

BXUV.G801

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.

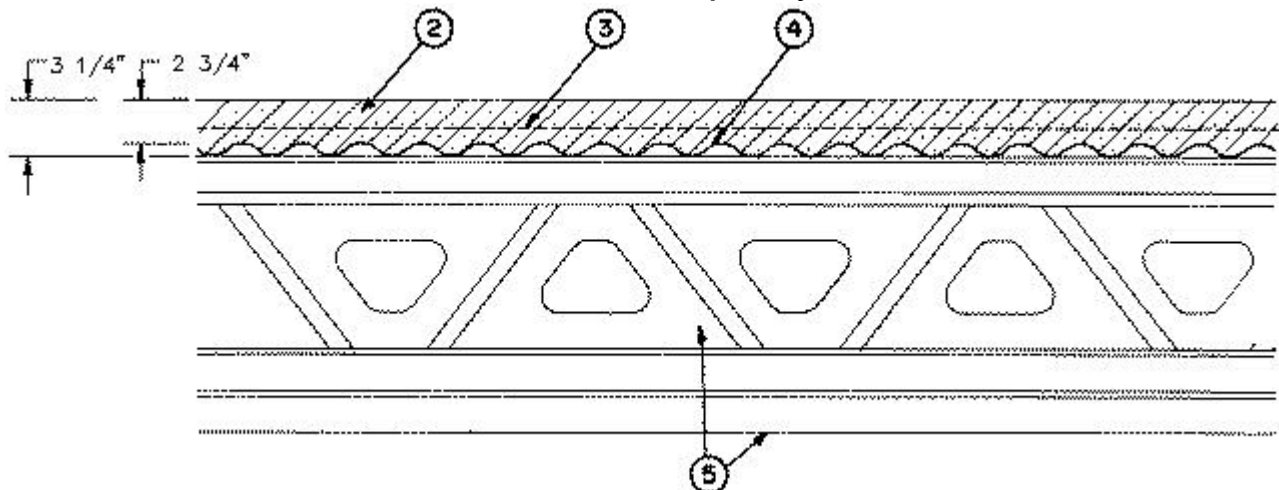
BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
 BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

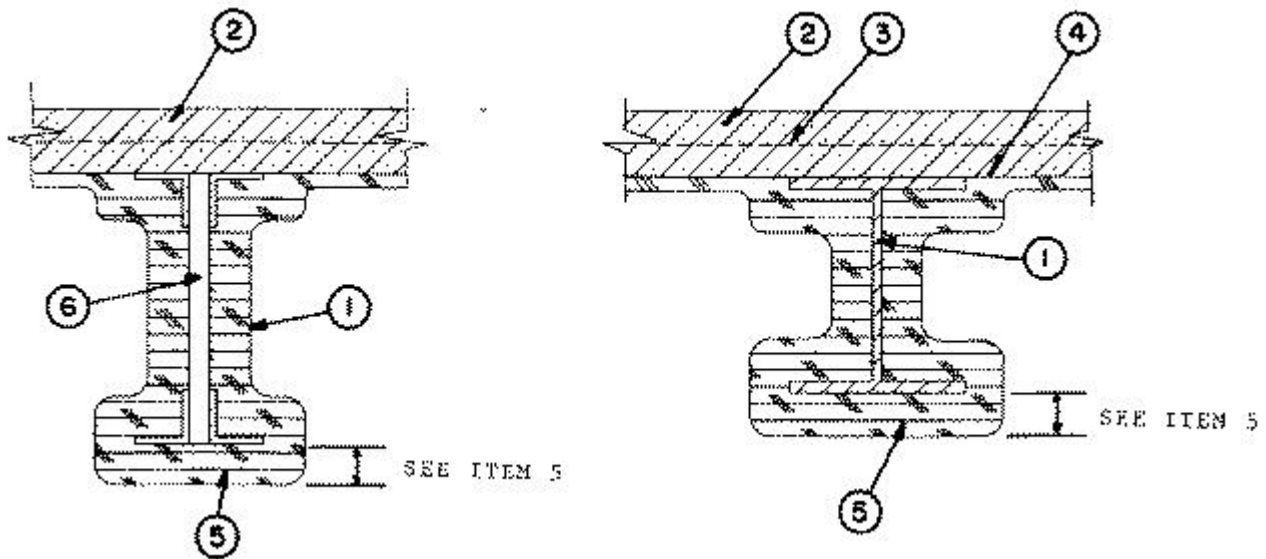
Design No. G801

Restrained Assembly Rating — 1, 1-1/2, 2 or 3 h (See Items 2, 5)
Unrestrained Assembly Ratings — 1, 1-1/2, 2 or 3 h (See Items 2, 5)
Unrestrained Beam Ratings — 1, 1-1/2, 2 or 3 h (See Item 5)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — 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. **Beam** — W8x24 min size.

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 round bars measuring 0.566 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. Bearing plates shall conform to S.J.I. specifications. Web members shall consist of 0.565 in. diam bars.

1B. **Steel Joists** — (As an alternate to Item 1) - Composite or non-composite min 10k1 or min depth and weight shall be 10 in. and 4.8lb/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 diam round bars, min. Bridging per S.J.I specifications when non-composite joists are used.

1C. **Steel Joist** — Composite or non-composite min 12k5 or min depth and weight shall be 12 in. and 7.1 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. Top chords shall consist of two angles measuring 1-1/2 by 1-1/2 by 0.156 in. thick. Bottom chords shall consist of two round bars measuring 0.675 in. in diam. Bearing plates shall consist of two angles measuring 2 by 2 by 0.192 in. thick and shall be min 4-15/16 in. long. The second web member at each end shall consist of 0.654 in. diam round bar. All remaining web members, including the end web members, shall consist of 0.774 in. diam round bars. Bridging per S.J.I. specifications is required when non-composite joists are used.

1D. **Steel Joists** — Min 16K6 or min depth and weight shall be 16 in. and 8.1 lb/ft, respectively. May be either uncoated or provided with a shop coat of paint. Min 3/4 in. diam or larger cross sectional area web members. As an alternate, any LH Series steel joists spanning no greater than 60 ft may be used. For spans greater than 60 ft, LH Series joists may be used provided that the deflection under their published total load shall not be greater than 1/277 of the joist span.

1E. **Horizontal Bridging** — (Not shown) — Min 1-1/4 by 1-1/4 by 1/8 in. thick steel angles for use with non-composite joists (Items 1A and 1D). Number and spacing per Steel Joist Institute specifications. Welded to top and bottom chord of the joists.

1F. **Structural Steel Members*** — (Not Shown) — As alternate to Items 1A and 1B - Steel Joists, designed for full composite action with the concrete slab. Min area of joist members shall be 0.708 sq in. for top and bottom chord steel sections, 0.442 sq in. for web section. Designed in accordance with SJI specifications for K-Series joists as revised to November 15, 1989.

VESCOM STRUCTURAL SYSTEMS INC — Type V

2. **Normal Weight or Lightweight Aggregate Concrete** — Normal weight, carbonate or siliceous aggregate concrete, 150 pcf unit weight, 3500 psi compressive strength, vibrated. Light weight concrete (expanded shale, clay or slate aggregate by rotary-kiln method), 120 pcf unit weight, 3500 psi min compressive strength, vibrated, and an air content of 6 plus or minus percent.

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 supporting element spacing as shown below.

Unrestrained Assembly Rating

Max Spacing 3 ft, 6 in. Spacing Greater than 3 ft, 6 in. OC

Lightweight aggregate	1-1/2 h	1-1/2 h
Normal weight aggregate	2 h	1-1/2 h

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

4. **Steel Floor and Form Units*** — No. 28 MSG min galv corrugated steel, 2-1/2 in. pitch and 1/2 in. depth of corrugations. Units welded to each beam or joist, 36 welds per 100 sq/ft of 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

4A. **Steel Floor and Form Units*** — (Not shown) As an alternate to Item 4, 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 along side joints. The concrete thickness shall be measured to the top plane of the steel deck.

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

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

5. **Spray-Applied Fire Resistive Materials*** — Applied by spraying with water, in one untamped coat at the thickness shown in the table below, to steel surfaces which are free of dirt, oil or scale. Use of adhesive is optional. Min avg untamped density is 13 pcf with min ind untamped density of 11 pcf for D-C/F, II or Type II HS. Min avg and min ind densities of 22 and 19 pcf, respectively, for Type HP. Tamping is optional. For method of density determination refer to Design Information Section.

Restrained Assembly Rating, Hr	Unrestrained Assembly and Beam Rating, Hr	Concrete Type	Min Thkns Spray Applied Resistive Mtl, In.					
			Min Deck Thkns In.	W8x24 Beam (Item 1)	8k1 Joist (Item 1A)	10k1 Joist (Item 1B)	12k5 Joist (Item 1C)	16k6 or Composite Joist (Item 1D, 1E, or 1F)
1	1	NW	1/2	7/16	1+	15/16	1-1/4	1
1-1/2	1-1/2	NW	1/2	9/16	1-9/16	1-5/8	1-11/16	1-1/2
2	1	NW	1/2	7/16	2-1/16	1-11/16	2-1/16	1-1/2
2	2	NW	1/2	3/4	2-1/16	2-1/4	2-1/16	1-1/2
3	1-1/2	NW	1/2	9/16	—	3-1/16	3-1/4	3-1/4
3	3	NW	1-1/8	1-7/16	—	3-11/16	3-1/4	3-1/4
1	1	LW	1/2	7/16	1-1/8+	15/16	1-1/4	1-1/8
1-1/2	1-1/2	LW	1/2	3/4	1-3/4	1-5/8	1-11/16	1-1/2

2	1	LW	1/2	7/16	2-1/4	2-1/16	2-1/16	1-1/2
2	2	LW	1/2	3/4	2-1/4	2-1/4	2-1/16	1-1/2
3	1-1/2	LW	1/2	3/4	—	3-1/16	3-1/4	3-1/4
3	3	LW	1-1/8	1-5/8	—	3-11/16	3-1/4	3-1/4

*NR = No Rating

+ - When bottom chords consist of 1 by 1 by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased by 1/4 in. on the bottom chord only.

ISOLATEK INTERNATIONAL — — Type D-C/F, HP, II, or Type II HS, Type EBS or Type X adhesive/sealer optional.

5A. **Sprayed Fiber Insulation*** — (Optional, Not Shown) — Spray applied fiber insulation applied over Spray-Applied Fire Resistive Material (Item 5) on both steel floor and form units (Item 4) and supports (Item 1). Sprayed fiber insulation may be over Spray-Applied Fire Resistive Material (Item 5) according to the following tables:

Allowable Spray-Applied Fiber Insulation Thickness Over Steel Deck

Installed SFRM Thickness (in.) on Deck	SFRM Density (pcf)	
	13	22
1/2	8	8
1-1/8	7-7/8	8

Allowable Spray-Applied Fiber Insulation Thickness Over Beam

Installed SFRM Thickness (in.) on Beam	SFRM Density (pcf)	
	13	22
7/16	6-1/2	8
9/16	6-1/16	8
3/4	5-5/16	8
1-7/16	2-13/16	4-11/16
1-5/8	2-1/16	3-9/16

Allowable Spray-Applied Fiber Insulation Thickness Over Joist

Installed SFRM Thickness (in.) on Joist	SFRM Density (pcf)	
	13	22
15/16	8	8
1	8	8
1-1/8	8	8
1-1/4	8	8

1-3/8	8	8
1-1/2	8	8
1-9/16	7-7/8	8
1-5/8	7-11/16	8
1-11/16	7-7/16	8
1-3/4	7-3/16	8
2-1/16	6-1/16	8
2-1/4	5-5/16	8
3-1/16	2-5/16	3-15/16
3-1/4	1-5/8	2-3/4
3-11/16	0	0

INTERNATIONAL CELLULOSE CORP — Type K13, URE-K, or Sonospray FC

5B. Sprayed Fiber Insulation* — (Optional, Not Shown) — Spray applied fiber insulation Classified for Noncombustible Building Materials (BICW), having a maximum applied density of 3.5 pcf, applied over Spray-Applied Fire Resistive Material (Item 5) on both steel floor and form units (Item 4) and supports (Item 1). Sprayed fiber insulation may be over Spray-Applied Fire Resistive Material (Item 5) according to the following tables:

Allowable Spray-Applied Fiber Insulation Thickness Over Steel Deck

Installed SFRM Thickness (in.) on Deck	SFRM Density (pcf)	
		13
1/2	5	5
1-1/8	5	5

Allowable Spray-Applied Fiber Insulation Thickness Over Beam

Installed SFRM Thickness (in.) on Beam	SFRM Density (pcf)	
		13
7/16	5	5
9/16	5	5
3/4	5	5
1-7/16	3 1/4	5
1-5/8	2 9/16	4 5/16

Allowable Spray-Applied Fiber Insulation Thickness Over Joist

Installed SFRM Thickness (in.) on Joist	SFRM Density (pcf)	
	13	22
15/16	5	5
1	5	5
1-1/8	5	5
1-1/4	5	5
1-3/8	5	5
1-1/2	5	5
1-9/16	5	5
1-5/8	5	5
1-11/16	5	5
1-3/4	5	5
2-1/16	5	5
2-1/4	5	5
3-1/16	2 5/16	3 15/16
3-1/4	1 5/8	2 3/4
3-11/16	0	0

THERMACOUSTICS IND — Type TC-417

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 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 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 or hot melted glue. Hairpin clips are nom. 1-1/4 in. long by 1/2 in. wide made of 0.064 in. diameter steel wire. Hairpin clips or tie wire located near top and bottom and at intermediate points along each member to firmly secure the fabric to the joist.

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

Last Updated on 2021-05-11

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