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

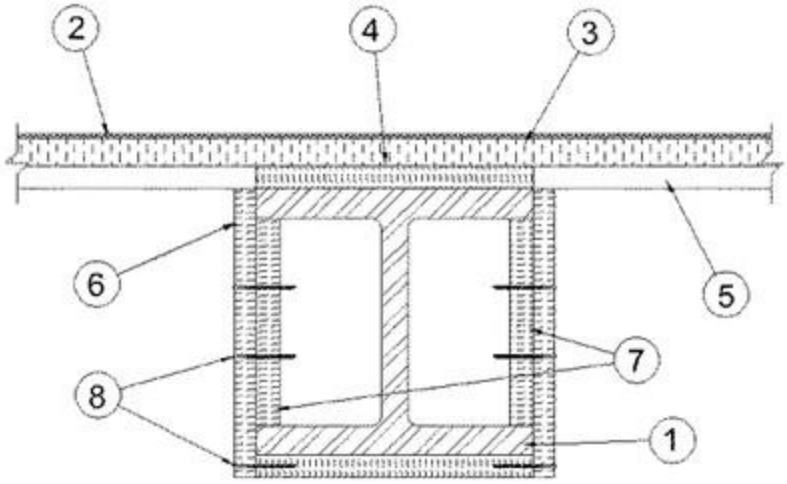
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **S302**

April 3, 2026

Restrained Beam Ratings — 1 & 1-1/2 Hr (See Item 6)
Unrestrained Beam Ratings — 1 & 1-1/2 Hr (See Item 6)
Loading Determined by Allowable Stress Design Method or Load and Resistance Factor Design Method published by the American Institute of Steel Construction, or in accordance with the relevant Limit State Design provisions of Part 4 of the National Building Code of Canada — 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.**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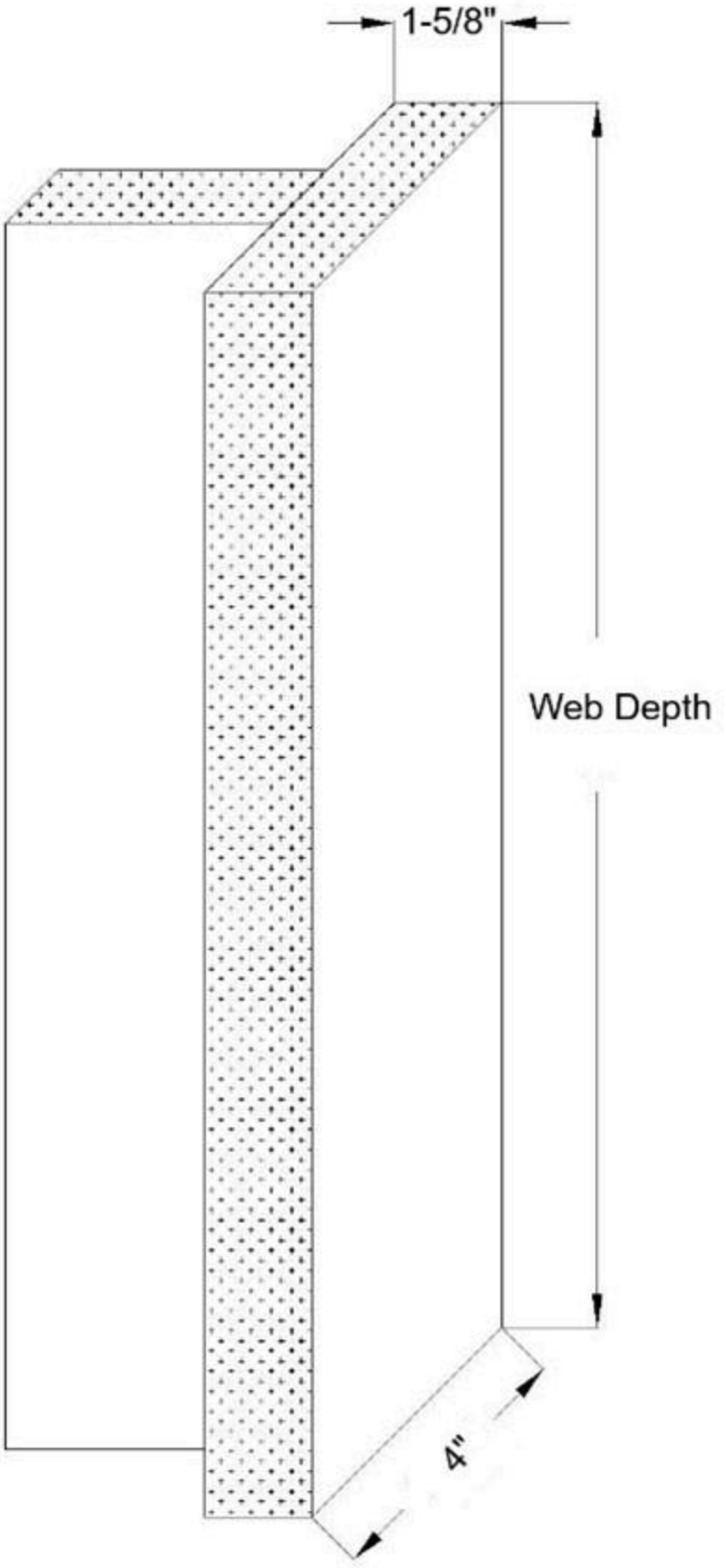

Figure 1: Tee noggings for beam webs deeper than 18”

1. **Steel Beam —** W6x16 or W8x28 minimum size. Maximum allowable yield stress of 50 ksi. Use box configuration shape factor to determine equivalent or larger sizes.

2. **Roof Covering* —**Consisting of hot mopped, cold application or single-ply materials, compatible with insulation(s) described herein which provide Class A, B, or C coverings. See Roofing Materials and Systems Directory-Roof Covering Materials (TEVT).

3. **Roof Insulation* —**Consisting of building units, foamed plastic or mineral and fiber boards, applied in one or more layers. When multiple layers are used, end and side joints shall be offset a min of 12 in. in both directions in order to lap all joints. See category for names of companies providing Classified products — Building Units (BZXX), Foamed Plastic (CCVW) or Mineral and Fiber Boards (CERZ). Roof insulation shall be compatible with roof covering materials Class A, B or C system. See Roofing Materials and Systems Directory-Roof Covering Materials (TEVT)

4. **Adhesive —**(Optional) — May be applied to steel roof deck units or between insulation layers at a max application rate of 0.4 gal/100 sq ft. See Adhesives (BYWR) category for names of manufacturers.

5. **Steel Roof Deck* —** (Unclassified) **—** Fluted, No. 22 MSG, galv 1-1/2 in. deep with 3-1/2 in. wide flutes spaced 6 in. OC. Ends overlapped at supports a min of 1-1/2 in. and welded to supports, 12 in. OC, max. Adjacent units button punched, welded or screwed together along side joints.

6. **Mineral and Fiber Boards* —** Boards cut in various widths to be compatible with the size of beam being protected. Boards placed parallel with the flange of the beams are cut the width of the flange. Boards placed parallel with the web of the beams are cut the width of the beam (web side) plus the board thickness. The voids created by the flutes above the beam and board protection are to be completely filled with mineral wool batts or Forming Materials (XHKU) having a nominal density of 6 lb per cu ft. or greater. Alternately the Mineral and Fiber Boards (Item 6) may be used.

Restrained Beam		Minimum Thickness for Rating (Hours)	
Minimum Size	**Boxed W/D**	**1-Hour**	**1-1/2 Hour**
W8×21	0.96	1 in (25 mm)	2-3/8 in (60 mm)
W6×16	0.96	1 in (25 mm)	2-3/8 in (60 mm)
W12×30	0.97	1 in (25 mm)	2-3/8 in (60 mm)
W14×34	0.98	1 in (25 mm)	2-3/8 in (60 mm)
W10×26	0.99	1 in (25 mm)	2-3/8 in (60 mm)
W24×55	1.01	1 in (25 mm)	2-3/8 in (60 mm)
W16×40	1.03	1 in (25 mm)	2-3/8 in (60 mm)
W21×50	1.04	1 in (25 mm)	2-3/8 in (60 mm)
W4×13	1.05	1 in (25 mm)	2-3/8 in (60 mm)
W5×16	1.07	1 in (25 mm)	2-3/8 in (60 mm)
W8×24	1.07	1 in (25 mm)	2-3/8 in (60 mm)

W14×38	1.09	1 in (25 mm)	2-3/8 in (60 mm)
W18×46	1.09	1 in (25 mm)	2-3/8 in (60 mm)
W6×20	1.09	1 in (25 mm)	2-3/8 in (60 mm)
W12×35	1.11	1 in (25 mm)	2-3/8 in (60 mm)
W10×30	1.12	1 in (25 mm)	2-3/8 in (60 mm)
W24×62	1.14	1 in (25 mm)	2-3/8 in (60 mm)
W16×45	1.15	1 in (25 mm)	2-3/8 in (60 mm)
W18×50	1.15	1 in (25 mm)	2-3/8 in (60 mm)
W21×57	1.17	1 in (25 mm)	2-3/8 in (60 mm)
W10×33	1.20	1 in (25 mm)	2-3/8 in (60 mm)
W14×43	1.21	1 in (25 mm)	2-3/8 in (60 mm)
W24×68	1.21	1 in (25 mm)	2-3/8 in (60 mm)
W8×28	1.23	1 in (25 mm)	1-5/8 in (40 mm)
W21×62	1.24	1 in (25 mm)	1-5/8 in (40 mm)
W5×19	1.24	1 in (25 mm)	1-5/8 in (40 mm)
W12×40	1.26	1 in (25 mm)	1-5/8 in (40 mm)
W16×50	1.26	1 in (25 mm)	1-5/8 in (40 mm)
W18×55	1.26	1 in (25 mm)	1-5/8 in (40 mm)
W8×31	1.29	1 in (25 mm)	1-5/8 in (40 mm)
W27×84	1.32	1 in (25 mm)	1-5/8 in (40 mm)
W6×25	1.33	1 in (25 mm)	1-5/8 in (40 mm)
W24×76	1.34	1 in (25 mm)	1-5/8 in (40 mm)
W14×48	1.35	1 in (25 mm)	1-5/8 in (40 mm)
W21×68	1.35	1 in (25 mm)	1-5/8 in (40 mm)
W18×60	1.36	1 in (25 mm)	1-5/8 in (40 mm)
W12×45	1.39	1 in (25 mm)	1-5/8 in (40 mm)
W10×39	1.40	1 in (25 mm)	1-5/8 in (40 mm)

W30×99	1.42	1 in (25 mm)	1-5/8 in (40 mm)
W16×57	1.43	1 in (25 mm)	1-5/8 in (40 mm)
W21×73	1.44	1 in (25 mm)	1-5/8 in (40 mm)
W8×35	1.44	1 in (25 mm)	1-5/8 in (40 mm)
W18×65	1.46	1 in (25 mm)	1-5/8 in (40 mm)
W24×84	1.47	1 in (25 mm)	1-5/8 in (40 mm)
W27×94	1.47	1 in (25 mm)	1-5/8 in (40 mm)
W14×53	1.48	1 in (25 mm)	1-5/8 in (40 mm)
W33×118	1.53	1 in (25 mm)	1-5/8 in (40 mm)
W12×50	1.54	1 in (25 mm)	1-5/8 in (40 mm)
W30×108	1.54	1 in (25 mm)	1-5/8 in (40 mm)
W12×53	1.55	1 in (25 mm)	1-5/8 in (40 mm)
W16×67	1.57	1 in (25 mm)	1-5/8 in (40 mm)
W18×71	1.59	1 in (25 mm)	1-5/8 in (40 mm)
W27×102	1.59	1 in (25 mm)	1-5/8 in (40 mm)
W10×45	1.60	1 in (25 mm)	1-5/8 in (40 mm)
W18×76	1.60	1 in (25 mm)	1-5/8 in (40 mm)
W14×61	1.61	1 in (25 mm)	1-5/8 in (40 mm)
W21×83	1.62	1 in (25 mm)	1-5/8 in (40 mm)
W36×135	1.62	1 in (25 mm)	1-5/8 in (40 mm)
W10×49	1.63	1 in (25 mm)	1-5/8 in (40 mm)
W24×94	1.63	1 in (25 mm)	1-5/8 in (40 mm)
W8×40	1.63	1 in (25 mm)	1-5/8 in (40 mm)
W30×116	1.65	1 in (25 mm)	1-5/8 in (40 mm)
W33×130	1.67	1 in (25 mm)	1-5/8 in (40 mm)
W12×58	1.69	1 in (25 mm)	1-5/8 in (40 mm)
W24×104	1.70	1 in (25 mm)	1-5/8 in (40 mm)

W30×124	1.75	1 in (25 mm)	1-5/8 in (40 mm)
W27×114	1.76	1 in (25 mm)	1-5/8 in (40 mm)
W16×77	1.78	1 in (25 mm)	1-5/8 in (40 mm)
W24×103	1.78	1 in (25 mm)	1-5/8 in (40 mm)
W10×54	1.79	1 in (25 mm)	1-5/8 in (40 mm)
W14×68	1.79	1 in (25 mm)	1-5/8 in (40 mm)
W36×150	1.79	1 in (25 mm)	1-5/8 in (40 mm)
W12×65	1.80	1 in (25 mm)	1-5/8 in (40 mm)
W18×86	1.80	1 in (25 mm)	1-5/8 in (40 mm)
W21×93	1.80	1 in (25 mm)	1-5/8 in (40 mm)
W33×141	1.81	1 in (25 mm)	1-5/8 in (40 mm)
W21×101	1.83	1 in (25 mm)	1-5/8 in (40 mm)
W30×132	1.86	1 in (25 mm)	1-5/8 in (40 mm)
W36×160	1.90	1 in (25 mm)	1-5/8 in (40 mm)
W24×117	1.91	1 in (25 mm)	1-5/8 in (40 mm)
W8×48	1.91	1 in (25 mm)	1-5/8 in (40 mm)
W14×74	1.92	1 in (25 mm)	1-5/8 in (40 mm)
W33×152	1.93	1 in (25 mm)	1-5/8 in (40 mm)
W10×60	1.97	1 in (25 mm)	1-5/8 in (40 mm)
W12×72	1.97	1 in (25 mm)	1-5/8 in (40 mm)
W18×97	2.01	1 in (25 mm)	1-5/8 in (40 mm)
W21×111	2.01	1 in (25 mm)	1-5/8 in (40 mm)
W36×170	2.01	1 in (25 mm)	1-5/8 in (40 mm)
W16×89	2.02	1 in (25 mm)	1-5/8 in (40 mm)
W14×82	2.12	1 in (25 mm)	1-5/8 in (40 mm)
W14×90	2.12	1 in (25 mm)	1-5/8 in (40 mm)
W24×131	2.12	1 in (25 mm)	1-5/8 in (40 mm)

W27×146	2.12	1 in (25 mm)	1-5/8 in (40 mm)
W12×79	2.14	1 in (25 mm)	1-5/8 in (40 mm)
W36×182	2.15	1 in (25 mm)	1-5/8 in (40 mm)
W18×106	2.18	1 in (25 mm)	1-5/8 in (40 mm)
W21×122	2.19	1 in (25 mm)	1-5/8 in (40 mm)
W10×68	2.20	1 in (25 mm)	1-5/8 in (40 mm)
W16×100	2.25	1 in (25 mm)	1-5/8 in (40 mm)
W8×58	2.26	1 in (25 mm)	1-5/8 in (40 mm)
W30×173	2.28	1 in (25 mm)	1-5/8 in (40 mm)
W36×194	2.28	1 in (25 mm)	1-5/8 in (40 mm)
W40×215	2.29	1 in (25 mm)	1-5/8 in (40 mm)
W14×99	2.30	1 in (25 mm)	1-5/8 in (40 mm)
W27×161	2.33	1 in (25 mm)	1-5/8 in (40 mm)
W24×146	2.34	1 in (25 mm)	1-5/8 in (40 mm)
W12×87	2.35	1 in (25 mm)	1-5/8 in (40 mm)
W21×132	2.36	1 in (25 mm)	1-5/8 in (40 mm)
W18×119	2.41	1 in (25 mm)	1-5/8 in (40 mm)
W33×201	2.42	1 in (25 mm)	1-5/8 in (40 mm)
W10×77	2.45	1 in (25 mm)	1-5/8 in (40 mm)
W36×210	2.45	1 in (25 mm)	1-5/8 in (40 mm)
W30×191	2.50	1 in (25 mm)	1-5/8 in (40 mm)
W14×109	2.52	1 in (25 mm)	1-5/8 in (40 mm)
W12×96	2.55	1 in (25 mm)	1-5/8 in (40 mm)
W27×178	2.55	1 in (25 mm)	1-5/8 in (40 mm)
W8×67	2.55	1 in (25 mm)	1-5/8 in (40 mm)
W24×162	2.57	1 in (25 mm)	1-5/8 in (40 mm)
W21×147	2.59	1 in (25 mm)	1-5/8 in (40 mm)

W36×230	2.60	1 in (25 mm)	1-5/8 in (40 mm)
W33×221	2.64	1 in (25 mm)	1-5/8 in (40 mm)
W30×211	2.74	1 in (25 mm)	1-5/8 in (40 mm)
W14×120	2.75	1 in (25 mm)	1-5/8 in (40 mm)
W10×88	2.76	1 in (25 mm)	1-5/8 in (40 mm)
W36×245	2.76	1 in (25 mm)	1-5/8 in (40 mm)
W12×106	2.79	1 in (25 mm)	1-5/8 in (40 mm)
W33×241	2.86	1 in (25 mm)	1-5/8 in (40 mm)
W36×260	2.91	1 in (25 mm)	1-5/8 in (40 mm)
W14×132	2.99	1 in (25 mm)	1-5/8 in (40 mm)
W10×100	3.08	1 in (25 mm)	1-5/8 in (40 mm)
W12×120	3.12	1 in (25 mm)	1-5/8 in (40 mm)
W36×280	3.13	1 in (25 mm)	1-5/8 in (40 mm)
W14×145	3.22	1 in (25 mm)	1-5/8 in (40 mm)
W36×300	3.33	1 in (25 mm)	1-5/8 in (40 mm)
W10×112	3.37	1 in (25 mm)	1-5/8 in (40 mm)
W12×136	3.47	1 in (25 mm)	1-5/8 in (40 mm)
W14×159	3.49	1 in (25 mm)	1-5/8 in (40 mm)
W12×152	3.81	1 in (25 mm)	1-5/8 in (40 mm)
W14×176	3.82	1 in (25 mm)	1-5/8 in (40 mm)
W14×193	4.13	1 in (25 mm)	1-5/8 in (40 mm)
W12×170	4.19	1 in (25 mm)	1-5/8 in (40 mm)
W14×211	4.47	1 in (25 mm)	1-5/8 in (40 mm)
W12×190	4.58	1 in (25 mm)	1-5/8 in (40 mm)
W14×233	4.86	1 in (25 mm)	1-5/8 in (40 mm)
W12×210	4.98	1 in (25 mm)	1-5/8 in (40 mm)
W14×257	5.27	1 in (25 mm)	1-5/8 in (40 mm)

W12×230	5.34	1 in (25 mm)	1-5/8 in (40 mm)
W14×283	5.72	1 in (25 mm)	1-5/8 in (40 mm)
W12×252	5.75	1 in (25 mm)	1-5/8 in (40 mm)
W14×311	6.17	1 in (25 mm)	1-5/8 in (40 mm)
W12×279	6.21	1 in (25 mm)	1-5/8 in (40 mm)
W14×342	6.65	1 in (25 mm)	1-5/8 in (40 mm)
W12×305	6.66	1 in (25 mm)	1-5/8 in (40 mm)
W14×370	7.07	1 in (25 mm)	1-5/8 in (40 mm)
W12×336	7.15	1 in (25 mm)	1-5/8 in (40 mm)
W14×398	7.48	1 in (25 mm)	1-5/8 in (40 mm)
W14×426	7.87	1 in (25 mm)	1-5/8 in (40 mm)
W14×455	8.30	1 in (25 mm)	1-5/8 in (40 mm)
W14×500	8.90	1 in (25 mm)	1-5/8 in (40 mm)
W14×550	9.55	1 in (25 mm)	1-5/8 in (40 mm)
W14×605	10.20	1 in (25 mm)	1-5/8 in (40 mm)
W14×665	10.90	1 in (25 mm)	1-5/8 in (40 mm)
W14×730	11.60	1 in (25 mm)	1-5/8 in (40 mm)

Unrestrained Beam		**Minimum Thickness for Rating (Hours)**	
Minimum Size	**Boxed W/D**	**1-Hour**	**1-1/2 Hour**
W8×21	0.96	1 in (25 mm)	2-3/4 in (70 mm)
W6×16	0.96	1 in (25 mm)	2-3/4 in (70 mm)
W12×30	0.97	1 in (25 mm)	2-3/4 in (70 mm)
W14×34	0.98	1 in (25 mm)	2-3/4 in (70 mm)
W10×26	0.99	1 in (25 mm)	2-3/4 in (70 mm)
W24×55	1.01	1 in (25 mm)	2-3/4 in (70 mm)
W16×40	1.03	1 in (25 mm)	2-3/4 in (70 mm)

W21×50	1.04	1 in (25 mm)	2-3/4 in (70 mm)
W4×13	1.05	1 in (25 mm)	2-3/4 in (70 mm)
W5×16	1.07	1 in (25 mm)	2-3/4 in (70 mm)
W8×24	1.07	1 in (25 mm)	2-3/4 in (70 mm)
W14×38	1.09	1 in (25 mm)	2-3/4 in (70 mm)
W18×46	1.09	1 in (25 mm)	2-3/4 in (70 mm)
W6×20	1.09	1 in (25 mm)	2-3/4 in (70 mm)
W12×35	1.11	1 in (25 mm)	2-3/4 in (70 mm)
W10×30	1.12	1 in (25 mm)	2-3/4 in (70 mm)
W24×62	1.14	1 in (25 mm)	2-3/4 in (70 mm)
W16×45	1.15	1 in (25 mm)	2-3/4 in (70 mm)
W18×50	1.15	1 in (25 mm)	2-3/4 in (70 mm)
W21×57	1.17	1 in (25 mm)	2-3/4 in (70 mm)
W10×33	1.20	1 in (25 mm)	2-3/4 in (70 mm)
W14×43	1.21	1 in (25 mm)	2-3/4 in (70 mm)
W24×68	1.21	1 in (25 mm)	2-3/4 in (70 mm)
W8×28	1.23	1 in (25 mm)	2 in (50 mm)
W21×62	1.24	1 in (25 mm)	2 in (50 mm)
W5×19	1.24	1 in (25 mm)	2 in (50 mm)
W12×40	1.26	1 in (25 mm)	2 in (50 mm)
W16×50	1.26	1 in (25 mm)	2 in (50 mm)
W18×55	1.26	1 in (25 mm)	2 in (50 mm)
W8×31	1.29	1 in (25 mm)	2 in (50 mm)
W27×84	1.32	1 in (25 mm)	2 in (50 mm)
W6×25	1.33	1 in (25 mm)	2 in (50 mm)
W24×76	1.34	1 in (25 mm)	2 in (50 mm)
W14×48	1.35	1 in (25 mm)	2 in (50 mm)

W21×68	1.35	1 in (25 mm)	2 in (50 mm)
W18×60	1.36	1 in (25 mm)	2 in (50 mm)
W12×45	1.39	1 in (25 mm)	2 in (50 mm)
W10×39	1.40	1 in (25 mm)	2 in (50 mm)
W30×99	1.42	1 in (25 mm)	2 in (50 mm)
W16×57	1.43	1 in (25 mm)	2 in (50 mm)
W21×73	1.44	1 in (25 mm)	2 in (50 mm)
W8×35	1.44	1 in (25 mm)	2 in (50 mm)
W18×65	1.46	1 in (25 mm)	2 in (50 mm)
W24×84	1.47	1 in (25 mm)	2 in (50 mm)
W27×94	1.47	1 in (25 mm)	2 in (50 mm)
W14×53	1.48	1 in (25 mm)	2 in (50 mm)
W33×118	1.53	1 in (25 mm)	2 in (50 mm)
W12×50	1.54	1 in (25 mm)	2 in (50 mm)
W30×108	1.54	1 in (25 mm)	2 in (50 mm)
W12×53	1.55	1 in (25 mm)	2 in (50 mm)
W16×67	1.57	1 in (25 mm)	2 in (50 mm)
W18×71	1.59	1 in (25 mm)	2 in (50 mm)
W27×102	1.59	1 in (25 mm)	2 in (50 mm)
W10×45	1.60	1 in (25 mm)	2 in (50 mm)
W18×76	1.60	1 in (25 mm)	2 in (50 mm)
W14×61	1.61	1 in (25 mm)	2 in (50 mm)
W21×83	1.62	1 in (25 mm)	2 in (50 mm)
W36×135	1.62	1 in (25 mm)	2 in (50 mm)
W10×49	1.63	1 in (25 mm)	2 in (50 mm)
W24×94	1.63	1 in (25 mm)	2 in (50 mm)
W8×40	1.63	1 in (25 mm)	2 in (50 mm)

W30×116	1.65	1 in (25 mm)	2 in (50 mm)
W33×130	1.67	1 in (25 mm)	2 in (50 mm)
W12×58	1.69	1 in (25 mm)	2 in (50 mm)
W24×104	1.70	1 in (25 mm)	2 in (50 mm)
W30×124	1.75	1 in (25 mm)	2 in (50 mm)
W27×114	1.76	1 in (25 mm)	2 in (50 mm)
W16×77	1.78	1 in (25 mm)	2 in (50 mm)
W24×103	1.78	1 in (25 mm)	2 in (50 mm)
W10×54	1.79	1 in (25 mm)	2 in (50 mm)
W14×68	1.79	1 in (25 mm)	2 in (50 mm)
W36×150	1.79	1 in (25 mm)	2 in (50 mm)
W12×65	1.80	1 in (25 mm)	2 in (50 mm)
W18×86	1.80	1 in (25 mm)	2 in (50 mm)
W21×93	1.80	1 in (25 mm)	2 in (50 mm)
W33×141	1.81	1 in (25 mm)	2 in (50 mm)
W21×101	1.83	1 in (25 mm)	2 in (50 mm)
W30×132	1.86	1 in (25 mm)	2 in (50 mm)
W36×160	1.90	1 in (25 mm)	2 in (50 mm)
W24×117	1.91	1 in (25 mm)	2 in (50 mm)
W8×48	1.91	1 in (25 mm)	2 in (50 mm)
W14×74	1.92	1 in (25 mm)	2 in (50 mm)
W33×152	1.93	1 in (25 mm)	2 in (50 mm)
W10×60	1.97	1 in (25 mm)	2 in (50 mm)
W12×72	1.97	1 in (25 mm)	2 in (50 mm)
W18×97	2.01	1 in (25 mm)	2 in (50 mm)
W21×111	2.01	1 in (25 mm)	2 in (50 mm)
W36×170	2.01	1 in (25 mm)	2 in (50 mm)

W16×89	2.02	1 in (25 mm)	2 in (50 mm)
W14×82	2.12	1 in (25 mm)	2 in (50 mm)
W14×90	2.12	1 in (25 mm)	2 in (50 mm)
W24×131	2.12	1 in (25 mm)	2 in (50 mm)
W27×146	2.12	1 in (25 mm)	2 in (50 mm)
W12×79	2.14	1 in (25 mm)	2 in (50 mm)
W36×182	2.15	1 in (25 mm)	2 in (50 mm)
W18×106	2.18	1 in (25 mm)	2 in (50 mm)
W21×122	2.19	1 in (25 mm)	2 in (50 mm)
W10×68	2.20	1 in (25 mm)	2 in (50 mm)
W16×100	2.25	1 in (25 mm)	2 in (50 mm)
W8×58	2.26	1 in (25 mm)	2 in (50 mm)
W30×173	2.28	1 in (25 mm)	2 in (50 mm)
W36×194	2.28	1 in (25 mm)	2 in (50 mm)
W40×215	2.29	1 in (25 mm)	2 in (50 mm)
W14×99	2.30	1 in (25 mm)	2 in (50 mm)
W27×161	2.33	1 in (25 mm)	2 in (50 mm)
W24×146	2.34	1 in (25 mm)	2 in (50 mm)
W12×87	2.35	1 in (25 mm)	2 in (50 mm)
W21×132	2.36	1 in (25 mm)	2 in (50 mm)
W18×119	2.41	1 in (25 mm)	2 in (50 mm)
W33×201	2.42	1 in (25 mm)	2 in (50 mm)
W10×77	2.45	1 in (25 mm)	2 in (50 mm)
W36×210	2.45	1 in (25 mm)	2 in (50 mm)
W30×191	2.50	1 in (25 mm)	2 in (50 mm)
W14×109	2.52	1 in (25 mm)	2 in (50 mm)
W12×96	2.55	1 in (25 mm)	2 in (50 mm)

W27×178	2.55	1 in (25 mm)	2 in (50 mm)
W8×67	2.55	1 in (25 mm)	2 in (50 mm)
W24×162	2.57	1 in (25 mm)	2 in (50 mm)
W21×147	2.59	1 in (25 mm)	2 in (50 mm)
W36×230	2.60	1 in (25 mm)	2 in (50 mm)
W33×221	2.64	1 in (25 mm)	2 in (50 mm)
W30×211	2.74	1 in (25 mm)	2 in (50 mm)
W14×120	2.75	1 in (25 mm)	2 in (50 mm)
W10×88	2.76	1 in (25 mm)	2 in (50 mm)
W36×245	2.76	1 in (25 mm)	2 in (50 mm)
W12×106	2.79	1 in (25 mm)	2 in (50 mm)
W33×241	2.86	1 in (25 mm)	2 in (50 mm)
W36×260	2.91	1 in (25 mm)	2 in (50 mm)
W14×132	2.99	1 in (25 mm)	2 in (50 mm)
W10×100	3.08	1 in (25 mm)	2 in (50 mm)
W12×120	3.12	1 in (25 mm)	2 in (50 mm)
W36×280	3.13	1 in (25 mm)	2 in (50 mm)
W14×145	3.22	1 in (25 mm)	2 in (50 mm)
W36×300	3.33	1 in (25 mm)	2 in (50 mm)
W10×112	3.37	1 in (25 mm)	2 in (50 mm)
W12×136	3.47	1 in (25 mm)	2 in (50 mm)
W14×159	3.49	1 in (25 mm)	2 in (50 mm)
W12×152	3.81	1 in (25 mm)	2 in (50 mm)
W14×176	3.82	1 in (25 mm)	2 in (50 mm)
W14×193	4.13	1 in (25 mm)	2 in (50 mm)
W12×170	4.19	1 in (25 mm)	2 in (50 mm)
W14×211	4.47	1 in (25 mm)	2 in (50 mm)

W12×190	4.58	1 in (25 mm)	2 in (50 mm)
W14×233	4.86	1 in (25 mm)	2 in (50 mm)
W12×210	4.98	1 in (25 mm)	2 in (50 mm)
W14×257	5.27	1 in (25 mm)	2 in (50 mm)
W12×230	5.34	1 in (25 mm)	2 in (50 mm)
W14×283	5.72	1 in (25 mm)	2 in (50 mm)
W12×252	5.75	1 in (25 mm)	2 in (50 mm)
W14×311	6.17	1 in (25 mm)	2 in (50 mm)
W12×279	6.21	1 in (25 mm)	2 in (50 mm)
W14×342	6.65	1 in (25 mm)	2 in (50 mm)
W12×305	6.66	1 in (25 mm)	2 in (50 mm)
W14×370	7.07	1 in (25 mm)	2 in (50 mm)
W12×336	7.15	1 in (25 mm)	2 in (50 mm)
W14×398	7.48	1 in (25 mm)	2 in (50 mm)
W14×426	7.87	1 in (25 mm)	2 in (50 mm)
W14×455	8.30	1 in (25 mm)	2 in (50 mm)
W14×500	8.90	1 in (25 mm)	2 in (50 mm)
W14×550	9.55	1 in (25 mm)	2 in (50 mm)
W14×605	10.20	1 in (25 mm)	2 in (50 mm)
W14×665	10.90	1 in (25 mm)	2 in (50 mm)
W14×730	11.60	1 in (25 mm)	2 in (50 mm)

GCP APPLIED TECHNOLOGIES INC — Type MONOKOTE® FIREPROTECT™

7. **Noggings —** Min 1-5/8 in (40 mm) thick pieces of board (Item 6). Length is cut to friction fit between beam flanges. Width of noggings is min. 4 in (100 mm). Noggings to be placed at end of beam and at center of vertical butted joints of adjacent mineral and fiber board sections (Item 6). Noggings spaced at a maximum of 24 in (610 mm) OC. For beams with webs deeper than 18 inches (457 mm), use tee-shaped noggings as shown in Figure 1. The back of the noggings shall be a minimum of 1-5/8 in (40 mm) thick and extend back to the web or a minimum depth of 4 in (100 mm).

8. **Fasteners —** Spiral-screw like fixings, with a 0.75 in (19 mm) diameter head, 0.3 in (7.6 mm) diameter shaft and fabricated from a 0.06 in (1.5 mm) diameter wire, made in a variety of lengths.

For Web Board attachment to Noggings (Item 7): The web boards are fastened to the noggings with a min of 2 fasteners on each side of the joint and at intermediate noggings. Fasteners located nominal 1 in (25 mm) from inside of flanges and no more than 6 in (150 mm) OC. Fasteners to be located nominal 1 in (25 mm) from board ends. Fastener length shall penetrate completely through the noggings.

For Web Board attachment to Bottom Flange Boards (Item 6): The web boards secured to the bottom flange boards using fasteners spaced a max of 6 in (150 mm) OC. The fasteners are installed nominal 1 in (25 mm) from board ends and at mid-thickness of the bottom flange boards. Fastener length is a minimum of twice the board thickness, with a minimum length of 2-3/8 in (60 mm). For beams with flanges wider than 12 inches (300 mm), bottom flange boards require additional support in the form of welded 1/8" dia. steel pins used with 1-1/2" dia. non-return washers along the centerline of the flange surface, spaced at a maximum 2 ft. OC.

When tee noggings are required: The face nogging shall be secured to the back nogging with minimum 3-1/8 in (80 mm) long fasteners, spaced 6 in (150 mm) OC.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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