Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating						Restrained Beam Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.56	0.91	1.40	2.24	W4x13	0.65	0.56	0.77	1.19	1.89
0.56	0.91	1.40	2.24	W5x16	0.65	0.56	0.77	1.19	1.89
0.51	0.84	1.29	2.06	W5x19	0.76	0.51	0.71	1.09	1.74
0.71	1.15	1.77	2.83	W6x9	0.39	0.71	0.97	1.50	2.39
0.63	1.02	1.58	2.52	W6x12	0.51	0.63	0.87	1.34	2.13
0.56	0.90	1.39	2.22	W6x16	0.66	0.56	0.76	1.18	1.88
0.55	0.90	1.38	2.20	W6x20	0.67	0.55	0.76	1.17	1.86
0.49	0.80	1.23	1.97	W6x26	0.82	0.49	0.68	1.05	1.66
0.72	1.17	1.80	2.89	W8x10	0.37	0.72	0.99	1.53	2.44
0.65	1.06	1.64	2.62	W8x13	0.47	0.65	0.90	1.39	2.21
0.61	1.00	1.54	2.46	W8x15	0.54	0.61	0.84	1.30	2.07
0.60	0.97	1.50	2.39	W8x18	0.57	0.60	0.82	1.27	2.02
0.56	0.90	1.39	2.22	W8x21	0.66	0.56	0.76	1.18	1.88
0.54	0.88	1.36	2.17	W8x24	0.69	0.54	0.75	1.15	1.83
0.50	0.81	1.25	2.00	W8x28	0.80	0.50	0.69	1.06	1.69
0.50	0.82	1.26	2.01	W8x31	0.79	0.50	0.69	1.07	1.70
0.47	0.77	1.18	1.89	W8x35	0.88	0.47	0.65	1.01	1.60
0.44	0.71	1.09	1.75	W8x40	1.00	0.44	0.60	0.93	1.48
0.39	0.64	0.98	1.57	W8x48	1.18	0.39	0.54	0.84	1.33
0.38	0.57	0.87	1.39	W8x58	1.41	0.38	0.48	0.74	1.18
0.38	0.51	0.79	1.27	W8x67	1.61	0.38	0.44	0.67	1.07
0.71	1.16	1.79	2.86	W10x12	0.38	0.71	0.98	1.52	2.41
0.65	1.05	1.62	2.59	W10x15	0.48	0.65	0.89	1.38	2.19
0.61	1.00	1.54	2.46	W10x17	0.54	0.61	0.84	1.30	2.07
0.59	0.96	1.47	2.35	W10x19	0.59	0.59	0.81	1.25	1.99
0.59	0.96	1.47	2.35	W10x22	0.59	0.59	0.81	1.25	1.99
0.54	0.88	1.36	2.17	W10x26	0.69	0.54	0.75	1.15	1.83
0.50	0.82	1.26	2.01	W10x30	0.79	0.50	0.69	1.07	1.70
0.51	0.83	1.28	2.04	W10x33	0.77	0.51	0.70	1.09	1.72
0.47	0.76	1.17	1.87	W10x39	0.90	0.47	0.64	0.99	1.58
0.43	0.70	1.07	1.72	W10x46	1.03	0.43	0.59	0.91	1.45
0.44	0.72	1.10	1.76	W10x49	0.99	0.44	0.61	0.94	1.49
0.41	0.67	1.04	1.66	W10x54	1.09	0.41	0.57	0.88	1.40
0.39	0.63	0.97	1.56	W10x60	1.20	0.39	0.53	0.83	1.31
0.38	0.58	0.89	1.43	W10x68	1.36	0.38	0.49	0.76	1.21
0.38	0.54	0.83	1.32	W10x77	1.52	0.38	0.45	0.70	1.11
0.38	0.49	0.75	1.21	W10x88	1.72	0.38	0.41	0.64	1.02
0.38	0.45	0.69	1.11	W10x100	1.93	0.38	0.38	0.59	0.93
0.38	0.42	0.64	1.02	W10x112	2.14	0.38	0.38	0.54	0.86
0.70	1.14	1.75	2.80	W12x14	0.40	0.70	0.96	1.49	2.36
0.67	1.08	1.67	2.67	W12x16	0.45	0.67	0.92	1.42	2.25
0.62	1.01	1.55	2.48	W12x19	0.53	0.62	0.85	1.32	2.09
0.58	0.94	1.45	2.31	W12x22	0.61	0.58	0.80	1.23	1.95
0.58	0.95	1.46	2.33	W12x26	0.60	0.58	0.80	1.24	1.97
0.54	0.88	1.36	2.17	W12x30	0.69	0.54	0.75	1.15	1.83

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating						Restrained Beam Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.50	0.82	1.26	2.01	W12x35	0.79	0.50	0.69	1.07	1.70
0.48	0.78	1.21	1.93	W12x40	0.85	0.48	0.66	1.03	1.63
0.45	0.73	1.13	1.81	W12x45	0.95	0.45	0.62	0.96	1.52
0.43	0.69	1.07	1.71	W12x50	1.04	0.43	0.59	0.91	1.44
0.44	0.72	1.10	1.76	W12x53	0.99	0.44	0.61	0.94	1.49
0.43	0.69	1.07	1.71	W12x54	1.04	0.43	0.59	0.91	1.44
0.42	0.68	1.04	1.67	W12x58	1.08	0.42	0.57	0.89	1.41
0.41	0.67	1.04	1.66	W12x65	1.09	0.41	0.57	0.88	1.40
0.39	0.63	0.97	1.56	W12x72	1.20	0.39	0.53	0.83	1.31
0.38	0.59	0.91	1.46	W12x79	1.32	0.38	0.50	0.77	1.23
0.38	0.56	0.86	1.37	W12x87	1.44	0.38	0.47	0.73	1.16
0.38	0.52	0.81	1.29	W12x96	1.57	0.38	0.44	0.69	1.09
0.38	0.49	0.75	1.20	W12x106	1.73	0.38	0.41	0.64	1.01
0.38	0.45	0.69	1.10	W12x120	1.94	0.38	0.38	0.59	0.93
0.38	0.41	0.63	1.01	W12x136	2.17	0.38	0.38	0.54	0.85
0.38	0.38	0.58	0.93	W12x152	2.40	0.38	0.38	0.50	0.79
0.38	0.38	0.54	0.86	W12x170	2.66	0.38	0.38	0.46	0.72
0.38	0.38	0.50	0.79	W12x190	2.93	0.38	0.38	0.42	0.67
0.38	0.38	0.46	0.73	W12x210	3.21	0.38	0.38	0.39	0.62
0.38	0.38	0.43	0.69	W12x230	3.47	0.38	0.38	0.38	0.58
0.38	0.38	0.40	0.64	W12x262	3.76	0.38	0.38	0.38	0.54
0.38	0.38	0.38	0.60	W12x279	4.10	0.38	0.38	0.38	0.50
0.38	0.38	0.38	0.56	W12x305	4.41	0.38	0.38	0.38	0.47
0.38	0.38	0.38	0.52	W12x336	4.78	0.38	0.38	0.38	0.44
0.63	1.02	1.56	2.50	W14x22	0.52	0.63	0.86	1.33	2.11
0.58	0.94	1.45	2.31	W14x26	0.61	0.58	0.80	1.23	1.95
0.57	0.92	1.42	2.28	W14x30	0.63	0.57	0.78	1.21	1.92
0.53	0.87	1.34	2.14	W14x34	0.71	0.53	0.73	1.14	1.80
0.50	0.82	1.26	2.01	W14x38	0.79	0.50	0.69	1.07	1.70
0.48	0.78	1.21	1.93	W14x43	0.85	0.48	0.66	1.03	1.63
0.45	0.74	1.14	1.82	W14x48	0.94	0.45	0.63	0.97	1.53
0.43	0.70	1.07	1.72	W14x53	1.03	0.43	0.59	0.91	1.45
0.42	0.68	1.05	1.68	W14x61	1.07	0.42	0.58	0.89	1.41
0.39	0.64	0.98	1.56	W14x68	1.19	0.39	0.54	0.83	1.32
0.38	0.61	0.93	1.49	W14x74	1.28	0.38	0.51	0.79	1.26
0.38	0.57	0.87	1.39	W14x82	1.41	0.38	0.48	0.74	1.18
0.38	0.61	0.94	1.50	W14x90	1.27	0.38	0.51	0.80	1.26
0.38	0.57	0.88	1.41	W14x99	1.39	0.38	0.48	0.75	1.19
0.38	0.53	0.82	1.31	W14x109	1.53	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W14x120	1.67	0.38	0.42	0.66	1.04
0.38	0.47	0.72	1.15	W14x132	1.83	0.38	0.40	0.61	0.97
0.38	0.45	0.69	1.10	W14x145	1.94	0.38	0.38	0.59	0.93
0.38	0.42	0.65	1.03	W14x159	2.11	0.38	0.38	0.55	0.87
0.38	0.40	0.61	0.98	W14x176	2.25	0.38	0.38	0.52	0.83
0.38	0.39	0.60	0.96	W14x193	2.32	0.38	0.38	0.51	0.81

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating						Restrained Beam Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.38	0.52	0.84	W14x211	2.74	0.38	0.38	0.45	0.71
0.38	0.38	0.49	0.78	W14x233	3.00	0.38	0.38	0.41	0.66
0.38	0.38	0.45	0.72	W14x257	3.27	0.38	0.38	0.38	0.61
0.38	0.38	0.42	0.67	W14x283	3.57	0.38	0.38	0.38	0.57
0.38	0.38	0.39	0.63	W14x311	3.88	0.38	0.38	0.38	0.53
0.38	0.38	0.38	0.58	W14x342	4.21	0.38	0.38	0.38	0.49
0.38	0.38	0.38	0.55	W14x370	4.51	0.38	0.38	0.38	0.46
0.38	0.38	0.38	0.52	W14x398	4.80	0.38	0.38	0.38	0.44
0.38	0.38	0.38	0.49	W14x426	5.09	0.38	0.38	0.38	0.42
0.38	0.38	0.38	0.47	W14x455	5.38	0.38	0.38	0.38	0.40
0.38	0.38	0.38	0.44	W14x500	5.82	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.41	W14x550	6.30	0.38	0.38	0.38	0.38
0.38	0.38	0.38	0.38	W14x605	6.80	0.38	0.38	0.38	0.38
0.61	0.99	1.52	2.43	W16x26	0.55	0.61	0.84	1.29	2.05
0.56	0.91	1.40	2.24	W16x31	0.65	0.56	0.77	1.19	1.89
0.54	0.88	1.36	2.17	W16x36	0.69	0.54	0.75	1.15	1.83
0.51	0.84	1.29	2.06	W16x40	0.76	0.51	0.71	1.09	1.74
0.48	0.78	1.21	1.93	W16x45	0.85	0.48	0.66	1.03	1.63
0.45	0.74	1.14	1.82	W16x50	0.94	0.45	0.63	0.97	1.53
0.42	0.68	1.05	1.68	W16x67	1.07	0.42	0.58	0.89	1.41
0.42	0.68	1.05	1.68	W16x77	1.07	0.42	0.58	0.89	1.41
0.38	0.63	0.96	1.54	W16x89	1.22	0.38	0.53	0.82	1.30
0.38	0.53	0.81	1.30	W16x100	1.56	0.38	0.45	0.69	1.09
0.56	0.90	1.39	2.22	W18x35	0.66	0.56	0.76	1.18	1.88
0.51	0.84	1.29	2.06	W18x40	0.76	0.51	0.71	1.09	1.74
0.48	0.78	1.20	1.92	W18x46	0.86	0.48	0.66	1.02	1.62
0.48	0.77	1.19	1.90	W18x50	0.87	0.48	0.65	1.01	1.61
0.45	0.73	1.13	1.81	W18x55	0.95	0.45	0.62	0.96	1.52
0.43	0.70	1.07	1.72	W18x60	1.03	0.43	0.59	0.91	1.45
0.41	0.67	1.02	1.64	W18x65	1.11	0.41	0.56	0.87	1.38
0.39	0.63	0.97	1.55	W18x71	1.21	0.39	0.53	0.82	1.31
0.41	0.67	1.02	1.64	W18x76	1.11	0.41	0.56	0.87	1.38
0.38	0.62	0.95	1.52	W18x88	1.24	0.38	0.52	0.81	1.28
0.38	0.57	0.88	1.41	W18x97	1.39	0.38	0.48	0.75	1.19
0.38	0.54	0.83	1.32	W18x106	1.52	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W18x119	1.68	0.38	0.42	0.65	1.04
0.53	0.86	1.32	2.11	W21x44	0.73	0.53	0.72	1.12	1.78
0.49	0.80	1.22	1.96	W21x50	0.83	0.49	0.67	1.04	1.65
0.46	0.74	1.14	1.83	W21x57	0.93	0.46	0.63	0.97	1.54
0.45	0.74	1.14	1.82	W21x62	0.94	0.45	0.63	0.97	1.53
0.43	0.70	1.07	1.72	W21x68	1.03	0.43	0.59	0.91	1.45
0.38	0.62	0.95	1.52	W21x83	1.24	0.38	0.52	0.81	1.28
0.38	0.57	0.88	1.41	W21x93	1.38	0.38	0.49	0.75	1.19
0.38	0.60	0.93	1.48	W21x101	1.29	0.38	0.51	0.79	1.25
0.38	0.57	0.87	1.39	W21x111	1.41	0.38	0.48	0.74	1.18

Southwest Fireproofing Type 5 GP, 5 MD, 7 GP and 7 HD

Design No. S740 - Beam-only Design for Roofs

Minimum Thickness, in., Required on Beam When Lower Flange Edge Thickness is Reduced by One-Half *

Unrestrained Beam Rating						Restrained Beam Rating**			
1 Hr	1.5 Hr	2 Hr	3 Hr	**Member**	**W/D**	1 Hr	1.5 Hr	2 Hr	3 Hr
0.38	0.53	0.82	1.31	W21x122	1.54	0.38	0.45	0.70	1.10
0.38	0.50	0.77	1.24	W21x132	1.66	0.38	0.43	0.66	1.05
0.38	0.47	0.72	1.15	W21x147	1.83	0.38	0.40	0.61	0.97
0.49	0.80	1.23	1.97	W24x55	0.82	0.49	0.68	1.05	1.66
0.46	0.75	1.15	1.84	W24x62	0.92	0.46	0.63	0.98	1.55
0.46	0.74	1.14	1.83	W24x68	0.93	0.46	0.63	0.97	1.54
0.43	0.70	1.08	1.73	W24x76	1.02	0.43	0.59	0.92	1.46
0.40	0.66	1.01	1.62	W24x84	1.13	0.40	0.56	0.86	1.37
0.38	0.61	0.94	1.51	W24x94	1.26	0.38	0.52	0.80	1.27
0.38	0.63	0.96	1.54	W24x104	1.22	0.38	0.53	0.82	1.30
0.38	0.58	0.89	1.43	W24x117	1.36	0.38	0.49	0.76	1.21
0.38	0.54	0.83	1.32	W24x131	1.52	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W24x146	1.68	0.38	0.42	0.65	1.04
0.38	0.46	0.71	1.14	W24x162	1.85	0.38	0.39	0.61	0.96
0.43	0.70	1.08	1.73	W27x84	1.02	0.43	0.59	0.92	1.46
0.40	0.66	1.01	1.62	W27x94	1.13	0.40	0.56	0.86	1.37
0.38	0.62	0.96	1.53	W27x102	1.23	0.38	0.53	0.81	1.29
0.38	0.58	0.89	1.43	W27x114	1.36	0.38	0.49	0.76	1.21
0.38	0.53	0.82	1.31	W27x146	1.53	0.38	0.45	0.70	1.11
0.38	0.50	0.77	1.23	W27x161	1.68	0.38	0.42	0.65	1.04
0.38	0.46	0.71	1.14	W27x178	1.85	0.38	0.39	0.61	0.96
0.41	0.67	1.03	1.65	W30x99	1.10	0.41	0.57	0.88	1.39
0.39	0.63	0.97	1.56	W30x108	1.20	0.39	0.53	0.83	1.31
0.38	0.61	0.93	1.49	W30x116	1.28	0.38	0.51	0.79	1.26
0.38	0.58	0.89	1.42	W30x124	1.37	0.38	0.49	0.76	1.20
0.38	0.55	0.85	1.36	W30x132	1.46	0.38	0.47	0.72	1.15
0.38	0.50	0.77	1.24	W30x173	1.66	0.38	0.43	0.66	1.05
0.38	0.47	0.72	1.16	W30x191	1.82	0.38	0.40	0.61	0.98
0.38	0.44	0.67	1.08	W30x211	2.00	0.38	0.38	0.57	0.91
0.39	0.64	0.98	1.56	W33x118	1.19	0.39	0.54	0.83	1.32
0.38	0.60	0.92	1.47	W33x130	1.31	0.38	0.50	0.78	1.24
0.38	0.57	0.87	1.39	W33x141	1.41	0.38	0.48	0.74	1.18
0.38	0.54	0.83	1.33	W33x152	1.51	0.38	0.46	0.70	1.12
0.38	0.48	0.74	1.18	W33x201	1.78	0.38	0.40	0.63	0.99

These beam protection thicknesses have been calculated for the convenience of users, in accordance with *"6. Adjustment of Thickness of Spray-applied Fire Resistive Materials for Restrained and Unrestrained* Beams", as detailed in the UL FireResistance Directory - Volume 1, 2010, page 10. While we have taken care to be as accurate as possible, we will not be held responsible for errors or omissions. If any discrepancy is found between these tables and the UL Design information, the UL Design information shall govern.

*Thickness applied to beam lower flange edges shall be a minimum of 3/8-in. (0.375-in.)

When used to adjust the material thickness for a ***Restrained* beam the use of this procedure is limited to steel sections classified as ***compact*** in accordance with the *Specification for the Design of Structural Steel Buildings* by the American Institute of Steel Construction. Refer to the UL Fire Resistance Directory.

September 22, 2010