UL Product iQ™

BXUV.N792 - 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. N792

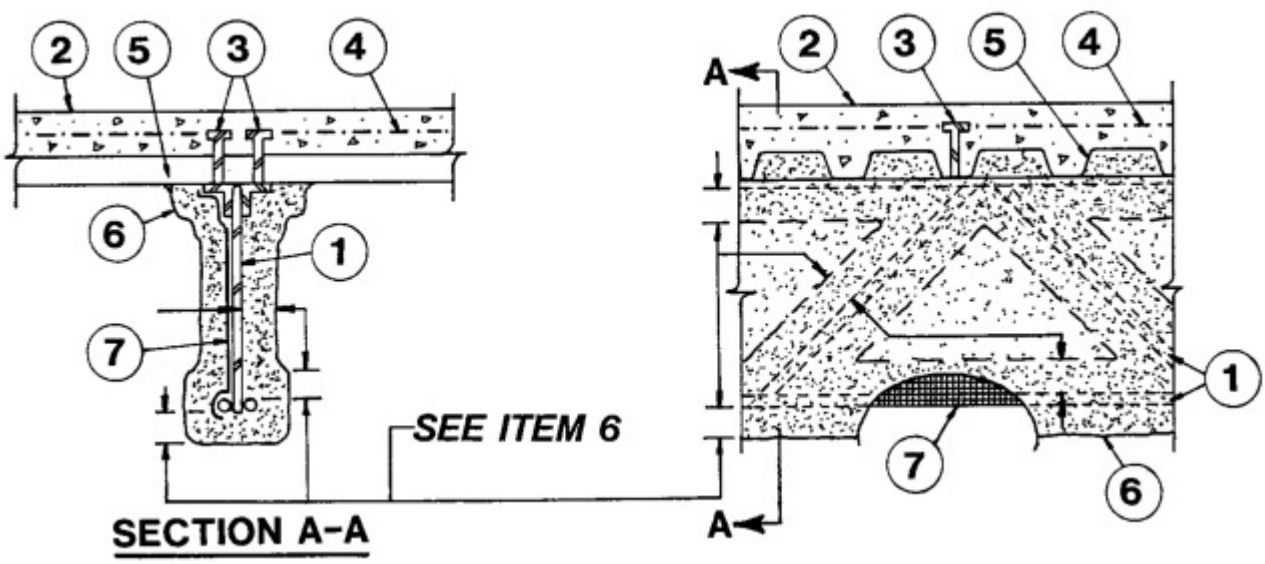
November 04, 2016

Restrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr.

Unrestrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr.

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 Joist —** Composite or non-composite min 10K1 or min depth and weight shall be 10 in and 4.8 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 50,000 psi (50 ksi). Top chords shall consist of two angles measuring 1-1/4 by 1-1/4 by 0.136 in. thick, min. Bottom chords shall consist of two angles measuring 1 by 1 by 0.112 in. thick, min. The first diagonal web member at each end shall consist of a min 0.62 in. dia. round bar. All remaining web members shall consist of 0.50 in. dia. round bars, min. Bridging per S.J.I specifications when non-composite joists are used.

2. **Normal Weight or Lightweight Concrete —** 2-1/2 in. min above crest of flutes. 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, min 1/2 in. dia. headed type or equivalent per A.I.S.C. specifications. Welded to the top chord of joist through the steel floor units. Stud welding, as recommended by the stud manufacturer, should be followed.

4. **Welded Wire Fabric —** Min 6x6-W1.4xW1.4.

5. **Steel Floor and Form Units —** 1-1/2 to 3 in. deep fluted, cellular or corrugated units, welded to joist.

6. **Spray-Applied Fire Resistive Materials* —** Prepared by mixing with water. Spray-applied in one or more coats to joist surfaces to a min final thickness as shown in the tables below. Joist surfaces must be clean and free of dirt, loose scale and oil. Crest areas of deck above the joist shall be filled with Spray-Applied Fire Resistive Materials. When metal lath (Item 7) is used on joist, Spray-Applied Fire Resistive Materials is to be applied over lath with no min thickness requirement.
Min average density of 15 pcf and min individual density of 14 pcf for Type 300, 300AC, 300ES, 300HS, 300N, 3000, 3000ES and . For Types 400, 400AC and 400ES min average and min individual density of 22 and 19 pcf, respectively. Min avg density of 44 pcf with min ind value of 40 pcf for Types M-II and TG. Min avg density of 47 pcf, with min individual value of 43 pcf for Type M-II/P. For method of density determination, see Design Information Section, Sprayed Material.

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

	Min Thkns In.			
	Restrained Beam		Unrestrained Beam	
Rating Hr	Joists > 4' OC	Joists ≤ 4' OC	Joists > 4' OC	Joists ≤ 4' OC
1	3/4	3/4	3/4	3/4
1-1/2	3/4	3/4	1-1/8	1
2	7/8	7/8	1-9/16	1-1/4
3	1-1/2	1-1/2	2-5/16	1-3/4

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

	Min Thkns In.			
	Restrained Beam		Unrestrained Beam	
Rating Hr	Joists > 4' OC	Joists ≤ 4' OC	Joists > 4' OC	Joists ≤ 4' OC
1	15/16	3/4	15/16	3/4
1-1/2	15/16	3/4	1-3/8	1-1/8
2	1-1/8	1-1/8	1-7/8	1-1/2
3	1-15/16	1-15/16	2-15/16	2

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

	Min Thkns In.			
	Restrained Beam		Unrestrained Beam	
Rating Hr	Joists > 4' OC	Joists ≤ 4' OC	Joists > 4' OC	Joists ≤ 4' OC
1	15/16	15/16	15/16	15/16
1-1/2	15/16	15/16	1-3/8	1-1/4
2	1-1/8	1-1/8	1-15/16	1-9/16
3	1-15/16	1-15/16	3	2-1/4

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

	Min Thkns In.			
	Restrained Beam		Unrestrained Beam	
Rating Hr	Joists > 4' OC	Joists ≤ 4' OC	Joists > 4' OC	Joists ≤ 4' OC
1	1-1/8	15/16	1-1/8	15/16
1-1/2	1-3/16	1-3/16	1-11/16	1-3/8
2	1-7/16	1-7/16	2-3/8	1-7/8
3	2-1/2	2-1/2	Not rated	2-9/16

BERLIN CO LTD — Types 300, 300ES, 300N, 400, or SB; Types M-II, TG and M-II/P

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Types 300, 300AC, 400, or 400AC; Types M-II, TG and M-II/P

ISOLATEK INTERNATIONAL — Types 300, 300AC, 300ES, 300HS, 300N, SB, 400, 400AC, 400ES, 3000, or 3000ES; Types M-II, TG and M-II/P

NEWKEM PRODUCTS CORP — Types 300, 300ES, 300N, 400, or SB; Types M-II, TG and M-II/P

7. **Metal Lath —** (Optional) — 3/8 in. diamond mesh, expanded steel weighing min 2.5 lb/sq yd, secured to one side of joist using No. 16 SWG steel tie wire located at mid-height of every other web. When used, the metal lath is to be fully covered with spray-applied resistive material with no min thickness requirements for material applied onto the lath between chords and between web members.

7A. **Glass Fiber Mesh —** (Not Shown) — As an alternate to metal lath (Item 7), min 3/32 in. square mesh, coated fiberglass scrim fabric, weighing a min of 1.9 oz/sq yd, 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 caring of the material. An acceptable method of attaching the mesh is

by embedding the mesh in min 1/4 in. long beads of hot melted glue. The beads of glue shall be spaced max 12 in. OC along the top chord of the joists. Another method of attachment is by the use of 1-1/4 in. long 1/2 in. wide hairpin clips formed from 0.064 in. diam steel wire, alternating from top to bottom of the joist web member.

7B. **Metal Lath —** (Not shown) — Required with Types M-II, TG and M-II/P. Metal lath shall be 3/8 in. expanded diamond mesh, weighing 2.5 lb per sq yd. Secured to underside of steel deck with No. 12 by 3/8 in. pan head self-drilling, self-tapping screws and steel washers with an outside diam of 1/2 in. screws spaced 12 in. OC in both directions with lath edges overlapped approx 3 in.

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Last Updated on 2016-11-04