

## BXUVC.I523 Fire Resistance Ratings

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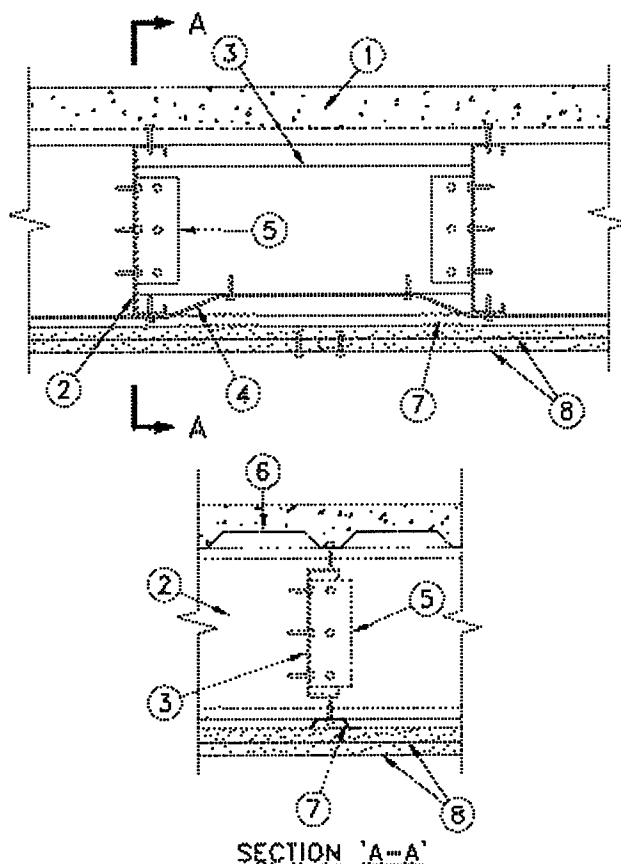
### Fire Resistance Ratings

See General Information for Fire Resistance Ratings

### Design No. I523

March 21, 2005

**Unrestrained Assembly Rating - 1 h**



**1. Normal-Density Concrete** — Carbonate aggregate 2400 kg/m<sup>3</sup> unit weight, 20 MPa nominal compressive strength. Polypropylene fiber added to the concrete mix at a rate of 2.0 kg. of fiber for each cubic metre of concrete. Min 35 mm depth measured vertically from crest of Steel Form Unit (Item 6).

**2. Steel Joist** — Non-Composite Design — Spaced max 406 mm OC (See Item 9) or 610 mm. Channel-shaped, min 203 mm deep with min 41 mm flanges and min 14 mm stiffening flanges. Fabricated from nominal base metal thickness of min 1.15 mm galv steel. Min yield strength of steel is 230 MPa.

**3. Blocking** — Channel-shaped 152 mm deep with min 41 mm flanges and 14 mm stiffening flanges. Fabricated from nominal base metal thickness of 1.15 mm galv steel. Min yield strength of steel is 230 MPa. Spaced at max 1930 mm OC along the span of the steel joist. Blocking to be placed between steel joist at max 3048 mm OC. A 38 by 38 by 140 mm long angle clip shall be used to connect web of Steel Joist Blocking with 19 mm long No. 8 self tapping screws. A min of six screws used with each angle clip.

4. **Bridging** — Flat steel strap 52 mm wide fabricated from nominal base metal thickness of 1.444 mm galv steel located max 1930 mm OC perpendicular to the joists. The flat strap is connected to the bottom flange of the Steel Joist (Item 3) with a min of one No. 8 self tapping screw.

5. **Connecting Clip Section** — Channel-shaped 90 mm deep with min 41 mm flanges and 14 mm stiffening flanges fabricated from nominal base metal thickness of 1.15 mm galv steel. Min yield strength of steel is 230 MPa. Clip Section used to fasten Steel Joists to joist headers. A min of six No. 8 by 19 mm long self tapping screws used at each connection.

6. **Steel Form Units** — Min 15.9 mm deep by 762 mm wide corrugated steel deck. Crests 25.4 mm wide, pitch 152 mm, fabricated from nominal base metal thickness of 0.380 mm galv steel. Overlapped one corrugation at each side and attached to each joist with 19 mm long Type S-14 steel screws at each side joint, and not more than 314 mm OC between sides.

7. **Resilient Channels (optional)** — Fabricated from nominal base metal thickness of 0.481 mm galv steel. Min yield strength of steel is 230 MPa, 64 mm wide by 12.7 mm deep, spaced 610 mm OC, connected perpendicular to steel joist. Channels secured to bottom flange of each steel joist with Type S8 by 19 mm long screws.

8. **Gypsum Wallboard** — (CKNXC). Two layers of nom 12.7 mm thick by 1220 mm wide boards. Sheets installed with long dimension perpendicular to steel joist. Base layer attached to the steel joist using 32 mm long Type S bugle-head screws spaced 305 mm OC along butted end-joints and in the field. Base layer butted end-joints staggered min 1220 mm in adjacent rows. Screws in base layer located min 10 mm from end-joints and 12.7 mm in. from side joints. Face layer of gypsum wallboard secured to steel joist with 38 mm long Type S bugle-head steel screws spaced 305 mm OC at the side-joints and in the field. Face layer side-joints offset min 610 mm from base layer side-joints. Face layer end-joints to be offset 915 mm from base layer end-joints. Face layer end-joints to occur in the middle of two adjacent steel joist. Type G 38 mm long screws spaced min 305 mm OC used to attach face layer end-joints to the base layer, screw located min 38 mm from end-joint.

When Resilient Channels (Item 7) are used two layers of nom 12.7 mm thick by 1220 mm wide boards shall be used. Sheets installed with long dimension perpendicular to resilient channel. Base layer attached to the resilient channel using 32 mm long Type S bugle-head screws spaced 305 mm OC along butted end-joints and in the field. Base layer butted end-joints staggered min 1220 mm in adjacent rows. Screws in base layer located min 10 mm from end-joints and 38 mm from side joints. Face layer of gypsum wallboard secured to resilient channel with 41 mm long Type S bugle-head steel screws spaced 305 mm OC at the end-joints and in the field. Face layer end-joints offset min 610 mm from base layer side-joints. Face layer end-joints to be offset 915 mm from base layer end-joints. Face layer end-joints to occur in the middle of two adjacent resilient channels. Type G 38 mm long screws spaced min 305 mm OC used to attach face layer end-joints to the base layer, screw located min 51 mm from end-joint. Joints treated as described in Item 10.

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9. **Batts and Blankets** — (optional) (not shown) -Mineral wool with a density of 32.2 kg/m<sup>3</sup> or glass fiber insulation with density 10.2 kg/m<sup>3</sup>. Insulation 90 mm thick bearing the ULC Listing Mark for Surface Burning Characteristics, having a flame spread value of 25 or less and a smoke value of 50 or less. Insulation fitted in the concealed space, draped over the resilient channel/gypsum wallboard ceiling membrane cut to fit tightly between webs of the joists. When Batts and Blankets are used the steel joist spacing shall be min 406 mm OC and resilient channel shall be used as specified in Item 7.

10. **Joint System** — (not shown) - Paper tape embedded in joint compound over joints and covered with additional compound. Exposed screw heads covered with compound. Edges of compound feathered out.

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