



BXUV.X660

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

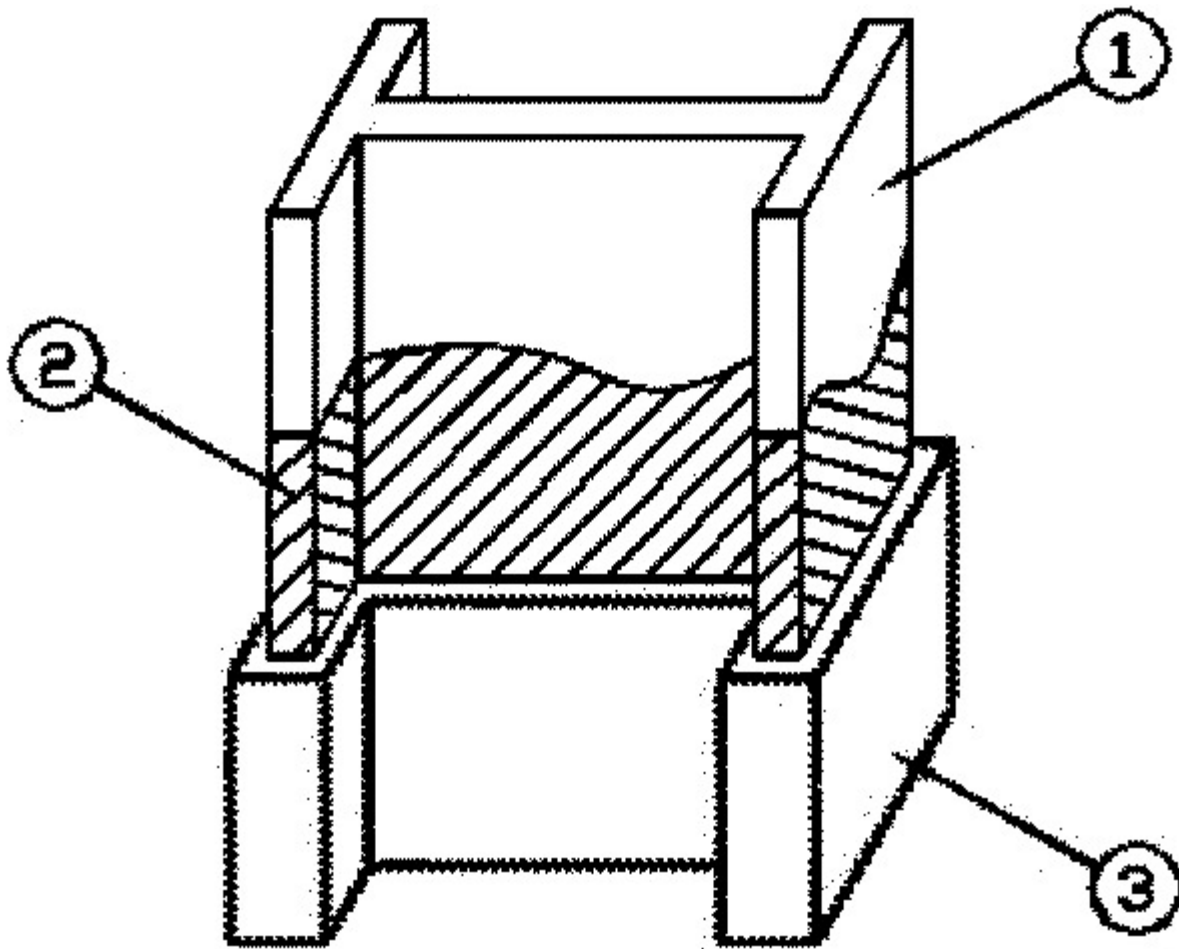
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. X660

December 13, 2013

Ratings - 1, 1-1/2, 2, 2-1/2 and 3 Hr. (See Item 3)

*** 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** — Wide flange steel columns with the minimum sizes shown in the tables below. Columns shall be free of dirt, loose scale and oil.

2. **Primer Coating** — Two Component Epoxy or Phenolic Modified Alkyd applied at 0.002 in. dry film thickness.

3. **Mastic & Intumescent Coating*** — Coating spray or brush applied in accordance with the manufacturer's instructions at the minimum average dry thickness shown in the table below. The thickness in the table shown below does not include primer thickness.

Size	W/D	Hp/A	1 hr	1.5 hr in.	2 hr in.	3 hr in.
W8x24	0.59	227	0.063	0.137	0.248	NR
W10x26	0.61	220	0.061	0.135	0.244	NR
W14x34	0.63	213	0.060	0.133	0.240	NR
W10x33	0.66	203	0.057	0.129	0.234	NR
W8x31	0.66	203	0.057	0.129	0.234	NR
W21x44	0.67	200	0.056	0.128	0.232	NR
W16x40	0.68	197	0.055	0.127	0.230	NR
W18x40	0.68	197	0.055	0.127	0.230	NR
W8x28	0.68	197	0.055	0.127	0.230	NR
W6x25	0.69	194	0.055	0.126	0.228	NR

W10x30	0.70	191	0.054	0.125	0.227	NR
W12x35	0.70	191	0.054	0.125	0.227	NR
W14x38	0.70	191	0.054	0.125	0.227	NR
W12x40	0.74	181	0.050	0.122	0.220	NR
W8x35	0.74	181	0.050	0.122	0.220	NR
W14x43	0.75	179	0.050	0.121	0.218	NR
W24x55	0.75	179	0.050	0.121	0.218	NR
W16x45	0.76	176	0.049	0.120	0.217	NR
W21x50	0.76	176	0.049	0.120	0.217	NR
W18x50	0.77	174	0.048	0.119	0.215	NR
W10x39	0.78	172	0.047	0.118	0.213	NR
W18x46	0.78	172	0.047	0.118	0.213	NR
W12x45	0.82	163	0.044	0.115	0.207	NR
W14x48	0.83	161	0.043	0.114	0.206	NR
W24x68	0.83	161	0.043	0.114	0.206	NR
W10x49	0.84	160	0.042	0.113	0.204	0.387
W16x50	0.84	160	0.042	0.113	0.204	0.387
W24x62	0.84	160	0.042	0.113	0.204	0.387
W8x40	0.84	160	0.042	0.113	0.204	0.387
W12x53	0.85	158	0.042	0.112	0.203	0.384
W18x55	0.85	158	0.042	0.112	0.203	0.384
W21x57	0.85	158	0.042	0.112	0.203	0.384
W21x62	0.85	158	0.042	0.112	0.203	0.384
W10x45	0.89	151	0.042	0.109	0.197	0.374
W12x50	0.91	147	0.041	0.108	0.195	0.369
W14x53	0.91	147	0.041	0.108	0.195	0.369
W10x54	0.92	146	0.041	0.107	0.194	0.367
W12x65	0.92	146	0.041	0.107	0.194	0.367
W14x61	0.92	146	0.041	0.107	0.194	0.367
W18x60	0.92	146	0.041	0.107	0.194	0.367

W21x68	0.92	146	0.041	0.107	0.194	0.367
W27x84	0.92	146	0.041	0.107	0.194	0.367
W12x58	0.93	144	0.041	0.106	0.192	0.364
W16x67	0.93	144	0.041	0.106	0.192	0.364
W24x76	0.93	144	0.041	0.106	0.192	0.364
W16x57	0.95	141	0.041	0.105	0.190	0.359
W18x76	0.96	140	0.041	0.104	0.189	0.357
W18x65	0.99	135	0.041	0.102	0.185	0.350
W21x73	0.99	135	0.041	0.102	0.185	0.350
W30x99	1.00	134	0.041	0.102	0.184	0.348
W8x48	1.00	134	0.041	0.102	0.184	0.348
W10x60	1.02	131	0.040	0.100	0.182	0.344
W12x72	1.02	131	0.040	0.100	0.182	0.344
W24x84	1.02	131	0.040	0.100	0.182	0.344
W27x94	1.02	131	0.040	0.100	0.182	0.344
W14x68	1.03	130	0.040	0.100	0.180	0.342
W16x77	1.06	126	0.040	0.098	0.177	0.335
W14x90	1.07	125	0.040	0.097	0.176	0.333
W24x104	1.07	125	0.040	0.097	0.176	0.333
W18x71	1.08	124	0.040	0.097	0.175	0.331
W18x86	1.08	124	0.040	0.097	0.175	0.331
W33x118	1.08	124	0.040	0.097	0.175	0.331
W30x108	1.09	123	0.040	0.096	0.174	0.329
W12x79	1.11	121	0.040	0.095	0.172	0.326
W14x74	1.11	121	0.040	0.095	0.172	0.326
W27x102	1.11	121	0.040	0.095	0.172	0.326
W21x101	1.12	120	0.040	0.095	0.171	0.324
W21x83	1.12	120	0.040	0.095	0.171	0.324
W24x94	1.13	119	0.039	0.094	0.170	0.322
W10x68	1.14	118	0.039	0.093	0.169	0.320

W30x116	1.16	116	0.039	0.092	0.167	0.316
W36x135	1.16	116	0.039	0.092	0.167	0.316
W14x99	1.17	115	0.039	0.092	0.166	0.314
W33x130	1.18	114	0.039	0.091	0.165	0.313
W8x58	1.19	113	0.039	0.091	0.164	0.311
W24x117	1.20	112	0.039	0.090	0.163	0.309
W18x97	1.21	111	0.039	0.090	0.162	0.307
W12x87	1.22	110	0.039	0.089	0.161	0.306
W14x82	1.22	110	0.039	0.089	0.161	0.306
W16x89	1.22	110	0.039	0.089	0.161	0.306
W21x111	1.23	109	0.039	0.089	0.161	0.304
W27x114	1.23	109	0.039	0.089	0.161	0.304
W21x93	1.24	108	0.038	0.088	0.160	0.302
W30x124	1.24	108	0.038	0.088	0.160	0.302
W10x77	1.28	105	0.038	0.086	0.156	0.296
W14x109	1.28	105	0.038	0.086	0.156	0.296
W33x141	1.28	105	0.038	0.086	0.156	0.296
W36x150	1.28	105	0.038	0.086	0.156	0.296
W30x132	1.31	102	0.038	0.085	0.154	0.291
W18x106	1.32	102	0.038	0.085	0.153	0.290
W24x131	1.33	101	0.038	0.084	0.152	0.288
W12x96	1.34	100	0.038	0.084	0.151	0.287
W21x122	1.34	100	0.038	0.084	0.151	0.287
W27x146	1.35	99	0.038	0.083	0.151	0.285
W16x100	1.36	99	0.037	0.083	0.150	0.284
W36x160	1.36	99	0.037	0.083	0.150	0.284
W8x67	1.36	99	0.037	0.083	0.150	0.284
W33x152	1.37	98	0.037	0.082	0.149	0.282
W14x120	1.40	96	0.037	0.081	0.147	0.278
W36x170	1.44	93	0.037	0.080	0.144	0.273

W10x88	1.45	92	0.037	0.079	0.143	0.271
W21x132	1.45	92	0.037	0.079	0.143	0.271
W12x106	1.46	92	0.037	0.079	0.143	0.270
W30x173	1.46	92	0.037	0.079	0.143	0.270
W18x119	1.47	91	0.036	0.078	0.142	0.269
W24x146	1.48	91	0.036	0.078	0.141	0.267
W27x161	1.48	91	0.036	0.078	0.141	0.267
W14x132	1.54	87	0.036	0.076	0.137	0.260
W36x182	1.54	87	0.036	0.076	0.137	0.260
W33x201	1.58	85	0.035	0.074	0.135	0.255
W21x147	1.60	84	0.035	0.074	0.133	0.253
W30x191	1.60	84	0.035	0.074	0.133	0.253
W10x100	1.63	82	0.035	0.073	0.132	0.249
W14x145	1.63	82	0.035	0.073	0.132	0.249
W24x162	1.63	82	0.035	0.073	0.132	0.249
W27x178	1.63	82	0.035	0.073	0.132	0.249
W36x194	1.63	82	0.035	0.073	0.132	0.249
W12x120	1.64	82	0.035	0.072	0.131	0.248
W36x230	1.71	78	0.035	0.070	0.127	0.241
W33x221	1.72	78	0.035	0.070	0.126	0.240
W30x211	1.76	76	0.035	0.069	0.124	0.235
W36x210	1.76	76	0.035	0.069	0.124	0.235
W14x159	1.77	76	0.035	0.068	0.124	0.234
W10x112	1.81	74	0.035	0.067	0.122	0.231
W36x245	1.82	74	0.035	0.067	0.121	0.230
W12x136	1.84	73	0.035	0.066	0.120	0.228
W33x241	1.88	71	0.035	0.065	0.118	0.224
W36x260	1.92	70	0.035	0.064	0.116	0.220
W14x176	1.95	69	0.035	0.064	0.115	0.218
W12x152	2.04	66	0.035	0.061	0.111	0.210

W36x280	2.06	65	0.035	0.061	0.110	0.209
W14x193	2.12	63	0.035	0.060	0.108	0.204
W36x300	2.19	61	0.035	0.058	0.105	0.199
W12x170	2.26	59	0.035	0.057	0.103	0.194
W14x211	2.30	58	0.035	0.057	0.102	0.194
W12x190	2.49	54	0.035	0.057	0.102	0.194
W14x233	2.52	53	0.035	0.057	0.102	0.194

CARBOLINE CO — TYPE THERMO-SORB, THERMO-SORB VOC. Investigated for Interior Conditioned Space and Interior General Purpose.

4. **Top Coat** — (Not Shown) - No topcoat required for Interior Conditioned Space. Finishing topcoat for Interior General Purpose, Types Carboguard 893 SG or Santile 655 applied at 0.006 in. dry film thickness or Carbocrylic 3350 or Carbocoat 30R applied at 0.003 in. dry film thickness.

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