CERTIFICATE No CF 5012
Sherwin-Williams Protective & Marine Coatings

FIRETEX FX5120

Section Factor up to m^{-1}	Table A1: I Section Beams									
	Thickness (mm) Required for a Fire Resistance Period of 60 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25	0.888	0.546	0.491	0.478	0.478	0.465	0.465	0.453	0.453	0.453
30	0.888	0.567	0.491	0.478	0.478	0.465	0.465	0.453	0.453	0.453
35	0.930	0.620	0.491	0.478	0.478	0.465	0.465	0.453	0.453	0.453
40	0.972	0.673	0.538	0.478	0.478	0.465	0.465	0.453	0.453	0.453
45	1.026	0.725	0.585	0.478	0.478	0.465	0.465	0.453	0.453	0.453
50	1.108	0.778	0.632	0.478	0.478	0.465	0.465	0.453	0.453	0.453
55	1.190	0.831	0.679	0.521	0.486	0.465	0.465	0.453	0.453	0.453
60	1.272	0.884	0.726	0.563	0.486	0.465	0.465	0.453	0.453	0.453
65	1.354	0.937	0.774	0.606	0.486	0.465	0.465	0.453	0.453	0.453
70	1.436	0.989	0.821	0.649	0.520	0.465	0.465	0.453	0.453	0.453
75	1.517	1.034	0.868	0.692	0.554	0.465	0.465	0.453	0.453	0.453
80	1.599	1.075	0.915	0.735	0.588	0.494	0.472	0.453	0.453	0.453
85	1.681	1.117	0.962	0.777	0.622	0.523	0.500	0.453	0.453	0.453
90	1.763	1.159	1.006	0.820	0.655	0.552	0.528	0.453	0.453	0.453
95	1.845	1.201	1.035	0.863	0.689	0.581	0.556	0.468	0.468	0.459
100	1.927	1.243	1.064	0.906	0.723	0.610	0.583	0.495	0.469	0.459
105	2.009	1.285	1.094	0.949	0.757	0.640	0.611	0.521	0.469	0.459
110	2.091	1.327	1.123	0.991	0.791	0.669	0.639	0.547	0.469	0.459
115	2.172	1.369	1.152	1.014	0.824	0.698	0.667	0.574	0.469	0.459
120	2.254	1.411	1.182	1.030	0.858	0.727	0.694	0.600	0.484	0.459
125	2.336	1.453	1.211	1.047	0.892	0.756	0.722	0.626	0.500	0.459
130	2.418	1.494	1.240	1.064	0.926	0.785	0.750	0.653	0.516	0.459
135	2.500	1.536	1.270	1.081	0.959	0.814	0.778	0.679	0.531	0.475
140	2.539	1.578	1.299	1.098	0.993	0.843	0.806	0.705	0.547	0.491
145	2.578	1.620	1.328	1.115	1.013	0.872	0.833	0.732	0.563	0.506
150	2.617	1.662	1.357	1.132	1.030	0.901	0.861	0.758	0.578	0.522
155	2.656	1.704	1.387	1.149	1.047	0.930	0.889	0.784	0.594	0.538
160	2.695	1.746	1.416	1.166	1.064	0.959	0.917	0.811	0.609	0.553
165	2.734	1.788	1.445	1.182	1.081	0.988	0.944	0.837	0.625	0.569
170	2.773	1.830	1.475	1.199	1.097	1.010	0.972	0.863	0.641	0.584
175	2.813	1.872	1.504	1.216	1.114	1.026	1.000	0.889	0.656	0.600
180	2.852	1.913	1.533	1.233	1.131	1.043	1.017	0.916	0.672	0.616
185	2.891	1.955	1.563	1.250	1.148	1.059	1.033	0.942	0.688	0.631
190	2.930	1.997	1.592	1.267	1.164	1.075	1.050	0.968	0.703	0.647
195	2.969	2.039	1.621	1.284	1.181	1.092	1.067	0.995	0.719	0.663
200	3.008	2.081	1.650	1.301	1.198	1.108	1.083	1.009	0.734	0.678
205	3.047	2.123	1.680	1.318	1.215	1.124	1.100	1.021	0.750	0.694
210	3.086	2.165	1.709	1.334	1.232	1.141	1.117	1.033	0.766	0.709
215	3.125	2.207	1.738	1.351	1.248	1.157	1.133	1.045	0.781	0.725
220	3.164	2.249	1.768	1.368	1.265	1.174	1.150	1.057	0.797	0.741
225	3.203	2.291	1.797	1.385	1.282	1.190	1.167	1.068	0.813	0.756
230	3.242	2.332	1.826	1.402	1.299	1.206	1.183	1.080	0.828	0.772
235	3.281	2.374	1.855	1.419	1.315	1.223	1.200	1.092	0.844	0.788
240	3.320	2.416	1.885	1.436	1.332	1.239	1.217	1.104	0.859	0.803
245	3.359	2.458	1.914	1.453	1.349	1.255	1.233	1.115	0.875	0.819
250	3.398	2.500	1.943	1.470	1.366	1.272	1.250	1.127	0.891	0.834
255	3.438	2.520	1.973	1.486	1.383	1.288	1.267	1.139	0.906	0.850
260	3.477	2.540	2.002	1.503	1.399	1.305	1.283	1.151	0.922	0.866
265	3.505	2.560	2.031	1.520	1.416	1.321	1.300	1.162	0.938	0.881
270	3.518	2.580	2.061	1.537	1.433	1.337	1.317	1.174	0.953	0.897
275	3.531	2.600	2.090	1.554	1.450	1.354	1.333	1.186	0.969	0.913
280	3.544	2.620	2.119	1.571	1.466	1.370	1.350	1.198	0.984	0.928
285	3.557	2.640	2.148	1.588	1.483	1.386	1.367	1.210	1.000	0.944
290	3.570	2.660	2.178	1.605	1.500	1.403	1.383	1.221	1.014	0.959
295	3.582	2.680	2.207	1.622	1.517	1.419	1.400	1.233	1.027	0.975
300	3.595	2.700	2.236	1.639	1.534	1.436	1.417	1.245	1.041	0.991
305	3.608	2.720	2.266	1.655	1.550	1.452	1.433	1.257	1.055	1.004
310	3.621	2.740	2.295	1.672	1.567	1.468	1.450	1.268	1.068	1.015
315	3.634	2.760	2.324	1.689	1.584	1.485	1.467	1.280	1.082	1.026
320	3.647	2.780	2.354	1.706	1.601	1.501	1.483	1.292	1.096	1.037
325	3.660	2.800	2.383	1.723	1.617	1.517	1.500	1.304	1.109	1.047
330	3.673	2.820	2.412	1.740	1.634	1.534	1.517	1.316	1.123	1.058
335	3.686	2.840	2.441	1.757	1.651	1.550	1.533	1.327	1.137	1.069
340	3.699	2.860	2.471	1.774	1.668	1.567	1.550	1.339	1.151	1.080

Thickness is intumescent only.

Table applies to I/H beams with 3 sided protection and a concrete slab.

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CERTIFICATE No CF 5012
Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table A2: I Section Beams									
	Thickness (mm) Required for a Fire Resistance Period of 75 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25	1.542	1.000	0.942	0.500	0.470	0.465	0.465	0.459	0.459	0.459
30	1.542	1.000	0.942	0.521	0.470	0.465	0.465	0.459	0.459	0.459
35	1.542	1.000	0.942	0.574	0.470	0.465	0.465	0.459	0.459	0.459
40	1.642	1.000	0.942	0.628	0.520	0.465	0.465	0.459	0.459	0.459
45	1.743	1.000	0.942	0.681	0.570	0.465	0.465	0.459	0.459	0.459
50	1.844	1.081	0.942	0.734	0.620	0.465	0.465	0.459	0.459	0.459
55	1.944	1.161	0.942	0.787	0.670	0.509	0.474	0.459	0.459	0.459
60	2.045	1.242	0.990	0.840	0.720	0.556	0.518	0.459	0.459	0.459
65	2.145	1.323	1.038	0.894	0.770	0.602	0.561	0.493	0.478	0.466
70	2.246	1.403	1.087	0.947	0.820	0.648	0.605	0.527	0.478	0.466
75	2.346	1.484	1.135	1.000	0.870	0.694	0.649	0.562	0.478	0.466
80	2.447	1.565	1.183	1.032	0.920	0.741	0.693	0.596	0.478	0.466
85	2.556	1.645	1.231	1.063	0.970	0.787	0.737	0.630	0.505	0.466
90	2.674	1.726	1.279	1.095	1.011	0.833	0.781	0.664	0.533	0.466
95	2.792	1.806	1.327	1.127	1.037	0.880	0.825	0.699	0.560	0.490
100	2.910	1.887	1.375	1.158	1.064	0.926	0.868	0.733	0.588	0.515
105	3.028	1.968	1.423	1.190	1.090	0.972	0.912	0.767	0.615	0.539
110	3.146	2.048	1.471	1.222	1.117	1.009	0.956	0.801	0.643	0.563
115	3.264	2.129	1.519	1.253	1.144	1.032	1.000	0.836	0.670	0.587
120	3.382	2.210	1.567	1.285	1.170	1.055	1.021	0.870	0.698	0.612
125	3.500	2.290	1.615	1.316	1.197	1.078	1.042	0.904	0.725	0.636
130	3.531	2.371	1.663	1.348	1.223	1.101	1.062	0.938	0.753	0.660
135	3.561	2.452	1.712	1.380	1.250	1.124	1.083	0.973	0.780	0.684
140	3.592	2.522	1.760	1.411	1.277	1.147	1.104	1.004	0.808	0.709
145	3.623	2.579	1.808	1.443	1.303	1.170	1.125	1.022	0.835	0.733
150	3.653	2.635	1.856	1.475	1.330	1.193	1.145	1.040	0.863	0.757
155	3.684	2.691	1.904	1.506	1.356	1.216	1.166	1.058	0.890	0.782
160	3.715	2.747	1.952	1.538	1.383	1.239	1.187	1.076	0.918	0.806
165	3.745	2.803	2.000	1.570	1.410	1.262	1.208	1.094	0.945	0.830
170	3.776	2.860	2.048	1.601	1.436	1.285	1.229	1.112	0.973	0.854
175	3.807	2.916	2.096	1.633	1.463	1.308	1.249	1.130	1.000	0.879
180	3.837	2.972	2.144	1.665	1.489	1.330	1.270	1.148	1.018	0.903
185	3.868	3.028	2.192	1.696	1.516	1.353	1.291	1.166	1.036	0.927
190	3.899	3.084	2.240	1.728	1.543	1.376	1.312	1.184	1.054	0.951
195	3.929	3.140	2.288	1.759	1.569	1.399	1.332	1.202	1.073	0.976
200	3.960	3.197	2.337	1.791	1.596	1.422	1.353	1.220	1.091	1.000
205	3.991	3.253	2.385	1.823	1.622	1.445	1.374	1.238	1.109	1.016
210	4.021	3.309	2.433	1.854	1.649	1.468	1.395	1.256	1.127	1.032
215	4.052	3.365	2.481	1.886	1.676	1.491	1.416	1.274	1.145	1.048
220	4.083	3.421	2.526	1.918	1.702	1.514	1.436	1.292	1.163	1.064
225	4.113	3.478	2.569	1.949	1.729	1.537	1.457	1.310	1.182	1.080
230	4.144	3.516	2.612	1.981	1.755	1.560	1.478	1.328	1.200	1.097
235	4.175	3.542	2.655	2.013	1.782	1.583	1.499	1.346	1.218	1.113
240	4.205	3.568	2.698	2.044	1.809	1.606	1.519	1.364	1.236	1.129
245	4.236	3.595	2.741	2.076	1.835	1.629	1.540	1.382	1.254	1.145
250	4.267	3.621	2.784	2.108	1.862	1.652	1.561	1.400	1.272	1.161
255	4.297	3.647	2.828	2.139	1.888	1.675	1.582	1.418	1.291	1.177
260	4.328	3.674	2.871	2.171	1.915	1.698	1.602	1.436	1.309	1.193
265	4.359	3.700	2.914	2.203	1.941	1.721	1.623	1.454	1.327	1.209
270	4.389	3.726	2.957	2.234	1.968	1.744	1.644	1.472	1.345	1.225
275	4.420	3.753	3.000	2.266	1.995	1.767	1.665	1.490	1.363	1.241
280	4.451	3.779	3.043	2.297	2.021	1.790	1.686	1.508	1.381	1.258
285	4.481	3.805	3.086	2.329	2.048	1.812	1.706	1.526	1.400	1.274
290	4.512	3.832	3.129	2.361	2.074	1.835	1.727	1.544	1.418	1.290
295	4.543	3.858	3.172	2.392	2.101	1.858	1.748	1.563	1.436	1.306
300	4.573	3.884	3.216	2.424	2.128	1.881	1.769	1.581	1.454	1.322
305	4.604	3.911	3.259	2.456	2.154	1.904	1.789	1.599	1.472	1.338
310	4.635	3.937	3.302	2.487	2.181	1.927	1.810	1.617	1.490	1.354
315	4.665	3.963	3.345	2.519	2.207	1.950	1.831	1.635	1.508	1.370
320	4.696	3.989	3.388	2.551	2.234	1.973	1.852	1.653	1.527	1.386
325	4.727	4.016	3.431	2.582	2.261	1.996	1.873	1.671	1.545	1.402
330	4.757	4.042	3.474	2.614	2.287	2.019	1.893	1.689	1.563	1.418
335	4.788	4.068	3.506	2.646	2.314	2.042	1.914	1.707	1.581	1.435
340	4.819	4.095	3.520	2.678	2.340	2.065	1.935	1.725	1.599	1.451

Thickness is intumescent only.

Table applies to I/H beams with 3 sided protection and a concrete slab.

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Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table A3: I Section Beams									
	Thickness (mm) Required for a Fire Resistance Period of 90 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25	2.371	1.191	1.000	0.961	0.573	0.489	0.478	0.464	0.464	0.455
30	2.371	1.191	1.000	0.961	0.597	0.489	0.478	0.464	0.464	0.455
35	2.371	1.314	1.000	0.961	0.656	0.544	0.478	0.464	0.464	0.455
40	2.371	1.438	1.000	0.961	0.716	0.600	0.533	0.464	0.464	0.455
45	2.371	1.561	1.088	0.961	0.775	0.656	0.587	0.509	0.474	0.455
50	2.371	1.685	1.176	0.961	0.834	0.711	0.641	0.554	0.474	0.455
55	2.371	1.808	1.265	1.026	0.893	0.767	0.696	0.598	0.474	0.455
60	2.532	1.932	1.353	1.091	0.953	0.822	0.750	0.643	0.518	0.455
65	2.693	2.055	1.441	1.155	1.008	0.878	0.804	0.688	0.561	0.455
70	2.854	2.179	1.529	1.220	1.048	0.933	0.859	0.732	0.605	0.492
75	3.016	2.302	1.618	1.284	1.089	0.989	0.913	0.777	0.649	0.530
80	3.177	2.426	1.706	1.349	1.129	1.024	0.967	0.821	0.693	0.568
85	3.338	2.548	1.794	1.414	1.169	1.055	1.011	0.866	0.737	0.606
90	3.499	2.667	1.882	1.478	1.210	1.085	1.040	0.911	0.781	0.644
95	3.660	2.786	1.971	1.543	1.250	1.116	1.069	0.955	0.825	0.682
100	3.821	2.905	2.059	1.608	1.290	1.146	1.098	1.000	0.868	0.720
105	3.982	3.024	2.147	1.672	1.331	1.177	1.126	1.025	0.912	0.758
110	4.143	3.143	2.235	1.737	1.371	1.207	1.155	1.050	0.956	0.795
115	4.304	3.262	2.324	1.802	1.411	1.238	1.184	1.075	1.000	0.833
120	4.466	3.381	2.412	1.866	1.452	1.268	1.213	1.100	1.021	0.871
125	4.627	3.500	2.500	1.931	1.492	1.299	1.241	1.125	1.042	0.909
130	4.788	3.546	2.567	1.996	1.532	1.329	1.270	1.150	1.062	0.947
135	4.949	3.591	2.633	2.060	1.573	1.360	1.299	1.175	1.083	0.985
140	5.110	3.637	2.700	2.125	1.613	1.390	1.328	1.200	1.104	1.012
145	5.271	3.683	2.767	2.190	1.653	1.421	1.356	1.225	1.125	1.033
150	5.432	3.728	2.833	2.254	1.694	1.451	1.385	1.250	1.145	1.054
155	5.593	3.774	2.900	2.319	1.734	1.482	1.414	1.275	1.166	1.074
160	5.754	3.820	2.967	2.384	1.774	1.512	1.443	1.300	1.187	1.095
165		3.865	3.033	2.448	1.815	1.543	1.471	1.325	1.208	1.116
170		3.911	3.100	2.512	1.855	1.573	1.500	1.350	1.229	1.136
175		3.957	3.167	2.574	1.895	1.604	1.529	1.375	1.249	1.157
180		4.002	3.233	2.636	1.935	1.634	1.557	1.400	1.270	1.178
185		4.048	3.300	2.698	1.976	1.665	1.586	1.425	1.291	1.198
190		4.094	3.367	2.759	2.016	1.695	1.615	1.450	1.312	1.219
195		4.139	3.433	2.821	2.056	1.726	1.644	1.475	1.332	1.240
200		4.185	3.500	2.883	2.097	1.756	1.672	1.500	1.353	1.260
205		4.231	3.529	2.944	2.137	1.787	1.701	1.525	1.374	1.281
210		4.276	3.558	3.006	2.177	1.817	1.730	1.550	1.395	1.302
215		4.322	3.587	3.068	2.218	1.848	1.759	1.575	1.416	1.322
220		4.368	3.617	3.130	2.258	1.878	1.787	1.600	1.436	1.343
225		4.413	3.646	3.191	2.298	1.909	1.816	1.625	1.457	1.364
230		4.459	3.675	3.253	2.339	1.939	1.845	1.650	1.478	1.384
235		4.505	3.704	3.315	2.379	1.970	1.874	1.675	1.499	1.405
240		4.550	3.733	3.377	2.419	2.000	1.902	1.700	1.519	1.426
245		4.596	3.762	3.438	2.460	2.030	1.931	1.725	1.540	1.446
250		4.642	3.791	3.500	2.500	2.061	1.960	1.750	1.561	1.467
255		4.688	3.821	3.513	2.553	2.091	1.989	1.775	1.582	1.488
260		4.733	3.850	3.525	2.605	2.122	2.017	1.800	1.602	1.508
265		4.779	3.879	3.538	2.658	2.152	2.046	1.825	1.623	1.529
270		4.825	3.908	3.551	2.711	2.183	2.075	1.850	1.644	1.550
275		4.870	3.937	3.563	2.763	2.213	2.103	1.875	1.665	1.570
280		4.916	3.966	3.576	2.816	2.244	2.132	1.900	1.686	1.591
285		4.962	3.995	3.589	2.868	2.274	2.161	1.925	1.706	1.612
290		5.007	4.025	3.601	2.921	2.305	2.190	1.950	1.727	1.632
295		5.053	4.054	3.614	2.974	2.335	2.218	1.975	1.748	1.653
300		5.099	4.083	3.627	3.026	2.366	2.247	2.000	1.769	1.674
305		5.144	4.112	3.639	3.079	2.396	2.276	2.025	1.789	1.694
310		5.190	4.141	3.652	3.132	2.427	2.305	2.050	1.810	1.715
315		5.236	4.170	3.665	3.184	2.457	2.333	2.075	1.831	1.736
320		5.281	4.199	3.677	3.237	2.488	2.362	2.100	1.852	1.756
325		5.327	4.229	3.690	3.289	2.518	2.391	2.125	1.873	1.777
330		5.373	4.258	3.703	3.342	2.549	2.420	2.150	1.893	1.798
335		5.418	4.287	3.715	3.395	2.579	2.448	2.175	1.914	1.818
340		5.464	4.316	3.728	3.448	2.610	2.477	2.200	1.935	1.839

Thickness is intumescent only.

Table applies to I/H beams with 3 sided protection and a concrete slab.

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Section Factor up to m^{-1}	Table A4: I Section Beams									
	Thickness (mm) Required for a Fire Resistance Period of 105 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25		2.354	1.279	0.957	0.957	0.640	0.568	0.500	0.500	0.468
30		2.354	1.279	0.957	0.957	0.640	0.595	0.536	0.500	0.468
35		2.354	1.399	0.957	0.957	0.707	0.663	0.595	0.500	0.468
40		2.354	1.519	1.064	0.975	0.773	0.730	0.655	0.500	0.468
45		2.354	1.638	1.171	0.975	0.840	0.798	0.714	0.558	0.468
50		2.354	1.758	1.279	1.037	0.907	0.865	0.774	0.616	0.468
55		2.354	1.878	1.386	1.098	0.973	0.933	0.833	0.674	0.521
60		2.500	1.997	1.493	1.160	1.029	1.000	0.893	0.733	0.574
65		2.646	2.117	1.600	1.221	1.077	1.036	0.952	0.791	0.628
70		2.793	2.237	1.707	1.283	1.125	1.071	1.007	0.849	0.681
75		2.939	2.356	1.814	1.344	1.173	1.107	1.042	0.907	0.734
80		3.086	2.476	1.921	1.406	1.221	1.143	1.076	0.965	0.787
85		3.232	2.628	2.029	1.467	1.269	1.179	1.111	1.013	0.840
90		3.379	2.787	2.136	1.529	1.317	1.214	1.146	1.044	0.894
95		3.525	2.946	2.243	1.590	1.365	1.250	1.181	1.075	0.947
100		3.672	3.106	2.350	1.652	1.413	1.286	1.215	1.107	1.000
105		3.818	3.265	2.457	1.713	1.462	1.321	1.250	1.138	1.031
110		3.965	3.425	2.561	1.775	1.510	1.357	1.285	1.169	1.061
115		4.111	3.530	2.663	1.836	1.558	1.393	1.319	1.201	1.092
120		4.258	3.588	2.765	1.898	1.606	1.429	1.354	1.232	1.122
125		4.404	3.645	2.867	1.959	1.654	1.464	1.389	1.264	1.153
130		4.551	3.702	2.969	2.020	1.702	1.500	1.424	1.295	1.184
135		4.697	3.760	3.071	2.082	1.750	1.536	1.458	1.326	1.214
140		4.843	3.817	3.173	2.143	1.798	1.571	1.493	1.358	1.245
145		4.990	3.874	3.276	2.205	1.846	1.607	1.528	1.389	1.276
150		5.136	3.932	3.378	2.266	1.894	1.643	1.563	1.421	1.306
155		5.283	3.989	3.480	2.328	1.942	1.679	1.597	1.452	1.337
160		5.429	4.046	3.529	2.389	1.990	1.714	1.632	1.483	1.367
165		5.576	4.104	3.566	2.451	2.038	1.750	1.667	1.515	1.398
170		5.722	4.161	3.602	2.521	2.087	1.786	1.701	1.546	1.429
175		5.869	4.219	3.638	2.625	2.135	1.821	1.736	1.577	1.459
180			4.276	3.675	2.729	2.183	1.857	1.771	1.609	1.490
185			4.333	3.711	2.833	2.231	1.893	1.806	1.640	1.520
190			4.391	3.748	2.938	2.279	1.929	1.840	1.672	1.551
195			4.448	3.784	3.042	2.327	1.964	1.875	1.703	1.582
200			4.505	3.820	3.146	2.375	2.000	1.910	1.734	1.612
205			4.563	3.857	3.250	2.423	2.036	1.944	1.766	1.643
210			4.620	3.893	3.354	2.471	2.071	1.979	1.797	1.673
215			4.677	3.930	3.458	2.525	2.107	2.014	1.828	1.704
220			4.735	3.966	3.524	2.586	2.143	2.049	1.860	1.735
225			4.792	4.002	3.564	2.648	2.179	2.083	1.891	1.765
230			4.849	4.039	3.604	2.710	2.214	2.118	1.923	1.796
235			4.907	4.075	3.644	2.772	2.250	2.153	1.954	1.827
240			4.964	4.111	3.684	2.833	2.286	2.188	1.985	1.857
245			5.021	4.148	3.724	2.895	2.321	2.222	2.017	1.888
250			5.079	4.184	3.765	2.957	2.357	2.257	2.048	1.918
255			5.136	4.221	3.805	3.019	2.393	2.292	2.079	1.949
260			5.194	4.257	3.845	3.080	2.429	2.326	2.111	1.980
265			5.251	4.293	3.885	3.142	2.464	2.361	2.142	2.010
270			5.308	4.330	3.925	3.204	2.500	2.396	2.174	2.041
275			5.366	4.366	3.965	3.265	2.579	2.431	2.205	2.071
280			5.423	4.403	4.005	3.327	2.659	2.465	2.236	2.102
285			5.480	4.439	4.045	3.389	2.738	2.500	2.268	2.133
290			5.538	4.475	4.085	3.451	2.817	2.559	2.299	2.163
295			5.595	4.512	4.125	3.505	2.897	2.618	2.331	2.194
300			5.652	4.548	4.165	3.527	2.976	2.676	2.362	2.224
305			5.710	4.585	4.205	3.550	3.056	2.735	2.393	2.255
310			5.767	4.621	4.246	3.572	3.135	2.794	2.425	2.286
315			5.824	4.657	4.286	3.595	3.214	2.853	2.456	2.316
320			5.882	4.694	4.326	3.617	3.294	2.912	2.487	2.347
325				4.730	4.366	3.640	3.373	2.971	2.519	2.378
330				4.767	4.406	3.662	3.452	3.029	2.550	2.408
335					4.446	3.685	3.532	3.088	2.582	2.439
340					4.486	3.708	3.612	3.147	2.613	2.469

Thickness is intumescent only.

Table applies to I/H beams with 3 sided protection and a concrete slab.

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Section Factor up to m^{-1}	Table A5: I Section Beams									
	Thickness (mm) Required for a Fire Resistance Period of 120 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25			2.362	1.299	0.914	0.914	0.726	0.640	0.517	0.475
30			2.362	1.299	0.914	0.914	0.755	0.670	0.545	0.475
35			2.362	1.416	1.021	0.953	0.827	0.745	0.616	0.475
40			2.362	1.547	1.129	0.953	0.899	0.820	0.687	0.538
45			2.362	1.678	1.236	1.031	0.971	0.895	0.758	0.600
50			2.362	1.810	1.343	1.109	1.032	0.970	0.829	0.663
55			2.362	1.941	1.450	1.188	1.086	1.032	0.900	0.725
60			2.535	2.072	1.557	1.266	1.139	1.086	0.972	0.788
65			2.707	2.203	1.664	1.344	1.193	1.139	1.027	0.850
70			2.880	2.334	1.771	1.422	1.246	1.193	1.073	0.913
75			3.052	2.465	1.879	1.500	1.300	1.246	1.118	0.975
80			3.225	2.606	1.986	1.578	1.354	1.300	1.164	1.024
85			3.398	2.750	2.093	1.656	1.407	1.354	1.209	1.065
90			3.570	2.894	2.200	1.734	1.461	1.407	1.255	1.105
95			3.743	3.038	2.307	1.813	1.514	1.461	1.300	1.145
100			3.915	3.183	2.414	1.891	1.568	1.514	1.345	1.185
105			4.088	3.327	2.526	1.969	1.621	1.568	1.391	1.226
110			4.261	3.471	2.654	2.047	1.675	1.621	1.436	1.266
115			4.433	3.585	2.782	2.125	1.729	1.675	1.482	1.306
120			4.606	3.692	2.910	2.203	1.782	1.729	1.527	1.347
125			4.779	3.799	3.038	2.281	1.836	1.782	1.573	1.387
130			4.951	3.906	3.167	2.359	1.889	1.836	1.618	1.427
135			5.124	4.012	3.295	2.438	1.943	1.889	1.664	1.468
140			5.296	4.119	3.423	2.520	1.996	1.943	1.709	1.508
145			5.469	4.226	3.522	2.621	2.050	1.996	1.755	1.548
150			5.642	4.333	3.579	2.721	2.104	2.050	1.800	1.589
155			5.814	4.439	3.635	2.822	2.157	2.104	1.845	1.629
160				4.546	3.691	2.923	2.211	2.157	1.891	1.669
165				4.653	3.747	3.023	2.264	2.211	1.936	1.710
170				4.760	3.804	3.124	2.318	2.264	1.982	1.750
175				4.866	3.860	3.225	2.371	2.318	2.027	1.790
180				4.973	3.916	3.325	2.425	2.371	2.073	1.831
185				5.080	3.972	3.426	2.479	2.425	2.118	1.871
190				5.187	4.028	3.511	2.539	2.479	2.164	1.911
195				5.293	4.085	3.553	2.605	2.538	2.209	1.952
200				5.400	4.141	3.594	2.671	2.603	2.255	1.992
205				5.507	4.197	3.636	2.737	2.667	2.300	2.032
210				5.613	4.253	3.677	2.803	2.731	2.345	2.073
215				5.720	4.309	3.719	2.868	2.795	2.391	2.113
220				5.827	4.366	3.761	2.934	2.859	2.436	2.153
225					4.422	3.802	3.000	2.923	2.482	2.194
230					4.478	3.844	3.066	2.987	2.535	2.234
235					4.534	3.885	3.132	3.051	2.594	2.274
240					4.591	3.927	3.197	3.115	2.653	2.315
245					4.647	3.969	3.263	3.179	2.712	2.355
250					4.703	4.010	3.329	3.244	2.771	2.395
255					4.759	4.052	3.395	3.308	2.829	2.435
260					4.815	4.094	3.461	3.372	2.888	2.476
265					4.872	4.135	3.516	3.436	2.947	2.524
270					4.928	4.177	3.556	3.500	3.006	2.585
275					4.984	4.218	3.596	3.524	3.065	2.646
280					5.040	4.260	3.636	3.548	3.124	2.707
285					5.096	4.302	3.676	3.572	3.182	2.768
290					5.153	4.343	3.716	3.596	3.241	2.829
295					5.209	4.385	3.757	3.620	3.300	2.890
300					5.265	4.426	3.797	3.644	3.359	2.951
305					5.321	4.468	3.837	3.668	3.418	3.012
310					5.378	4.510	3.877	3.692	3.476	3.073
315					5.434	4.551	3.917	3.716	3.514	3.134
320					5.490	4.593	3.957	3.740	3.538	3.195
325					5.546	4.634	3.997	3.764	3.561	3.256
330					5.602	4.676	4.037	3.788	3.585	3.317
335					5.659	4.718	4.077	3.812	3.609	3.378
340					5.715	4.759	4.117	3.836	3.633	3.439

Thickness is intumescent only.
Table applies to I/H beams with 3 sided protection and a concrete slab.

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Section Factor up to m^{-1}	Table A6: I Section Beams									
	Thickness (mm) Required for a Fire Resistance Period of 150 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25				2.426	2.307	1.556	1.031	0.949	0.782	0.651
30				2.426	2.307	1.556	1.094	0.949	0.818	0.681
35				2.426	2.307	1.556	1.250	1.076	0.909	0.757
40				2.426	2.307	1.691	1.406	1.203	1.000	0.833
45				2.426	2.307	1.826	1.563	1.331	1.091	0.909
50				2.797	2.307	1.961	1.719	1.458	1.183	0.985
55				3.169	2.500	2.095	1.875	1.585	1.274	1.075
60				3.541	2.693	2.230	2.031	1.712	1.366	1.169
65				3.913	2.887	2.365	2.188	1.839	1.457	1.263
70				4.285	3.080	2.500	2.344	1.966	1.549	1.356
75				4.656	3.273	2.638	2.500	2.093	1.640	1.450
80				5.028	3.467	2.776	2.616	2.220	1.732	1.544
85				5.400	3.660	2.914	2.732	2.347	1.823	1.638
90				5.772	3.853	3.052	2.848	2.475	1.915	1.731
95					4.047	3.190	2.964	2.629	2.006	1.825
100					4.240	3.329	3.080	2.791	2.098	1.919
105					4.433	3.467	3.196	2.952	2.189	2.013
110					4.627	3.605	3.312	3.114	2.280	2.106
115					4.820	3.743	3.428	3.275	2.372	2.200
120					5.013	3.881	3.544	3.437	2.463	2.294
125					5.207	4.019	3.660	3.553	2.588	2.388
130					5.400	4.157	3.776	3.639	2.735	2.481
135					5.593	4.295	3.892	3.725	2.882	2.558
140					5.787	4.433	4.008	3.812	3.029	2.630
145						4.571	4.124	3.898	3.176	2.703
150						4.710	4.240	3.984	3.324	2.775
155						4.848	4.356	4.071	3.471	2.848
160						4.986	4.472	4.157	3.552	2.920
165						5.124	4.588	4.243	3.616	2.993
170						5.262	4.704	4.330	3.681	3.065
175						5.400	4.820	4.416	3.746	3.138
180						5.538	4.936	4.502	3.810	3.210
185						5.676	5.052	4.589	3.875	3.283
190						5.814	5.168	4.675	3.939	3.355
195							5.284	4.761	4.004	3.428
200							5.400	4.848	4.069	3.500
205							5.516	4.934	4.133	3.556
210							5.632	5.020	4.198	3.612
215							5.748	5.106	4.263	3.668
220								5.193	4.327	3.724
225								5.279	4.392	3.779
230								5.365	4.456	3.835
235								5.452	4.521	3.891
240								5.538	4.586	3.947
245								5.624	4.650	4.003
250								5.711	4.715	4.059
255								5.797	4.780	4.115
260									4.844	4.171
265									4.909	4.226
270									4.973	4.282
275									5.038	4.338
280									5.103	4.394
285									5.167	4.450
290									5.232	4.506
295									5.297	4.562
300									5.361	4.618
305									5.426	4.674
310									5.490	4.729
315									5.555	4.785
320									5.620	4.841
325									5.684	4.897
330									5.749	4.953
335									5.814	5.009
340									5.879	5.065

Thickness is intumescent only.
Table applies to I/H beams with 3 sided protection and a concrete slab.

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Section Factor up to m^{-1}	Table A7: I Section Beams									
	Thickness (mm) Required for a Fire Resistance Period of 180 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25							2.543	2.421	1.633	0.904
30							2.543	2.421	1.633	0.904
35							2.543	2.421	1.633	1.064
40							2.543	2.421	1.768	1.223
45							2.543	2.421	1.904	1.383
50							2.760	2.421	2.039	1.543
55							2.976	2.619	2.175	1.702
60							3.193	2.818	2.310	1.862
65							3.409	3.016	2.446	2.021
70							3.625	3.215	2.587	2.181
75							3.842	3.414	2.732	2.340
80							4.058	3.612	2.877	2.500
85							4.275	3.811	3.022	2.611
90							4.491	4.010	3.167	2.722
95							4.707	4.208	3.312	2.833
100							4.924	4.407	3.457	2.944
105							5.140	4.605	3.602	3.056
110							5.357	4.804	3.747	3.167
115							5.573	5.003	3.892	3.278
120							5.790	5.201	4.037	3.389
125								5.400	4.182	3.500
130								5.599	4.327	3.627
135								5.797	4.472	3.753
140									4.617	3.880
145									4.762	4.007
150									4.907	4.133
155									5.052	4.260
160									5.197	4.387
165									5.342	4.513
170									5.487	4.640
175									5.632	4.767
180									5.777	4.893
185										5.020
190										5.147
195										5.273
200										5.400
205										5.527
210										5.653
215										5.780
220										5.907

Thickness is intumescent only.
Table applies to I/H beams with 3 sided protection and a concrete slab.

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Section Factor up to m^{-1}	Table B1: I Section Columns								
	Thickness (mm) Required for a Fire Resistance Period of 60 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	0.847	0.478	0.470	0.470	0.470	0.453	0.453	0.453	0.436
30	0.863	0.500	0.470	0.470	0.470	0.453	0.453	0.453	0.436
35	0.903	0.555	0.506	0.500	0.494	0.453	0.453	0.453	0.436
40	0.944	0.611	0.553	0.500	0.494	0.453	0.453	0.453	0.436
45	0.984	0.666	0.599	0.500	0.494	0.453	0.453	0.453	0.436
50	1.043	0.722	0.645	0.500	0.494	0.453	0.453	0.453	0.436
55	1.115	0.777	0.691	0.534	0.494	0.453	0.453	0.453	0.436
60	1.187	0.833	0.738	0.579	0.494	0.453	0.453	0.453	0.436
65	1.258	0.888	0.784	0.624	0.494	0.453	0.453	0.453	0.436
70	1.330	0.943	0.830	0.668	0.524	0.453	0.453	0.453	0.436
75	1.402	0.999	0.876	0.713	0.553	0.453	0.453	0.453	0.436
80	1.474	1.050	0.922	0.758	0.582	0.486	0.467	0.456	0.436
85	1.545	1.101	0.969	0.803	0.612	0.520	0.467	0.456	0.436
90	1.617	1.152	1.014	0.848	0.641	0.554	0.467	0.456	0.436
95	1.689	1.203	1.059	0.892	0.671	0.588	0.467	0.456	0.436
100	1.761	1.254	1.104	0.937	0.700	0.622	0.467	0.456	0.436
105	1.833	1.305	1.148	0.982	0.729	0.655	0.495	0.456	0.436
110	1.904	1.356	1.193	1.017	0.759	0.689	0.522	0.456	0.436
115	1.976	1.407	1.237	1.046	0.788	0.723	0.549	0.456	0.436
120	2.048	1.458	1.282	1.074	0.818	0.757	0.576	0.456	0.436
125	2.120	1.509	1.327	1.103	0.847	0.791	0.603	0.456	0.436
130	2.191	1.560	1.371	1.131	0.876	0.824	0.630	0.456	0.436
135	2.263	1.611	1.416	1.160	0.906	0.858	0.658	0.456	0.436
140	2.335	1.662	1.461	1.188	0.935	0.892	0.685	0.456	0.436
145	2.407	1.713	1.505	1.217	0.965	0.926	0.712	0.456	0.436
150	2.478	1.764	1.550	1.245	0.994	0.959	0.739	0.456	0.436
155	2.517	1.815	1.595	1.274	1.018	0.993	0.766	0.456	0.436
160	2.541	1.866	1.639	1.302	1.042	1.014	0.793	0.474	0.436
165	2.566	1.917	1.684	1.331	1.065	1.031	0.821	0.493	0.436
170	2.590	1.968	1.729	1.359	1.088	1.049	0.848	0.511	0.436
175	2.614	2.019	1.773	1.388	1.111	1.066	0.875	0.529	0.436
180	2.639	2.070	1.818	1.416	1.134	1.083	0.902	0.548	0.436
185	2.663	2.121	1.862	1.445	1.157	1.101	0.929	0.566	0.436
190	2.687	2.172	1.907	1.473	1.180	1.118	0.957	0.585	0.436
195	2.712	2.223	1.952	1.502	1.203	1.135	0.984	0.603	0.436
200	2.736	2.274	1.996	1.530	1.226	1.153	1.008	0.621	0.436
205	2.760	2.325	2.041	1.559	1.249	1.170	1.027	0.640	0.460
210	2.785	2.376	2.086	1.587	1.272	1.188	1.046	0.658	0.485
215	2.809	2.427	2.130	1.616	1.295	1.205	1.065	0.676	0.510
220	2.833	2.478	2.175	1.644	1.318	1.222	1.085	0.695	0.535
225	2.857	2.509	2.220	1.673	1.341	1.240	1.104	0.713	0.560
230	2.882	2.526	2.264	1.702	1.364	1.257	1.123	0.732	0.585
235	2.906	2.542	2.309	1.730	1.387	1.274	1.142	0.750	0.610
240	2.930	2.559	2.353	1.759	1.411	1.292	1.162	0.768	0.635
245	2.955	2.575	2.398	1.787	1.434	1.309	1.181	0.787	0.660
250	2.979	2.591	2.443	1.816	1.457	1.326	1.200	0.805	0.685
255	3.003	2.608	2.487	1.844	1.480	1.344	1.219	0.824	0.710
260	3.028	2.624	2.512	1.873	1.503	1.361	1.238	0.842	0.735
265	3.052	2.641	2.529	1.901	1.526	1.378	1.258	0.860	0.760
270	3.076	2.657	2.546	1.930	1.549	1.396	1.277	0.879	0.785
275	3.101	2.674	2.562	1.958	1.572	1.413	1.296	0.897	0.810
280	3.125	2.690	2.579	1.987	1.595	1.431	1.315	0.915	0.835
285	3.149	2.707	2.596	2.015	1.618	1.448	1.335	0.934	0.860
290	3.174	2.723	2.612	2.044	1.641	1.465	1.354	0.952	0.885
295	3.198	2.739	2.629	2.072	1.664	1.483	1.373	0.971	0.910
300	3.222	2.756	2.646	2.101	1.687	1.500	1.392	0.989	0.935
305	3.247	2.772	2.663	2.129	1.710	1.517	1.412	1.011	0.960
310	3.271	2.789	2.679	2.158	1.733	1.535	1.431	1.037	0.985
315	3.295	2.805	2.696	2.186	1.756	1.552	1.450	1.063	1.004
320	3.320	2.822	2.713	2.215	1.780	1.569	1.469	1.089	1.015
325	3.344	2.838	2.730	2.243	1.803	1.587	1.488	1.116	1.026
330	3.368	2.854	2.746	2.272	1.826	1.604	1.508	1.142	1.037
335	3.393	2.871	2.763	2.300	1.849	1.622	1.527	1.168	1.048

Thickness is intumescent only.
Table also applies to 4 sided I/H beams up to a maximum protection thickness of 5.900mm.

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CERTIFICATE No CF 5012
Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table B2: I Section Columns								
	Thickness (mm) Required for a Fire Resistance Period of 75 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	1.512	0.789	0.789	0.477	0.477	0.444	0.444	0.444	0.436
30	1.512	0.812	0.812	0.500	0.491	0.444	0.444	0.444	0.436
35	1.512	0.869	0.869	0.557	0.491	0.444	0.444	0.444	0.436
40	1.600	0.926	0.926	0.614	0.491	0.444	0.444	0.444	0.436
45	1.689	0.983	0.933	0.670	0.535	0.444	0.444	0.444	0.436
50	1.777	1.064	0.933	0.727	0.579	0.444	0.444	0.444	0.436
55	1.865	1.156	0.994	0.784	0.623	0.500	0.469	0.446	0.436
60	1.954	1.248	1.055	0.841	0.667	0.556	0.469	0.446	0.436
65	2.042	1.340	1.116	0.898	0.710	0.611	0.508	0.446	0.436
70	2.131	1.433	1.178	0.955	0.754	0.667	0.546	0.446	0.436
75	2.219	1.525	1.239	1.010	0.798	0.722	0.585	0.446	0.436
80	2.307	1.617	1.300	1.061	0.842	0.778	0.623	0.446	0.436
85	2.396	1.709	1.361	1.111	0.886	0.833	0.662	0.446	0.436
90	2.484	1.801	1.422	1.162	0.930	0.889	0.700	0.480	0.436
95	2.556	1.893	1.484	1.213	0.973	0.944	0.738	0.514	0.436
100	2.625	1.985	1.545	1.263	1.013	1.000	0.777	0.547	0.436
105	2.693	2.077	1.606	1.314	1.044	1.026	0.815	0.581	0.436
110	2.762	2.169	1.667	1.364	1.076	1.053	0.854	0.615	0.436
115	2.830	2.261	1.729	1.415	1.108	1.079	0.892	0.649	0.436
120	2.899	2.353	1.790	1.466	1.140	1.106	0.931	0.682	0.436
125	2.967	2.445	1.851	1.516	1.172	1.132	0.969	0.716	0.436
130	3.036	2.513	1.912	1.567	1.204	1.158	1.006	0.750	0.460
135	3.104	2.545	1.973	1.617	1.236	1.185	1.035	0.784	0.499
140	3.173	2.576	2.035	1.668	1.268	1.211	1.065	0.818	0.538
145	3.241	2.608	2.096	1.719	1.299	1.238	1.094	0.851	0.576
150	3.310	2.640	2.157	1.769	1.331	1.264	1.124	0.885	0.615
155	3.378	2.672	2.218	1.820	1.363	1.290	1.153	0.919	0.653
160	3.447	2.704	2.280	1.870	1.395	1.317	1.182	0.953	0.692
165	3.508	2.736	2.341	1.921	1.427	1.343	1.212	0.986	0.730
170	3.547	2.768	2.402	1.972	1.459	1.370	1.241	1.017	0.769
175	3.585	2.799	2.463	2.022	1.491	1.396	1.271	1.045	0.807
180	3.624	2.831	2.513	2.073	1.523	1.423	1.300	1.073	0.846
185	3.662	2.863	2.545	2.123	1.554	1.449	1.329	1.101	0.884
190	3.700	2.895	2.577	2.174	1.586	1.475	1.359	1.129	0.923
195	3.739	2.927	2.610	2.225	1.618	1.502	1.388	1.157	0.961
200	3.777	2.959	2.642	2.275	1.650	1.528	1.418	1.185	1.000
205	3.815	2.990	2.674	2.326	1.682	1.555	1.447	1.213	1.019
210	3.854	3.022	2.706	2.376	1.714	1.581	1.476	1.241	1.039
215	3.892	3.054	2.739	2.427	1.746	1.607	1.506	1.269	1.058
220	3.931	3.086	2.771	2.478	1.778	1.634	1.535	1.297	1.077
225	3.969	3.118	2.803	2.510	1.809	1.660	1.565	1.325	1.097
230	4.007	3.150	2.835	2.528	1.841	1.687	1.594	1.353	1.116
235	4.046	3.182	2.868	2.546	1.873	1.713	1.624	1.381	1.135
240	4.084	3.213	2.900	2.564	1.905	1.739	1.653	1.409	1.155
245	4.122	3.245	2.932	2.582	1.937	1.766	1.682	1.437	1.174
250	4.161	3.277	2.965	2.600	1.969	1.792	1.712	1.465	1.193
255	4.199	3.309	2.997	2.618	2.001	1.819	1.741	1.493	1.213
260	4.237	3.341	3.029	2.636	2.033	1.845	1.771	1.521	1.232
265	4.276	3.373	3.061	2.654	2.064	1.871	1.800	1.549	1.251
270	4.314	3.404	3.094	2.672	2.096	1.898	1.829	1.576	1.270
275	4.353	3.436	3.126	2.690	2.128	1.924	1.859	1.604	1.290
280	4.391	3.468	3.158	2.708	2.160	1.951	1.888	1.632	1.309
285	4.429	3.500	3.190	2.726	2.192	1.977	1.918	1.660	1.328
290	4.468	3.527	3.223	2.744	2.224	2.004	1.947	1.688	1.348
295	4.506	3.554	3.255	2.762	2.256	2.030	1.976	1.716	1.367
300	4.544	3.581	3.287	2.780	2.288	2.056	2.006	1.744	1.386
305	4.583	3.608	3.319	2.798	2.319	2.083	2.035	1.772	1.406
310	4.621	3.635	3.352	2.816	2.351	2.109	2.065	1.800	1.425
315	4.660	3.662	3.384	2.834	2.383	2.135	2.094	1.828	1.444
320	4.698	3.689	3.416	2.852	2.415	2.161	2.124	1.856	1.464
325	4.736	3.715	3.448	2.870	2.447	2.187	2.153	1.884	1.483
330	4.775	3.742	3.481	2.888	2.479	2.213	2.182	1.912	1.502
335	4.824	3.769	3.506	2.906	2.509	2.239	2.212	1.940	1.522

Thickness is intumescent only.
Table also applies to 4 sided I/H beams up to a maximum protection thickness of 5.900mm.

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Section Factor up to m^{-1}	Table B3: I Section Columns								
	Thickness (mm) Required for a Fire Resistance Period of 90 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	2.697	0.944	0.944	0.697	0.500	0.482	0.482	0.482	0.447
30	2.697	1.000	0.948	0.722	0.515	0.482	0.482	0.482	0.447
35	2.697	1.141	0.948	0.785	0.588	0.543	0.483	0.483	0.447
40	2.697	1.281	1.034	0.848	0.662	0.604	0.483	0.483	0.447
45	2.697	1.422	1.121	0.912	0.735	0.665	0.535	0.491	0.447
50	2.697	1.563	1.207	0.975	0.809	0.726	0.587	0.491	0.447
55	2.697	1.704	1.293	1.054	0.882	0.787	0.638	0.491	0.447
60	2.697	1.844	1.379	1.143	0.956	0.848	0.690	0.536	0.447
65	2.697	1.985	1.466	1.232	1.021	0.910	0.742	0.582	0.447
70	2.697	2.126	1.552	1.321	1.072	0.971	0.793	0.627	0.447
75	2.697	2.266	1.638	1.411	1.124	1.022	0.845	0.673	0.485
80	2.764	2.407	1.724	1.500	1.176	1.064	0.897	0.718	0.523
85	2.831	2.543	1.810	1.589	1.228	1.106	0.948	0.764	0.561
90	2.897	2.669	1.897	1.679	1.279	1.149	1.000	0.809	0.598
95	2.964	2.795	1.983	1.768	1.331	1.191	1.042	0.855	0.636
100	3.031	2.921	2.069	1.857	1.383	1.233	1.083	0.900	0.674
105	3.098	3.047	2.155	1.946	1.434	1.275	1.125	0.945	0.712
110	3.178	3.173	2.241	2.036	1.486	1.318	1.167	0.991	0.750
115	3.303	3.298	2.328	2.125	1.538	1.360	1.208	1.027	0.788
120	3.429	3.424	2.414	2.214	1.590	1.402	1.250	1.061	0.826
125	3.517	3.512	2.500	2.304	1.641	1.444	1.292	1.095	0.864
130	3.548	3.543	2.622	2.393	1.693	1.486	1.333	1.128	0.902
135	3.579	3.574	2.744	2.482	1.745	1.529	1.375	1.162	0.939
140	3.610	3.605	2.866	2.528	1.797	1.571	1.417	1.196	0.977
145	3.641	3.636	2.988	2.564	1.848	1.613	1.458	1.230	1.014
150	3.698	3.667	3.110	2.599	1.900	1.655	1.500	1.264	1.049
155	3.765	3.698	3.232	2.635	1.952	1.698	1.542	1.297	1.084
160	3.832	3.729	3.354	2.670	2.003	1.740	1.583	1.331	1.119
165	3.899	3.760	3.476	2.706	2.055	1.782	1.625	1.365	1.154
170	3.966	3.791	3.518	2.741	2.107	1.824	1.667	1.399	1.189
175	4.032	3.822	3.541	2.777	2.159	1.867	1.708	1.432	1.224
180	4.099	3.853	3.563	2.812	2.210	1.909	1.750	1.466	1.259
185	4.166	3.884	3.586	2.848	2.262	1.951	1.792	1.500	1.294
190	4.233	3.915	3.608	2.883	2.314	1.993	1.833	1.534	1.329
195	4.299	3.946	3.631	2.918	2.366	2.035	1.875	1.568	1.364
200	4.366	3.977	3.653	2.954	2.417	2.078	1.917	1.601	1.400
205	4.433	4.008	3.676	2.989	2.469	2.120	1.958	1.635	1.435
210	4.500	4.039	3.699	3.025	2.521	2.162	2.000	1.669	1.470
215	4.566	4.070	3.721	3.060	2.574	2.204	2.042	1.703	1.505
220	4.633	4.100	3.744	3.096	2.626	2.247	2.083	1.736	1.540
225	4.700	4.131	3.766	3.131	2.679	2.289	2.125	1.770	1.575
230	4.767	4.162	3.789	3.167	2.732	2.331	2.167	1.804	1.610
235	4.836	4.193	3.811	3.202	2.784	2.373	2.208	1.838	1.645
240	4.909	4.224	3.834	3.238	2.837	2.416	2.250	1.872	1.680
245	4.982	4.255	3.857	3.273	2.889	2.458	2.292	1.905	1.715
250	5.055	4.286	3.879	3.309	2.942	2.500	2.333	1.939	1.750
255	5.127	4.317	3.902	3.344	2.995	2.530	2.375	1.973	1.785
260	5.200	4.348	3.924	3.379	3.047	2.560	2.417	2.007	1.820
265	5.273	4.379	3.947	3.415	3.100	2.590	2.458	2.041	1.855
270	5.345	4.410	3.969	3.450	3.153	2.620	2.500	2.074	1.890
275	5.418	4.441	3.992	3.486	3.205	2.650	2.518	2.108	1.925
280	5.491	4.472	4.015	3.509	3.258	2.680	2.535	2.142	1.960
285	5.564	4.503	4.037	3.524	3.311	2.710	2.553	2.176	1.995
290	5.636	4.534	4.060	3.539	3.363	2.740	2.570	2.209	2.030
295	5.709	4.565	4.082	3.554	3.416	2.770	2.588	2.243	2.065
300	5.782	4.596	4.105	3.568	3.468	2.800	2.605	2.277	2.100
305	5.855	4.627	4.127	3.583	3.508	2.830	2.623	2.311	2.136
310	5.927	4.658	4.150	3.598	3.528	2.860	2.640	2.345	2.171
315	6.000	4.689	4.173	3.613	3.548	2.890	2.658	2.378	2.206
320	6.073	4.720	4.195	3.628	3.569	2.920	2.675	2.412	2.241
325	6.145	4.750	4.218	3.643	3.589	2.950	2.693	2.446	2.276
330	6.218	4.781	4.240	3.658	3.609	2.980	2.711	2.480	2.311
335	6.291	4.824	4.263	3.672	3.629	3.010	2.728	2.520	2.346

Thickness is intumescent only.
Table also applies to 4 sided I/H beams up to a maximum protection thickness of 5.900mm.

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Section Factor up to m^{-1}	Table B4: I Section Columns								
	Thickness (mm) Required for a Fire Resistance Period of 105 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	4.673	2.207	0.943	0.943	0.745	0.607	0.497	0.476	0.459
30	4.673	2.207	1.000	1.000	0.777	0.637	0.523	0.476	0.459
35	4.673	2.207	1.142	1.000	0.857	0.713	0.589	0.476	0.459
40	4.673	2.269	1.283	1.127	0.936	0.788	0.656	0.537	0.459
45	4.673	2.330	1.425	1.254	1.018	0.864	0.722	0.598	0.459
50	4.673	2.392	1.566	1.381	1.106	0.940	0.788	0.659	0.500
55	4.673	2.453	1.708	1.508	1.194	1.016	0.854	0.720	0.541
60	4.673	2.524	1.849	1.636	1.282	1.097	0.921	0.780	0.582
65	4.673	2.622	1.991	1.763	1.371	1.177	0.987	0.841	0.623
70	4.673	2.721	2.132	1.890	1.459	1.258	1.053	0.902	0.664
75	4.673	2.819	2.274	2.017	1.547	1.339	1.120	0.963	0.705
80	4.673	2.918	2.415	2.144	1.635	1.419	1.187	1.019	0.746
85	4.673	3.017	2.528	2.271	1.724	1.500	1.253	1.066	0.787
90	4.673	3.115	2.596	2.398	1.812	1.581	1.320	1.113	0.828
95	4.673	3.214	2.665	2.519	1.900	1.661	1.386	1.159	0.869
100	4.673	3.312	2.734	2.659	1.988	1.742	1.453	1.206	0.910
105	4.673	3.411	2.803	2.800	2.076	1.823	1.520	1.253	0.951
110	4.673	3.510	2.946	2.941	2.165	1.903	1.586	1.300	0.992
115	4.673	3.608	3.086	3.081	2.253	1.984	1.653	1.347	1.045
120	4.673	3.707	3.227	3.222	2.341	2.065	1.720	1.394	1.102
125	4.673	3.805	3.368	3.363	2.429	2.145	1.786	1.441	1.158
130	4.736	3.904	3.505	3.500	2.545	2.226	1.853	1.488	1.214
135	4.799	4.003	3.522	3.517	2.773	2.306	1.919	1.534	1.271
140	4.862	4.101	3.538	3.533	3.000	2.387	1.986	1.581	1.327
145	4.925	4.200	3.555	3.550	3.227	2.468	2.053	1.628	1.383
150	4.988	4.298	3.571	3.566	3.455	2.567	2.119	1.675	1.440
155	5.050	4.397	3.587	3.582	3.515	2.678	2.186	1.722	1.496
160	5.113	4.496	3.604	3.599	3.534	2.789	2.253	1.769	1.553
165	5.176	4.594	3.629	3.615	3.552	2.900	2.319	1.816	1.609
170	5.239	4.693	3.698	3.632	3.571	3.011	2.386	1.863	1.665
175	5.302	4.791	3.767	3.648	3.589	3.122	2.452	1.909	1.722
180	5.365	4.844	3.836	3.665	3.608	3.233	2.515	1.956	1.778
185	5.428	4.891	3.905	3.681	3.627	3.344	2.565	2.003	1.835
190	5.491	4.939	3.974	3.697	3.645	3.456	2.616	2.050	1.891
195	5.554	4.987	4.043	3.714	3.664	3.507	2.667	2.097	1.947
200	5.617	5.035	4.111	3.730	3.683	3.518	2.718	2.144	2.004
205	5.680	5.083	4.180	3.747	3.701	3.529	2.769	2.191	2.060
210	5.743	5.130	4.249	3.763	3.720	3.541	2.819	2.238	2.117
215	5.806	5.178	4.318	3.779	3.738	3.552	2.870	2.284	2.173
220	5.869	5.226	4.387	3.796	3.757	3.563	2.921	2.331	2.229
225	5.932	5.274	4.456	3.812	3.776	3.574	2.972	2.378	2.286
230	5.994	5.322	4.525	3.829	3.794	3.586	3.022	2.425	2.342
235	6.057	5.369	4.593	3.845	3.813	3.597	3.073	2.472	2.398
240	6.120	5.417	4.662	3.861	3.832	3.608	3.124	2.521	2.455
245	6.183	5.465	4.731	3.878	3.850	3.619	3.175	2.574	2.505
250	6.246	5.513	4.800	3.894	3.869	3.631	3.226	2.626	2.528
255	6.309	5.561	4.840	3.911	3.887	3.642	3.276	2.679	2.552
260	6.372	5.609	4.880	3.927	3.906	3.653	3.327	2.732	2.576
265	6.435	5.656	4.920	3.943	3.925	3.664	3.378	2.784	2.600
270	6.498	5.704	4.960	3.960	3.943	3.676	3.429	2.837	2.623
275	6.561	5.752	5.000	3.976	3.962	3.687	3.480	2.889	2.647
280	6.624	5.800	5.040	3.993	3.981	3.698	3.508	2.942	2.671
285	6.687	5.848	5.080	4.009	3.999	3.710	3.521	2.995	2.694
290	6.750	5.895	5.120	4.026	4.018	3.721	3.534	3.047	2.718
295	6.813	5.943	5.160	4.042	4.036	3.732	3.548	3.100	2.742
300	6.876	5.991	5.200	4.058	4.055	3.743	3.561	3.153	2.765
305	6.938	6.039	5.240	4.075	4.074	3.755	3.574	3.205	2.789
310	7.001	6.087	5.280	4.097	4.092	3.766	3.587	3.258	2.813
315	7.064	6.134	5.320	4.116	4.111	3.777	3.600	3.311	2.836
320	7.127	6.182	5.360	4.135	4.130	3.788	3.614	3.363	2.860
325	7.190	6.230	5.400	4.153	4.148	3.799	3.627	3.416	2.884
330	7.253	6.278	5.440	4.172	4.167	3.810	3.640	3.468	2.908
335	7.316	6.326	5.480	4.190	4.185	3.821	3.653	3.521	2.931

Thickness is intumescent only.
Table also applies to 4 sided I/H beams up to a maximum protection thickness of 5.900mm.

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Section Factor up to m^{-1}	Table B5: I Section Columns								
	Thickness (mm) Required for a Fire Resistance Period of 120 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	5.798	2.500	2.445	1.518	0.925	0.812	0.678	0.543	0.489
30	5.798	2.500	2.445	1.518	0.955	0.812	0.678	0.543	0.489
35	5.798	2.500	2.445	1.518	1.053	0.897	0.767	0.617	0.489
40	5.798	2.500	2.445	1.654	1.184	0.983	0.857	0.690	0.543
45	5.798	2.500	2.445	1.791	1.316	1.102	0.946	0.764	0.596
50	5.798	2.709	2.445	1.927	1.447	1.229	1.038	0.838	0.649
55	5.798	2.918	2.445	2.063	1.579	1.356	1.135	0.912	0.702
60	5.798	3.127	2.583	2.200	1.711	1.483	1.231	0.985	0.755
65	5.798	3.336	2.722	2.336	1.842	1.610	1.327	1.063	0.809
70	5.798	3.545	2.860	2.473	1.974	1.737	1.423	1.142	0.862
75	5.798	3.755	2.999	2.563	2.105	1.864	1.519	1.221	0.915
80	5.798	3.964	3.137	2.641	2.237	1.992	1.615	1.300	0.968
85	5.798	4.173	3.276	2.720	2.368	2.119	1.712	1.379	1.034
90	5.798	4.382	3.414	2.799	2.500	2.246	1.808	1.458	1.118
95	5.798	4.591	3.553	2.877	2.543	2.373	1.904	1.537	1.202
100	5.798	4.800	3.692	2.956	2.586	2.500	2.000	1.616	1.287
105	5.798	4.852	3.830	3.034	2.629	2.534	2.096	1.695	1.371
110	5.798	4.903	3.969	3.113	2.672	2.569	2.192	1.774	1.455
115	5.798	4.955	4.107	3.191	2.715	2.603	2.288	1.853	1.539
120	5.798	5.006	4.246	3.270	2.758	2.638	2.385	1.932	1.624
125	5.798	5.058	4.384	3.368	2.801	2.672	2.481	2.011	1.708
130	5.798	5.109	4.523	3.501	2.844	2.707	2.544	2.089	1.792
135	5.856	5.161	4.661	3.522	2.887	2.741	2.599	2.168	1.876
140	5.913	5.212	4.800	3.584	3.005	2.775	2.654	2.247	1.961
145	5.970	5.264	4.846	3.663	3.232	2.810	2.709	2.326	2.045
150	6.028	5.315	4.892	3.741	3.460	2.844	2.764	2.405	2.129
155	6.085	5.367	4.938	3.820	3.520	2.879	2.819	2.484	2.213
160	6.143	5.418	4.984	3.898	3.539	2.913	2.874	2.543	2.298
165	6.200	5.470	5.030	3.977	3.557	2.948	2.929	2.596	2.382
170	6.257	5.521	5.076	4.055	3.576	3.016	2.984	2.649	2.466
175	6.315	5.573	5.122	4.134	3.594	3.127	3.038	2.702	2.521
180	6.372	5.624	5.168	4.213	3.613	3.238	3.093	2.755	2.557
185	6.429	5.676	5.214	4.291	3.632	3.349	3.148	2.809	2.592
190	6.487	5.727	5.261	4.370	3.650	3.461	3.203	2.862	2.628
195	6.544	5.779	5.307	4.448	3.669	3.512	3.258	2.915	2.663
200	6.601	5.830	5.353	4.527	3.688	3.523	3.313	2.968	2.699
205	6.659	5.882	5.399	4.605	3.706	3.534	3.368	3.021	2.734
210	6.716	5.933	5.445	4.684	3.725	3.546	3.423	3.074	2.770
215	6.774	5.985	5.491	4.762	3.743	3.557	3.478	3.128	2.805
220	6.831	6.036	5.537	4.809	3.762	3.568	3.514	3.181	2.840
225	6.888	6.088	5.583	4.826	3.781	3.579	3.537	3.234	2.876
230	6.946	6.139	5.629	4.843	3.799	3.591	3.560	3.287	2.911
235	7.003	6.191	5.675	4.860	3.811	3.602	3.583	3.340	2.947
240	7.060	6.242	5.721	4.878	3.822	3.611	3.606	3.394	2.982
245	7.118	6.294	5.767	4.895	3.834	3.634	3.629	3.447	3.018
250	7.175	6.345	5.813	4.912	3.878	3.657	3.652	3.500	3.053
255	7.233	6.397	5.859	4.929	3.921	3.680	3.675	3.532	3.089
260	7.290	6.448	5.905	4.946	3.964	3.703	3.698	3.563	3.124
265	7.347	6.500	5.951	4.963	4.007	3.725	3.720	3.595	3.160
270	7.405	6.552	5.997	4.981	4.050	3.748	3.743	3.627	3.195
275	7.462	6.603	6.043	4.998	4.093	3.771	3.766	3.659	3.230
280	7.519	6.655	6.089	5.015	4.136	3.794	3.789	3.690	3.266
285	7.577	6.706	6.136	5.032	4.179	3.817	3.812	3.722	3.301
290	7.634	6.758	6.182	5.049	4.222	3.840	3.835	3.754	3.337
295	7.692	6.809	6.228	5.066	4.265	3.863	3.858	3.785	3.372
300	7.749	6.861	6.274	5.084	4.308	3.886	3.881	3.817	3.408
305		6.912	6.320	5.101	4.351	3.912	3.904	3.849	3.443
310		6.964	6.366	5.118	4.394	3.946	3.927	3.880	3.479
315		7.015	6.412	5.135	4.437	3.981	3.950	3.912	3.511
320		7.067	6.458	5.152	4.480	4.015	3.973	3.944	3.537
325		7.118	6.504	5.169	4.523	4.049	3.996	3.976	3.564
330		7.170	6.550	5.187	4.566	4.084	4.019	4.007	3.591
335		7.221	6.596	5.204	4.609	4.118	4.042	4.039	3.618

Thickness is intumescent only.
Table also applies to 4 sided I/H beams up to a maximum protection thickness of 5.900mm.

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Section Factor up to m^{-1}	Table B6: I Section Columns								
	Thickness (mm) Required for a Fire Resistance Period of 150 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25			6.800	5.622	2.283	1.798	1.000	0.837	0.700
30			6.800	5.622	2.283	1.798	1.000	0.837	0.700
35			6.800	5.622	2.283	1.798	1.160	0.939	0.788
40			6.800	5.622	2.283	1.798	1.319	1.061	0.876
45			6.800	5.622	2.369	1.993	1.479	1.214	0.965
50			6.800	5.622	2.455	2.188	1.638	1.367	1.078
55			6.800	5.622	2.541	2.383	1.798	1.520	1.207
60			6.800	5.622	2.627	2.555	1.957	1.673	1.336
65			6.800	5.622	2.712	2.692	2.117	1.827	1.466
70			6.800	5.622	2.834	2.829	2.277	1.980	1.595
75			6.800	5.622	2.970	2.965	2.436	2.133	1.724
80			6.800	5.622	3.107	3.102	2.556	2.286	1.853
85			6.800	5.622	3.244	3.239	2.650	2.439	1.983
90			6.800	5.622	3.381	3.376	2.743	2.539	2.112
95			6.800	5.622	3.518	3.513	2.837	2.605	2.241
100			6.800	5.622	3.655	3.650	2.930	2.670	2.371
105			6.800	5.622	3.792	3.787	3.024	2.735	2.500
110			6.800	5.622	3.929	3.924	3.117	2.801	2.539
115			6.800	5.622	4.066	4.061	3.211	2.866	2.578
120			6.800	5.675	4.203	4.198	3.304	2.931	2.617
125			6.800	5.727	4.340	4.335	3.398	2.997	2.656
130			6.800	5.780	4.476	4.471	3.491	3.062	2.695
135			6.800	5.832	4.613	4.608	3.585	3.127	2.734
140			6.800	5.885	4.750	4.745	3.678	3.193	2.773
145			6.800	5.938	4.833	4.828	3.772	3.258	2.812
150			6.800	5.990	4.879	4.874	3.865	3.323	2.851
155			6.800	6.043	4.926	4.921	3.959	3.389	2.890
160				6.095	4.972	4.967	4.052	3.454	2.929
165				6.148	5.019	5.014	4.146	3.519	2.968
170				6.200	5.065	5.060	4.239	3.585	3.007
175				6.253	5.112	5.107	4.333	3.650	3.046
180				6.306	5.158	5.153	4.426	3.715	3.085
185				6.358	5.205	5.200	4.520	3.781	3.124
190				6.411	5.252	5.247	4.613	3.846	3.163
195				6.463	5.298	5.293	4.707	3.911	3.202
200				6.516	5.345	5.340	4.800	3.977	3.241
205				6.569	5.391	5.386	4.843	4.042	3.280
210				6.621	5.438	5.433	4.885	4.107	3.319
215				6.674	5.484	5.479	4.928	4.173	3.358
220				6.726	5.531	5.526	4.971	4.238	3.397
225				6.779	5.577	5.572	5.014	4.303	3.436
230				6.832	5.624	5.619	5.056	4.369	3.475
235				6.884	5.670	5.665	5.099	4.434	3.514
240				6.937	5.718	5.712	5.142	4.499	3.553
245				6.989	5.803	5.758	5.185	4.565	3.592
250				7.041	5.889	5.805	5.227	4.630	3.631
255				7.093	5.975	5.851	5.270	4.695	3.669
260				7.145	6.061	5.898	5.313	4.761	3.708
265				7.197	6.147	5.944	5.356	4.821	3.747
270				7.249	6.233	5.991	5.398	4.873	3.786
275				7.301	6.319	6.037	5.441	4.925	3.825
280				7.353	6.405	6.084	5.484	4.977	3.864
285				7.405	6.490	6.130	5.526	5.029	3.903
290				7.457	6.576	6.177	5.569	5.081	3.942
295				7.509	6.662	6.223	5.612	5.133	3.981
300				7.561	6.748	6.270	5.655	5.185	4.020
305				7.613	6.834	6.316	5.697	5.238	4.059
310				7.665	6.920	6.363	5.740	5.290	4.098
315				7.717	7.006	6.409	5.783	5.342	4.137
320				7.769	7.091	6.456	5.826	5.394	4.176
325					7.177	6.502	5.868	5.446	4.215
330					7.263	6.549	5.911	5.498	4.254
335					7.349	6.595	5.954	5.550	4.293

Thickness is intumescent only.
Table also applies to 4 sided I/H beams up to a maximum protection thickness of 5.900mm.

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Section Factor up to m^{-1}	Table C1: Rectangular Hollow Beams									
	Thickness (mm) Required for a Fire Resistance Period of 60 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
30	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
35	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
40	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
45	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
50	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
55	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
60	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
65	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
70	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
75	1.783	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
80	1.918	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
85	2.054	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
90	2.190	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
95	2.326	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
100	2.462	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
105	2.598	1.716	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
110	2.734	1.845	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
115	2.870	1.974	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
120	3.005	2.103	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
125	3.141	2.232	1.735	1.706	1.706	1.706	1.706	1.706	1.706	1.706
130	3.277	2.361	1.845	1.706	1.706	1.706	1.706	1.706	1.706	1.706
135	3.413	2.490	1.956	1.706	1.706	1.706	1.706	1.706	1.706	1.706
140	3.549	2.619	2.066	1.706	1.706	1.706	1.706	1.706	1.706	1.706
145	3.685	2.747	2.177	1.706	1.706	1.706	1.706	1.706	1.706	1.706
150	3.821	2.876	2.288	1.707	1.706	1.706	1.706	1.706	1.706	1.706
155	3.957	3.005	2.398	1.793	1.706	1.706	1.706	1.706	1.706	1.706
160	4.092	3.134	2.509	1.879	1.706	1.706	1.706	1.706	1.706	1.706
165	4.228	3.263	2.619	1.966	1.706	1.706	1.706	1.706	1.706	1.706
170	4.364	3.392	2.730	2.052	1.706	1.706	1.706	1.706	1.706	1.706
175	4.500	3.521	2.841	2.138	1.706	1.706	1.706	1.706	1.706	1.706
180	4.609	3.649	2.951	2.224	1.706	1.706	1.706	1.706	1.706	1.706
185	4.717	3.778	3.062	2.310	1.706	1.706	1.706	1.706	1.706	1.706
190	4.826	3.907	3.173	2.397	1.771	1.706	1.706	1.706	1.706	1.706
195	4.935	4.036	3.283	2.483	1.853	1.726	1.726	1.706	1.706	1.706
200	5.043	4.165	3.394	2.569	1.935	1.788	1.788	1.706	1.706	1.706
205	5.152	4.294	3.504	2.655	2.016	1.850	1.850	1.706	1.706	1.706
210	5.261	4.423	3.615	2.741	2.098	1.913	1.913	1.706	1.706	1.706
215	5.370	4.533	3.726	2.828	2.180	1.975	1.975	1.706	1.706	1.706
220	5.478	4.617	3.836	2.914	2.261	2.038	2.038	1.706	1.706	1.706
225	5.587	4.700	3.947	3.000	2.343	2.100	2.100	1.750	1.709	1.706
230	5.696	4.783	4.058	3.086	2.425	2.163	2.163	1.800	1.747	1.706
235	5.804	4.867	4.168	3.172	2.507	2.225	2.225	1.850	1.785	1.706
240	5.913	4.950	4.279	3.259	2.588	2.288	2.288	1.900	1.823	1.706
245	6.022	5.033	4.389	3.345	2.670	2.350	2.350	1.950	1.862	1.737
250	6.130	5.117	4.500	3.431	2.752	2.413	2.413	2.000	1.900	1.770
255	6.239	5.200	4.579	3.517	2.833	2.475	2.475	2.050	1.938	1.803
260	6.348	5.283	4.658	3.603	2.915	2.538	2.538	2.100	1.977	1.836
265	6.457	5.367	4.737	3.690	2.997	2.600	2.600	2.150	2.015	1.869
270	6.565	5.450	4.816	3.776	3.078	2.663	2.663	2.200	2.054	1.902
275		5.533	4.895	3.862	3.160	2.725	2.725	2.250	2.092	1.934
280		5.617	4.974	3.948	3.242	2.788	2.788	2.300	2.131	1.967
285		5.700	5.053	4.034	3.324	2.850	2.850	2.350	2.169	2.000
290		5.783	5.132	4.121	3.405	2.913	2.913	2.400	2.208	2.033
295		5.867	5.211	4.207	3.487	2.975	2.975	2.450	2.246	2.066
300		5.950	5.289	4.293	3.569	3.038	3.038	2.500	2.285	2.098
305		6.033	5.368	4.379	3.650	3.100	3.100	2.550	2.323	2.131
310		6.117	5.447	4.466	3.732	3.163	3.163	2.600	2.362	2.164
315		6.200	5.526	4.551	3.814	3.225	3.225	2.650	2.400	2.197
320		6.283	5.605	4.636	3.895	3.288	3.288	2.700	2.438	2.230
325		6.367	5.684	4.722	3.977	3.350	3.350	2.750	2.477	2.262
330		6.450	5.763	4.807	4.059	3.413	3.413	2.800	2.515	2.295

Thickness is intumescent only.
Table applies to hollow beams with 3-sided protection and a concrete slab.

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CERTIFICATE No CF 5012
Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table C2: Rectangular Hollow Beams									
	Thickness (mm) Required for a Fire Resistance Period of 75 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25	1.865	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
30	1.993	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
35	2.121	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
40	2.249	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
45	2.377	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
50	2.505	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
55	2.633	1.755	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
60	2.761	1.891	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
65	2.888	2.027	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
70	3.016	2.163	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
75	3.144	2.299	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
80	3.272	2.435	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
85	3.400	2.571	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
90	3.528	2.707	1.851	1.761	1.706	1.706	1.706	1.706	1.706	1.706
95	3.656	2.842	2.000	1.761	1.706	1.706	1.706	1.706	1.706	1.706
100	3.784	2.978	2.149	1.761	1.706	1.706	1.706	1.706	1.706	1.706
105	3.912	3.114	2.298	1.761	1.706	1.706	1.706	1.706	1.706	1.706
110	4.040	3.250	2.446	1.761	1.706	1.706	1.706	1.706	1.706	1.706
115	4.167	3.386	2.595	1.894	1.706	1.706	1.706	1.706	1.706	1.706
120	4.295	3.522	2.744	2.027	1.706	1.706	1.706	1.706	1.706	1.706
125	4.423	3.658	2.893	2.160	1.706	1.706	1.706	1.706	1.706	1.706
130	4.591	3.793	3.042	2.293	1.706	1.706	1.706	1.706	1.706	1.706
135	4.818	3.929	3.190	2.426	1.813	1.706	1.706	1.706	1.706	1.706
140	5.045	4.065	3.339	2.559	1.930	1.706	1.706	1.706	1.706	1.706
145	5.273	4.201	3.488	2.691	2.047	1.718	1.718	1.706	1.706	1.706
150	5.500	4.337	3.637	2.824	2.164	1.806	1.806	1.706	1.706	1.706
155	5.727	4.473	3.786	2.957	2.280	1.894	1.894	1.706	1.706	1.706
160	5.955	4.636	3.935	3.090	2.397	1.982	1.982	1.732	1.706	1.706
165	6.182	4.807	4.083	3.223	2.514	2.070	2.070	1.803	1.706	1.706
170	6.409	4.977	4.232	3.356	2.631	2.158	2.158	1.874	1.706	1.706
175		5.148	4.381	3.489	2.748	2.246	2.246	1.944	1.732	1.706
180		5.318	4.528	3.622	2.864	2.335	2.335	2.014	1.786	1.726
185		5.489	4.670	3.755	2.981	2.423	2.423	2.084	1.840	1.763
190		5.659	4.811	3.888	3.098	2.511	2.511	2.154	1.893	1.800
195		5.830	4.953	4.021	3.215	2.599	2.599	2.225	1.947	1.837
200		6.000	5.094	4.154	3.332	2.687	2.687	2.295	2.000	1.874
205		6.170	5.236	4.287	3.449	2.775	2.775	2.365	2.053	1.911
210		6.341	5.377	4.420	3.565	2.863	2.863	2.435	2.107	1.948
215		6.511	5.519	4.541	3.682	2.951	2.951	2.506	2.160	1.985
220			5.660	4.644	3.799	3.039	3.039	2.576	2.214	2.022
225			5.802	4.747	3.916	3.127	3.127	2.646	2.267	2.059
230			5.943	4.849	4.033	3.215	3.215	2.716	2.321	2.096
235			6.085	4.952	4.150	3.303	3.303	2.787	2.374	2.133
240			6.226	5.055	4.266	3.391	3.391	2.857	2.427	2.170
245			6.368	5.158	4.383	3.479	3.479	2.927	2.481	2.207
250			6.509	5.260	4.500	3.567	3.567	2.997	2.534	2.244
255				5.363	4.579	3.655	3.655	3.067	2.588	2.281
260				5.466	4.658	3.743	3.743	3.138	2.641	2.318
265				5.568	4.737	3.831	3.831	3.208	2.694	2.355
270				5.671	4.816	3.919	3.919	3.278	2.748	2.392
275				5.774	4.895	4.007	4.007	3.348	2.801	2.429
280				5.877	4.974	4.095	4.095	3.419	2.855	2.466
285				5.979	5.053	4.183	4.183	3.489	2.908	2.503
290				6.082	5.132	4.271	4.271	3.559	2.962	2.540
295				6.185	5.211	4.359	4.359	3.629	3.015	2.577
300				6.288	5.289	4.447	4.447	3.699	3.068	2.614
305				6.390	5.368	4.531	4.531	3.770	3.122	2.651
310				6.493	5.447	4.608	4.608	3.840	3.175	2.688
315				6.596	5.526	4.686	4.686	3.910	3.229	2.725
320					5.605	4.763	4.763	3.980	3.282	2.762
325					5.684	4.840	4.840	4.051	3.335	2.799
330					5.763	4.918	4.918	4.121	3.389	2.836

Thickness is intumescent only.
Table applies to hollow beams with 3-sided protection and a concrete slab.

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Section Factor up to m^{-1}	Table C3: Rectangular Hollow Beams									
	Thickness (mm) Required for a Fire Resistance Period of 90 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25	4.275	3.011	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
30	4.275	3.011	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
35	4.275	3.011	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
40	4.275	3.011	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
45	4.275	3.011	1.706	1.706	1.706	1.706	1.706	1.706	1.706	1.706
50	4.275	3.011	1.719	1.706	1.706	1.706	1.706	1.706	1.706	1.706
55	4.275	3.011	1.875	1.706	1.706	1.706	1.706	1.706	1.706	1.706
60	4.275	3.011	2.031	1.706	1.706	1.706	1.706	1.706	1.706	1.706
65	4.275	3.120	2.188	1.706	1.706	1.706	1.706	1.706	1.706	1.706
70	4.275	3.245	2.344	1.706	1.706	1.706	1.706	1.706	1.706	1.706
75	4.275	3.371	2.500	1.744	1.706	1.706	1.706	1.706	1.706	1.706
80	4.275	3.496	2.656	1.904	1.706	1.706	1.706	1.706	1.706	1.706
85	4.275	3.622	2.813	2.064	1.706	1.706	1.706	1.706	1.706	1.706
90	4.275	3.747	2.969	2.224	1.706	1.706	1.706	1.706	1.706	1.706
95	4.275	3.873	3.125	2.385	1.706	1.706	1.706	1.706	1.706	1.706
100	4.565	3.998	3.281	2.545	1.849	1.706	1.706	1.706	1.706	1.706
105	4.891	4.124	3.438	2.705	2.000	1.706	1.706	1.706	1.706	1.706
110	5.217	4.249	3.594	2.865	2.151	1.706	1.706	1.706	1.706	1.706
115	5.543	4.375	3.750	3.026	2.301	1.755	1.755	1.706	1.706	1.706
120	5.870	4.500	3.906	3.186	2.452	1.877	1.877	1.706	1.706	1.706
125	6.196	4.800	4.063	3.346	2.602	2.000	2.000	1.718	1.706	1.706
130	6.522	5.100	4.219	3.506	2.753	2.123	2.123	1.819	1.706	1.706
135		5.400	4.375	3.667	2.904	2.245	2.245	1.919	1.703	1.706
140		5.700	4.550	3.827	3.054	2.368	2.368	2.020	1.774	1.706
145		6.000	4.800	3.987	3.205	2.490	2.490	2.121	1.845	1.724
150		6.300	5.050	4.147	3.355	2.613	2.613	2.222	1.915	1.775
155		6.600	5.300	4.308	3.506	2.735	2.735	2.323	1.986	1.826
160			5.550	4.468	3.657	2.858	2.858	2.423	2.056	1.877
165			5.800	4.640	3.807	2.980	2.980	2.524	2.127	1.928
170			6.050	4.814	3.958	3.103	3.103	2.625	2.198	1.980
175			6.300	4.988	4.108	3.225	3.225	2.726	2.268	2.031
180			6.550	5.163	4.259	3.348	3.348	2.827	2.339	2.082
185				5.337	4.410	3.471	3.471	2.927	2.410	2.133
190				5.512	4.554	3.593	3.593	3.028	2.480	2.184
195				5.686	4.688	3.716	3.716	3.129	2.551	2.236
200				5.860	4.821	3.838	3.838	3.230	2.621	2.287
205				6.035	4.955	3.961	3.961	3.331	2.692	2.338
210				6.209	5.089	4.083	4.083	3.431	2.763	2.389
215				6.384	5.223	4.206	4.206	3.532	2.833	2.441
220				6.558	5.357	4.328	4.328	3.633	2.904	2.492
225					5.491	4.451	4.451	3.734	2.975	2.543
230					5.625	4.567	4.567	3.835	3.045	2.594
235					5.759	4.679	4.679	3.935	3.116	2.645
240					5.893	4.791	4.791	4.036	3.186	2.697
245					6.027	4.903	4.903	4.137	3.257	2.748
250					6.161	5.015	5.015	4.238	3.328	2.799
255					6.295	5.127	5.127	4.339	3.398	2.850
260					6.429	5.239	5.239	4.440	3.469	2.902
265					6.563	5.351	5.351	4.528	3.540	2.953
270						5.463	5.463	4.598	3.610	3.004
275						5.575	5.575	4.668	3.681	3.055
280						5.687	5.687	4.738	3.751	3.107
285						5.799	5.799	4.808	3.822	3.158
290						5.910	5.910	4.879	3.893	3.209
295						6.022	6.022	4.949	3.963	3.260
300						6.134	6.134	5.019	4.034	3.311
305						6.246	6.246	5.089	4.105	3.363
310						6.358	6.358	5.159	4.175	3.414
315						6.470	6.470	5.229	4.246	3.465
320						6.582	6.582	5.299	4.316	3.516
325								5.369	4.387	3.568
330								5.439	4.458	3.619

Thickness is intumescent only.
Table applies to hollow beams with 3-sided protection and a concrete slab.

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Section Factor up to m^{-1}	Table C4: Rectangular Hollow Beams									
	Thickness (mm) Required for a Fire Resistance Period of 105 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25		4.275	2.878	1.706	1.706	1.706	1.706	1.706	1.706	1.706
30		4.275	2.878	1.735	1.706	1.706	1.706	1.706	1.706	1.706
35		4.275	2.878	1.876	1.706	1.706	1.706	1.706	1.706	1.706
40		4.275	2.878	2.017	1.706	1.706	1.706	1.706	1.706	1.706
45		4.275	2.878	2.158	1.706	1.706	1.706	1.706	1.706	1.706
50		4.275	2.878	2.299	1.706	1.706	1.706	1.706	1.706	1.706
55		4.275	2.878	2.440	1.762	1.706	1.706	1.706	1.706	1.706
60		4.275	2.878	2.581	1.911	1.706	1.706	1.706	1.706	1.706
65		4.275	2.878	2.722	2.060	1.706	1.706	1.706	1.706	1.706
70		4.275	2.878	2.863	2.208	1.706	1.706	1.706	1.706	1.706
75		4.275	2.878	2.878	2.357	1.706	1.706	1.706	1.706	1.706
80		4.275	3.076	3.076	2.506	1.706	1.706	1.706	1.706	1.706
85		4.275	3.306	3.287	2.655	1.712	1.712	1.706	1.706	1.706
90		4.275	3.535	3.428	2.804	1.872	1.872	1.706	1.706	1.706
95		4.421	3.765	3.569	2.952	2.032	2.032	1.706	1.706	1.706
100		4.816	3.995	3.710	3.101	2.192	2.192	1.716	1.706	1.706
105		5.211	4.224	3.851	3.250	2.353	2.353	1.845	1.706	1.706
110		5.605	4.454	3.992	3.399	2.513	2.513	1.974	1.706	1.706
115		6.000	4.786	4.133	3.548	2.673	2.673	2.103	1.800	1.706
120		6.395	5.143	4.274	3.696	2.833	2.833	2.232	1.900	1.706
125			5.500	4.415	3.845	2.994	2.994	2.361	2.000	1.736
130			5.857	4.607	3.994	3.154	3.154	2.490	2.100	1.809
135			6.214	4.875	4.143	3.314	3.314	2.619	2.200	1.882
140			6.571	5.143	4.292	3.474	3.474	2.747	2.300	1.956
145				5.411	4.440	3.635	3.635	2.876	2.400	2.029
150				5.679	4.618	3.795	3.795	3.005	2.500	2.103
155				5.946	4.816	3.955	3.955	3.134	2.600	2.176
160				6.214	5.013	4.115	4.115	3.263	2.700	2.250
165				6.482	5.211	4.276	4.276	3.392	2.800	2.324
170					5.408	4.436	4.436	3.521	2.900	2.397
175					5.605	4.582	4.582	3.649	3.000	2.471
180					5.803	4.718	4.718	3.778	3.100	2.544
185					6.000	4.855	4.855	3.907	3.200	2.618
190					6.197	4.991	4.991	4.036	3.300	2.691
195					6.395	5.127	5.127	4.165	3.400	2.765
200					6.592	5.264	5.264	4.294	3.500	2.838
205						5.400	5.400	4.423	3.600	2.912
210						5.536	5.536	4.535	3.700	2.985
215						5.673	5.673	4.622	3.800	3.059
220						5.809	5.809	4.709	3.900	3.132
225						5.945	5.945	4.797	4.000	3.206
230						6.082	6.082	4.884	4.100	3.279
235						6.218	6.218	4.971	4.200	3.353
240						6.355	6.355	5.058	4.300	3.426
245						6.491	6.491	5.145	4.400	3.500
250								5.232	4.500	3.574
255								5.319	4.563	3.647
260								5.406	4.625	3.721
265								5.493	4.688	3.794
270								5.580	4.750	3.868
275								5.667	4.813	3.941
280								5.754	4.875	4.015
285								5.841	4.938	4.088
290								5.928	5.000	4.162
295								6.015	5.063	4.235
300								6.102	5.125	4.309
305								6.189	5.188	4.382
310								6.276	5.250	4.456
315								6.363	5.313	4.515
320								6.450	5.375	4.552
325								6.537	5.438	4.589
330									5.500	4.626

Thickness is intumescent only.
Table applies to hollow beams with 3-sided protection and a concrete slab.

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CERTIFICATE No CF 5012
Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table C5: Rectangular Hollow Beams									
	Thickness (mm) Required for a Fire Resistance Period of 120 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25		6.000	4.275	4.275	1.706	1.706	1.706	1.706	1.706	1.706
30		6.000	4.275	4.275	1.706	1.706	1.706	1.706	1.706	1.706
35		6.000	4.275	4.275	1.712	1.706	1.706	1.706	1.706	1.706
40		6.000	4.275	4.275	1.872	1.706	1.706	1.706	1.706	1.706
45		6.000	4.275	4.275	2.032	1.706	1.706	1.706	1.706	1.706
50		6.000	4.275	4.275	2.192	1.706	1.706	1.706	1.706	1.706
55		6.000	4.275	4.275	2.353	1.779	1.779	1.706	1.706	1.706
60		6.000	4.275	4.275	2.513	1.937	1.937	1.706	1.706	1.706
65		6.000	4.275	4.275	2.673	2.095	2.095	1.706	1.706	1.706
70		6.000	4.275	4.275	2.833	2.253	2.253	1.706	1.706	1.706
75		6.000	4.275	4.275	2.994	2.411	2.411	1.753	1.706	1.706
80		6.000	4.275	4.275	3.154	2.570	2.570	1.907	1.706	1.706
85		6.000	4.275	4.275	3.314	2.728	2.728	2.062	1.706	1.706
90		6.000	4.275	4.275	3.474	2.886	2.886	2.216	1.722	1.706
95			4.700	4.275	3.635	3.044	3.044	2.370	1.848	1.706
100			5.200	4.275	3.795	3.203	3.203	2.525	1.975	1.706
105			5.700	4.313	3.955	3.361	3.361	2.679	2.101	1.712
110			6.200	4.781	4.115	3.519	3.519	2.833	2.227	1.808
115				5.250	4.276	3.677	3.677	2.988	2.354	1.904
120				5.719	4.436	3.835	3.835	3.142	2.480	2.000
125				6.188	4.714	3.994	3.994	3.296	2.606	2.096
130					5.071	4.152	4.152	3.451	2.732	2.192
135					5.429	4.310	4.310	3.605	2.859	2.288
140					5.786	4.468	4.468	3.759	2.985	2.385
145					6.143	4.676	4.676	3.914	3.111	2.481
150					6.500	4.897	4.897	4.068	3.237	2.577
155						5.118	5.118	4.222	3.364	2.673
160						5.338	5.338	4.377	3.490	2.769
165						5.559	5.559	4.526	3.616	2.865
170						5.779	5.779	4.655	3.742	2.962
175						6.000	6.000	4.784	3.869	3.058
180						6.221	6.221	4.914	3.995	3.154
185						6.441	6.441	5.043	4.121	3.250
190								5.172	4.247	3.346
195								5.302	4.374	3.442
200								5.431	4.500	3.538
205								5.560	4.580	3.635
210								5.690	4.660	3.731
215								5.819	4.739	3.827
220								5.948	4.819	3.923
225								6.078	4.899	4.019
230								6.207	4.979	4.115
235								6.336	5.059	4.212
240								6.466	5.138	4.308
245								6.595	5.218	4.404
250									5.298	4.500
255									5.378	4.545
260									5.457	4.590
265									5.537	4.636
270									5.617	4.681
275									5.697	4.726
280									5.777	4.771
285									5.856	4.816
290									5.936	4.861
295									6.016	4.907
300									6.096	4.952
305									6.176	4.997
310									6.255	5.042
315									6.335	5.087
320									6.415	5.133
325									6.495	5.178
330									6.574	5.223

Thickness is intumescent only.
Table applies to hollow beams with 3-sided protection and a concrete slab.

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Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table C6: Rectangular Hollow Beams									
	Thickness (mm) Required for a Fire Resistance Period of 150 minutes									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
25					6.000	4.275	4.275	3.615	1.706	1.706
30					6.000	4.275	4.275	3.615	1.706	1.706
35					6.000	4.275	4.275	3.615	1.706	1.706
40					6.000	4.275	4.275	3.615	1.706	1.706
45					6.000	4.275	4.275	3.615	1.810	1.706
50					6.000	4.275	4.275	3.615	1.968	1.706
55					6.000	4.275	4.275	3.615	2.127	1.706
60					6.000	4.275	4.275	3.615	2.285	1.706
65					6.000	4.275	4.275	3.615	2.443	1.706
70					6.000	4.275	4.275	3.615	2.601	1.706
75					6.000	4.275	4.275	3.635	2.759	1.813
80					6.000	4.275	4.275	3.743	2.918	1.969
85					6.000	4.275	4.275	3.851	3.076	2.125
90					6.000	4.275	4.275	3.959	3.234	2.281
95					6.000	4.275	4.275	4.050	3.392	2.438
100						4.500	4.500	4.176	3.551	2.594
105						5.125	5.125	4.284	3.709	2.750
110						5.750	5.750	4.392	3.867	2.906
115						6.375	6.375	4.500	4.025	3.063
120								4.841	4.184	3.219
125								5.182	4.342	3.375
130								5.523	4.500	3.531
135								5.864	4.653	3.688
140								6.205	4.806	3.844
145								6.545	4.959	4.000
150									5.112	4.156
155									5.265	4.313
160									5.418	4.469
165									5.571	4.591
170									5.724	4.705
175									5.878	4.818
180									6.031	4.932
185									6.184	5.045
190									6.337	5.159
195									6.490	5.273
200										5.386
205										5.500
210										5.614
215										5.727
220										5.841
225										5.955
230										6.068
235										6.182
240										6.295
245										6.409
250										6.523

Thickness is intumescent only.
Table applies to hollow beams with 3-sided protection and a concrete slab.

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Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table D1: Rectangular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 60 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	1.351	0.957	0.850	0.850	0.850	0.850	0.850	0.850	0.850
30	1.351	0.957	0.850	0.850	0.850	0.850	0.850	0.850	0.850
35	1.351	0.957	0.850	0.850	0.850	0.850	0.850	0.850	0.850
40	1.351	0.957	0.850	0.850	0.850	0.850	0.850	0.850	0.850
45	1.351	0.957	0.850	0.850	0.850	0.850	0.850	0.850	0.850
50	1.351	0.957	0.850	0.850	0.850	0.850	0.850	0.850	0.850
55	1.430	1.029	0.880	0.850	0.850	0.850	0.850	0.850	0.850
60	1.509	1.101	0.930	0.850	0.850	0.850	0.850	0.850	0.850
65	1.588	1.174	0.980	0.886	0.850	0.850	0.850	0.850	0.850
70	1.668	1.246	1.030	0.930	0.850	0.850	0.850	0.850	0.850
75	1.747	1.319	1.080	0.974	0.863	0.850	0.850	0.850	0.850
80	1.826	1.391	1.130	1.018	0.906	0.850	0.850	0.850	0.850
85	1.905	1.464	1.180	1.061	0.949	0.887	0.850	0.850	0.850
90	1.984	1.536	1.230	1.105	0.991	0.925	0.850	0.850	0.850
95	2.108	1.609	1.280	1.149	1.034	0.962	0.850	0.850	0.850
100	2.243	1.681	1.330	1.193	1.077	1.000	0.864	0.850	0.850
105	2.378	1.754	1.380	1.237	1.120	1.038	0.902	0.850	0.850
110	2.514	1.826	1.430	1.281	1.162	1.075	0.939	0.872	0.850
115	2.649	1.899	1.480	1.325	1.205	1.113	0.977	0.904	0.850
120	2.784	1.971	1.530	1.368	1.248	1.150	1.015	0.936	0.850
125	2.919	2.077	1.580	1.412	1.291	1.188	1.053	0.968	0.850
130	3.037	2.205	1.630	1.456	1.333	1.226	1.091	1.000	0.877
135	3.130	2.333	1.680	1.500	1.376	1.263	1.129	1.032	0.909
140	3.222	2.462	1.730	1.544	1.419	1.301	1.167	1.064	0.942
145	3.315	2.590	1.780	1.588	1.462	1.338	1.205	1.096	0.974
150	3.407	2.718	1.830	1.632	1.504	1.376	1.242	1.128	1.006
155	3.500	2.846	1.880	1.675	1.547	1.414	1.280	1.160	1.039
160	3.593	2.974	1.930	1.719	1.590	1.451	1.318	1.192	1.071
165	3.685	3.056	1.980	1.763	1.632	1.489	1.356	1.224	1.104
170	3.778	3.125	2.055	1.807	1.675	1.526	1.394	1.256	1.136
175	3.870	3.194	2.145	1.851	1.718	1.564	1.432	1.288	1.169
180	3.963	3.264	2.236	1.895	1.761	1.602	1.470	1.321	1.201
185	4.028	3.333	2.327	1.939	1.803	1.639	1.508	1.353	1.234
190	4.073	3.403	2.418	1.982	1.846	1.677	1.545	1.385	1.266
195	4.119	3.472	2.509	2.038	1.889	1.714	1.583	1.417	1.299
200	4.165	3.542	2.600	2.103	1.932	1.752	1.621	1.449	1.331
205	4.211	3.611	2.691	2.167	1.974	1.789	1.659	1.481	1.364
210	4.257	3.681	2.782	2.231	2.029	1.827	1.697	1.513	1.396
215	4.303	3.750	2.873	2.295	2.100	1.865	1.735	1.545	1.429
220	4.349	3.819	2.964	2.359	2.171	1.902	1.773	1.577	1.461
225	4.394	3.889	3.054	2.423	2.243	1.940	1.811	1.609	1.494
230	4.440	3.958	3.143	2.487	2.314	1.977	1.848	1.641	1.526
235	4.486	4.022	3.232	2.551	2.386	2.020	1.886	1.673	1.558
240	4.532	4.076	3.321	2.615	2.457	2.070	1.924	1.705	1.591
245	4.578	4.130	3.411	2.679	2.529	2.120	1.962	1.737	1.623
250	4.624	4.185	3.500	2.744	2.600	2.170	2.000	1.769	1.656
255	4.670	4.239	3.589	2.808	2.671	2.220	2.047	1.801	1.688
260	4.716	4.293	3.679	2.872	2.743	2.270	2.093	1.833	1.721
265	4.761	4.348	3.768	2.936	2.814	2.320	2.140	1.865	1.753
270	4.807	4.402	3.857	3.000	2.886	2.370	2.187	1.897	1.786
275	4.853	4.457	3.946	3.116	2.957	2.420	2.234	1.929	1.818
280	4.899	4.511	4.023	3.233	3.030	2.470	2.280	1.962	1.851
285	4.945	4.565	4.080	3.349	3.104	2.520	2.327	1.994	1.883
290	4.991	4.620	4.136	3.465	3.179	2.570	2.374	2.031	1.916
295	5.037	4.674	4.193	3.581	3.254	2.620	2.421	2.069	1.948
300	5.083	4.728	4.250	3.698	3.328	2.670	2.467	2.107	1.981
305	5.128	4.783	4.307	3.814	3.403	2.720	2.514	2.145	2.010
310	5.174	4.837	4.364	3.930	3.478	2.770	2.561	2.183	2.036
315	5.220	4.891	4.420	4.033	3.552	2.820	2.607	2.221	2.061
320	5.266	4.946	4.477	4.115	3.627	2.870	2.654	2.260	2.086
325	5.312	5.000	4.534	4.197	3.701	2.920	2.701	2.298	2.112

Thickness is intumescent only.
Table also applies to 4 sided hollow beams up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table D2: Rectangular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 75 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	1.743	1.387	1.150	0.955	0.856	0.850	0.850	0.850	0.850
30	1.743	1.387	1.150	0.955	0.856	0.850	0.850	0.850	0.850
35	1.743	1.387	1.150	0.955	0.856	0.850	0.850	0.850	0.850
40	1.743	1.387	1.150	0.955	0.856	0.850	0.850	0.850	0.850
45	1.743	1.387	1.150	0.955	0.856	0.850	0.850	0.850	0.850
50	1.743	1.387	1.150	0.955	0.856	0.850	0.850	0.850	0.850
55	1.860	1.480	1.220	1.011	0.907	0.850	0.850	0.850	0.850
60	1.977	1.573	1.290	1.067	0.959	0.894	0.850	0.850	0.850
65	2.222	1.666	1.359	1.124	1.010	0.942	0.850	0.850	0.850
70	2.500	1.759	1.429	1.180	1.062	0.990	0.873	0.850	0.850
75	2.778	1.851	1.498	1.236	1.113	1.038	0.922	0.850	0.850
80	3.027	1.944	1.568	1.292	1.165	1.087	0.971	0.863	0.850
85	3.161	2.087	1.637	1.348	1.216	1.135	1.020	0.906	0.850
90	3.295	2.304	1.707	1.404	1.268	1.183	1.069	0.949	0.850
95	3.429	2.522	1.776	1.461	1.320	1.231	1.118	0.991	0.874
100	3.563	2.739	1.846	1.517	1.371	1.279	1.167	1.034	0.913
105	3.697	2.957	1.915	1.573	1.423	1.327	1.216	1.077	0.953
110	3.832	3.108	1.985	1.629	1.474	1.375	1.265	1.120	0.992
115	3.966	3.243	2.123	1.685	1.526	1.423	1.314	1.162	1.031
120	4.048	3.378	2.280	1.742	1.577	1.471	1.363	1.205	1.071
125	4.113	3.514	2.438	1.798	1.629	1.519	1.412	1.248	1.110
130	4.179	3.649	2.595	1.854	1.680	1.567	1.461	1.291	1.150
135	4.244	3.784	2.753	1.910	1.732	1.615	1.510	1.333	1.189
140	4.309	3.919	2.910	1.966	1.784	1.663	1.559	1.376	1.228
145	4.374	4.026	3.049	2.051	1.835	1.712	1.608	1.419	1.268
150	4.439	4.093	3.162	2.179	1.887	1.760	1.657	1.462	1.307
155	4.504	4.159	3.275	2.308	1.938	1.808	1.706	1.504	1.346
160	4.569	4.225	3.388	2.436	1.990	1.856	1.755	1.547	1.386
165	4.634	4.291	3.502	2.564	2.103	1.904	1.804	1.590	1.425
170	4.699	4.358	3.615	2.692	2.231	1.952	1.853	1.632	1.465
175	4.764	4.424	3.728	2.821	2.359	2.000	1.902	1.675	1.504
180	4.829	4.490	3.841	2.949	2.487	2.067	1.951	1.718	1.543
185	4.894	4.556	3.955	3.059	2.615	2.133	2.000	1.761	1.583
190	4.959	4.623	4.041	3.157	2.744	2.200	2.070	1.803	1.622
195	5.024	4.689	4.110	3.255	2.872	2.267	2.141	1.846	1.661
200	5.089	4.755	4.178	3.353	3.000	2.333	2.211	1.889	1.701
205	5.154	4.821	4.247	3.451	3.079	2.400	2.282	1.932	1.740
210	5.219	4.887	4.315	3.549	3.158	2.467	2.352	1.974	1.780
215	5.284	4.954	4.384	3.647	3.238	2.533	2.423	2.022	1.819
220	5.349	5.020	4.452	3.745	3.317	2.600	2.493	2.078	1.858
225	5.415	5.086	4.521	3.843	3.396	2.667	2.563	2.133	1.898
230	5.480	5.152	4.589	3.941	3.475	2.733	2.634	2.189	1.937
235	5.545	5.219	4.658	4.040	3.554	2.800	2.704	2.244	1.976
240	5.610	5.285	4.726	4.140	3.633	2.867	2.775	2.300	2.017
245	5.675	5.351	4.795	4.240	3.713	2.933	2.845	2.356	2.059
250	5.740	5.417	4.863	4.340	3.792	3.000	2.915	2.411	2.101
255	5.805	5.483	4.932	4.440	3.871	3.094	2.986	2.467	2.143
260	5.870	5.550	5.000	4.540	3.950	3.189	3.052	2.522	2.185
265	5.935	5.616	5.068	4.640	4.027	3.283	3.117	2.578	2.227
270	6.000	5.682	5.137	4.740	4.100	3.377	3.182	2.633	2.269
275	6.077	5.748	5.205	4.840	4.173	3.472	3.247	2.689	2.311
280	6.154	5.815	5.274	4.940	4.246	3.566	3.312	2.744	2.353
285	6.231	5.881	5.342	5.040	4.319	3.660	3.377	2.800	2.395
290	6.308	5.947	5.411	5.140	4.392	3.755	3.442	2.856	2.437
295	6.385	6.016	5.479	5.240	4.465	3.849	3.506	2.911	2.479
300	6.462	6.098	5.548	5.340	4.538	3.943	3.571	2.967	2.521
305	6.538	6.179	5.616	5.440	4.612	4.020	3.636	3.021	2.563
310	6.615	6.260	5.685	5.540	4.685	4.071	3.701	3.072	2.605
315	6.692	6.341	5.753	5.640	4.758	4.122	3.766	3.124	2.647
320	6.769	6.423	5.822	5.740	4.831	4.173	3.831	3.175	2.689
325	6.846	6.504	5.890	5.840	4.904	4.223	3.896	3.227	2.731

Thickness is intumescent only.
Table also applies to 4 sided hollow beams up to a maximum protection thickness of 6.600mm.

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CERTIFICATE No CF 5012
Sherwin-Williams Protective & Marine Coatings

Section Factor up to m^{-1}	Table D3: Rectangular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 90 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	2.930	1.798	1.656	1.322	1.027	0.922	0.850	0.850	0.850
30	2.930	1.798	1.656	1.322	1.027	0.922	0.850	0.850	0.850
35	2.930	1.798	1.656	1.322	1.027	0.922	0.850	0.850	0.850
40	2.930	1.798	1.656	1.322	1.027	0.922	0.850	0.850	0.850
45	2.930	1.798	1.656	1.322	1.027	0.922	0.850	0.850	0.850
50	2.930	1.798	1.656	1.322	1.027	0.922	0.850	0.850	0.850
55	3.047	1.910	1.720	1.390	1.095	0.987	0.850	0.850	0.850
60	3.163	2.083	1.784	1.458	1.162	1.052	0.850	0.850	0.850
65	3.279	2.500	1.847	1.526	1.230	1.117	1.031	0.897	0.850
70	3.395	2.917	1.911	1.593	1.297	1.182	1.093	0.954	0.850
75	3.512	3.082	1.975	1.661	1.365	1.247	1.156	1.011	0.862
80	3.628	3.185	2.200	1.729	1.432	1.312	1.218	1.069	0.915
85	3.744	3.288	2.533	1.797	1.500	1.377	1.280	1.126	0.968
90	3.860	3.390	2.867	1.864	1.568	1.442	1.342	1.184	1.021
95	3.977	3.493	3.091	1.932	1.635	1.506	1.404	1.241	1.074
100	4.093	3.596	3.242	2.000	1.703	1.571	1.467	1.299	1.128
105	4.209	3.699	3.394	2.200	1.770	1.636	1.529	1.356	1.181
110	4.326	3.801	3.545	2.400	1.838	1.701	1.591	1.414	1.234
115	4.442	3.904	3.697	2.600	1.905	1.766	1.653	1.471	1.287
120	4.558	4.007	3.848	2.800	1.973	1.831	1.716	1.529	1.340
125	4.674	4.110	4.000	3.000	2.094	1.896	1.778	1.586	1.394
130	4.791	4.212	4.076	3.114	2.250	1.961	1.840	1.644	1.447
135	4.907	4.315	4.152	3.227	2.406	2.041	1.902	1.701	1.500
140	5.023	4.418	4.228	3.341	2.563	2.143	1.964	1.759	1.553
145	5.140	4.521	4.304	3.455	2.719	2.245	2.040	1.816	1.606
150	5.256	4.623	4.380	3.568	2.875	2.347	2.134	1.874	1.660
155	5.372	4.726	4.457	3.682	3.022	2.449	2.228	1.931	1.713
160	5.488	4.829	4.533	3.795	3.130	2.551	2.322	1.989	1.766
165	5.605	4.932	4.609	3.909	3.239	2.653	2.416	2.056	1.819
170	5.721	5.034	4.685	4.020	3.348	2.755	2.510	2.125	1.872
175	5.837	5.137	4.761	4.119	3.457	2.857	2.604	2.194	1.926
180	5.953	5.240	4.837	4.218	3.565	2.959	2.698	2.264	1.979
185	6.058	5.342	4.913	4.317	3.674	3.067	2.792	2.333	2.034
190	6.154	5.445	4.989	4.416	3.783	3.178	2.886	2.403	2.091
195	6.250	5.548	5.065	4.515	3.891	3.289	2.980	2.472	2.148
200	6.346	5.651	5.141	4.614	4.000	3.400	3.058	2.542	2.205
205	6.442	5.753	5.218	4.713	4.088	3.511	3.133	2.611	2.261
210	6.538	5.856	5.294	4.812	4.177	3.622	3.208	2.681	2.318
215	6.635	5.959	5.370	4.911	4.265	3.733	3.282	2.750	2.375
220	6.731	6.063	5.446	5.010	4.354	3.844	3.357	2.819	2.432
225	6.827	6.167	5.522	5.109	4.442	3.956	3.431	2.889	2.489
230	6.923	6.271	5.598	5.208	4.531	4.042	3.506	2.958	2.545
235	7.019	6.375	5.674	5.307	4.619	4.112	3.580	3.025	2.602
240	7.115	6.479	5.750	5.406	4.708	4.182	3.655	3.088	2.659
245	7.212	6.583	5.826	5.505	4.796	4.252	3.729	3.150	2.716
250	7.308	6.688	5.902	5.604	4.885	4.322	3.804	3.213	2.773
255	7.404	6.792	5.979	5.703	4.973	4.392	3.878	3.275	2.830
260	7.500	6.896	6.056	5.802	5.062	4.462	3.953	3.338	2.886
265	7.596	7.000	6.134	5.901	5.150	4.531	4.021	3.400	2.943
270	7.692	7.104	6.211	6.000	5.239	4.601	4.080	3.463	3.000
275	7.788	7.208	6.289	6.087	5.327	4.671	4.138	3.525	3.057
280	7.885	7.313	6.367	6.174	5.416	4.741	4.196	3.588	3.115
285	7.981	7.417	6.445	6.261	5.504	4.811	4.255	3.650	3.172
290	8.077	7.521	6.522	6.348	5.593	4.881	4.313	3.713	3.230
295	8.173	7.625	6.600	6.435	5.681	4.951	4.371	3.775	3.287
300	8.269	7.729	6.678	6.522	5.770	5.021	4.429	3.838	3.345
305	8.365	7.833	6.756	6.609	5.858	5.091	4.488	3.900	3.402
310	8.462	7.938	6.833	6.696	5.947	5.161	4.546	3.963	3.460
315	8.558	8.042	6.911	6.783	6.033	5.231	4.604	4.021	3.517
320	8.654	8.146	6.989	6.870	6.115	5.301	4.662	4.075	3.575
325	8.750	8.250	7.067	6.957	6.197	5.371	4.721	4.128	3.632

Thickness is intumescent only.
Table also applies to 4 sided hollow beams up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table D4: Rectangular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 105 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	5.400	3.000	1.800	1.688	1.452	1.258	1.000	0.850	0.850
30	5.400	3.000	1.800	1.688	1.452	1.258	1.000	0.850	0.850
35	5.400	3.000	1.800	1.688	1.452	1.258	1.000	0.850	0.850
40	5.400	3.000	1.800	1.688	1.452	1.258	1.000	0.850	0.850
45	5.400	3.000	1.800	1.688	1.452	1.258	1.000	0.850	0.850
50	5.400	3.000	1.800	1.688	1.452	1.258	1.000	0.850	0.850
55	5.400	3.126	1.900	1.770	1.530	1.340	1.082	0.932	0.850
60	5.400	3.252	2.400	1.852	1.608	1.423	1.164	1.017	0.888
65	5.400	3.378	2.900	1.934	1.687	1.505	1.246	1.102	0.950
70	5.400	3.504	3.090	2.067	1.765	1.588	1.328	1.186	1.013
75	5.400	3.630	3.201	2.400	1.843	1.670	1.410	1.271	1.075
80	5.400	3.756	3.313	2.733	1.922	1.753	1.492	1.356	1.138
85	5.400	3.882	3.425	3.022	2.000	1.835	1.574	1.441	1.200
90	5.400	4.008	3.537	3.135	2.192	1.918	1.656	1.525	1.263
95	5.400	4.134	3.649	3.247	2.385	2.000	1.738	1.610	1.325
100	5.400	4.261	3.761	3.360	2.577	2.135	1.820	1.695	1.388
105	5.257	4.387	3.873	3.472	2.769	2.270	1.902	1.780	1.450
110	5.389	4.513	3.985	3.585	2.962	2.405	1.984	1.864	1.513
115	5.522	4.639	4.097	3.697	3.154	2.541	2.098	1.949	1.575
120	5.655	4.765	4.209	3.810	3.346	2.676	2.220	2.035	1.638
125	5.788	4.891	4.321	3.922	3.538	2.811	2.341	2.123	1.700
130	5.920	5.017	4.433	4.035	3.731	2.946	2.463	2.211	1.763
135	6.053	5.143	4.545	4.147	3.923	3.075	2.585	2.298	1.825
140	6.186	5.269	4.657	4.259	4.053	3.200	2.707	2.386	1.888
145	6.319	5.395	4.769	4.372	4.142	3.325	2.829	2.474	1.950
150	6.451	5.521	4.881	4.484	4.230	3.450	2.951	2.561	2.016
155	6.584	5.647	4.993	4.597	4.319	3.575	3.049	2.649	2.094
160	6.717	5.773	5.104	4.709	4.407	3.700	3.131	2.737	2.172
165	6.850	5.899	5.216	4.822	4.496	3.825	3.213	2.825	2.250
170	6.982	6.027	5.328	4.934	4.584	3.950	3.295	2.912	2.328
175	7.115	6.160	5.440	5.047	4.673	4.053	3.377	3.000	2.406
180	7.248	6.293	5.552	5.159	4.761	4.140	3.459	3.067	2.484
185	7.381	6.427	5.664	5.272	4.850	4.228	3.541	3.133	2.563
190	7.513	6.560	5.776	5.384	4.938	4.316	3.623	3.200	2.641
195	7.646	6.693	5.888	5.496	5.027	4.404	3.705	3.267	2.719
200	7.779	6.827	6.000	5.609	5.115	4.491	3.787	3.333	2.797
205	7.912	6.960	6.116	5.721	5.204	4.579	3.869	3.400	2.875
210	8.044	7.093	6.233	5.834	5.292	4.667	3.951	3.467	2.953
215	8.177	7.227	6.349	5.946	5.381	4.754	4.033	3.533	3.027
220	8.310	7.360	6.465	6.061	5.469	4.842	4.117	3.600	3.096
225	8.442	7.493	6.581	6.178	5.558	4.930	4.200	3.667	3.164
230	8.575	7.627	6.698	6.295	5.646	5.018	4.283	3.733	3.233
235	8.708	7.760	6.814	6.411	5.735	5.105	4.367	3.800	3.301
240		7.893	6.930	6.528	5.823	5.193	4.450	3.867	3.370
245		8.027	7.047	6.645	5.912	5.281	4.533	3.933	3.438
250		8.160	7.163	6.762	6.000	5.368	4.617	4.000	3.507
255		8.293	7.279	6.879	6.105	5.456	4.700	4.067	3.575
260		8.427	7.395	6.995	6.211	5.544	4.783	4.133	3.644
265		8.560	7.512	7.112	6.316	5.632	4.867	4.200	3.712
270		8.693	7.628	7.229	6.421	5.719	4.950	4.267	3.781
275			7.744	7.346	6.526	5.807	5.033	4.333	3.849
280			7.860	7.463	6.632	5.895	5.117	4.400	3.918
285			7.977	7.579	6.737	5.982	5.200	4.467	3.986
290			8.093	7.696	6.842	6.070	5.283	4.533	4.070
295			8.209	7.813	6.947	6.158	5.367	4.600	4.158
300			8.326	7.930	7.053	6.246	5.450	4.667	4.246
305			8.442	8.047	7.158	6.333	5.533	4.733	4.333
310			8.558	8.164	7.263	6.421	5.617	4.800	4.421
315			8.674	8.280	7.368	6.509	5.700	4.867	4.509
320			8.791	8.397	7.474	6.596	5.783	4.933	4.596
325				8.514	7.579	6.684	5.867	5.000	4.684

Thickness is intumescent only.
Table also applies to 4 sided hollow beams up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table D5: Rectangular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 120 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	8.000	5.400	2.730	2.000	1.795	1.580	1.396	1.239	0.905
30	8.000	5.400	2.730	2.000	1.795	1.580	1.396	1.239	0.905
35	8.000	5.400	2.730	2.000	1.795	1.580	1.396	1.239	0.905
40	8.000	5.400	2.730	2.000	1.795	1.580	1.396	1.239	0.905
45	8.000	5.400	2.865	2.000	1.795	1.580	1.396	1.239	0.905
50	8.000	5.400	3.000	2.000	1.795	1.580	1.396	1.239	0.905
55	8.000	5.400	3.135	2.500	1.888	1.680	1.480	1.239	0.984
60	8.000	5.400	3.270	3.000	1.981	1.780	1.564	1.345	1.063
65	8.000	5.400	3.405	3.123	2.250	1.880	1.648	1.450	1.143
70	8.000	5.400	3.541	3.246	2.563	1.980	1.732	1.556	1.222
75	8.000	5.400	3.676	3.369	2.875	2.182	1.815	1.662	1.302
80	8.000	5.400	3.811	3.492	3.073	2.409	1.899	1.767	1.381
85	8.000	5.400	3.946	3.615	3.195	2.636	1.983	1.873	1.460
90	8.000	5.400	4.081	3.738	3.317	2.864	2.160	1.979	1.540
95	8.000	5.400	4.216	3.861	3.439	3.051	2.360	2.098	1.619
100	8.000	5.400	4.351	3.984	3.561	3.179	2.560	2.220	1.698
105	8.000	5.400	4.486	4.107	3.683	3.308	2.760	2.341	1.778
110	8.000	5.400	4.622	4.230	3.805	3.436	2.960	2.463	1.857
115	8.000	5.433	4.757	4.352	3.927	3.564	3.093	2.585	1.937
120	8.000	5.600	4.892	4.475	4.049	3.692	3.209	2.707	2.024
125	8.000	5.767	5.027	4.598	4.171	3.821	3.326	2.829	2.143
130	8.000	5.933	5.162	4.721	4.293	3.949	3.442	2.951	2.262
135	8.000	6.100	5.297	4.844	4.415	4.063	3.558	3.050	2.381
140	8.000	6.267	5.432	4.967	4.537	4.168	3.674	3.133	2.500
145	8.000	6.433	5.568	5.090	4.659	4.274	3.791	3.217	2.619
150	8.000	6.600	5.703	5.213	4.780	4.379	3.907	3.300	2.738
155	8.000	6.767	5.838	5.336	4.902	4.484	4.020	3.383	2.857
160	8.000	6.933	5.973	5.459	5.024	4.589	4.118	3.467	2.976
165		7.100	6.131	5.582	5.146	4.695	4.216	3.550	3.061
170		7.267	6.295	5.705	5.268	4.800	4.314	3.633	3.136
175		7.433	6.459	5.828	5.390	4.905	4.412	3.717	3.212
180		7.600	6.623	5.951	5.512	5.011	4.510	3.800	3.288
185		7.767	6.787	6.088	5.634	5.116	4.608	3.883	3.364
190		7.933	6.951	6.235	5.756	5.221	4.706	3.967	3.439
195		8.100	7.115	6.382	5.878	5.326	4.804	4.050	3.515
200		8.267	7.279	6.529	6.000	5.432	4.902	4.132	3.591
205		8.433	7.443	6.676	6.128	5.537	5.000	4.215	3.667
210		8.600	7.607	6.824	6.256	5.642	5.098	4.298	3.742
215		8.767	7.770	6.971	6.385	5.747	5.196	4.380	3.818
220			7.934	7.118	6.513	5.853	5.294	4.463	3.894
225			8.098	7.265	6.641	5.958	5.392	4.545	3.970
230			8.262	7.412	6.769	6.070	5.490	4.628	4.057
235			8.426	7.559	6.897	6.186	5.588	4.711	4.151
240			8.590	7.706	7.026	6.302	5.686	4.793	4.245
245			8.754	7.853	7.154	6.419	5.784	4.876	4.340
250				8.000	7.282	6.535	5.882	4.959	4.434
255				8.147	7.410	6.651	5.980	5.041	4.528
260				8.294	7.538	6.767	6.056	5.124	4.623
265				8.441	7.667	6.884	6.125	5.207	4.717
270				8.588	7.795	7.000	6.194	5.289	4.811
275				8.735	7.923	7.116	6.264	5.372	4.906
280					8.051	7.233	6.333	5.455	5.000
285					8.179	7.349	6.403	5.537	5.094
290					8.308	7.465	6.472	5.620	5.189
295					8.436	7.581	6.542	5.702	5.283
300					8.564	7.698	6.611	5.785	5.377
305					8.692	7.814	6.681	5.868	5.472
310						7.930	6.750	5.950	5.566
315						8.047	6.819	6.028	5.660
320						8.163	6.889	6.099	5.755
325						8.279	6.958	6.169	5.849

Thickness is intumescent only.
Table also applies to 4 sided hollow beams up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table D6: Rectangular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 150 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25		8.000	5.400	5.400	5.400	2.971	1.929	1.800	1.425
30		8.000	5.400	5.400	5.400	2.971	1.929	1.800	1.425
35		8.000	5.400	5.400	5.400	2.971	1.929	1.800	1.425
40		8.000	5.400	5.400	5.400	2.971	1.929	1.800	1.425
45		8.000	5.400	5.400	5.400	2.971	1.929	1.800	1.425
50		8.000	5.400	5.400	5.400	2.971	1.929	1.800	1.425
55		8.000	5.400	5.400	5.400	3.114	2.286	1.800	1.540
60		8.000	5.400	5.400	5.400	3.257	2.643	2.056	1.655
65		8.000	5.400	5.400	5.400	3.400	3.000	2.333	1.770
70		8.000	5.400	5.400	5.400	3.543	3.136	2.611	1.885
75		8.000	5.400	5.400	5.400	3.686	3.273	2.889	2.000
80		8.000	5.400	5.400	5.400	3.829	3.409	3.073	2.200
85		8.000	5.400	5.400	5.400	3.971	3.545	3.195	2.400
90		8.000	5.400	5.400	5.400	4.114	3.682	3.317	2.600
95		8.000	5.400	5.400	5.400	4.257	3.818	3.439	2.800
100		8.000	5.400	5.400	5.400	4.400	3.955	3.561	3.000
105		8.000	5.650	5.569	5.400	4.543	4.091	3.683	3.167
110		8.000	5.900	5.765	5.400	4.686	4.227	3.805	3.333
115		8.000	6.150	5.961	5.400	4.829	4.364	3.927	3.500
120		8.000	6.400	6.157	5.400	4.971	4.500	4.049	3.667
125			6.650	6.353	5.467	5.114	4.636	4.171	3.833
130			6.900	6.549	5.689	5.257	4.773	4.293	4.000
135			7.150	6.745	5.911	5.400	4.909	4.415	4.097
140			7.400	6.941	6.133	5.543	5.045	4.537	4.194
145			7.650	7.137	6.356	5.686	5.182	4.659	4.291
150			7.900	7.333	6.578	5.829	5.318	4.780	4.388
155			8.150	7.529	6.800	5.971	5.455	4.902	4.485
160			8.400	7.725	7.022	6.154	5.591	5.024	4.583
165			8.650	7.922	7.244	6.346	5.727	5.146	4.680
170				8.118	7.467	6.538	5.864	5.268	4.777
175				8.314	7.689	6.731	6.000	5.390	4.874
180				8.510	7.911	6.923	6.159	5.512	4.971
185				8.706	8.133	7.115	6.317	5.634	5.068
190					8.356	7.308	6.476	5.756	5.165
195					8.578	7.500	6.635	5.878	5.262
200					8.800	7.692	6.794	6.000	5.359
205						7.885	6.952	6.116	5.456
210						8.077	7.111	6.233	5.553
215						8.269	7.270	6.349	5.650
220						8.462	7.429	6.465	5.748
225						8.654	7.587	6.581	5.845
230							7.746	6.698	5.942
235							7.905	6.814	6.040
240							8.063	6.930	6.140
245							8.222	7.047	6.240
250							8.381	7.163	6.340
255							8.540	7.279	6.440
260							8.698	7.395	6.540
265								7.512	6.640
270								7.628	6.740
275								7.744	6.840
280								7.860	6.940
285								7.977	7.040
290								8.093	7.140
295								8.209	7.240
300								8.326	7.340
305								8.442	7.440
310								8.558	7.540
315								8.674	7.640
320								8.791	7.740
325									7.840

Thickness is intumescent only.
Table also applies to 4 sided hollow beams up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table E1: Circular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 60 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	1.951	1.262	0.932	0.932	0.932	0.920	0.920	0.920	0.920
30	1.951	1.262	0.932	0.932	0.932	0.920	0.920	0.920	0.920
35	1.951	1.262	0.932	0.932	0.932	0.920	0.920	0.920	0.920
40	1.951	1.262	0.932	0.932	0.932	0.920	0.920	0.920	0.920
45	1.951	1.262	0.932	0.932	0.932	0.920	0.920	0.920	0.920
50	1.951	1.262	0.932	0.932	0.932	0.920	0.920	0.920	0.920
55	2.073	1.438	0.932	0.932	0.932	0.920	0.920	0.920	0.920
60	2.195	1.614	1.045	0.951	0.937	0.920	0.920	0.920	0.920
65	2.317	1.789	1.159	0.951	0.937	0.920	0.920	0.920	0.920
70	2.439	1.965	1.273	0.951	0.937	0.920	0.920	0.920	0.920
75	2.561	2.059	1.386	0.951	0.937	0.920	0.920	0.920	0.920
80	2.683	2.132	1.500	1.033	0.937	0.920	0.920	0.920	0.920
85	2.805	2.206	1.614	1.115	0.937	0.920	0.920	0.920	0.920
90	2.927	2.279	1.727	1.197	0.937	0.920	0.920	0.920	0.920
95	3.024	2.353	1.841	1.279	0.937	0.920	0.920	0.920	0.920
100	3.085	2.426	1.955	1.361	0.982	0.920	0.920	0.920	0.920
105	3.145	2.500	2.033	1.443	1.027	0.920	0.920	0.920	0.920
110	3.206	2.574	2.089	1.525	1.072	0.920	0.920	0.920	0.920
115	3.267	2.647	2.144	1.607	1.117	0.920	0.920	0.920	0.920
120	3.327	2.721	2.200	1.689	1.162	0.960	0.931	0.929	0.929
125	3.388	2.794	2.256	1.770	1.207	1.000	0.931	0.929	0.929
130	3.448	2.868	2.311	1.852	1.252	1.040	0.931	0.929	0.929
135	3.509	2.941	2.367	1.934	1.297	1.080	0.931	0.929	0.929
140	3.570	3.009	2.422	2.007	1.342	1.120	0.960	0.929	0.929
145	3.630	3.055	2.478	2.043	1.387	1.160	0.989	0.929	0.929
150	3.691	3.101	2.533	2.079	1.432	1.200	1.017	0.929	0.929
155	3.752	3.147	2.589	2.115	1.477	1.240	1.046	0.929	0.929
160	3.812	3.192	2.644	2.151	1.523	1.280	1.074	0.929	0.929
165	3.873	3.238	2.700	2.187	1.568	1.320	1.103	0.952	0.930
170	3.933	3.284	2.756	2.223	1.613	1.360	1.131	0.976	0.930
175	3.994	3.330	2.811	2.259	1.658	1.400	1.160	1.000	0.930
180	4.055	3.376	2.867	2.295	1.703	1.440	1.189	1.024	0.930
185	4.115	3.421	2.922	2.331	1.748	1.480	1.217	1.048	0.930
190	4.176	3.467	2.978	2.367	1.793	1.520	1.246	1.071	0.949
195	4.213	3.513	3.022	2.403	1.838	1.560	1.274	1.095	0.967
200	4.234	3.559	3.058	2.439	1.883	1.600	1.303	1.119	0.985
205	4.255	3.605	3.095	2.475	1.928	1.640	1.331	1.143	1.004
210	4.276	3.650	3.131	2.511	1.973	1.680	1.360	1.167	1.022
215	4.297	3.696	3.167	2.547	2.022	1.720	1.389	1.190	1.040
220	4.318	3.742	3.204	2.583	2.078	1.760	1.417	1.214	1.059
225	4.339	3.788	3.240	2.619	2.133	1.800	1.446	1.238	1.077
230	4.360	3.834	3.276	2.655	2.189	1.840	1.474	1.262	1.096
235	4.381	3.879	3.313	2.691	2.244	1.880	1.503	1.286	1.114
240	4.403	3.925	3.349	2.727	2.300	1.920	1.531	1.310	1.132
245	4.424	3.971	3.385	2.763	2.356	1.960	1.560	1.333	1.151
250	4.445	4.017	3.422	2.799	2.411	2.000	1.589	1.357	1.169
255	4.466	4.063	3.458	2.835	2.467	2.018	1.617	1.381	1.188
260	4.487	4.108	3.495	2.871	2.522	2.036	1.646	1.405	1.206
265	4.508	4.154	3.531	2.906	2.578	2.054	1.674	1.429	1.224
270	4.529	4.200	3.567	2.942	2.633	2.072	1.703	1.452	1.243
275	4.550	4.220	3.604	2.978	2.689	2.091	1.731	1.476	1.261
280	4.571	4.241	3.640	3.014	2.744	2.109	1.760	1.500	1.279
285	4.593	4.261	3.676	3.048	2.800	2.127	1.789	1.524	1.298
290	4.614	4.282	3.713	3.082	2.856	2.145	1.817	1.548	1.316
295	4.635	4.302	3.749	3.116	2.911	2.163	1.846	1.571	1.335
300	4.656	4.323	3.785	3.150	2.967	2.181	1.874	1.595	1.353
305	4.677	4.343	3.822	3.184	3.025	2.199	1.903	1.619	1.371
310	4.698	4.363	3.858	3.218	3.087	2.217	1.931	1.643	1.390
315	4.719	4.384	3.895	3.252	3.148	2.236	1.960	1.667	1.408
320	4.740	4.404	3.931	3.286	3.210	2.254	1.989	1.690	1.426
325	4.761	4.425	3.967	3.320	3.272	2.272	2.017	1.714	1.445
330	4.782	4.446	4.003	3.354	3.334	2.290	2.045	1.738	1.464

Thickness is intumescent only.
Table also applies to hollow beams with all round protection up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table E2: Circular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 75 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	2.954	2.154	1.829	1.000	0.932	0.920	0.920	0.920	0.920
30	2.954	2.154	1.829	1.000	0.932	0.920	0.920	0.920	0.920
35	2.954	2.154	1.829	1.000	0.932	0.920	0.920	0.920	0.920
40	2.954	2.154	1.829	1.000	0.932	0.920	0.920	0.920	0.920
45	2.954	2.154	1.829	1.000	0.932	0.920	0.920	0.920	0.920
50	2.954	2.154	1.829	1.057	0.932	0.920	0.920	0.920	0.920
55	2.954	2.300	1.829	1.200	0.932	0.920	0.920	0.920	0.920
60	3.069	2.446	1.943	1.343	0.984	0.920	0.920	0.920	0.920
65	3.185	2.592	2.057	1.486	1.066	0.920	0.920	0.920	0.920
70	3.300	2.738	2.171	1.629	1.148	0.920	0.920	0.920	0.920
75	3.415	2.883	2.285	1.771	1.230	0.970	0.920	0.920	0.920
80	3.531	3.017	2.399	1.914	1.311	1.046	0.920	0.920	0.920
85	3.646	3.100	2.513	2.031	1.393	1.121	0.920	0.920	0.920
90	3.762	3.183	2.627	2.109	1.475	1.197	0.958	0.920	0.920
95	3.877	3.267	2.741	2.188	1.557	1.273	1.011	0.920	0.920
100	3.992	3.350	2.855	2.266	1.639	1.349	1.063	0.920	0.920
105	4.108	3.433	2.968	2.344	1.721	1.425	1.116	0.920	0.920
110	4.209	3.517	3.046	2.422	1.803	1.501	1.168	0.924	0.920
115	4.255	3.600	3.110	2.500	1.885	1.577	1.221	0.966	0.920
120	4.301	3.683	3.175	2.578	1.967	1.653	1.274	1.008	0.920
125	4.348	3.767	3.239	2.656	2.041	1.729	1.326	1.050	0.920
130	4.394	3.850	3.303	2.734	2.108	1.805	1.379	1.092	0.920
135	4.440	3.933	3.367	2.813	2.176	1.881	1.432	1.134	0.947
140	4.486	4.017	3.431	2.891	2.243	1.957	1.484	1.176	0.980
145	4.532	4.100	3.495	2.969	2.311	2.017	1.537	1.218	1.013
150	4.578	4.183	3.559	3.031	2.378	2.056	1.589	1.261	1.046
155	4.624	4.229	3.623	3.083	2.446	2.096	1.642	1.303	1.079
160	4.670	4.264	3.687	3.134	2.514	2.135	1.695	1.345	1.113
165	4.716	4.300	3.751	3.186	2.581	2.174	1.747	1.387	1.146
170	4.762	4.336	3.815	3.238	2.649	2.213	1.800	1.429	1.179
175	4.809	4.371	3.880	3.290	2.716	2.253	1.853	1.471	1.212
180	4.855	4.407	3.944	3.341	2.784	2.292	1.905	1.513	1.245
185	4.901	4.443	4.008	3.393	2.851	2.331	1.958	1.555	1.278
190	4.947	4.479	4.072	3.445	2.919	2.371	2.008	1.597	1.311
195	4.993	4.514	4.136	3.497	2.986	2.410	2.045	1.639	1.344
200	5.039	4.550	4.200	3.548	3.045	2.449	2.083	1.681	1.377
205	5.085	4.586	4.224	3.600	3.101	2.489	2.120	1.723	1.411
210	5.131	4.621	4.247	3.652	3.157	2.528	2.158	1.765	1.444
215	5.177	4.657	4.271	3.703	3.213	2.567	2.195	1.807	1.477
220	5.223	4.693	4.294	3.755	3.269	2.607	2.233	1.849	1.510
225	5.270	4.729	4.318	3.807	3.325	2.646	2.271	1.891	1.543
230	5.316	4.764	4.341	3.859	3.381	2.685	2.308	1.933	1.576
235	5.362	4.800	4.365	3.910	3.437	2.725	2.346	1.975	1.609
240	5.408	4.836	4.388	3.962	3.493	2.764	2.383	2.010	1.642
245	5.454	4.871	4.412	4.014	3.550	2.803	2.421	2.036	1.675
250	5.500	4.907	4.435	4.066	3.606	2.843	2.459	2.061	1.709
255	5.561	4.943	4.459	4.117	3.662	2.882	2.496	2.087	1.742
260	5.623	4.979	4.482	4.169	3.718	2.921	2.534	2.112	1.775
265	5.684	5.014	4.506	4.209	3.774	2.961	2.571	2.138	1.808
270	5.745	5.050	4.529	4.231	3.830	3.000	2.609	2.163	1.841
275	5.806	5.086	4.553	4.253	3.886	3.041	2.647	2.189	1.874
280	5.868	5.121	4.577	4.276	3.942	3.082	2.684	2.214	1.907
285	5.929	5.157	4.600	4.298	3.998	3.123	2.722	2.240	1.940
290	5.990	5.193	4.624	4.320	4.054	3.164	2.759	2.265	1.974
295	6.051	5.229	4.647	4.342	4.110	3.205	2.797	2.291	2.004
300	6.113	5.264	4.671	4.364	4.166	3.247	2.835	2.316	2.026
305	6.174	5.300	4.694	4.387	4.209	3.288	2.872	2.342	2.047
310	6.235	5.336	4.718	4.409	4.232	3.329	2.910	2.367	2.069
315	6.297	5.371	4.741	4.431	4.255	3.370	2.947	2.393	2.091
320	6.358	5.407	4.765	4.453	4.278	3.411	2.985	2.418	2.112
325	6.419	5.443	4.788	4.476	4.300	3.452	3.023	2.444	2.134
330	6.480	5.479	4.812	4.498	4.323	3.493	3.060	2.469	2.155

Thickness is intumescent only.
Table also applies to hollow beams with all round protection up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table E3: Circular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 90 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	5.422	2.790	2.258	1.946	1.341	0.951	0.951	0.943	0.914
30	5.422	2.790	2.258	1.946	1.341	0.951	0.951	0.943	0.914
35	5.422	2.790	2.258	1.946	1.341	0.951	0.951	0.943	0.914
40	5.422	2.790	2.258	1.946	1.341	0.951	0.951	0.943	0.914
45	5.422	2.790	2.258	1.946	1.341	0.951	0.951	0.943	0.914
50	5.422	2.907	2.258	1.946	1.341	0.951	0.951	0.943	0.914
55	5.422	3.024	2.435	1.946	1.478	1.073	0.962	0.943	0.914
60	5.422	3.141	2.612	2.081	1.615	1.195	0.962	0.943	0.914
65	5.422	3.257	2.788	2.216	1.753	1.317	1.058	0.943	0.914
70	5.422	3.374	2.965	2.351	1.890	1.439	1.154	0.943	0.914
75	5.515	3.491	3.086	2.486	2.020	1.561	1.250	0.943	0.914
80	5.609	3.607	3.193	2.622	2.118	1.683	1.346	1.014	0.914
85	5.702	3.724	3.300	2.757	2.216	1.805	1.442	1.086	0.914
90	5.796	3.841	3.407	2.892	2.314	1.927	1.538	1.157	0.914
95	5.889	3.958	3.514	3.018	2.412	2.031	1.635	1.229	0.914
100	5.982	4.075	3.621	3.107	2.510	2.108	1.731	1.300	0.968
105	6.076	4.192	3.729	3.197	2.608	2.185	1.827	1.371	1.022
110	6.169	4.308	3.836	3.287	2.706	2.262	1.923	1.443	1.075
115	6.263	4.425	3.943	3.376	2.804	2.338	2.011	1.514	1.129
120	6.356	4.542	4.050	3.466	2.902	2.415	2.067	1.586	1.183
125	6.449	4.659	4.157	3.555	3.000	2.492	2.122	1.657	1.237
130	6.543	4.776	4.230	3.645	3.062	2.569	2.178	1.729	1.290
135	6.636	4.893	4.281	3.734	3.124	2.646	2.233	1.800	1.344
140	6.730	5.009	4.331	3.824	3.186	2.723	2.289	1.871	1.398
145	6.823	5.126	4.381	3.913	3.247	2.800	2.344	1.943	1.452
150	6.916	5.243	4.432	4.003	3.309	2.877	2.400	2.009	1.505
155	7.010	5.360	4.482	4.093	3.371	2.954	2.456	2.056	1.559
160	7.103	5.477	4.533	4.182	3.433	3.020	2.511	2.103	1.613
165	7.197	5.566	4.583	4.227	3.495	3.070	2.567	2.150	1.667
170	7.290	5.648	4.633	4.260	3.557	3.120	2.622	2.196	1.720
175	7.383	5.730	4.684	4.293	3.619	3.170	2.678	2.243	1.774
180	7.477	5.813	4.734	4.326	3.680	3.220	2.733	2.290	1.828
185	7.570	5.895	4.784	4.359	3.742	3.270	2.789	2.336	1.882
190	7.664	5.977	4.835	4.392	3.804	3.320	2.844	2.383	1.935
195	7.757	6.059	4.885	4.426	3.866	3.370	2.900	2.430	1.989
200	7.851	6.141	4.936	4.459	3.928	3.420	2.956	2.477	2.029
205	7.944	6.224	4.986	4.492	3.990	3.470	3.012	2.523	2.066
210	8.037	6.306	5.036	4.525	4.052	3.520	3.073	2.570	2.102
215	8.131	6.388	5.087	4.558	4.113	3.570	3.133	2.617	2.139
220	8.224	6.470	5.137	4.591	4.175	3.620	3.194	2.664	2.175
225	8.318	6.553	5.188	4.624	4.222	3.670	3.255	2.710	2.212
230	8.411	6.635	5.238	4.658	4.258	3.720	3.315	2.757	2.248
235	8.504	6.717	5.288	4.691	4.295	3.770	3.376	2.804	2.285
240	8.598	6.799	5.339	4.724	4.331	3.820	3.436	2.850	2.321
245	8.691	6.882	5.389	4.757	4.368	3.870	3.497	2.897	2.358
250	8.785	6.964	5.440	4.790	4.404	3.920	3.558	2.944	2.394
255		7.046	5.490	4.823	4.441	3.970	3.618	2.991	2.431
260		7.128	5.551	4.857	4.478	4.020	3.679	3.048	2.467
265		7.211	5.614	4.890	4.514	4.070	3.739	3.107	2.504
270		7.293	5.677	4.923	4.551	4.120	3.800	3.166	2.540
275		7.375	5.740	4.956	4.587	4.170	3.861	3.226	2.577
280		7.457	5.803	4.989	4.624	4.209	3.921	3.285	2.613
285		7.539	5.866	5.022	4.660	4.233	3.982	3.345	2.650
290		7.622	5.929	5.056	4.697	4.256	4.042	3.404	2.686
295		7.704	5.992	5.089	4.733	4.280	4.103	3.463	2.723
300		7.786	6.056	5.122	4.770	4.303	4.164	3.523	2.759
305		7.868	6.119	5.155	4.806	4.327	4.207	3.582	2.796
310		7.951	6.182	5.188	4.843	4.350	4.225	3.642	2.832
315			6.245	5.221	4.879	4.374	4.243	3.701	2.869
320			6.308	5.255	4.916	4.397	4.261	3.760	2.905
325			6.371	5.288	4.952	4.421	4.279	3.820	2.942
330			6.434	5.321	4.989	4.444	4.297	3.879	2.978

Thickness is intumescent only.
Table also applies to hollow beams with all round protection up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table E4: Circular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 105 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25	8.000	5.578	2.881	2.333	1.944	1.907	1.188	0.894	0.894
30	8.000	5.578	2.881	2.333	1.944	1.907	1.188	0.894	0.894
35	8.000	5.578	2.881	2.333	1.944	1.907	1.188	0.894	0.894
40	8.000	5.578	2.881	2.333	1.944	1.907	1.188	0.894	0.894
45	8.000	5.578	2.881	2.333	1.944	1.907	1.188	0.894	0.894
50	8.000	5.578	2.881	2.333	1.944	1.907	1.188	0.894	0.894
55	8.000	5.669	3.079	2.518	2.083	1.907	1.333	1.000	0.917
60	8.000	5.761	3.278	2.703	2.222	1.907	1.478	1.106	0.917
65	8.000	5.853	3.476	2.889	2.361	2.023	1.623	1.213	0.917
70	8.000	5.945	3.675	3.052	2.500	2.140	1.768	1.319	0.917
75	8.000	6.036	3.873	3.183	2.639	2.256	1.913	1.426	1.000
80	8.000	6.128	4.071	3.313	2.778	2.372	2.035	1.532	1.083
85	8.000	6.220	4.270	3.443	2.917	2.488	2.123	1.638	1.167
90	8.000	6.312	4.468	3.574	3.044	2.605	2.211	1.745	1.250
95	8.000	6.403	4.667	3.704	3.153	2.721	2.298	1.851	1.333
100	8.000	6.495	4.865	3.835	3.262	2.837	2.386	1.957	1.417
105	8.000	6.587	5.063	3.965	3.371	2.953	2.474	2.046	1.500
110	8.000	6.679	5.262	4.096	3.480	3.049	2.561	2.123	1.583
115	8.000	6.770	5.460	4.217	3.589	3.130	2.649	2.200	1.667
120	8.000	6.862	5.568	4.300	3.698	3.211	2.737	2.277	1.750
125	8.000	6.954	5.653	4.383	3.807	3.292	2.825	2.354	1.833
130		7.046	5.738	4.467	3.916	3.373	2.912	2.431	1.917
135		7.137	5.823	4.550	4.025	3.454	3.000	2.508	2.000
140		7.229	5.908	4.633	4.135	3.535	3.075	2.585	2.061
145		7.321	5.993	4.717	4.218	3.616	3.150	2.662	2.122
150		7.413	6.078	4.800	4.264	3.697	3.225	2.738	2.183
155		7.505	6.163	4.883	4.309	3.778	3.300	2.815	2.244
160		7.596	6.248	4.967	4.355	3.859	3.375	2.892	2.305
165		7.688	6.333	5.050	4.400	3.941	3.450	2.969	2.366
170		7.780	6.418	5.133	4.445	4.022	3.525	3.043	2.427
175		7.872	6.503	5.217	4.491	4.103	3.600	3.116	2.488
180		7.963	6.588	5.300	4.536	4.184	3.675	3.188	2.549
185		8.055	6.673	5.383	4.582	4.226	3.750	3.260	2.610
190		8.147	6.759	5.467	4.627	4.258	3.825	3.333	2.671
195		8.239	6.844	5.529	4.673	4.290	3.900	3.405	2.732
200		8.330	6.929	5.576	4.718	4.322	3.975	3.477	2.793
205		8.422	7.014	5.624	4.764	4.354	4.050	3.549	2.854
210		8.514	7.099	5.672	4.809	4.386	4.125	3.622	2.915
215		8.606	7.184	5.719	4.855	4.418	4.200	3.694	2.976
220		8.697	7.269	5.767	4.900	4.450	4.227	3.766	3.042
225		8.789	7.354	5.815	4.945	4.482	4.254	3.839	3.112
230			7.439	5.863	4.991	4.514	4.282	3.911	3.181
235			7.524	5.910	5.036	4.546	4.309	3.983	3.251
240			7.609	5.958	5.082	4.578	4.336	4.055	3.321
245			7.694	6.006	5.127	4.610	4.363	4.128	3.391
250			7.779	6.053	5.173	4.642	4.390	4.200	3.460
255			7.864	6.101	5.218	4.674	4.418	4.229	3.530
260			7.949	6.149	5.264	4.706	4.445	4.258	3.600
265			8.034	6.197	5.309	4.738	4.472	4.286	3.670
270			8.119	6.244	5.355	4.770	4.499	4.315	3.740
275			8.204	6.292	5.400	4.802	4.526	4.344	3.809
280			8.289	6.340	5.445	4.834	4.554	4.373	3.879
285			8.374	6.387	5.491	4.866	4.581	4.401	3.949
290			8.459	6.435	5.547	4.898	4.608	4.430	4.019
295			8.544	6.483	5.605	4.930	4.635	4.459	4.088
300			8.629	6.531	5.664	4.962	4.662	4.488	4.158
305			8.714	6.578	5.722	4.994	4.690	4.516	4.228
310			8.799	6.626	5.780	5.026	4.717	4.545	4.298
315				6.674	5.839	5.058	4.744	4.574	4.367
320				6.721	5.897	5.090	4.771	4.603	4.437
325				6.769	5.956	5.122	4.798	4.631	4.507
330				6.817	6.014	5.154	4.826	4.660	4.577

Thickness is intumescent only.
Table also applies to hollow beams with all round protection up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table E5: Circular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 120 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25		8.000	8.000	3.000	2.418	1.867	1.867	1.466	0.977
30		8.000	8.000	3.000	2.418	1.867	1.867	1.466	0.977
35		8.000	8.000	3.000	2.418	1.867	1.867	1.466	0.977
40		8.000	8.000	3.000	2.418	1.867	1.867	1.466	0.977
45		8.000	8.000	3.000	2.418	1.867	1.867	1.466	0.977
50		8.000	8.000	3.000	2.418	2.033	1.925	1.466	0.977
55		8.000	8.000	3.050	2.580	2.200	1.925	1.466	0.977
60		8.000	8.000	3.300	2.742	2.367	2.050	1.614	1.091
65		8.000	8.000	3.550	2.903	2.533	2.175	1.763	1.205
70		8.000	8.000	3.800	3.051	2.700	2.300	1.911	1.318
75		8.000	8.000	4.050	3.177	2.867	2.425	2.043	1.432
80		8.000	8.000	4.300	3.303	3.024	2.550	2.152	1.545
85		8.000	8.000	4.550	3.429	3.147	2.675	2.261	1.659
90		8.000	8.000	4.800	3.556	3.269	2.800	2.370	1.773
95		8.000	8.000	5.050	3.682	3.392	2.925	2.478	1.886
100		8.000	8.000	5.300	3.808	3.514	3.042	2.587	2.000
105			8.000	5.524	3.934	3.637	3.147	2.696	2.089
110			8.000	5.644	4.061	3.759	3.252	2.804	2.179
115			8.000	5.764	4.187	3.882	3.358	2.913	2.268
120			8.000	5.885	4.313	4.004	3.463	3.018	2.357
125			8.000	6.005	4.439	4.127	3.568	3.109	2.446
130			8.000	6.125	4.566	4.224	3.673	3.200	2.536
135			8.000	6.245	4.692	4.283	3.778	3.291	2.625
140			8.000	6.365	4.818	4.342	3.883	3.382	2.714
145			8.000	6.486	4.944	4.401	3.989	3.473	2.804
150				6.606	5.071	4.460	4.094	3.564	2.893
155				6.726	5.197	4.519	4.199	3.655	2.982
160				6.846	5.323	4.578	4.253	3.745	3.068
165				6.966	5.449	4.637	4.294	3.836	3.152
170				7.087	5.551	4.696	4.335	3.927	3.237
175				7.207	5.637	4.755	4.376	4.018	3.321
180				7.327	5.723	4.815	4.417	4.109	3.406
185				7.447	5.808	4.874	4.458	4.200	3.490
190				7.567	5.894	4.933	4.499	4.238	3.575
195				7.688	5.979	4.992	4.540	4.276	3.659
200				7.808	6.065	5.051	4.581	4.313	3.744
205				7.928	6.151	5.110	4.622	4.351	3.828
210				8.048	6.236	5.169	4.663	4.389	3.913
215				8.168	6.322	5.228	4.704	4.427	3.997
220				8.288	6.408	5.287	4.745	4.465	4.082
225				8.409	6.493	5.346	4.786	4.502	4.166
230					6.579	5.405	4.827	4.540	4.216
235					6.664	5.465	4.868	4.578	4.242
240					6.750	5.519	4.909	4.616	4.268
245					6.836	5.567	4.950	4.653	4.294
250					6.921	5.615	4.991	4.691	4.320
255					7.007	5.662	5.032	4.729	4.346
260					7.092	5.710	5.073	4.767	4.372
265					7.178	5.758	5.114	4.805	4.398
270					7.264	5.805	5.155	4.842	4.424
275					7.349	5.853	5.196	4.880	4.451
280					7.435	5.901	5.237	4.918	4.477
285					7.521	5.948	5.278	4.956	4.503
290					7.606	5.996	5.319	4.994	4.529
295					7.692	6.044	5.361	5.031	4.555
300					7.777	6.092	5.402	5.069	4.581
305					7.863	6.139	5.443	5.107	4.607
310					7.949	6.187	5.484	5.145	4.633
315					8.034	6.235	5.525	5.183	4.659
320					8.120	6.282	5.566	5.220	4.686
325					8.205	6.330	5.607	5.258	4.712
330					8.291	6.378	5.648	5.296	4.738

Thickness is intumescent only.
Table also applies to hollow beams with all round protection up to a maximum protection thickness of 6.600mm.

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Section Factor up to m^{-1}	Table E6: Circular Hollow Columns								
	Thickness (mm) Required for a Fire Resistance Period of 150 minutes								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
25				8.000	8.000	2.932	2.712	2.182	1.861
30				8.000	8.000	2.932	2.712	2.182	1.861
35				8.000	8.000	2.932	2.712	2.182	1.861
40				8.000	8.000	2.932	2.712	2.182	1.861
45				8.000	8.000	2.932	2.712	2.182	1.861
50				8.000	8.000	2.932	2.712	2.182	1.861
55				8.000	8.000	3.270	2.712	2.368	1.861
60				8.000	8.000	3.608	2.952	2.554	2.000
65				8.000	8.000	3.946	3.192	2.740	2.139
70				8.000	8.000	4.284	3.433	2.926	2.278
75					8.000	4.622	3.673	3.088	2.417
80					8.000	4.959	3.913	3.234	2.556
85					8.000	5.297	4.154	3.380	2.694
90					8.000	5.635	4.394	3.527	2.833
95						5.973	4.635	3.673	2.972
100						6.311	4.875	3.820	3.102
105						6.649	5.115	3.966	3.230
110						6.986	5.356	4.112	3.357
115						7.324	5.553	4.246	3.485
120						7.662	5.684	4.363	3.613
125						8.000	5.816	4.479	3.740
130						8.338	5.947	4.595	3.868
135						8.676	6.079	4.711	3.996
140							6.211	4.827	4.123
145							6.342	4.943	4.224
150							6.474	5.059	4.285
155							6.605	5.175	4.346
160							6.737	5.291	4.407
165							6.868	5.407	4.467
170							7.000	5.517	4.528
175							7.132	5.605	4.589
180							7.263	5.692	4.650
185							7.395	5.780	4.710
190							7.526	5.867	4.771
195							7.658	5.955	4.832
200							7.789	6.042	4.893
205							7.921	6.129	4.953
210							8.053	6.217	5.014
215							8.184	6.304	5.075
220							8.316	6.392	5.136
225							8.447	6.479	5.196
230								6.566	5.257
235								6.654	5.318
240								6.741	5.379
245								6.829	5.439
250								6.916	5.500
255								7.003	5.533
260								7.091	5.567
265								7.178	5.600
270								7.266	5.633
275								7.353	5.667
280								7.441	5.700
285								7.528	5.733
290								7.615	5.767
295								7.703	5.800
300								7.790	5.833
305								7.878	5.867
310								7.965	5.900
315								8.052	5.933
320								8.140	5.967
325								8.227	6.000
330								8.315	6.033

Thickness is intumescent only.
Table also applies to hollow beams with all round protection up to a maximum protection thickness of 6.600mm.

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