

BXUV.D860

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. D860

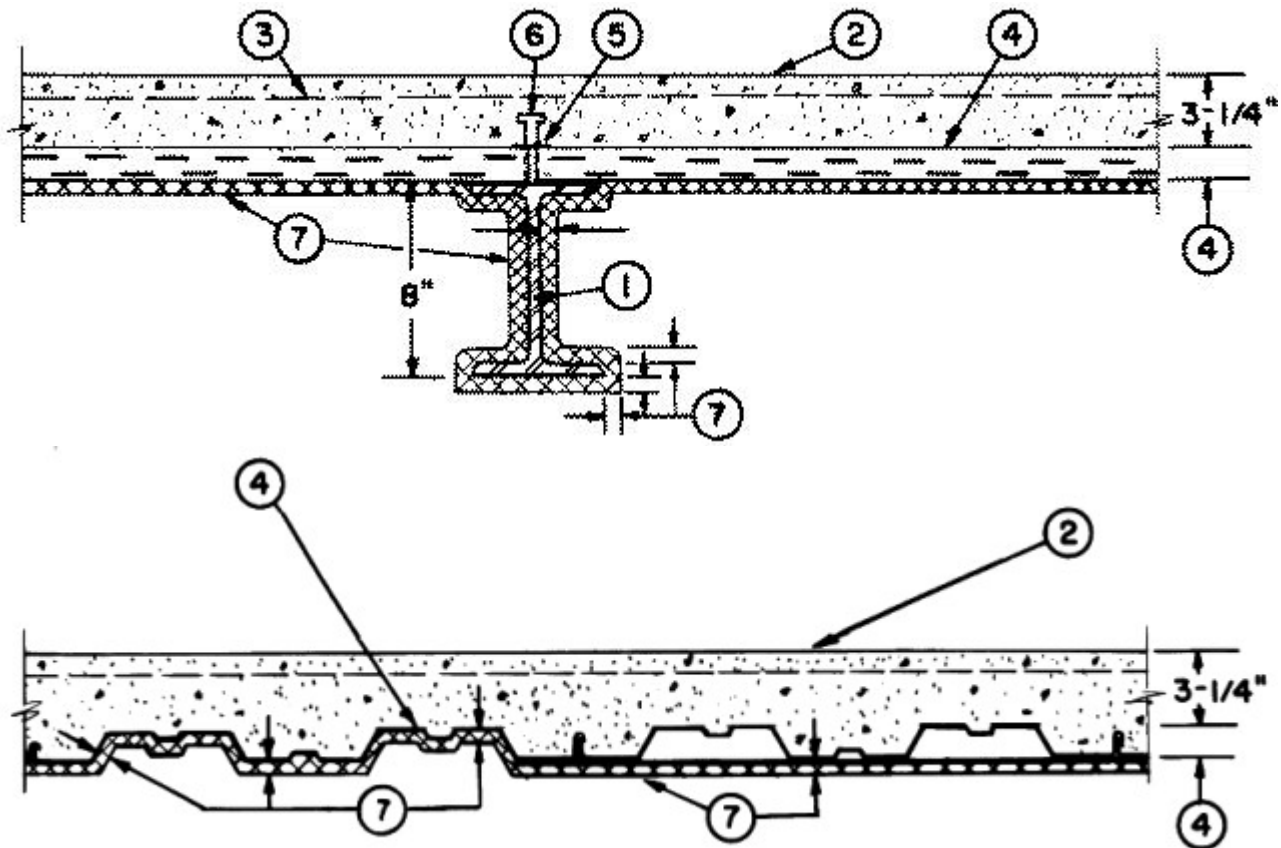
Restrained Assembly Ratings — 2, 3 and 4 Hr (See Items 4, 7 and 7A)

Unrestrained Assembly Rating — 1, 1-1/2 and 2 Hr.

Unrestrained Beam Ratings — 1, 1-1/2 and 2 Hr. (See Items 4, 7 and 7A)

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** — W8x20 or W8x28, min size, see Items 7 and 7A.

2. **Light Weight Concrete** — Expanded shale, clay or slate aggregate by rotary kiln method; 118 +/- 3 pcf unit weight, 2500 psi compressive strength, vibrated 2 to 5 percent entrained air.

3. **Welded Wire Fabric** — 6x6 — W1.4xW1.4.

4. **Steel Floor and Form Units*** — Composite or non-composite, 1-1/2, 2 and 3 in. deep galv units. Alternating one 24 in. wide min cellular unit to one or more 24 or 36 in. wide fluted units, or all 24 or 36 in. wide fluted units. Min gauges are 22 msg for 2 and 3 in deep fluted units and 20 MSG for the 1-1/2 fluted units. Min gauges are 20/20 msg for the cellular units. Spacing of welds attaching units to supports shall be at each side of every side joint and not to exceed 12 in. OC between joints. Adjacent units button punched 36 in. OC at side joints. When a superimposed load of 250 PSF is desired the spacing of welds or button-punches shall not exceed 24 in. OC along side joints. When a blend of one cellular unit to one or more fluted units is used, the max **Unrestrained Beam Rating is 1 Hr** and the **Restrained Assembly Rating 2 Hr**. When all fluted units are used, the **max Restrained Assembly Rating is 4 Hr** and the **Unrestrained Beam Rating 2 Hr**.

CANAM GROUP INC — 36 in. wide Type P-3623, P-3606, P-3615 and 24 in wide Type P-2432 composite, 36 in. wide Type P-3606 and P-3615 non-composite; 24 in. wide Type LF3. Type LF3 unit may be phos/ptd; 36 in. wide Types 1.5B, 1.5BI, 1.5BL and 1.5BL.

CANAM STEEL CORP — 36 in. wide Type P-3623, P-3606, P-3615 and 24 in wide Type P-2432 composite, 36 in. wide Type P-3606 and P-3615 non-composite.

CANAM STEEL CORP — 24 in. wide Types LF2, LF3, LF15, LFC1, LFC2, LFC3; 24 in. wide Types NL, NLC. Types LF2, LF3, NL may be phos/ptd.

KAM INDUSTRIES LTD, DBA CORDECK — 24 or 36 in. wide, 2 or 3 in. deep, Type QL-99.

CHIA TEH CONSTRUCTION MATERIAL CO LTD — 24 or 36 in. wide Mac-Lok 3; 24 in. wide CFD-3.

DECK WEST INC — 36 in. wide Type 2-DW or 3-DW.

DESIGN ASSISTANCE CONSTRUCTION SYSTEMS INC — 24 in. wide Type DACS2.0CD, or DACS3.0CD.

MARLYN STEEL DECKS INC — Type 1.5 CF, 2.0 CF or 3.0 CF.

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 or 36 in. wide Types 2.0CD, 3.0CD, 2.0CFD, 3.0CFD, 3.0CFDES; 24, 30 or 36 in. wide Types 1.5CD, 1.5CFD. Fluted units may be phos/painted or galvanized.

VERCO DECKING INC - A NUCOR CO — FORMLOK™ deck types PLB, B, BR, PLN3, N3, PLN, N, 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, respectively.

VULCRAFT, DIV OF NUCOR CORP — 24 or 36 in. wide Types 2VLI, 2.0PLVLI, 3VLI, 3.0PLVLI. The units may be phos/ptd. 36 in. wide Type High Strength 1.5 SBI, 36 in. wide Type High Strength 1.5 SBN may be phos/ptd; 1.5 SB, 1.5 SBR.

Alternate Construction — Non-composite units of the same type listed above may be used provided allowable loading is calculated on the basis of non-composite design

5. **Joint Cover** — 2 in. wide, pressure-sensitive cloth tape, applied following the contour of floor units.

6. **Shear Connector** — (Optional) — Studs, 3/4 in. diam by 3-3/8 in. long, headed type or equivalent per AISC specifications. Welded to the top flange of beam through the steel floor units.

7. **Spray-Applied Fire Resistive Materials*** — Applied by spraying with water in one or more coat to final untamped thicknesses as shown in the table below, to steel surfaces which are free of dirt, oil or scale. Adhesive is optional. Min avg untamped density is 13 pcf with min ind untamped density of 11 pcf for Types II, II HS, or DC/F. Min avg and min ind untamped densities of 22 and 19 pcf, respectively, for Type HP. For method of density determination, refer to Design Information Section. The required thicknesses of Spray-Applied Fire Resistive Materials are tabulated below:

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Min Mtl Thkns In.		
			Crests	Valley & Flat Plate	W8x20 Beam
2	1	1	3/8	3/8	3/4
3	1	1-1/2	3/8	3/8	3/4
4	2	2	11/16	1/2	1-1/8

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

7A. **Alternate Protection material — 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 all cellular units when Types 300, 300AC, 300ES, 300HS, 300N, SB, 400AC or 400ES are used. Type PC Pre-coat shall be applied to cover approximately 70 percent of the flat plate surface. Thickness of the Type PC Pre-coat is included in the total thickness or 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. For Types 400AC and 400ES min average and min individual density of 22 and 19 pcf, respectively. For method of density determination, see Design Information Section, Sprayed Material.

Spray Applied Fire Resistive Mtl In.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Beam W8x28 Fluted Unit	Beam W8x28 Cellular or Blend	Steel Deck
2	1	1	5/16	5/16	3/8
3	1-1/2	1-1/2	9/16	1/2	3/8

BERLIN CO LTD — Types 300, 300ES, 300N or SB.

GREENTECH ASIA PACIFIC SDN BDH — Types 300, 300ES, or 300HS

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Types 300, 300AC, or 400AC.

ISOLATEK INTERNATIONAL — Types 300, 300AC, 300ES, 300HS, 300N, SB, 400AC, 400ES, 3000, 3000ES and Type PC.

NEWKEM PRODUCTS CORP — Types 300, 300ES, 300N, or SB.

7B. Alternate Protection material — 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. Min average and min individual density of 17.5 and 16 pcf, respectively for Type 300TW. Min average and min individual density of 22 and 19 pcf, respectively for Type 400. For method of density determination, see Design Information Section, Sprayed Material.

Spray Applied Fire Resistive Mtl In.

Restrained Assembly Rating Hr	Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Beam W8x28 Fluted Unit	Beam W8x28 Cellular or Blend	Steel Deck
2	1	1	5/16	5/16	3/8
3	1-1/2	1-1/2	9/16	1/2	3/8

GREENTECH ASIA PACIFIC SDN BDH — Type 400

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Type 400.

ISOLATEK INTERNATIONAL — Types 300TW, or 400.

NEWKEM PRODUCTS CORP — Type 400.

8. Metal Lath — (Not shown) — For use on cellular steel floor units when Type 400 is used — 3/8 in. diamond, expanded steel weighing 3.4 lb per sq yd, secured to underside of the cellular units. The lath is to be placed with the ribs upward and secured with S-12 by 3/8 in. long pan-head, self-drilling, self-tapping steel screws spaced max 12 in. OC. Steel screws, to be fitted with 1/2 in. diam steel washers.

*** 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 2021-05-12

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2021 UL LLC"