

BXUV.N860 - FIRE-RESISTANCE RATINGS - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. N860

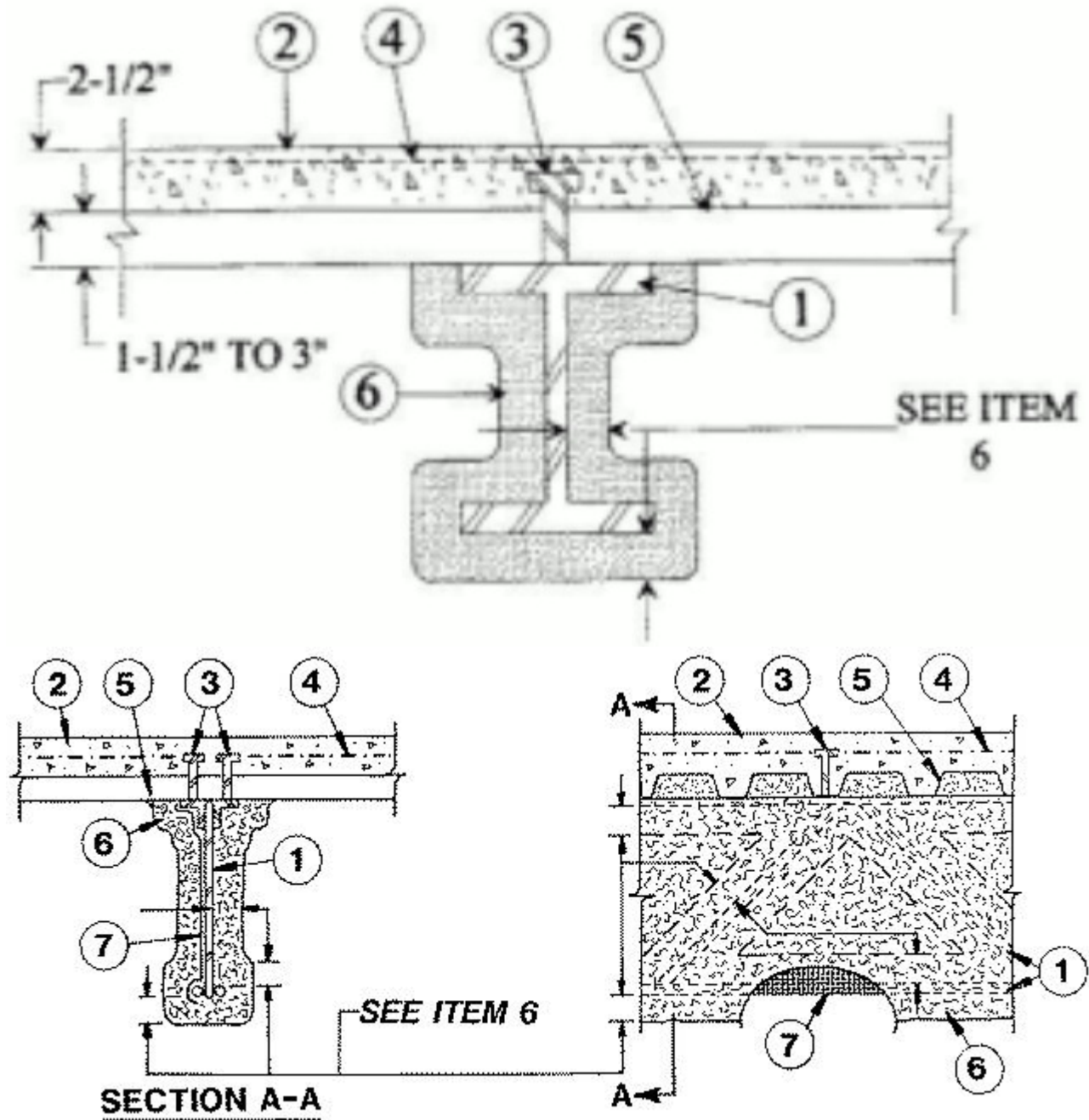
May 03, 2018

Restrained Beam Ratings — 1, 1-1/2, 2, 3 and 4 Hr (See Items 6 and 6A)

Unrestrained Beam Ratings — 1, 1-1/2, 2, 3 and 4 Hr (See Items 6 and 6A)

Loading Determined by Allowable Stress Design Method or Load and Resistance Factor Design Method published by the American Institute of Steel Construction, or in accordance with the relevant Limit State Design provisions of Part 4 of the National Building Code of Canada.

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



1. **Steel Beam** — W8x28 min size. See Item 6 for required beam thicknesses.

1A. **Steel Joists** — Composite or non-composite min 8k1 or min depth and weight shall be 8 in. and 4.9 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30,000 psi (30 ksi). Welded or bolted to end supports. The top chords shall consist of two angles measuring 1-1/4 by 1-1/4 by 0.127 in. thick. Bottom chords shall consist of two angles measuring 1 by 1 by 0.125 in. thick. Bearing plates shall consist of two angles measuring 1-1/2 by 2 by 0.188 in. thick and 5-1/16 in. long. Web members shall consist of 0.565 in. diam bars. See Item 6A for required joist thicknesses.

2. **Normal Weight or Lightweight Concrete** — Normal weight concrete: carbonate or siliceous aggregate, 3500 psi compressive strength, unit weight 145 ± 3 pcf. Lightweight concrete: expanded shale, clay, or slate aggregate by rotary-kiln method, 3500 psi compressive strength, unit weight 110 ± 3 pcf.

3. **Shear Connector** — (Optional) — Studs, 3/4 in. diam for beams or 1/2 in. diam for joists, headed type or equivalent per AISC specifications. Welded to the top flange of beam through the steel floor units.

4. **Welded Wire Fabric** — (Optional) — 6x6, W1.4 x W1.4.

5. **Steel Floor and Form Units*** — 1-1/2 to 3 in. deep fluted, cellular or corrugated units in any combination welded to beam. 1-1/2 to 3 in. deep corrugated, fluted or cellular units welded to joists. Max usage of cellular units with joists shall consist of 1:1 blend with fluted

units.

6. Spray-Applied Fire Resistive Materials* — Applied by spraying with water to the final thicknesses shown below. Crest areas shall be filled with Spray-Applied Fire Resistive Materials above the beam. Beam surfaces must be clean and free of dirt, loose scale and oil. Min average density of 13 pcf with min. ind density of 11 pcf for Types II, II HS, or DC/F. Min avg and min ind densities of 22 and 19 pcf, respectively, for Type HP. For method of density determination, refer to Design Information Section. The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with normal weight concrete.

Min Thkns In.		
Rating Hr	Restrained Beam	Unrestrained Beam
1	3/8	3/8
1-1/2	9/16	5/8
2	3/4	13/16
3	1-1/4	1-5/16
4	1-3/4	1-3/4

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units with lightweight concrete.

Min Thkns In.		
Rating Hr	Restrained Beam	Unrestrained Beam
1	1/2	1/2
1-1/2	11/16	13/16
2	1	1-1/8
3	1-9/16	1-3/4
4	2-1/4	2-7/16

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting floor assemblies containing cellular or corrugated floor units with normal weight concrete.

Min Thkns In.		
Rating Hr	Restrained Beam	Unrestrained Beam
1	1/2	1/2
1-1/2	11/16	13/16
2	15/16	1-1/16
3	1-5/8	1-11/16
4	2-5/16	2-5/16

The thicknesses of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the beams are supporting floor assemblies containing cellular or corrugated floor units with lightweight concrete.

Min Thkns In.		
Rating Hr	Restrained Beam	Unrestrained Beam
1	5/8	5/8

1-1/2	7/8	1
2	1-1/4	1-7/16
3	2	2-1/4
4	2-15/16	3-3/16

ISOLATEK INTERNATIONAL — Types DC/F, II, II HS, or HP.

6A. **Spray-Applied Fire Resistive Materials*** — Spray applied to joists in one or more coats to a final thickness as shown in the table below, to steel joist surfaces which must be clean and free of dirt, loose scale and oil. When fluted units are used, the crest areas above the beam shall be filled with the protection material. Min avg density of 13 pcf and min ind density of 11 pcf for Types II or DC/F. Min avg and min ind densities of 22 and 19 pcf, respectively, for Type HP. For method of density determination, refer to Design Information Section.

Fluted, Cellular and Corrugated Floor Units Min Thickness, In.

Rating Hr	Restrained and Unrestrained	Concrete Type
1	1-3/4	NW
1-1/2	2-3/16	NW
2	2-15/16	NW
1	1-15/16	LW
1-1/2	2-1/2	LW
2	3-3/16	LW

ISOLATEK INTERNATIONAL — Type D-C/F, HP or Type II Investigated for exterior use. Type EBS or Type X adhesive/surface sealer optional

7. **Glass Fiber Mesh (Optional)** — Glass fiber fabric weighing approx 4.3 oz per sq yd fastened to the webs on one side of joist. The method of attachment must be sufficient to hold the mesh and spray-applied fire protection material in place during application of the Spray-Applied Fire Resistive Materials material and until it has cured. Suitable methods include use of hairpins, 18 SWG galv steel tie wire or hot melt glue. Hairpin clips are nom 1-1/4 in. long by 1/2 in. wide made of 0.065 in. diam steel wire. Hairpin clips or tie wire located near top and bottom and at intermediate points along each web member to firmly secure the fabric to the joist. When hot melt glue is used, fabric is embedded in min 1/4 in. long beads, spaced min 12 in. OC along the top chord of the bar joists.

7A. **Metal Lath** — (Optional) — As an alternate to metal lath (Item 7). Min 3/32 in. sq mesh, coated fiberglass scrim fabric, weighing a min of 1.9 oz per sq yd, polypropylene fabric mesh, weighing approximately 1.25 oz per sq yd or equivalent may be used to facilitate spray application. The mesh shall be attached to one side of each joist web member. The method of attachment must be sufficient to hold the mesh and fire protection material during application and curing of the material. Suitable methods of attachment include hairpins, 18 SWG galv steel tie wire or hot melted glue. Hairpin clips are nom 1-1/4 in. long by 1/2 in. wide made of 0.064 in. diam steel wire. Hairpin clips or tie wire located near top and bottom and at intermediate points along each web member to firmly secure the fabric to the joist.

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