

# BXUV.G717 - 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

See General Information for Fire-resistance Ratings - ANSI/UL 263

### **Design No. G717**

July 12, 2018

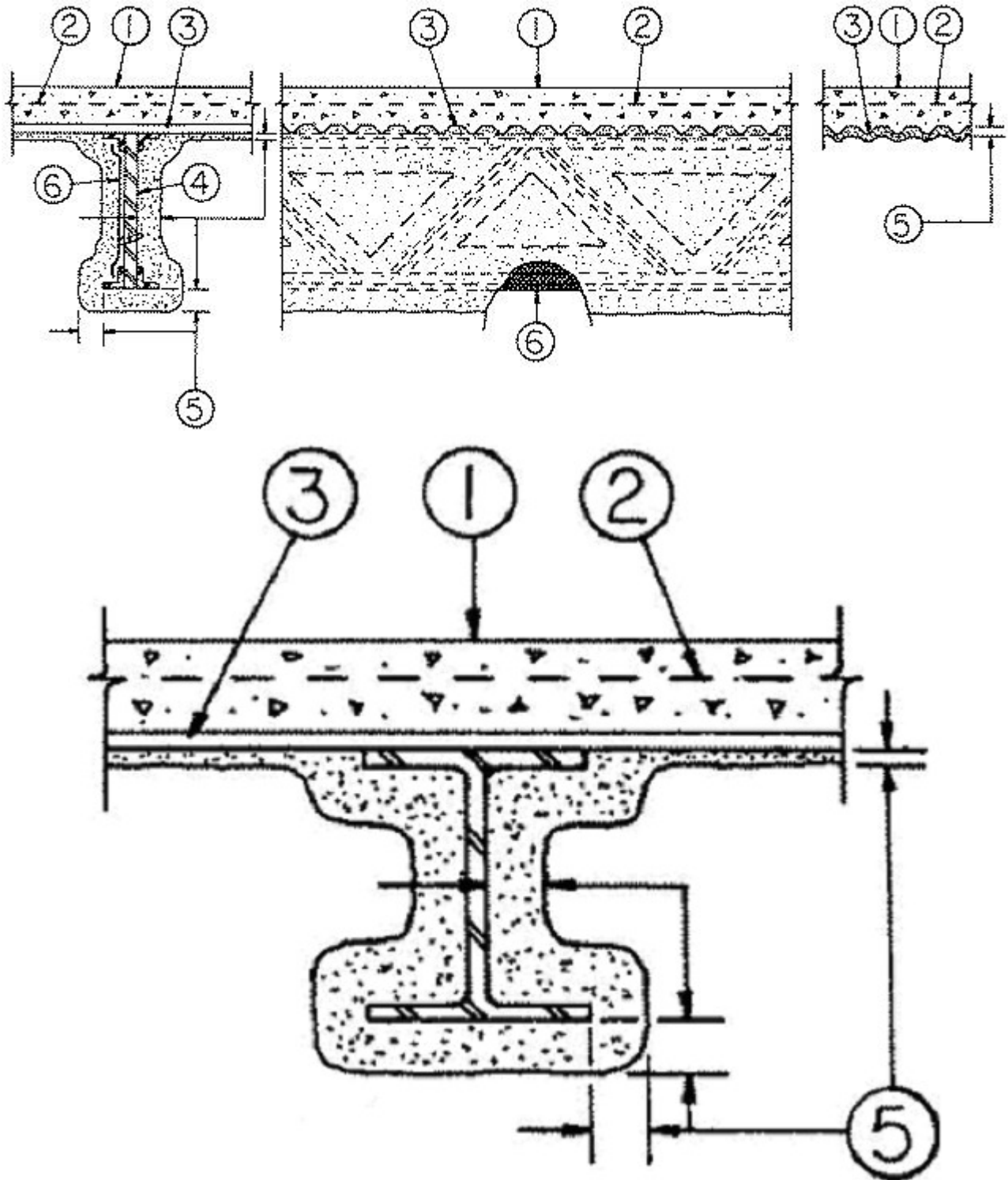
**Restrained Assembly Ratings — 1, 1-1/2, 2 or 3 Hr.**

**Unrestrained Assembly Ratings — 1, 1-1/2, 2 or 3 Hr. (See Item 2 and 5)**

**Unrestrained Beam Ratings — 1, 1-1/2, 2 or 3 Hr. (See Items 2 and 5)**

**Load 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 States Design provisions of Part 4 of the National Building Code of Canada — See Guide BXUV or BXUV7**

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



**1. Normal Weight or Light Weight Concrete** — Normal weight concrete: carbonate or siliceous aggregate concrete, 147 to 150 pcf unit weight, 3500 psi compressive strength, vibrated. Lightweight concrete: expanded shale, clay, or slate aggregate by rotary-kiln method, 110 to 118 pcf unit weight, 3000 psi compressive strength, vibrated, 2 oz air entrainment per bag of cement. For 1, 1-1/2 and 2 h assembly ratings, the 2-3/4 in. concrete topping thickness may be reduced to 2-1/2 in. when non-composite joists are used. The Unrestrained Assembly Rating depends on the type of concrete aggregate and joist spacing as shown below.

**Unrestrained Assembly Rating**

	Max Joist Spacing 3 ft, 6 in.	Joist Spacing Greater Than 3 ft, 6 in. O.C.
Light Weight Aggregate	1-1/2 h	1-1/2 h
Normal Weight Aggregate	2 h	1-1/2 h

2. **Welded Wire Fabric** — 6 x 6 in. - W2.0 x W2.0 or 6x6-8/8 SWG.

3. **Steel Floor and Form Units** — No. 28 MSG galv corrugated sheet steel min, 2-1/2 in. pitch and 1/2 in. depth of corrugations. Units welded to each joist, 36 welds per 100 sq ft of form units, with at least one weld at each joint or **Classified Steel Floor and Form Units\*** — min 9/16 in. deep, 28 MSG galv or ptd/ptd corrugated deck. Units welded to each beam or joist with 36 welds per 100 sq ft of units, with min one weld at each side joint of units.

**VULCRAFT, DIV OF NUCOR CORP** — Types 0.6 C, 1.0 C or 1.3 C.

**NEW MILLENNIUM BUILDING SYSTEMS L L C** — 24 through 36 in. wide, Types 0.6FD, 1.0FD

3A. **Steel Floor and Form Units** — (Not shown) As an alternate to Item 3, Composite 1-1/2 in. deep, 30, 35 or 36 in. wide, galv steel units. Min gauge is 22 MSG. Welded to supports 12 in. OC. Adjacent units button-punched, welded or screwed together 36 in. OC max alongside joints. The concrete thickness shall be measured to the top plane of the steel deck.

**VULCRAFT, DIV OF NUCOR CORP** — Types 1.5VL, 1.5VLI.

**NEW MILLENNIUM BUILDING SYSTEMS L L C** — 24 through 36 in. wide, Types 1.5CD, 1.5CDI units may be ptd.

4. **Steel Joists** — 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 yield stress of 50,000 psi (50 ksi). Welded or bolted to end supports. Top chords shall consist of two angles measuring 1-1/4 by 1-1/4 by 0.136 in. thick. Bottom chord 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. diam round bar. All remaining web members shall consist of 0.50 in. diam round bars, min. Bridging per S.J.I. specifications when non-composite joists are used.

**VESCOM STRUCTURAL SYSTEMS INC** — Type V.

4A. **Steel Beam** — As an alternate to steel joists (Item 4), W8x28 min size.

5. **Spray-Applied Fire Resistive Materials\*** — Applied by mixing with water and spraying in one or more coats to the thicknesses shown below, to steel surfaces which are clean and free of dirt, loose scale and oil. Use of Type PC Pre-coat is required on steel floor and form units. Type PC Pre-coat shall be applied to cover approx 70 percent of the surface. Thickness of Type PC Pre-coat is included in the total thickness of the protection material. Min average and min individual density of 15 and 14 pcf, respectively, for Types 300, 300AC, 300ES, 300HS, 300N, 3000, 3000ES and SB. Min average density and min individual density of 22 and 19 pcf, respectively for Types 400, 400AC and 400ES. Min average density and min individual density of 44 and 40 pcf, respectively, for Types M-II and TG. Min average density and min individual density of 47 and 43 pcf, respectively for Type M-II/P. For method of density determination, see Design Information Section, Sprayed Material.

Restrained Assembly Rating, Hr	Unrestrained Assembly & Beam Rating, Hr	Concrete Type	Deck	Min Thkns Spray Applied Resistive Mtl, In		
				W8x28 Beam (Item 4A)	10k1 Joist > 4' OC (Item 4)	10k1 Joist ≤ 4' OC (Item 4)
1	1	NW	1/2	1/2	15/16	15/16
1-1/2	1-1/2	NW	1/2	11/16	1-3/8	1-1/4
2	1	NW	1/2	1/2	1-1/8	1-1/8
2	2	NW	1/2	15/16	1-15/16	1-9/16
3	1-1/2	NW	1/2	11/16	1-15/16	1-15/16

3	3	NW	1	1-9/16	3	2-1/4
1	1	LW	1/2	5/8	1-1/8	15/16
1-1/2	1-1/2	LW	1/2	15/16	1-3/16	1-3/8
2	1	LW	1/2	5/8	1-7/16	15/16
2	2	LW	1/2	1-1/4	2-3/8	1-7/8
3	1-1/2	LW	1/2	15/16	2-1/2	2-1/2
3	3	LW	1	2-1/8	—	2-9/16

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

6. **Metal Lath** — (Optional) — Metal lath may be used to facilitate the spray application of spray-applied resistive material on steel bar joists and trusses. The diamond mesh, 3/8 in. expanded steel lath, 1.7 to 3.4 lb/sq yd is secured to one side of each steel joist with No. 18 SWG galv steel wire at joist web and bottom chord members, spaced 15 in. O.C. max. When used, the metal lath is to be fully covered with spray-applied resistive material with no min thickness requirements.

6A. **Glass Fiber Mesh** — (Optional, Not Shown) — As an alternate to metal lath (item 6), min 3/32 in. sq mesh, coated fiberglass scrim fabric, weighing a min of 1.9 oz per sq yd or, 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.

6B. **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.

7. **Horizontal Bridging** — (Not Shown) — Min 1-1/4x1-1/4x1/8 in. thick steel angles for use with non-composite joists (Item 4 and 4A). Number and spacing per Steel Joist Institute specifications. Welded to top and bottom chord of the joists. Min thickness of spray-applied resistive material on bridging angles is min thickness on steel joist.

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

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