UL Product iQ™

BXUV.D904 - 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. D904

March 04, 2019

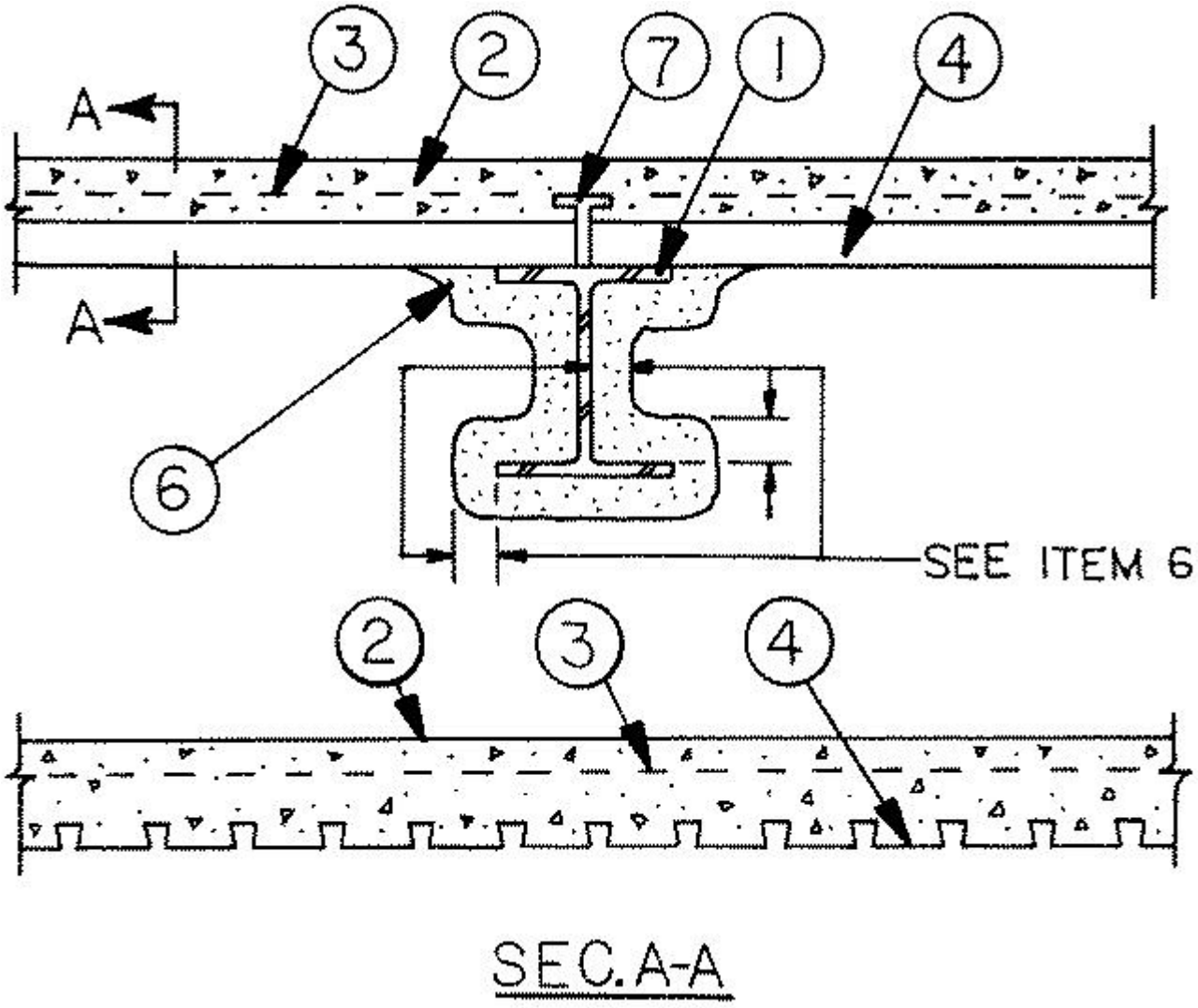
Restrained Assembly Ratings — 1, 1-1/2, 2 and 3 Hr. (See Items 2, 4A, 4B and 6)

Unrestrained Assembly Rating — 3/4, 1 and 1-1/2 Hr. (See Item 4 and 4A)

Unrestrained Beam Rating — 1, 1-1/2 Hr. (See Item 6)

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.**



SEC. A-A

1. **Beam —** W10x29 or W8x28, min size. (See Item 6).

2. **Normal Weight, Light Weight or Semi Light Weight —** Normal weight concrete, carbonate or siliceous aggregate, 147 pcf unit weight, 3500 psi compressive strength. Light weight concrete, expanded shale, clay or slate aggregate by rotary-kiln method or expanded clay or flyash aggregate by sintered-grate method, 112 pcf unit weight, 4000 psi compressive strength. Semi light weight concrete, consisting of light weight aggregate as described above and carbonate or siliceous normal weight aggregate, 130 pcf, 3500 psi compressive strength. Concrete thickness measured from the top of the crest of the deck.

Restrained Assembly Rating (Hr)	Concrete (Type)	1.5 in. deep Deck Concrete Thickness (in.)	2.0 in. deep Deck Concrete Thickness (in.)
1 (see item 4A)	NW	N/A	2 (see item 4A)
1 (see item 4B)	NW or LW	N/A	2 (see item 4B)
1-1/2	NW	3-1/4	2-3/4
2	NW	3-3/4	3-1/4
2	SLW	3-1/2	3
2	LW	3	2-1/2
3	NW	5-1/4	4-3/4
3	LW	3-3/4	3-1/4
3	SLW	4-1/2	4

3. **Welded Wire Fabric —** 6x6 — 6/6 SWG.

4. **Steel Floor and Form Units*; —** Composite. All 1-1/2 or 2 in. deep, 17, 18 or 24 in. wide, 22 MSG min galv fluted units. Welded to supports 12 in. O.C. max. Adjacent units button-punched or welded together 36 in. O.C. at joints. For 2 in. deep units with clear spans not more than 10 ft, the Unrestrained Assembly Rating is 1-1/2 hr.
CANAM STEEL CORP — Type Canam Reveal Series RS2.0C

CHIA TEH CONSTRUCTION MATERIAL CO LTD — Types ALK, ALN, Versa I, Versa II, and Versa III.

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 in. wide, Type Versa-Dek.

EPIC METALS CORP — Type Epicore, and Bondek.

HARD DECK ENTERPRISES CO LTD — 36 in. wide Types HD-2W, HD-3W, HD-4W-620-51H, Type HD-4W-555-65H.

MARLYN STEEL DECKS INC — Type Marcore.

VERCO DECKING INC - A NUCOR CO — Type 2.0D FORMLOK

VULCRAFT, DIV OF NUCOR CORP — Type 2.0D FORMLOK

4A. **Steel Floor and Form Units* —** Composite, 2 in. deep only, 17, 18 or 24 in. wide, 22 MSG min galv fluted units. Welded to supports 12 in. OC max. Adjacent units button-punched or welded together 36 in. OC at joints. For clear spans not more than 10 ft, the Unrestrained Assembly rating is 1 hour.
EPIC METALS CORP — Type Epicore

4B. **Steel Floor and Form Units —** Composite, 2 in. deep only, 17, 18 or 24 in. wide, 22 MSG min galv fluted units. Welded to supports 12 in. O.C. max. Adjacent units button-punched or welded together 36 in. O.C. at joints. For clear spans not more than 10 ft, the Unrestrained Assembly Rating is 1 hour.
VERCO DECKING INC - A NUCOR CO — Type 2.0D FORMLOK

VULCRAFT, DIV OF NUCOR CORP — Type 2.0D FORMLOK

5. **Joint Cover —** Optional — (Not shown) — 2 in. wide cloth adhesive tape applied following the contour of the steel form units or around the end of each open flute.

6. **Spray-Applied Fire Resistive Materials* —** Applied by mixing with water and spraying in more than one coat to steel beam surfaces which are clean and free of dirt, loose scale, and oil. 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. The Spray-Applied Fire Resistive Materials shall be applied to the floor units a min of 2 in. beyond each side of the beam's top flange at the beam thickness. Crest areas above the beam need not be filled with Spray-Applied Fire Resistive Materials.
The min thicknesses of Spray-Applied Fire Resistive Materials required for various fire resistance ratings are shown in the table below:

Restrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Min Beam Size	Min Thkns on Beam In.
1, 1-1/2, 2, 3	1-1/2	W10x29	3/4
1, 1-1/2, 2	1	W10x29	9/16
1, 1-1/2, 2, 3	1-1/2	W8x28	3/4

1, 1-1/2, 2	1	W8x28	1/2

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

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

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

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

In lieu of Item 6, **Spray-Applied Fire Resistive Materials*** — (Not shown)

6A. **Spray-Applied Fire Resistive Materials* —** Applied by mixing with water and spraying in more than one coat to steel beam 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. The Spray-Applied Fire Resistive Materials shall be applied to the floor units a min of 2 in. beyond each side of the beam's top flange at the beam thickness. Crest areas above the beam need not be filled with Spray-Applied Fire Resistive Materials.
The min thicknesses of Spray-Applied Fire Resistive Materials required for various fire resistance ratings are shown in the table below:

Restrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Min Beam Size	Min Thkns on Beam In.
1, 1-1/2, 2, 3	1-1/2	W10x29	3/4
1, 1-1/2, 2	1	W10x29	9/16
1, 1-1/2, 2, 3	1-1/2	W8x28	3/4
1, 1-1/2, 2	1	W8x28	1/2

BERLIN CO LTD — Type 400.

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

ISOLATEK INTERNATIONAL — Type 300TW or 400.

NEWKEM PRODUCTS CORP — Type 400.

In lieu of Item 6 and 6A, **Spray-Applied Fire Resistive Materials*** — (Not shown)

6B. Applied by spraying with water in one coat, to a final untamped thickness as shown above to steel beam surface which is free of dirt, oil, and scale. Use of adhesive is optional. Steel beam surfaces shall be wetted with water before sprayed-fiber application. The material shall be sprayed to the floor units a min of 2 in. beyond the beam's top flange at the beam thickness. Crest areas above the beam need not be filled with fiber. After completion of application, all surfaces of the material shall be given a light spray of water. Min avg untamped density, 13 pcf, with min ind untamped density, 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.

Restrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Min Beam Size	Min Thkns on Beam In.
1, 1-1/2, 2, 3	1-1/2	W10x29	3/4
1, 1-1/2, 2	1	W10x29	9/16
1, 1-1/2, 2, 3	1-1/2	W8x28	3/4
1, 1-1/2, 2	1	W8x28	1/2

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

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

* 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 2019-03-04