

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

N791 - Restrained and Unrestrained Beam Ratings

D949 - Unrestrained Beam Ratings only

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

Normal Weight Concrete

Unrestrained Beam Rating					Member W/D		Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.560	0.840	1.120	1.680	2.380	W4x13	0.65	0.560	0.630	0.840	1.260	1.680
0.560	0.840	1.120	1.680	2.380	W5x16	0.65	0.560	0.630	0.840	1.260	1.680
0.515	0.772	1.029	1.544	2.188	W5x19	0.76	0.515	0.579	0.772	1.158	1.544
0.707	1.061	1.414	2.121	3.005	W6x9	0.39	0.707	0.795	1.061	1.591	2.121
0.631	0.946	1.261	1.892	2.680	W6x12	0.51	0.631	0.709	0.946	1.419	1.892
0.556	0.833	1.111	1.667	2.361	W6x16	0.66	0.556	0.625	0.833	1.250	1.667
0.551	0.827	1.102	1.654	2.343	W6x20	0.67	0.551	0.620	0.827	1.240	1.654
0.493	0.739	0.986	1.479	2.095	W6x26	0.82	0.493	0.555	0.739	1.109	1.479
0.722	1.082	1.443	2.165	3.067	W8x10	0.37	0.722	0.812	1.082	1.624	2.165
0.654	0.981	1.308	1.963	2.780	W8x13	0.47	0.654	0.736	0.981	1.472	1.963
0.614	0.921	1.228	1.842	2.610	W8x15	0.54	0.614	0.691	0.921	1.382	1.842
0.598	0.897	1.197	1.795	2.543	W8x18	0.57	0.598	0.673	0.897	1.346	1.795
0.556	0.833	1.111	1.667	2.361	W8x21	0.66	0.556	0.625	0.833	1.250	1.667
0.543	0.814	1.085	1.628	2.306	W8x24	0.69	0.543	0.610	0.814	1.221	1.628
0.500	0.750	1.000	1.500	2.125	W8x28	0.80	0.500	0.563	0.750	1.125	1.500
0.504	0.755	1.007	1.511	2.140	W8x31	0.79	0.504	0.567	0.755	1.133	1.511
0.473	0.709	0.946	1.419	2.010	W8x35	0.88	0.473	0.532	0.709	1.064	1.419
0.438	0.656	0.875	1.313	1.859	W8x40	1.00	0.438	0.492	0.656	0.984	1.313
0.393	0.590	0.787	1.180	1.671	W8x48	1.18	0.393	0.442	0.590	0.885	1.180
0.375	0.522	0.697	1.045	1.480	W8x58	1.41	0.375	0.392	0.522	0.784	1.045
0.375	0.475	0.633	0.950	1.346	W8x67	1.61	0.375	0.375	0.475	0.713	0.950
0.714	1.071	1.429	2.143	3.036	W10x12	0.38	0.714	0.804	1.071	1.607	2.143
0.648	0.972	1.296	1.944	2.755	W10x15	0.48	0.648	0.729	0.972	1.458	1.944
0.614	0.921	1.228	1.842	2.610	W10x17	0.54	0.614	0.691	0.921	1.382	1.842
0.588	0.882	1.176	1.765	2.500	W10x19	0.59	0.588	0.662	0.882	1.324	1.765
0.588	0.882	1.176	1.765	2.500	W10x22	0.59	0.588	0.662	0.882	1.324	1.765
0.543	0.814	1.085	1.628	2.306	W10x26	0.69	0.543	0.610	0.814	1.221	1.628
0.504	0.755	1.007	1.511	2.140	W10x30	0.79	0.504	0.567	0.755	1.133	1.511
0.511	0.766	1.022	1.533	2.172	W10x33	0.77	0.511	0.575	0.766	1.150	1.533
0.467	0.700	0.933	1.400	1.983	W10x39	0.90	0.467	0.525	0.700	1.050	1.400
0.429	0.644	0.859	1.288	1.825	W10x46	1.03	0.429	0.483	0.644	0.966	1.288
0.440	0.660	0.881	1.321	1.871	W10x49	0.99	0.440	0.495	0.660	0.991	1.321
0.414	0.621	0.828	1.243	1.760	W10x54	1.09	0.414	0.466	0.621	0.932	1.243
0.389	0.583	0.778	1.167	1.653	W10x60	1.20	0.389	0.438	0.583	0.875	1.167
0.375	0.536	0.714	1.071	1.518	W10x68	1.36	0.375	0.402	0.536	0.804	1.071
0.375	0.495	0.660	0.991	1.403	W10x77	1.52	0.375	0.375	0.495	0.743	0.991
0.375	0.453	0.603	0.905	1.282	W10x88	1.72	0.375	0.375	0.453	0.679	0.905
0.375	0.415	0.553	0.830	1.176	W10x100	1.93	0.375	0.375	0.415	0.623	0.830
0.375	0.383	0.511	0.766	1.086	W10x112	2.14	0.375	0.375	0.383	0.575	0.766
0.700	1.050	1.400	2.100	2.975	W12x14	0.40	0.700	0.788	1.050	1.575	2.100
0.667	1.000	1.333	2.000	2.833	W12x16	0.45	0.667	0.750	1.000	1.500	2.000
0.619	0.929	1.239	1.858	2.633	W12x19	0.53	0.619	0.697	0.929	1.394	1.858
0.579	0.868	1.157	1.736	2.459	W12x22	0.61	0.579	0.651	0.868	1.302	1.736
0.583	0.875	1.167	1.750	2.479	W12x26	0.60	0.583	0.656	0.875	1.313	1.750
0.543	0.814	1.085	1.628	2.306	W12x30	0.69	0.543	0.610	0.814	1.221	1.628

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

Normal Weight Concrete

Unrestrained Beam Rating					Restrained Beam Rating*						
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.504	0.755	1.007	1.511	2.140	W12x35	0.79	0.504	0.567	0.755	1.133	1.511
0.483	0.724	0.966	1.448	2.052	W12x40	0.85	0.483	0.543	0.724	1.086	1.448
0.452	0.677	0.903	1.355	1.919	W12x45	0.95	0.452	0.508	0.677	1.016	1.355
0.427	0.640	0.854	1.280	1.814	W12x50	1.04	0.427	0.480	0.640	0.960	1.280
0.440	0.660	0.881	1.321	1.871	W12x53	0.99	0.440	0.495	0.660	0.991	1.321
0.427	0.640	0.854	1.280	1.814	W12x54	1.04	0.427	0.480	0.640	0.960	1.280
0.417	0.625	0.833	1.250	1.771	W12x58	1.08	0.417	0.469	0.625	0.938	1.250
0.414	0.621	0.828	1.243	1.760	W12x65	1.09	0.414	0.466	0.621	0.932	1.243
0.389	0.583	0.778	1.167	1.653	W12x72	1.20	0.389	0.438	0.583	0.875	1.167
0.375	0.547	0.729	1.094	1.549	W12x79	1.32	0.375	0.410	0.547	0.820	1.094
0.375	0.515	0.686	1.029	1.458	W12x87	1.44	0.375	0.386	0.515	0.772	1.029
0.375	0.484	0.645	0.968	1.371	W12x96	1.57	0.375	0.375	0.484	0.726	0.968
0.375	0.451	0.601	0.901	1.277	W12x106	1.73	0.375	0.375	0.451	0.676	0.901
0.375	0.413	0.551	0.827	1.171	W12x120	1.94	0.375	0.375	0.413	0.620	0.827
0.375	0.379	0.505	0.758	1.074	W12x136	2.17	0.375	0.375	0.379	0.569	0.758
0.375	0.375	0.467	0.700	0.992	W12x152	2.40	0.375	0.375	0.375	0.525	0.700
0.375	0.375	0.429	0.644	0.913	W12x170	2.66	0.375	0.375	0.375	0.483	0.644
0.375	0.375	0.397	0.595	0.843	W12x190	2.93	0.375	0.375	0.375	0.446	0.595
0.375	0.375	0.375	0.551	0.781	W12x210	3.21	0.375	0.375	0.375	0.413	0.551
0.375	0.375	0.375	0.516	0.731	W12x230	3.47	0.375	0.375	0.375	0.387	0.516
0.375	0.375	0.375	0.482	0.682	W12x262	3.76	0.375	0.375	0.375	0.375	0.482
0.375	0.375	0.375	0.447	0.633	W12x279	4.10	0.375	0.375	0.375	0.375	0.447
0.375	0.375	0.375	0.419	0.594	W12x305	4.41	0.375	0.375	0.375	0.375	0.419
0.375	0.375	0.375	0.390	0.553	W12x336	4.78	0.375	0.375	0.375	0.375	0.390
0.625	0.938	1.250	1.875	2.656	W14x22	0.52	0.625	0.703	0.938	1.406	1.875
0.579	0.868	1.157	1.736	2.459	W14x26	0.61	0.579	0.651	0.868	1.302	1.736
0.569	0.854	1.138	1.707	2.419	W14x30	0.63	0.569	0.640	0.854	1.280	1.707
0.534	0.802	1.069	1.603	2.271	W14x34	0.71	0.534	0.601	0.802	1.202	1.603
0.504	0.755	1.007	1.511	2.140	W14x38	0.79	0.504	0.567	0.755	1.133	1.511
0.483	0.724	0.966	1.448	2.052	W14x43	0.85	0.483	0.543	0.724	1.086	1.448
0.455	0.682	0.909	1.364	1.932	W14x48	0.94	0.455	0.511	0.682	1.023	1.364
0.429	0.644	0.859	1.288	1.825	W14x53	1.03	0.429	0.483	0.644	0.966	1.288
0.419	0.629	0.838	1.257	1.781	W14x61	1.07	0.419	0.472	0.629	0.943	1.257
0.391	0.587	0.782	1.173	1.662	W14x68	1.19	0.391	0.440	0.587	0.880	1.173
0.375	0.559	0.745	1.117	1.582	W14x74	1.28	0.375	0.419	0.559	0.838	1.117
0.375	0.522	0.697	1.045	1.480	W14x82	1.41	0.375	0.392	0.522	0.784	1.045
0.375	0.561	0.749	1.123	1.591	W14x90	1.27	0.375	0.421	0.561	0.842	1.123
0.375	0.528	0.704	1.055	1.495	W14x99	1.39	0.375	0.396	0.528	0.791	1.055
0.375	0.493	0.657	0.986	1.397	W14x109	1.53	0.375	0.375	0.493	0.739	0.986
0.375	0.463	0.617	0.925	1.311	W14x120	1.67	0.375	0.375	0.463	0.694	0.925
0.375	0.432	0.576	0.864	1.224	W14x132	1.83	0.375	0.375	0.432	0.648	0.864
0.375	0.413	0.551	0.827	1.171	W14x145	1.94	0.375	0.375	0.413	0.620	0.827
0.375	0.387	0.517	0.775	1.098	W14x159	2.11	0.375	0.375	0.387	0.581	0.775
0.375	0.375	0.491	0.737	1.044	W14x176	2.25	0.375	0.375	0.375	0.553	0.737
0.375	0.375	0.479	0.719	1.019	W14x193	2.32	0.375	0.375	0.375	0.539	0.719

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

Normal Weight Concrete

Unrestrained Beam Rating					Restrained Beam Rating*						
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr	Member	W/D	1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.375	0.375	0.419	0.629	0.891	W14x211	2.74	0.375	0.375	0.375	0.472	0.629
0.375	0.375	0.389	0.583	0.826	W14x233	3.00	0.375	0.375	0.375	0.438	0.583
0.375	0.375	0.375	0.543	0.769	W14x257	3.27	0.375	0.375	0.375	0.407	0.543
0.375	0.375	0.375	0.504	0.713	W14x283	3.57	0.375	0.375	0.375	0.378	0.504
0.375	0.375	0.375	0.469	0.664	W14x311	3.88	0.375	0.375	0.375	0.375	0.469
0.375	0.375	0.375	0.437	0.619	W14x342	4.21	0.375	0.375	0.375	0.375	0.437
0.375	0.375	0.375	0.411	0.582	W14x370	4.51	0.375	0.375	0.375	0.375	0.411
0.375	0.375	0.375	0.389	0.551	W14x398	4.80	0.375	0.375	0.375	0.375	0.389
0.375	0.375	0.375	0.375	0.523	W14x426	5.09	0.375	0.375	0.375	0.375	0.375
0.375	0.375	0.375	0.375	0.497	W14x455	5.38	0.375	0.375	0.375	0.375	0.375
0.375	0.375	0.375	0.375	0.463	W14x500	5.82	0.375	0.375	0.375	0.375	0.375
0.375	0.375	0.375	0.375	0.431	W14x550	6.30	0.375	0.375	0.375	0.375	0.375
0.375	0.375	0.375	0.375	0.402	W14x605	6.80	0.375	0.375	0.375	0.375	0.375
0.609	0.913	1.217	1.826	2.587	W16x26	0.55	0.609	0.685	0.913	1.370	1.826
0.560	0.840	1.120	1.680	2.380	W16x31	0.65	0.560	0.630	0.840	1.260	1.680
0.543	0.814	1.085	1.628	2.306	W16x36	0.69	0.543	0.610	0.814	1.221	1.628
0.515	0.772	1.029	1.544	2.188	W16x40	0.76	0.515	0.579	0.772	1.158	1.544
0.483	0.724	0.966	1.448	2.052	W16x45	0.85	0.483	0.543	0.724	1.086	1.448
0.455	0.682	0.909	1.364	1.932	W16x50	0.94	0.455	0.511	0.682	1.023	1.364
0.419	0.629	0.838	1.257	1.781	W16x67	1.07	0.419	0.472	0.629	0.943	1.257
0.419	0.629	0.838	1.257	1.781	W16x77	1.07	0.419	0.472	0.629	0.943	1.257
0.385	0.577	0.769	1.154	1.635	W16x89	1.22	0.385	0.433	0.577	0.865	1.154
0.375	0.486	0.648	0.972	1.377	W16x100	1.56	0.375	0.375	0.486	0.729	0.972
0.556	0.833	1.111	1.667	2.361	W18x35	0.66	0.556	0.625	0.833	1.250	1.667
0.515	0.772	1.029	1.544	2.188	W18x40	0.76	0.515	0.579	0.772	1.158	1.544
0.479	0.719	0.959	1.438	2.038	W18x46	0.86	0.479	0.539	0.719	1.079	1.438
0.476	0.714	0.952	1.429	2.024	W18x50	0.87	0.476	0.536	0.714	1.071	1.429
0.452	0.677	0.903	1.355	1.919	W18x55	0.95	0.452	0.508	0.677	1.016	1.355
0.429	0.644	0.859	1.288	1.825	W18x60	1.03	0.429	0.483	0.644	0.966	1.288
0.409	0.614	0.819	1.228	1.740	W18x65	1.11	0.409	0.461	0.614	0.921	1.228
0.387	0.580	0.773	1.160	1.644	W18x71	1.21	0.387	0.435	0.580	0.870	1.160
0.409	0.614	0.819	1.228	1.740	W18x76	1.11	0.409	0.461	0.614	0.921	1.228
0.380	0.571	0.761	1.141	1.617	W18x88	1.24	0.380	0.428	0.571	0.856	1.141
0.375	0.528	0.704	1.055	1.495	W18x97	1.39	0.375	0.396	0.528	0.791	1.055
0.375	0.495	0.660	0.991	1.403	W18x106	1.52	0.375	0.375	0.495	0.743	0.991
0.375	0.461	0.614	0.921	1.305	W18x119	1.68	0.375	0.375	0.461	0.691	0.921
0.526	0.789	1.053	1.579	2.237	W21x44	0.73	0.526	0.592	0.789	1.184	1.579
0.490	0.734	0.979	1.469	2.080	W21x50	0.83	0.490	0.551	0.734	1.101	1.469
0.458	0.686	0.915	1.373	1.944	W21x57	0.93	0.458	0.515	0.686	1.029	1.373
0.455	0.682	0.909	1.364	1.932	W21x62	0.94	0.455	0.511	0.682	1.023	1.364
0.429	0.644	0.859	1.288	1.825	W21x68	1.03	0.429	0.483	0.644	0.966	1.288
0.380	0.571	0.761	1.141	1.617	W21x83	1.24	0.380	0.428	0.571	0.856	1.141
0.375	0.530	0.707	1.061	1.503	W21x93	1.38	0.375	0.398	0.530	0.795	1.061
0.375	0.556	0.741	1.111	1.574	W21x101	1.29	0.375	0.417	0.556	0.833	1.111
0.375	0.522	0.697	1.045	1.480	W21x111	1.41	0.375	0.392	0.522	0.784	1.045

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Normal Weight Concrete

Unrestrained Beam Rating					Member W/D		Restrained Beam Rating*				
1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr			1 Hr	1.5 Hr	2 Hr	3 Hr	4 Hr
0.375	0.491	0.654	0.981	1.390	W21x122	1.54	0.375	0.375	0.491	0.736	0.981
0.375	0.465	0.619	0.929	1.316	W21x132	1.66	0.375	0.375	0.465	0.697	0.929
0.375	0.432	0.576	0.864	1.224	W21x147	1.83	0.375	0.375	0.432	0.648	0.864
0.493	0.739	0.986	1.479	2.095	W24x55	0.82	0.493	0.555	0.739	1.109	1.479
0.461	0.691	0.921	1.382	1.957	W24x62	0.92	0.461	0.518	0.691	1.036	1.382
0.458	0.686	0.915	1.373	1.944	W24x68	0.93	0.458	0.515	0.686	1.029	1.373
0.432	0.648	0.864	1.296	1.836	W24x76	1.02	0.432	0.486	0.648	0.972	1.296
0.405	0.607	0.809	1.214	1.720	W24x84	1.13	0.405	0.455	0.607	0.910	1.214
0.376	0.565	0.753	1.129	1.599	W24x94	1.26	0.376	0.423	0.565	0.847	1.129
0.385	0.577	0.769	1.154	1.635	W24x104	1.22	0.385	0.433	0.577	0.865	1.154
0.375	0.536	0.714	1.071	1.518	W24x117	1.36	0.375	0.402	0.536	0.804	1.071
0.375	0.495	0.660	0.991	1.403	W24x131	1.52	0.375	0.375	0.495	0.743	0.991
0.375	0.461	0.614	0.921	1.305	W24x146	1.68	0.375	0.375	0.461	0.691	0.921
0.375	0.429	0.571	0.857	1.214	W24x162	1.85	0.375	0.375	0.429	0.643	0.857
0.432	0.648	0.864	1.296	1.836	W27x84	1.02	0.432	0.486	0.648	0.972	1.296
0.405	0.607	0.809	1.214	1.720	W27x94	1.13	0.405	0.455	0.607	0.910	1.214
0.383	0.574	0.765	1.148	1.626	W27x102	1.23	0.383	0.430	0.574	0.861	1.148
0.375	0.536	0.714	1.071	1.518	W27x114	1.36	0.375	0.402	0.536	0.804	1.071
0.375	0.493	0.657	0.986	1.397	W27x146	1.53	0.375	0.375	0.493	0.739	0.986
0.375	0.461	0.614	0.921	1.305	W27x161	1.68	0.375	0.375	0.461	0.691	0.921
0.375	0.429	0.571	0.857	1.214	W27x178	1.85	0.375	0.375	0.429	0.643	0.857
0.412	0.618	0.824	1.235	1.750	W30x99	1.10	0.412	0.463	0.618	0.926	1.235
0.389	0.583	0.778	1.167	1.653	W30x108	1.20	0.389	0.438	0.583	0.875	1.167
0.375	0.559	0.745	1.117	1.582	W30x116	1.28	0.375	0.419	0.559	0.838	1.117
0.375	0.533	0.711	1.066	1.510	W30x124	1.37	0.375	0.400	0.533	0.799	1.066
0.375	0.510	0.680	1.019	1.444	W30x132	1.46	0.375	0.382	0.510	0.765	1.019
0.375	0.465	0.619	0.929	1.316	W30x173	1.66	0.375	0.375	0.465	0.697	0.929
0.375	0.434	0.579	0.868	1.229	W30x191	1.82	0.375	0.375	0.434	0.651	0.868
0.375	0.404	0.538	0.808	1.144	W30x211	2.00	0.375	0.375	0.404	0.606	0.808
0.391	0.587	0.782	1.173	1.662	W33x118	1.19	0.391	0.440	0.587	0.880	1.173
0.375	0.550	0.733	1.099	1.558	W33x130	1.31	0.375	0.412	0.550	0.825	1.099
0.375	0.522	0.697	1.045	1.480	W33x141	1.41	0.375	0.392	0.522	0.784	1.045
0.375	0.498	0.664	0.995	1.410	W33x152	1.51	0.375	0.375	0.498	0.746	0.995
0.375	0.441	0.588	0.882	1.250	W33x201	1.78	0.375	0.375	0.441	0.662	0.882

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, 2007, page 9. 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 governs.

* 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.

**Thickness applied to beam's lower flange edge shall not be less than 1/4-in.