UL Product iQ™

BXUV.N789

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. N789

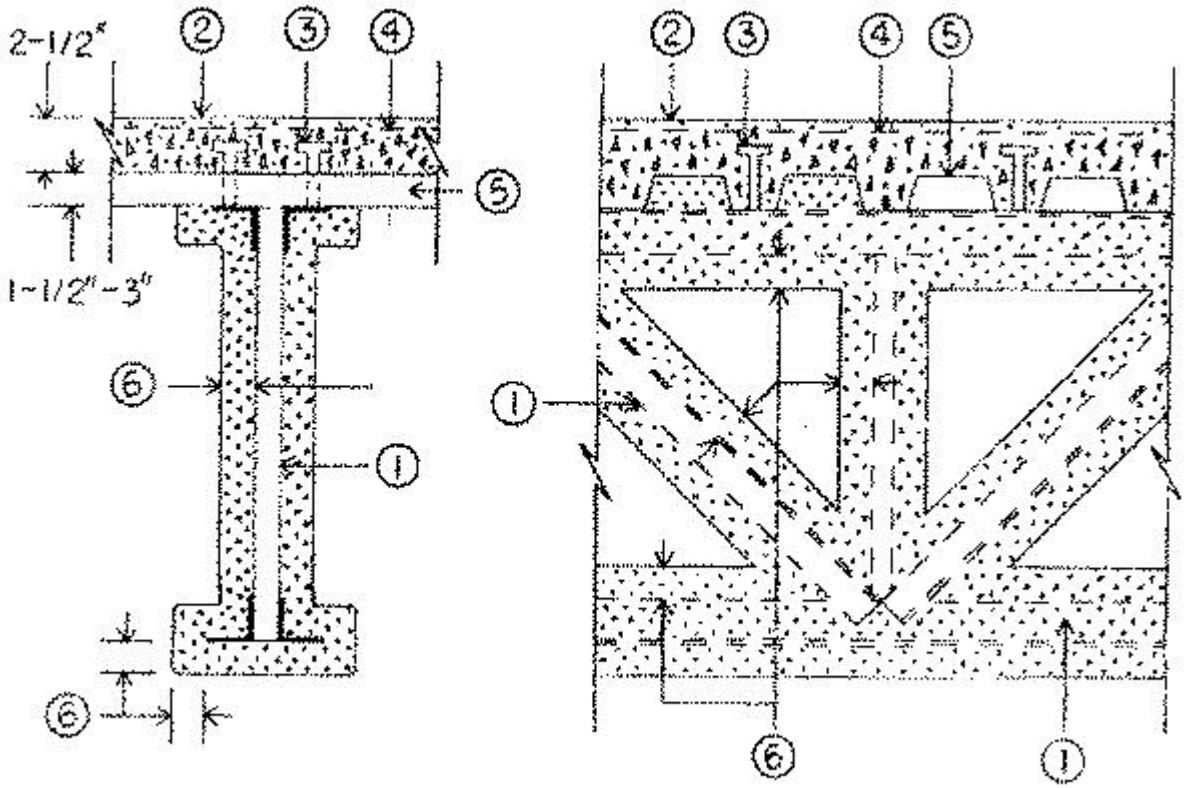
May 09, 2018

Restrained Beam Ratings - 1, 1-1/2, 2, 3 or 4 Hr. (See Item 7)

Unrestrained Beam Ratings - 1, 1-1/2, 2, 3 or 4 Hr. (See Item 7)

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. **Steel Joist or Joist Girder —** Composite or noncomposite. Minimum 8K1 steel joist. Welded or bolted to end supports. Designed per S.J.I. Specifications for a max tensile stress of 30 ksi. May be either uncoated or provided with a shop coat of paint . Top and bottom chords shall each consist of two angles with a min total area of 0.521 and 0.412 sq in., respectively. Web members shall be either round bars or angles. Min area of the end diagonal web shall of 0.307 sq in. Min area of each of the first four interior diagonal webs shall be 0.277 sq in. All other interior webs shall have a min area of 0.196 sq in.

2. **Normal Weight or Lightweight Concrete —** Min compressive strength of 3000 psi. For normal weight concrete, either carbonate or siliceous aggregate may be used. Unit weight, 145 +/- 3 pcf. For lightweight concrete, unit weight may range from 104 to 120 pcf.

3. **Steel Floor or Form Unit Accessories* —** Threaded shear connectors , screwed into the top chord of joist through the steel floor units. Shear connector spacing and attachment shall be as recommended by the Steel Joist or Girder manufacturer.
VULCRAFT, DIV OF NUCOR CORP — Type SHEARFLEX, for use with the ECOSPAN Composite Floor System only

3A. **Shear Connector —** (Optional) — As an alternate to Item 3 — Studs, min 3/8 in. diam 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* —** 0.55 to 3 in. deep fluted or cellular units, welded to joist.
VULCRAFT, DIV OF NUCOR CORP — 24 in. through 36 in. wide, Types 0.6C, 1.0C, 1.5C, 1.5VLR, 1.5VL, 1.5VLI, 1.5VLP, 24 or 36 in. wide, Types 2VLI, 2VLP, 3VLI, 3VLP

VERCO DECKING INC - A NUCOR CO — Deck types PLB, HSB, Shallow or Deep VERCOR; FORMLOK™ deck types PLB, B, BR, PLW2, W2, PLW3, W3. Units are min 24 in. wide and may be galvanized or phos./ptd. Units may be cellular, with the suffix "CD" added to the product name.

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 through 36 in. wide, Types 0.6FD, 1.0FD, 1.5FD, 1.5CDR, 1.5CD, 1.5CDI, 2.0CD, 3.0CD

6. **Spray-Applied Fire Resistive Materials* —** Applied by mixing and spraying in more than one coat to joist surfaces which must be clean and free of dirt, loose scale and oil. When fluted steel floor units are used, crest areas shall be filled with Spray-Applied Fire Resistive Materials above the joist. If bridging has been used, thickness of protection on bridging bars or bridging angles same as on joist chords or webs, and applied 12 in. on either side of the joist. Min avg and min ind density of 15/14 pcf respectively for MK-6/HY, MK-6/HB, MK-6s, MK-6/HY ES. Min avg and min ind density of 22/19 pcf for Z-106, Z-106 G, Z-106/HY. Min avg and min ind density of 40/36 pcf for Z-146. For method of density determination, refer to Design Information Section.

Restrained & Unrestrained Beam Rating, Hr	Min Thkns w/Fluted Deck, In.	Min Thkns w/Cellular Deck, In.
1	1-1/16	1-1/16
1-1/2	1-3/8	1-3/8
2	1-5/8	1-5/8
3	2-1/4	2-7/16
4	2-13/16	3-1/4

ARABIAN VERMICULITE INDUSTRIES — Types Monokote® MK-6/CBF, Monokote® MK-6/ED, Monokote® MK-6/HY, Monokote® MK-6HY Extended Set, Monokote®MK-10 HB, Monokote®MK-10 HB Extended Set, Monokote® MK-6/HB, Monokote® MK-6s, Monokote® Z-106, Monokote® Z-106 G, Monokote® Z-146 cementitious mixtures

GCP APPLIED TECHNOLOGIES INC — Monokote® MK-6/HY, Monokote® MK-6 Extended Set, Monokote®MK-10 HB, Monokote®MK-10 HB Extended Set, Monokote®MK-6/HB, Monokote® MK-6s, Monokote® Z-106, Monokote® Z-106 G, Monokote® Z-106/HY, Monokote® Z-146 cementitious mixtures

GCP KOREA INC — Monokote® MK-6/CBF, Monokote® MK-6/HY, Monokote® MK-6HY Extended Set, Monokote®MK-6/HB, Monokote® MK-6s, Monokote® Z-106, Monokote® Z-106/HY, Monokote® Z-146 cementitious mixutures

GCP KOREA INC — Monokote® MK-6/HY, Monokote MK-6/HB, Monokote® MK-6s, Monokote® MK-6HY Extended Set, Monokote®MK-10 HB, Monokote®MK-10 HB Extended Set, Monokote® Z-106, Monokote® Z-106/HY, Monokote® Z-106 G, Monokote® Z-146 cementitious mixtures

7. **Metal Lath —** (Required on both sides of joists with Z-146, otherwise optional) — Metal lath may be used to facilitate the spray application of spray-applied resistive material 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. OC max. When used, the metal lath is to be fully covered with Spray Applied Fire Resistive Materials with no min thickness requirements for material applied onto the lath between chords and between web members.

7A. **Non-Metallic Fabric Mesh —** (Optional) — As an alternate to metal lath, glass fiber fabric mesh, weighing approximately 2.5 oz/sq yd, polypropylene fabric mesh, weighing approximately 1.25 oz/sq yd or equivalent, may be used to facilitate the spray application. The mesh is secured to one side of each joist web member. The method of attaching the mesh must be sufficient to hold the mesh and the Spray Applied Fire Resistive Materials in place during application until it has cured. An acceptable method to attach 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 a max of 12 in. OC along the top chord of the bar joist. Another method to secure the mesh is by 1-1/4 in. long by 1/2 in. wide haripin clips formed from No. 18 SWG or heavier steel wire .

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Last Updated on 2018-05-09