

# BXUV.X768 - 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

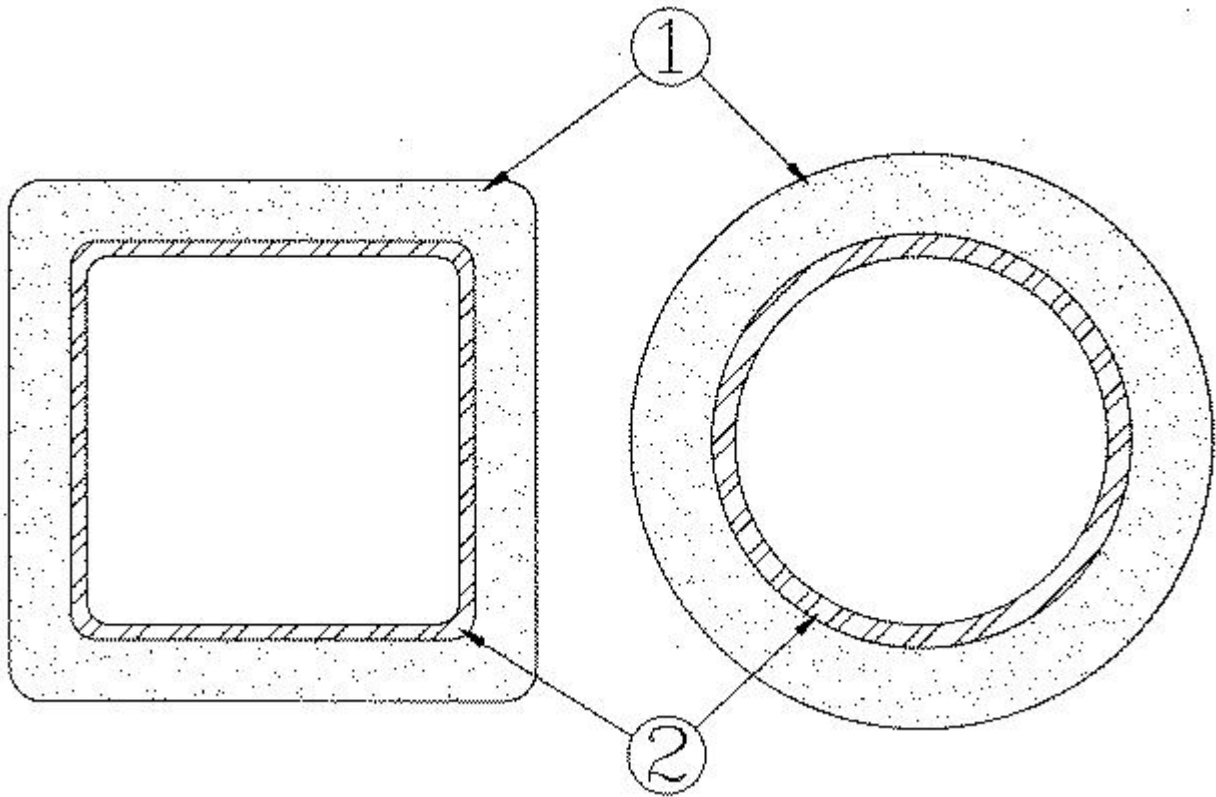
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada  
Design Criteria and Allowable Variances

### Design No. X768

October 26, 2017

### Ratings — 1, 1-1/2, 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. **Spray-Applied Resistive Material\*** — See tables below for appropriate thicknesses. Prepared by mixing with water and spray or trowel applied in one or more coats to column surfaces which must be clean and free of dirt, loose scale and oil. For method of density determination, see Design Information Section, Sprayed Material. 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 individual 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.

Column Size In.	Min Thkns In.					
	A/P	1 Hr	1-1/2 Hr	2 Hr	3 Hr	4 Hr
ST 4X4X3/16 IN.	0.18	15/16	1-1/4	1-9/16	2-1/8	2-11/16
ST 4X4X5/16 IN.	0.29	11/16	1	1-5/16	1-15/16	2-5/16
ST 4X4X3/8 IN.	0.34	5/8	13/16	1-3/16	1-3/4	2-3/8
ST 4X4X1/2 IN.	0.44	1/2	3/4	1-1/16	1-9/16	2-1/8
ST 8X8X5/8 IN.	0.58	1/2	5/8	13/16	1-1/4	1-11/16
ST 20X20X3/4 IN.	0.72	1/2	1/2	11/16	1	1-3/8
ST 20X20X1 IN.	0.95	1/2	1/2	9/16	7/8	1-1/8
ST 20X20X1-1/2 IN.	1.39	1/2	1/2	1/2	5/8	7/8
ST 20X20X1-3/4 IN.	1.60	1/2	1/2	1/2	9/16	3/4
ST 32X32X1-1/4 IN.	1.20	1/2	1/2	1/2	11/16	15/16
ST 36X24X1/2 IN.	0.49	1/2	11/16	7/8	1-5/16	1-11/16
SP 4 IN. PIPE X 0.237 IN.	0.23	7/8	1-3/16	1-1/2	2-1/8	2-13/16
SP 6 IN. PIPE X 0.432 IN.	0.40	9/16	13/16	1-1/8	1-5/8	2-13/16

As an alternate to the above table, the thicknesses of Spray-Applied Fire Resistive Materials for rating periods of 1, 1 1/2, 2, 3, and 4 h can be determined from the following equation:

R

$$h = \frac{R}{125(A/P) + 35}$$

$$125(A/P) + 35$$

**BERLIN CO LTD** — Types M-II or TG. Types M-II and TG investigated for exterior use.

**GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C** — Types M-II, M-II/P or TG. Types M-II, M-II/P and TG investigated for exterior use.

**ISOLATEK INTERNATIONAL** — Types M-II, M-II/P or TG investigated for exterior use.

**NEWKEM PRODUCTS CORP** — Types M-II or TG. Types M-II and TG investigated for exterior use.

2. **Steel Column** — Steel pipe (SP) or tube (ST) column as shown in the above tables.

Where:

h = Type M-II or TG Spray-Applied Fire Resistive Materials thickness in the range of 9/16 to 3 5/16 in. (rounded up to the nearest 1/16 in.).

R = Fire resistance rating in minutes (60-240 min).

A = Cross-sectional area of pipe or tube.

P = Heated perimeter of steel pipe or tube.

A/P = 0.179 to 0.44.

The A/P ratio of a circular pipe is determined by:

$$A/P \text{ pipe} = \frac{t(d - t)}{d}$$

Where:

d is the outer diameter of the pipe (in.)

t is the wall thickness of the pipe (in.)

The A/P ratio of a rectangular tube is determined by:

$$A/P \text{ tube} = \frac{t(a + b - 2t)}{a + b}$$

Where:

a is the outer width of the tube (in.)

b is the outer length of the tube (in.)

t is the wall thickness of the tube (in.)

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