



BYBU.XR704 - FIRE-RESISTANCE RATINGS - ANSI/UL 1709

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.

BYBU - Fire-resistance Ratings - ANSI/UL 1709

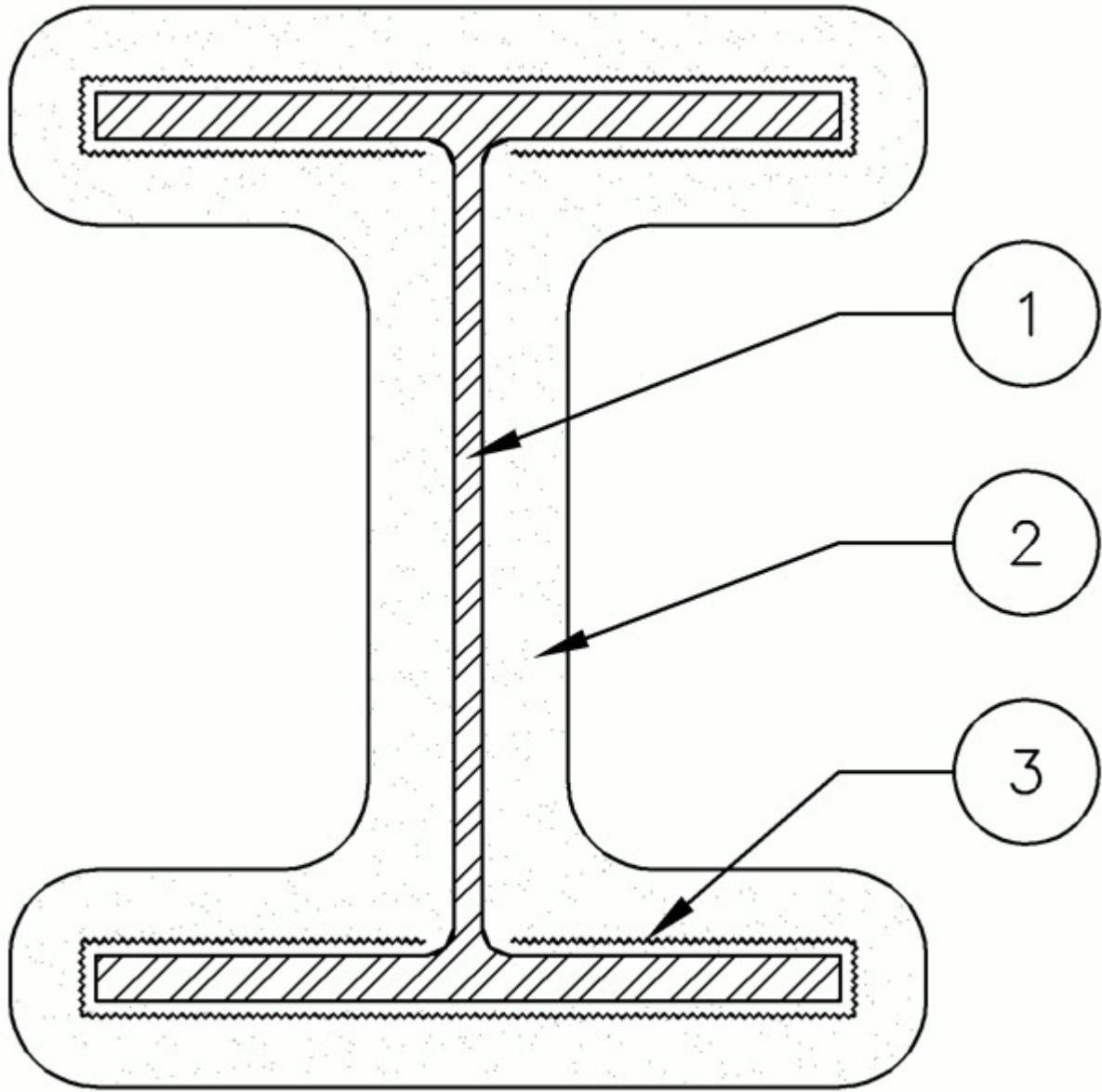
See General Information for Fire-resistance Ratings - ANSI/UL 1709

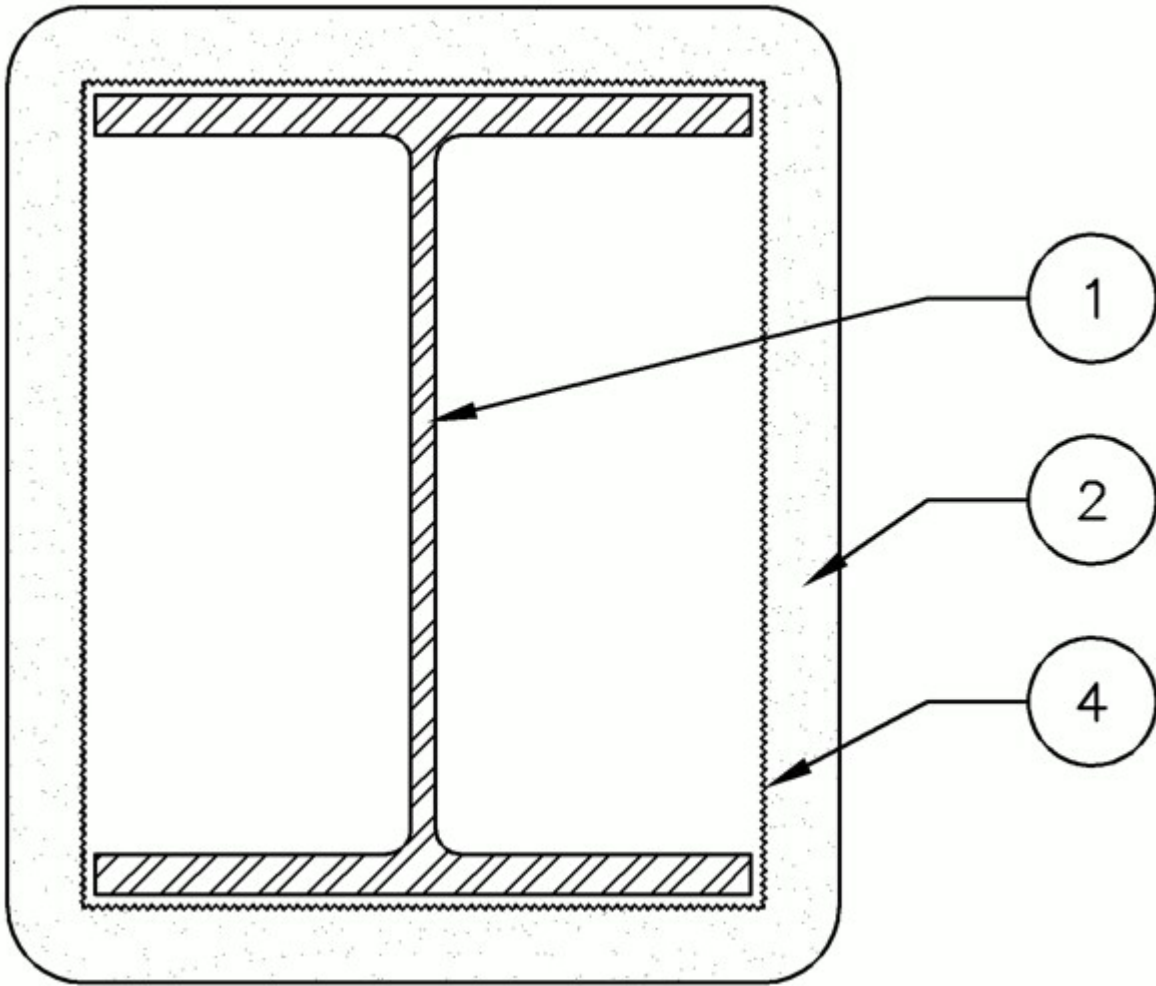
Design No. XR704

November 30, 2018

Ratings — 3/4, 1, 1-1/2, 2, 2-1/2, 3 or 4 Hr

*** 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 Column** — Min size of column W10x49.

2. **Spray-Applied Fire Resistive Materials*** — See table below for appropriate thickness. Prepared by mixing with water according to instructions on each bag of mixture and spraying in one or more coats, as necessary, directly to the column or onto the metal lath surfaces, which must be clean and free of dirt, loose scale and oil. As an alternate to spraying, Type M-II/P may be machine mixed and trowel applied. Min avg density of 44 pcf, with min ind. value of 40 pcf for Type M-II. Min avg density of 47 pcf, with min ind. value of 43 pcf for Type M-II/P. Min avg density of 44 pcf, with min ind value of 42 pcf for Type TG. For method of density determination, see Design Information Section, Sprayed Material.

Rating, Hr	Min Thickness, In.(mm) Contour Application	Min Thickness, In. (mm) Boxed Protection
3/4	11/16 (17.5)	11/16 (17.5)
1	13/16 (20.7)	13/16 (20.7)
1-1/2	1-1/16 (27.0)	15/16 (23.9)
2	1-5/16 (33.4)	15/16 (23.9)
2-1/2	1-9/16 (39.7)	1-3/16 (30.2)
3	1-13/16 (46.0)	1-7/16 (36.6)
4	2-5/16 (58.8)	2-1/4 (57.2)

BERLIN CO LTD — Type M-II or Type TG, investigated for exterior use, and additionally evaluated for acid and solvent spray exposure.

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Type M-II, M-II/P or TG. Type M-II, M-II/P or TG investigated for exterior use, and additionally evaluated for acid and solvent spray exposure.

ISOLATEK INTERNATIONAL — Type M-II, M-II/P or Type TG investigated for exterior use, and additionally evaluated for acid and solvent spray exposure.

NEWKEM PRODUCTS CORP — Type M-II, M-II/P or Type TG, investigated for exterior use, and additionally evaluated for acid and solvent spray exposure.

PERLITE ITALIANA SRL — Type M-II or M-II/P, investigated for exterior use, and additionally evaluated for acid and solvent spray exposure.

The thicknesses of Spray-Applied Fire Resistive Materials shown below are applicable when the protection of the column flange edges is reduced to one-half.

Min Required Thickness (inch) for Hourly Rating Period (min)

Column Size	45	60	90	120	150	180	240
W10x49	3/4	7/8	1-3/16	1-1/2	1-13/16	2-1/8	2-11/16

Min Required Thickness (mm) for Hourly Rating Period (min)

Column Size	45	60	90	120	150	180	240
W10x49	19.1	22.3	30.2	38.1	46.1	54	68.3

3. **Reinforced Mesh** — Galv steel wire, No. 20 SWG, twisted to form 1 or 2 in. hexagons. Embedded in Spray-Applied Fire Resistive Materials prior to application of final coat. Wrapped around the column flanges.

3A. **Metal Lath (Not Shown)** — In lieu of the reinforced mesh, galv. expanded steel lath, weighing 3.4 lb per sq yd may be used. Lath secured tight to column by gunned or stud welding pins 16 in on-center along the lath edges. Metal lath shall reach around the flange a minimum 1-1/2" toward web of column.

4. **Metal Lath** — For boxed type protection. Min 3.4 lb per sq yd expanded steel. Lath lapped 2 in. at vertical joint on column flange and tied together with No. 18 SWG galv steel wire, spaced vertically 14 in. OC.

4A. **Corner Bead** — (Optional - Not Shown) — No. 25 MSG galv expanded steel corner bead with minimum 2-in legs. May be used in conjunction with column cage. When used, placed over each corner of column cage and attached to metal lath with tie wire spaced 18 in. O.C.

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Last Updated on 2018-11-30

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