance from the end of the board to the centre of the first channel is 75 mm and from the board end to the centre of the next channel is 533 mm. Joints in channels shall be overlapped 100 mm. and shall be located directly below the joist. Channels shall be cut 12.7 mm short of the end supports.

7A. Steel Framing Members — (Optional, Not Shown) — When it is desired to drop the ceiling below the bottom plane of the structural steel members (Item 4), a suspension system may be used in lieu of the furring channels. Main runners, cross tees, cross channels and wall angle as listed below:

a. **Main Runners** — Nom 3050 or 3660 mm long, 24 or 38 mm wide face, spaced 1220 mm OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 1220 mm OC a min of 102 mm below bottom flange of joists, twist tied to #10, 19 mm long screws installed in the web, 13mm from the bottom flange of the steel joists. When insulation is used (Item 9), 12 SWG galv steel hanger wires spaced 610 mm OC and main runners suspended parallel and directly below structural steel members (Item 4). Hanger wires to be located adjacent to main runner/cross tee intersections.

b. **Cross Tees** — Nom 1220 mm long, 38 mm wide face, installed perpendicular to the main runners, spaced 406 mm OC. Additional cross tees or cross channels used at 203 mm from each side of butted gypsum panel end joints. The cross tees or cross channels may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation.

c. **Cross Channels** — Nom 1220 mm long, installed perpendicular to main runners, spaced 406 mm OC.

d. **Wall Angle or Channel** — Painted or galv steel angle with 25 mm legs or channel with 25 mm legs, 40 mm deep attached to walls at perimeter of ceiling with fasteners 406 mm OC. To support steel framing member ends and for screw-attachment of the gypsum panel.

CGC INC — Type DGL

7B. Alternate Steel Framing Members — (Optional - Not Shown) - Not for use with Batts and Blankets (Item 9) -As an alternate to Items 7 and 7A - Main runners nom 3660 mm, spaced 1830 mm OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 1220 mm OC. Cross tees, nom 1830 mm long, installed perpendicular to main runners and spaced 610 mm OC. Additional 1830 mm long cross tees required at each gypsum board end joint with butted gypsum board end joints centered between cross tees spaced 203 mm OC. The main runners and cross tees may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation.

CGC INC — Type DGL

8. Wallboard — (CKNXC). Nominal 16 mm thick, 1220 mm wide gypsum board installed with long dimension perpendicular to resilient channels. Gypsum board shall be attached to resilient channels using 25 mm long Type S drywall screws, spaced 305 mm OC in the field of each board. At the side joints, screws shall be located 25 mm and 150 mm from the long edge. At the end joints, screws shall be located 75 mm and 300 mm from the board end. All end joints shall be completed backed by 3 in. wide strips of gypsum board centrally positioned over the joints.

CGC INC — Type C

UNITED STATES GYPSUM CO — Type C

8A. Wallboard — (CKNXC) —For use when Steel Framing Members (Item 7A) are used - One layer of 15.9 mm thick, 1220 mm wide, installed with long dimension perpendicular to cross tees with side edges centered over main runners and joints centered over cross tees or channels. Fastened to cross tees or channels with 25 mm long Type S screws bugle-head screws spaced 203 mm OC with the screws located 102 mm from the mid-span of the cross tee or channel, and 38 mm from side edges of gypsum panel. Fastened to main runners with 25 mm. long Type S bugle-head screws spaced midway between cross tees or channels. End joints of gypsum panels shall be staggered not less than 1220 mm OC with adjacent gypsum panels end joints.

CGC INC — Type C

8B. **Wallboard** — (CKNXC) —For use when Steel Framing Members (Item 7B) are used - One layer of 15.9 mm thick, 1220 mm wide installed with long dimension (side joints) perpendicular to the 1830 mm long cross tees with the end joints staggered min 1220 mm and centered between cross tees which are spaced 203 mm OC. Gypsum board side joints may occur beneath or between main runners. Prior to installation of the gypsum board sheets, backer strips consisting of nom 200 mm wide pieces of gypsum board are to be laid atop the cross tee flanges and centered over each butted end joint location. The backer strips are to be secured to the flanges of the cross tees at opposite corners of the backer strip with hold down clips to prevent the backer strips from being uplifted during screw-attachment of the gypsum board sheets. Gypsum board fastened to cross tees with 25 mm drywall screws spaced 25 mm and 102 mm from the side joints and max 203 mm OC in the field of the board. The butted end joints are to be secured to the backer strip with No. 10 by 38 mm long Type G laminating screws located 25 mm from each side of the butted end joint and spaced 25 mm and 102 mm from the side joints and max 203 mm OC in the field of the board.

CGC INC — Type C

UNITED STATES GYPSUM CO — Type C

9. **Batts and Blankets** — (Optional, Not shown) — ULC Listed, unfaced glass fiber insulation, nominal 89 mm thick, nominal density 8 kg/m³. Insulation draped over suspension system grid (Item 7A).

10. **Joint System** — (Not shown). Paper tape embedded in joint compound over joints and covered with 2 layers of compound with edges feathered out. Wallboard screw heads covered with 2 layers of compound.

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