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December 1988 on the approximation of laws,
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European Organisation for Technical Approvals

EUROPEAN TECHNICAL APPROVAL ETA -11/0014

Trade name:	Sika Unitherm Platinum
Holder of the approval:	Sika Deutschland GmbH Kornwestheimer Strasse 103-107, D-70439 Stuttgart, Germany Tel: 0049 7042 109 259 Fax: 0049 7042 109 261 Internet: www.protectivecoatings.de
Generic type and use of construction product(s):	Reactive Coating for the Fire Protection of Structural Steel
Validity from:	31 May 2013
to:	07 September 2016
Manufacturing plant(s):	Sika Deutschland GmbH Rieter Tal, Vaihingen/Enz D-71665, Germany
This European Technical Approval contains:	10 pages and 1 Annex, 33 pages in total.



European Organisation for Technical Approvals

Table 1: I Section Beams 15 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
50	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
55	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
60	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
65	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
70	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
75	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
80	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
85	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
90	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
95	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
100	0.444	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
105	0.483	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
110	0.521	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
115	0.557	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
120	0.592	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
125	0.626	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
130	0.659	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
135	0.690	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
140	0.721	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
145	0.750	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
150	0.779	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
155	0.806	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
160	0.833	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
165	0.859	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
170	0.884	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
175	0.908	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
180	0.932	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
185	0.955	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
190	0.977	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
195	0.999	0.436	0.436	0.436	0.436	0.436	0.436	0.436	0.436
200	1.020	0.445	0.436	0.436	0.436	0.436	0.436	0.436	0.436
205	1.040	0.458	0.436	0.436	0.436	0.436	0.436	0.436	0.436
210	1.060	0.471	0.436	0.436	0.436	0.436	0.436	0.436	0.436
215	1.080	0.484	0.436	0.436	0.436	0.436	0.436	0.436	0.436
220	1.099	0.497	0.436	0.436	0.436	0.436	0.436	0.436	0.436
225	1.117	0.509	0.436	0.436	0.436	0.436	0.436	0.436	0.436
230	1.135	0.521	0.436	0.436	0.436	0.436	0.436	0.436	0.436
235	1.152	0.532	0.436	0.436	0.436	0.436	0.436	0.436	0.436
240	1.169	0.543	0.436	0.436	0.436	0.436	0.436	0.436	0.436
245	1.186	0.554	0.436	0.436	0.436	0.436	0.436	0.436	0.436
250	1.202	0.565	0.436	0.436	0.436	0.436	0.436	0.436	0.436
255	1.218	0.575	0.436	0.436	0.436	0.436	0.436	0.436	0.436
260	1.233	0.585	0.436	0.436	0.436	0.436	0.436	0.436	0.436
265	1.248	0.595	0.436	0.436	0.436	0.436	0.436	0.436	0.436
270	1.263	0.605	0.436	0.436	0.436	0.436	0.436	0.436	0.436
275	1.278	0.614	0.436	0.436	0.436	0.436	0.436	0.436	0.436
280	1.292	0.623	0.436	0.436	0.436	0.436	0.436	0.436	0.436
285	1.305	0.632	0.436	0.436	0.436	0.436	0.436	0.436	0.436
290	1.319	0.641	0.436	0.436	0.436	0.436	0.436	0.436	0.436
295	1.332	0.649	0.436	0.436	0.436	0.436	0.436	0.436	0.436
300	1.345	0.658	0.436	0.436	0.436	0.436	0.436	0.436	0.436
305	1.357	0.666	0.436	0.436	0.436	0.436	0.436	0.436	0.436
310	1.369	0.674	0.436	0.436	0.436	0.436	0.436	0.436	0.436
315	1.381	0.681	0.436	0.436	0.436	0.436	0.436	0.436	0.436
320	1.393	0.689	0.436	0.436	0.436	0.436	0.436	0.436	0.436
325	1.405	0.697	0.436	0.436	0.436	0.436	0.436	0.436	0.436
330	1.416	0.704	0.436	0.436	0.436	0.436	0.436	0.436	0.436
335	1.427	0.711	0.436	0.436	0.436	0.436	0.436	0.436	0.436
340	1.438	0.718	0.436	0.436	0.436	0.436	0.436	0.436	0.436
345	1.449	0.725	0.436	0.436	0.436	0.436	0.436	0.436	0.436
350	1.459	0.731	0.436	0.436	0.436	0.436	0.436	0.436	0.436
355	1.469	0.738	0.436	0.436	0.436	0.436	0.436	0.436	0.436
356	1.471	0.739	0.436	0.436	0.436	0.436	0.436	0.436	0.436

Thickness is intumescent only.



Table 2: I Section Beams 30 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	0.708	0.456	0.436	0.436	0.436	0.436	0.436	0.436	0.436
50	0.759	0.498	0.436	0.436	0.436	0.436	0.436	0.436	0.436
55	0.879	0.598	0.436	0.436	0.436	0.436	0.436	0.436	0.436
60	0.994	0.694	0.447	0.436	0.436	0.436	0.436	0.436	0.436
65	1.103	0.785	0.523	0.436	0.436	0.436	0.436	0.436	0.436
70	1.208	0.871	0.596	0.436	0.436	0.436	0.436	0.436	0.436
75	1.309	0.953	0.664	0.436	0.436	0.436	0.436	0.436	0.436
80	1.405	1.032	0.729	0.436	0.436	0.436	0.436	0.436	0.436
85	1.497	1.107	0.791	0.436	0.436	0.436	0.436	0.436	0.436
90	1.585	1.178	0.850	0.436	0.436	0.436	0.436	0.436	0.436
95	1.670	1.247	0.907	0.479	0.436	0.436	0.436	0.436	0.436
100	1.752	1.313	0.960	0.519	0.436	0.436	0.436	0.436	0.436
105	1.830	1.376	1.012	0.558	0.436	0.436	0.436	0.436	0.436
110	1.906	1.436	1.061	0.595	0.436	0.436	0.436	0.436	0.436
115	1.979	1.495	1.108	0.630	0.436	0.436	0.436	0.436	0.436
120	2.049	1.550	1.153	0.664	0.436	0.436	0.436	0.436	0.436
125	2.117	1.604	1.197	0.696	0.436	0.436	0.436	0.436	0.436
130	2.182	1.656	1.238	0.727	0.436	0.436	0.436	0.436	0.436
135	2.245	1.706	1.278	0.757	0.436	0.436	0.436	0.436	0.436
140	2.306	1.754	1.317	0.786	0.436	0.436	0.436	0.436	0.436
145	2.365	1.800	1.354	0.813	0.436	0.436	0.436	0.436	0.436
150	2.422	1.845	1.390	0.839	0.436	0.436	0.436	0.436	0.436
155	2.477	1.888	1.424	0.865	0.442	0.436	0.436	0.436	0.436
160	2.531	1.930	1.457	0.889	0.460	0.436	0.436	0.436	0.436
165	2.583	1.970	1.489	0.912	0.478	0.436	0.436	0.436	0.436
170	2.633	2.009	1.520	0.935	0.495	0.436	0.436	0.436	0.436
175	2.682	2.047	1.550	0.957	0.511	0.436	0.436	0.436	0.436
180	2.729	2.084	1.579	0.978	0.527	0.436	0.436	0.436	0.436
185	2.775	2.119	1.607	0.998	0.542	0.436	0.436	0.436	0.436
190	2.820	2.154	1.634	1.018	0.556	0.436	0.436	0.436	0.436
195	2.863	2.187	1.660	1.037	0.571	0.436	0.436	0.436	0.436
200	2.905	2.219	1.686	1.056	0.584	0.436	0.436	0.436	0.436
205	2.946	2.251	1.710	1.073	0.597	0.436	0.436	0.436	0.436
210	2.986	2.281	1.734	1.091	0.610	0.436	0.436	0.436	0.436
215	3.025	2.311	1.757	1.107	0.623	0.436	0.436	0.436	0.436
220	3.063	2.340	1.780	1.124	0.635	0.436	0.436	0.436	0.436
225	3.099	2.368	1.802	1.139	0.646	0.436	0.436	0.436	0.436
230	3.135	2.395	1.823	1.155	0.658	0.436	0.436	0.436	0.436
235	3.170	2.422	1.843	1.170	0.668	0.436	0.436	0.436	0.436
240	3.204	2.448	1.863	1.184	0.679	0.436	0.436	0.436	0.436
245	3.237	2.473	1.883	1.198	0.689	0.436	0.436	0.436	0.436
250	3.270	2.497	1.902	1.212	0.699	0.436	0.436	0.436	0.436
255	3.301	2.521	1.920	1.225	0.709	0.436	0.436	0.436	0.436
260	3.332	2.544	1.938	1.238	0.719	0.436	0.436	0.436	0.436
265	3.362	2.567	1.956	1.250	0.728	0.436	0.436	0.436	0.436
270	3.392	2.589	1.973	1.263	0.737	0.436	0.436	0.436	0.436
275	3.421	2.611	1.990	1.274	0.745	0.436	0.436	0.436	0.436
280	3.449	2.632	2.006	1.286	0.754	0.436	0.436	0.436	0.436
285	3.476	2.653	2.022	1.297	0.762	0.436	0.436	0.436	0.436
290	3.503	2.673	2.037	1.308	0.770	0.436	0.436	0.436	0.436
295	3.529	2.693	2.052	1.319	0.778	0.436	0.436	0.436	0.436
300	3.555	2.712	2.067	1.330	0.786	0.436	0.436	0.436	0.436
305	3.580	2.731	2.081	1.340	0.793	0.436	0.436	0.436	0.436
310	3.604	2.749	2.096	1.350	0.800	0.436	0.436	0.436	0.436
315	3.629	2.767	2.109	1.359	0.807	0.436	0.436	0.436	0.436
320	3.652	2.784	2.123	1.369	0.814	0.436	0.436	0.436	0.436
325	3.675	2.802	2.136	1.378	0.821	0.436	0.436	0.436	0.436
330	3.698	2.818	2.149	1.387	0.828	0.436	0.436	0.436	0.436
335	3.720	2.835	2.161	1.396	0.834	0.436	0.436	0.436	0.436
340	3.742	2.851	2.173	1.405	0.840	0.436	0.436	0.436	0.436
345	3.763	2.867	2.185	1.413	0.847	0.436	0.436	0.436	0.436
350	3.784	2.882	2.197	1.422	0.853	0.436	0.436	0.436	0.436
355	3.804	2.897	2.209	1.430	0.858	0.436	0.436	0.436	0.436
356	3.808	2.900	2.211	1.431	0.860	0.436	0.436	0.436	0.436

Thickness is intumescent only.



Table 3: I Section Beams 45 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	1.494	1.229	1.025	0.719	0.493	0.436	0.436	0.436	0.436
50	1.570	1.296	1.084	0.769	0.536	0.436	0.436	0.436	0.436
55	1.751	1.453	1.225	0.886	0.637	0.436	0.436	0.436	0.436
60	1.923	1.603	1.357	0.997	0.733	0.514	0.436	0.436	0.436
65	2.087	1.745	1.483	1.101	0.822	0.591	0.436	0.436	0.436
70	2.245	1.880	1.602	1.200	0.906	0.664	0.436	0.436	0.436
75	2.395	2.009	1.715	1.293	0.985	0.732	0.472	0.436	0.436
80	2.539	2.132	1.823	1.381	1.060	0.797	0.526	0.436	0.436
85	2.677	2.250	1.925	1.465	1.131	0.857	0.578	0.436	0.436
90	2.810	2.362	2.022	1.544	1.198	0.915	0.626	0.436	0.436
95	2.938	2.470	2.115	1.620	1.261	0.969	0.671	0.436	0.436
100	3.060	2.573	2.204	1.691	1.321	1.020	0.714	0.436	0.436
105	3.178	2.672	2.289	1.760	1.378	1.069	0.755	0.440	0.436
110	3.291	2.767	2.370	1.825	1.433	1.115	0.794	0.472	0.436
115	3.400	2.858	2.448	1.888	1.485	1.159	0.830	0.501	0.436
120	3.506	2.945	2.522	1.948	1.534	1.201	0.865	0.530	0.436
125	3.607	3.030	2.594	2.005	1.582	1.240	0.898	0.557	0.436
130	3.705	3.111	2.663	2.060	1.627	1.278	0.929	0.583	0.436
135	3.800	3.189	2.729	2.112	1.670	1.315	0.959	0.607	0.436
140	3.892	3.264	2.792	2.163	1.712	1.350	0.988	0.630	0.436
145	3.980	3.337	2.853	2.211	1.752	1.383	1.016	0.652	0.436
150	4.066	3.407	2.912	2.258	1.790	1.415	1.042	0.674	0.436
155	4.149	3.475	2.969	2.303	1.827	1.445	1.067	0.694	0.436
160	4.229	3.540	3.024	2.346	1.862	1.475	1.091	0.713	0.436
165	4.307	3.603	3.076	2.388	1.896	1.503	1.114	0.732	0.436
170	4.382	3.665	3.127	2.428	1.928	1.530	1.136	0.750	0.436
175	-	3.724	3.177	2.466	1.960	1.556	1.158	0.767	0.436
180	-	3.781	3.224	2.504	1.990	1.581	1.178	0.783	0.436
185	-	3.837	3.271	2.540	2.020	1.605	1.198	0.799	0.436
190	-	3.891	3.315	2.575	2.048	1.628	1.217	0.815	0.436
195	-	3.943	3.358	2.608	2.075	1.651	1.235	0.829	0.436
200	-	3.994	3.400	2.641	2.101	1.673	1.253	0.843	0.436
205	-	4.043	3.441	2.673	2.127	1.694	1.270	0.857	0.436
210	-	4.091	3.480	2.703	2.152	1.714	1.286	0.870	0.436
215	-	4.138	3.519	2.733	2.175	1.733	1.302	0.883	0.436
220	-	4.183	3.556	2.762	2.199	1.752	1.317	0.895	0.445
225	-	4.227	3.592	2.790	2.221	1.771	1.332	0.907	0.454
230	-	4.270	3.627	2.817	2.243	1.789	1.347	0.918	0.463
235	-	4.311	3.661	2.843	2.264	1.806	1.361	0.929	0.471
240	-	4.352	3.694	2.868	2.284	1.822	1.374	0.940	0.480
245	-	4.391	3.726	2.893	2.304	1.839	1.387	0.951	0.487
250	-	-	3.757	2.917	2.323	1.854	1.400	0.961	0.495
255	-	-	3.788	2.941	2.342	1.870	1.412	0.970	0.503
260	-	-	3.818	2.964	2.360	1.885	1.424	0.980	0.510
265	-	-	3.846	2.986	2.378	1.899	1.436	0.989	0.517
270	-	-	3.875	3.007	2.395	1.913	1.447	0.998	0.524
275	-	-	3.902	3.029	2.412	1.927	1.458	1.007	0.530
280	-	-	3.929	3.049	2.428	1.940	1.469	1.015	0.536
285	-	-	3.955	3.069	2.444	1.953	1.479	1.023	0.543
290	-	-	3.981	3.089	2.460	1.965	1.489	1.031	0.549
295	-	-	4.005	3.108	2.475	1.978	1.499	1.039	0.555
300	-	-	4.030	3.126	2.490	1.989	1.508	1.047	0.560
305	-	-	4.053	3.144	2.504	2.001	1.518	1.054	0.566
310	-	-	4.077	3.162	2.518	2.012	1.527	1.061	0.571
315	-	-	4.099	3.179	2.532	2.023	1.536	1.068	0.577
320	-	-	4.121	3.196	2.545	2.034	1.544	1.075	0.582
325	-	-	4.143	3.212	2.558	2.045	1.553	1.081	0.587
330	-	-	4.164	3.229	2.571	2.055	1.561	1.088	0.592
335	-	-	4.185	3.244	2.583	2.065	1.569	1.094	0.596
340	-	-	4.205	3.260	2.595	2.075	1.577	1.100	0.601
345	-	-	4.225	3.275	2.607	2.084	1.584	1.106	0.605
350	-	-	4.244	3.289	2.619	2.094	1.592	1.112	0.610
355	-	-	4.263	3.304	2.630	2.103	1.599	1.118	0.614
356	-	-	4.267	3.307	2.632	2.105	1.600	1.119	0.615

Thickness is intumescent only.



Table 4: I Section Beams 60 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	2.281	2.003	1.804	1.467	1.235	1.050	0.850	0.637	0.436
50	2.382	2.093	1.887	1.539	1.299	1.109	0.902	0.683	0.436
55	2.622	2.308	2.082	1.708	1.450	1.245	1.025	0.792	0.517
60	2.852	2.512	2.267	1.867	1.591	1.373	1.139	0.893	0.604
65	3.071	2.705	2.443	2.016	1.723	1.492	1.245	0.986	0.683
70	3.281	2.890	2.609	2.158	1.848	1.603	1.344	1.073	0.757
75	3.482	3.066	2.766	2.291	1.965	1.708	1.436	1.154	0.826
80	3.674	3.233	2.916	2.418	2.076	1.806	1.523	1.230	0.890
85	3.858	3.393	3.058	2.538	2.180	1.899	1.605	1.301	0.950
90	4.035	3.546	3.194	2.652	2.280	1.987	1.682	1.367	1.007
95	4.205	3.693	3.324	2.760	2.374	2.070	1.754	1.430	1.059
100	4.368	3.833	3.448	2.864	2.463	2.148	1.823	1.489	1.109
105	-	3.968	3.566	2.962	2.548	2.223	1.887	1.545	1.156
110	-	4.097	3.679	3.056	2.628	2.294	1.949	1.598	1.200
115	-	4.221	3.787	3.146	2.705	2.361	2.007	1.648	1.241
120	-	4.340	3.891	3.231	2.779	2.425	2.062	1.695	1.281
125	-	-	3.991	3.313	2.849	2.486	2.115	1.740	1.318
130	-	-	4.087	3.392	2.916	2.544	2.165	1.783	1.354
135	-	-	4.179	3.468	2.980	2.600	2.213	1.824	1.388
140	-	-	4.267	3.540	3.042	2.653	2.259	1.863	1.420
145	-	-	4.353	3.610	3.101	2.704	2.302	1.900	1.450
150	-	-	-	3.677	3.157	2.753	2.344	1.935	1.480
155	-	-	-	3.741	3.211	2.800	2.384	1.969	1.508
160	-	-	-	3.803	3.264	2.845	2.423	2.002	1.534
165	-	-	-	3.863	3.314	2.888	2.459	2.033	1.560
170	-	-	-	3.920	3.362	2.929	2.495	2.062	1.584
175	-	-	-	3.976	3.409	2.969	2.529	2.091	1.608
180	-	-	-	4.029	3.454	3.008	2.561	2.119	1.630
185	-	-	-	4.081	3.497	3.045	2.593	2.145	1.652
190	-	-	-	4.131	3.539	3.080	2.623	2.170	1.673
195	-	-	-	4.180	3.579	3.115	2.652	2.195	1.693
200	-	-	-	4.226	3.619	3.148	2.680	2.218	1.712
205	-	-	-	4.272	3.656	3.180	2.707	2.241	1.731
210	-	-	-	4.316	3.693	3.211	2.733	2.263	1.749
215	-	-	-	4.358	3.728	3.241	2.759	2.284	1.766
220	-	-	-	4.400	3.762	3.270	2.783	2.305	1.782
225	-	-	-	-	3.796	3.298	2.807	2.325	1.799
230	-	-	-	-	3.828	3.326	2.830	2.344	1.814
235	-	-	-	-	3.859	3.352	2.852	2.362	1.829
240	-	-	-	-	3.889	3.378	2.873	2.380	1.844
245	-	-	-	-	3.919	3.402	2.894	2.398	1.858
250	-	-	-	-	3.947	3.426	2.915	2.414	1.871
255	-	-	-	-	3.975	3.450	2.934	2.431	1.885
260	-	-	-	-	4.002	3.473	2.953	2.446	1.897
265	-	-	-	-	4.028	3.495	2.972	2.462	1.910
270	-	-	-	-	4.054	3.516	2.990	2.477	1.922
275	-	-	-	-	4.079	3.537	3.007	2.491	1.934
280	-	-	-	-	4.103	3.557	3.024	2.505	1.945
285	-	-	-	-	4.126	3.577	3.040	2.519	1.956
290	-	-	-	-	4.149	3.596	3.057	2.532	1.967
295	-	-	-	-	4.172	3.615	3.072	2.545	1.977
300	-	-	-	-	4.194	3.633	3.087	2.558	1.987
305	-	-	-	-	4.215	3.651	3.102	2.570	1.997
310	-	-	-	-	4.236	3.668	3.117	2.582	2.007
315	-	-	-	-	4.256	3.685	3.131	2.594	2.016
320	-	-	-	-	4.276	3.702	3.144	2.605	2.026
325	-	-	-	-	4.295	3.718	3.158	2.616	2.034
330	-	-	-	-	4.314	3.734	3.171	2.627	2.043
335	-	-	-	-	4.332	3.749	3.184	2.637	2.052
340	-	-	-	-	4.350	3.764	3.196	2.648	2.060
345	-	-	-	-	4.368	3.779	3.208	2.658	2.068
350	-	-	-	-	4.385	3.793	3.220	2.667	2.076
355	-	-	-	-	4.402	3.807	3.232	2.677	2.083
356	-	-	-	-	4.405	3.810	3.234	2.679	2.085

Thickness is intumescent only.



Table 5: I Section Beams 75 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	3.067	2.777	2.583	2.216	1.978	1.798	1.596	1.378	1.108
50	3.193	2.891	2.689	2.309	2.063	1.876	1.668	1.443	1.166
55	3.494	3.163	2.940	2.529	2.262	2.060	1.836	1.595	1.300
60	3.781	3.421	3.178	2.736	2.449	2.232	1.992	1.736	1.424
65	4.055	3.666	3.402	2.932	2.625	2.392	2.138	1.867	1.539
70	4.317	3.899	3.615	3.116	2.790	2.542	2.274	1.989	1.645
75	-	4.122	3.817	3.290	2.945	2.683	2.401	2.102	1.744
80	-	4.334	4.009	3.455	3.092	2.816	2.520	2.208	1.837
85	-	-	4.192	3.611	3.230	2.941	2.632	2.308	1.923
90	-	-	4.366	3.760	3.362	3.059	2.737	2.401	2.004
95	-	-	-	3.901	3.486	3.171	2.837	2.489	2.080
100	-	-	-	4.036	3.604	3.277	2.931	2.572	2.151
105	-	-	-	4.164	3.717	3.377	3.020	2.650	2.218
110	-	-	-	4.286	3.824	3.472	3.104	2.724	2.282
115	-	-	-	4.403	3.926	3.563	3.184	2.794	2.342
120	-	-	-	-	4.023	3.649	3.260	2.860	2.398
125	-	-	-	-	4.116	3.731	3.332	2.924	2.452
130	-	-	-	-	4.205	3.810	3.401	2.984	2.503
135	-	-	-	-	4.290	3.885	3.467	3.041	2.552
140	-	-	-	-	4.371	3.957	3.529	3.095	2.598
145	-	-	-	-	-	4.025	3.589	3.147	2.642
150	-	-	-	-	-	4.091	3.647	3.197	2.684
155	-	-	-	-	-	4.154	3.701	3.244	2.724
160	-	-	-	-	-	4.215	3.754	3.290	2.763
165	-	-	-	-	-	4.273	3.805	3.333	2.800
170	-	-	-	-	-	4.329	3.853	3.375	2.835
175	-	-	-	-	-	4.382	3.900	3.415	2.869
180	-	-	-	-	-	-	3.944	3.454	2.901
185	-	-	-	-	-	-	3.987	3.491	2.932
190	-	-	-	-	-	-	4.029	3.526	2.962
195	-	-	-	-	-	-	4.069	3.561	2.991
200	-	-	-	-	-	-	4.108	3.594	3.019
205	-	-	-	-	-	-	4.145	3.625	3.045
210	-	-	-	-	-	-	4.181	3.656	3.071
215	-	-	-	-	-	-	4.215	3.686	3.096
220	-	-	-	-	-	-	4.249	3.715	3.120
225	-	-	-	-	-	-	4.281	3.742	3.143
230	-	-	-	-	-	-	4.313	3.769	3.165
235	-	-	-	-	-	-	4.343	3.795	3.187
240	-	-	-	-	-	-	4.373	3.820	3.208
245	-	-	-	-	-	-	4.401	3.844	3.228
250	-	-	-	-	-	-	-	3.868	3.248
255	-	-	-	-	-	-	-	3.891	3.267
260	-	-	-	-	-	-	-	3.913	3.285
265	-	-	-	-	-	-	-	3.935	3.303
270	-	-	-	-	-	-	-	3.955	3.320
275	-	-	-	-	-	-	-	3.976	3.337
280	-	-	-	-	-	-	-	3.995	3.354
285	-	-	-	-	-	-	-	4.015	3.370
290	-	-	-	-	-	-	-	4.033	3.385
295	-	-	-	-	-	-	-	4.051	3.400
300	-	-	-	-	-	-	-	4.069	3.415
305	-	-	-	-	-	-	-	4.086	3.429
310	-	-	-	-	-	-	-	4.103	3.443
315	-	-	-	-	-	-	-	4.119	3.456
320	-	-	-	-	-	-	-	4.135	3.469
325	-	-	-	-	-	-	-	4.151	3.482
330	-	-	-	-	-	-	-	4.166	3.495
335	-	-	-	-	-	-	-	4.180	3.507
340	-	-	-	-	-	-	-	4.195	3.519
345	-	-	-	-	-	-	-	4.209	3.530
350	-	-	-	-	-	-	-	4.223	3.542
355	-	-	-	-	-	-	-	4.236	3.553
356	-	-	-	-	-	-	-	4.239	3.555

Thickness is intumescent only.



Table 6: I Section Beams 90 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	3.853	3.550	3.362	2.965	2.721	2.545	2.343	2.119	1.832
50	4.005	3.689	3.492	3.080	2.827	2.643	2.434	2.203	1.908
55	4.366	4.018	3.798	3.351	3.075	2.875	2.648	2.399	2.083
60	-	4.330	4.088	3.606	3.308	3.090	2.846	2.580	2.245
65	-	-	4.362	3.847	3.526	3.292	3.031	2.748	2.395
70	-	-	-	4.074	3.731	3.481	3.204	2.904	2.534
75	-	-	-	4.288	3.925	3.659	3.365	3.050	2.663
80	-	-	-	-	4.108	3.826	3.517	3.187	2.783
85	-	-	-	-	4.280	3.983	3.659	3.315	2.896
90	-	-	-	-	-	4.132	3.793	3.435	3.001
95	-	-	-	-	-	4.272	3.920	3.548	3.100
100	-	-	-	-	-	4.405	4.039	3.655	3.193
105	-	-	-	-	-	-	4.152	3.755	3.281
110	-	-	-	-	-	-	4.259	3.850	3.364
115	-	-	-	-	-	-	4.361	3.940	3.442
120	-	-	-	-	-	-	-	4.026	3.516
125	-	-	-	-	-	-	-	4.107	3.586
130	-	-	-	-	-	-	-	4.184	3.653
135	-	-	-	-	-	-	-	4.258	3.716
140	-	-	-	-	-	-	-	4.328	3.777
145	-	-	-	-	-	-	-	4.394	3.834
150	-	-	-	-	-	-	-	-	3.889
155	-	-	-	-	-	-	-	-	3.941
160	-	-	-	-	-	-	-	-	3.991
165	-	-	-	-	-	-	-	-	4.039
170	-	-	-	-	-	-	-	-	4.085
175	-	-	-	-	-	-	-	-	4.129
180	-	-	-	-	-	-	-	-	4.172
185	-	-	-	-	-	-	-	-	4.212
190	-	-	-	-	-	-	-	-	4.251
195	-	-	-	-	-	-	-	-	4.289
200	-	-	-	-	-	-	-	-	4.325
205	-	-	-	-	-	-	-	-	4.360
210	-	-	-	-	-	-	-	-	4.394

Thickness is intumescent only.



Table 7: I Section Columns 15 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
50	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
55	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
60	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
65	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
70	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
75	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
80	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
85	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
90	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
95	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
100	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
105	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
110	0.521	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
115	0.557	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
120	0.592	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
125	0.626	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
130	0.659	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
135	0.690	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
140	0.721	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
145	0.750	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
150	0.779	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
155	0.806	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
160	0.833	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
165	0.859	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
170	0.884	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
175	0.908	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
180	0.932	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
185	0.955	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
190	0.977	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
195	0.999	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
200	1.020	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
205	1.041	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
210	1.060	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
215	1.080	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
220	1.099	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
225	1.117	0.509	0.508	0.508	0.508	0.508	0.508	0.508	0.508
230	1.135	0.521	0.508	0.508	0.508	0.508	0.508	0.508	0.508
235	1.152	0.532	0.508	0.508	0.508	0.508	0.508	0.508	0.508
240	1.169	0.543	0.508	0.508	0.508	0.508	0.508	0.508	0.508
245	1.186	0.554	0.508	0.508	0.508	0.508	0.508	0.508	0.508
250	1.202	0.565	0.508	0.508	0.508	0.508	0.508	0.508	0.508
255	1.218	0.575	0.508	0.508	0.508	0.508	0.508	0.508	0.508
260	1.233	0.585	0.508	0.508	0.508	0.508	0.508	0.508	0.508
265	1.249	0.595	0.508	0.508	0.508	0.508	0.508	0.508	0.508
270	1.263	0.605	0.508	0.508	0.508	0.508	0.508	0.508	0.508
275	1.278	0.614	0.508	0.508	0.508	0.508	0.508	0.508	0.508
280	1.292	0.623	0.508	0.508	0.508	0.508	0.508	0.508	0.508
285	1.305	0.632	0.508	0.508	0.508	0.508	0.508	0.508	0.508
290	1.319	0.641	0.508	0.508	0.508	0.508	0.508	0.508	0.508
295	1.332	0.649	0.508	0.508	0.508	0.508	0.508	0.508	0.508
300	1.345	0.658	0.508	0.508	0.508	0.508	0.508	0.508	0.508
305	1.357	0.666	0.508	0.508	0.508	0.508	0.508	0.508	0.508
310	1.369	0.674	0.508	0.508	0.508	0.508	0.508	0.508	0.508
315	1.382	0.682	0.508	0.508	0.508	0.508	0.508	0.508	0.508
320	1.393	0.689	0.508	0.508	0.508	0.508	0.508	0.508	0.508
325	1.405	0.697	0.508	0.508	0.508	0.508	0.508	0.508	0.508
330	1.416	0.704	0.508	0.508	0.508	0.508	0.508	0.508	0.508
335	1.427	0.711	0.508	0.508	0.508	0.508	0.508	0.508	0.508
340	1.438	0.718	0.508	0.508	0.508	0.508	0.508	0.508	0.508
345	1.449	0.725	0.508	0.508	0.508	0.508	0.508	0.508	0.508
350	1.459	0.731	0.508	0.508	0.508	0.508	0.508	0.508	0.508
355	1.469	0.738	0.508	0.508	0.508	0.508	0.508	0.508	0.508
356	1.471	0.739	0.508	0.508	0.508	0.508	0.508	0.508	0.508

Thickness is intumescent only.



Table 8: I Section Columns 30 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	0.708	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
50	0.759	0.508	0.508	0.508	0.508	0.508	0.508	0.508	0.508
55	0.879	0.599	0.508	0.508	0.508	0.508	0.508	0.508	0.508
60	0.994	0.694	0.508	0.508	0.508	0.508	0.508	0.508	0.508
65	1.103	0.785	0.523	0.508	0.508	0.508	0.508	0.508	0.508
70	1.208	0.871	0.596	0.508	0.508	0.508	0.508	0.508	0.508
75	1.309	0.953	0.664	0.508	0.508	0.508	0.508	0.508	0.508
80	1.405	1.032	0.729	0.508	0.508	0.508	0.508	0.508	0.508
85	1.497	1.107	0.791	0.508	0.508	0.508	0.508	0.508	0.508
90	1.585	1.179	0.850	0.508	0.508	0.508	0.508	0.508	0.508
95	1.670	1.247	0.907	0.508	0.508	0.508	0.508	0.508	0.508
100	1.752	1.313	0.960	0.519	0.508	0.508	0.508	0.508	0.508
105	1.830	1.376	1.012	0.558	0.508	0.508	0.508	0.508	0.508
110	1.906	1.436	1.061	0.595	0.508	0.508	0.508	0.508	0.508
115	1.979	1.495	1.108	0.630	0.508	0.508	0.508	0.508	0.508
120	2.049	1.550	1.153	0.664	0.508	0.508	0.508	0.508	0.508
125	2.117	1.604	1.197	0.696	0.508	0.508	0.508	0.508	0.508
130	2.182	1.656	1.238	0.727	0.508	0.508	0.508	0.508	0.508
135	2.245	1.706	1.278	0.757	0.508	0.508	0.508	0.508	0.508
140	2.306	1.754	1.317	0.786	0.508	0.508	0.508	0.508	0.508
145	2.365	1.800	1.354	0.813	0.508	0.508	0.508	0.508	0.508
150	2.422	1.845	1.390	0.839	0.508	0.508	0.508	0.508	0.508
155	2.477	1.888	1.424	0.865	0.508	0.508	0.508	0.508	0.508
160	2.531	1.930	1.457	0.889	0.508	0.508	0.508	0.508	0.508
165	2.583	1.970	1.489	0.912	0.508	0.508	0.508	0.508	0.508
170	2.633	2.009	1.520	0.935	0.508	0.508	0.508	0.508	0.508
175	2.682	2.047	1.550	0.957	0.511	0.508	0.508	0.508	0.508
180	2.729	2.084	1.579	0.978	0.527	0.508	0.508	0.508	0.508
185	2.775	2.119	1.607	0.998	0.542	0.508	0.508	0.508	0.508
190	2.820	2.154	1.634	1.018	0.556	0.508	0.508	0.508	0.508
195	2.863	2.187	1.660	1.037	0.571	0.508	0.508	0.508	0.508
200	2.905	2.219	1.686	1.056	0.584	0.508	0.508	0.508	0.508
205	2.946	2.251	1.710	1.073	0.598	0.508	0.508	0.508	0.508
210	2.986	2.281	1.734	1.091	0.610	0.508	0.508	0.508	0.508
215	3.025	2.311	1.757	1.108	0.623	0.508	0.508	0.508	0.508
220	3.063	2.340	1.780	1.124	0.635	0.508	0.508	0.508	0.508
225	3.099	2.368	1.802	1.140	0.646	0.508	0.508	0.508	0.508
230	3.135	2.395	1.823	1.155	0.658	0.508	0.508	0.508	0.508
235	3.170	2.422	1.843	1.170	0.669	0.508	0.508	0.508	0.508
240	3.204	2.448	1.864	1.184	0.679	0.508	0.508	0.508	0.508
245	3.237	2.473	1.883	1.198	0.689	0.508	0.508	0.508	0.508
250	3.270	2.497	1.902	1.212	0.699	0.508	0.508	0.508	0.508
255	3.301	2.521	1.920	1.225	0.709	0.508	0.508	0.508	0.508
260	3.332	2.545	1.938	1.238	0.719	0.508	0.508	0.508	0.508
265	3.362	2.567	1.956	1.250	0.728	0.508	0.508	0.508	0.508
270	3.392	2.589	1.973	1.263	0.737	0.508	0.508	0.508	0.508
275	3.421	2.611	1.990	1.274	0.745	0.508	0.508	0.508	0.508
280	3.449	2.632	2.006	1.286	0.754	0.508	0.508	0.508	0.508
285	3.476	2.653	2.022	1.297	0.762	0.508	0.508	0.508	0.508
290	3.503	2.673	2.037	1.308	0.770	0.508	0.508	0.508	0.508
295	3.529	2.693	2.052	1.319	0.778	0.508	0.508	0.508	0.508
300	3.555	2.712	2.067	1.330	0.786	0.508	0.508	0.508	0.508
305	3.580	2.731	2.082	1.340	0.793	0.508	0.508	0.508	0.508
310	3.605	2.749	2.096	1.350	0.800	0.508	0.508	0.508	0.508
315	3.629	2.767	2.109	1.360	0.807	0.508	0.508	0.508	0.508
320	3.652	2.784	2.123	1.369	0.814	0.508	0.508	0.508	0.508
325	3.675	2.802	2.136	1.378	0.821	0.508	0.508	0.508	0.508
330	3.698	2.818	2.149	1.387	0.828	0.508	0.508	0.508	0.508
335	3.720	2.835	2.161	1.396	0.834	0.508	0.508	0.508	0.508
340	3.742	2.851	2.173	1.405	0.840	0.508	0.508	0.508	0.508
345	3.763	2.867	2.186	1.413	0.847	0.508	0.508	0.508	0.508
350	3.784	2.882	2.197	1.422	0.853	0.508	0.508	0.508	0.508
355	3.804	2.897	2.209	1.430	0.859	0.508	0.508	0.508	0.508
356	3.808	2.900	2.211	1.431	0.860	0.508	0.508	0.508	0.508

Thickness is intumescent only.



Table 9: I Section Columns 45 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	1.494	1.229	1.025	0.719	0.508	0.508	0.508	0.508	0.508
50	1.570	1.296	1.084	0.769	0.536	0.508	0.508	0.508	0.508
55	1.751	1.453	1.225	0.886	0.638	0.508	0.508	0.508	0.508
60	1.923	1.603	1.357	0.997	0.733	0.514	0.508	0.508	0.508
65	2.087	1.745	1.483	1.101	0.822	0.591	0.508	0.508	0.508
70	2.245	1.880	1.602	1.200	0.906	0.664	0.508	0.508	0.508
75	2.395	2.009	1.715	1.293	0.985	0.733	0.508	0.508	0.508
80	2.539	2.133	1.823	1.381	1.060	0.797	0.526	0.508	0.508
85	2.678	2.250	1.925	1.465	1.131	0.858	0.578	0.508	0.508
90	2.810	2.362	2.022	1.544	1.198	0.915	0.626	0.508	0.508
95	2.938	2.470	2.115	1.620	1.261	0.969	0.671	0.508	0.508
100	3.060	2.573	2.204	1.692	1.321	1.020	0.714	0.508	0.508
105	3.178	2.672	2.289	1.760	1.378	1.069	0.755	0.508	0.508
110	3.291	2.767	2.370	1.826	1.433	1.115	0.794	0.508	0.508
115	3.400	2.858	2.448	1.888	1.485	1.159	0.830	0.508	0.508
120	3.506	2.945	2.522	1.948	1.535	1.201	0.865	0.530	0.508
125	3.607	3.030	2.594	2.005	1.582	1.241	0.898	0.557	0.508
130	3.705	3.111	2.663	2.060	1.627	1.279	0.929	0.583	0.508
135	3.800	3.189	2.729	2.112	1.670	1.315	0.960	0.607	0.508
140	3.892	3.264	2.792	2.163	1.712	1.350	0.988	0.630	0.508
145	3.980	3.337	2.853	2.211	1.752	1.383	1.016	0.652	0.508
150	4.066	3.407	2.912	2.258	1.790	1.415	1.042	0.674	0.508
155	4.149	3.475	2.969	2.303	1.827	1.445	1.067	0.694	0.508
160	4.229	3.540	3.024	2.346	1.862	1.475	1.091	0.713	0.508
165	4.307	3.603	3.077	2.388	1.896	1.503	1.114	0.732	0.508
170	4.382	3.665	3.128	2.428	1.929	1.530	1.136	0.750	0.508
175	-	3.724	3.177	2.466	1.960	1.556	1.158	0.767	0.508
180	-	3.781	3.225	2.504	1.990	1.581	1.178	0.784	0.508
185	-	3.837	3.271	2.540	2.020	1.605	1.198	0.799	0.508
190	-	3.891	3.315	2.575	2.048	1.628	1.217	0.815	0.508
195	-	3.943	3.359	2.608	2.075	1.651	1.235	0.829	0.508
200	-	3.994	3.400	2.641	2.101	1.673	1.253	0.843	0.508
205	-	4.043	3.441	2.673	2.127	1.694	1.270	0.857	0.508
210	-	4.091	3.480	2.703	2.152	1.714	1.286	0.870	0.508
215	-	4.138	3.519	2.733	2.175	1.733	1.302	0.883	0.508
220	-	4.183	3.556	2.762	2.199	1.752	1.317	0.895	0.508
225	-	4.227	3.592	2.790	2.221	1.771	1.332	0.907	0.508
230	-	4.270	3.627	2.817	2.243	1.789	1.347	0.918	0.508
235	-	4.311	3.661	2.843	2.264	1.806	1.361	0.929	0.508
240	-	4.352	3.694	2.868	2.284	1.823	1.374	0.940	0.508
245	-	4.391	3.726	2.893	2.304	1.839	1.387	0.951	0.508
250	-	-	3.757	2.917	2.323	1.854	1.400	0.961	0.508
255	-	-	3.788	2.941	2.342	1.870	1.412	0.970	0.508
260	-	-	3.818	2.964	2.360	1.885	1.424	0.980	0.510
265	-	-	3.847	2.986	2.378	1.899	1.436	0.989	0.517
270	-	-	3.875	3.008	2.395	1.913	1.447	0.998	0.524
275	-	-	3.902	3.029	2.412	1.927	1.458	1.007	0.530
280	-	-	3.929	3.049	2.428	1.940	1.469	1.015	0.537
285	-	-	3.955	3.069	2.444	1.953	1.479	1.023	0.543
290	-	-	3.981	3.089	2.460	1.965	1.489	1.031	0.549
295	-	-	4.006	3.108	2.475	1.978	1.499	1.039	0.555
300	-	-	4.030	3.126	2.490	1.990	1.508	1.047	0.560
305	-	-	4.054	3.144	2.504	2.001	1.518	1.054	0.566
310	-	-	4.077	3.162	2.518	2.012	1.527	1.061	0.571
315	-	-	4.099	3.179	2.532	2.024	1.536	1.068	0.577
320	-	-	4.122	3.196	2.545	2.034	1.544	1.075	0.582
325	-	-	4.143	3.213	2.558	2.045	1.553	1.082	0.587
330	-	-	4.164	3.229	2.571	2.055	1.561	1.088	0.592
335	-	-	4.185	3.244	2.583	2.065	1.569	1.094	0.596
340	-	-	4.205	3.260	2.595	2.075	1.577	1.100	0.601
345	-	-	4.225	3.275	2.607	2.084	1.584	1.106	0.606
350	-	-	4.244	3.289	2.619	2.094	1.592	1.112	0.610
355	-	-	4.263	3.304	2.630	2.103	1.599	1.118	0.614
356	-	-	4.267	3.307	2.632	2.105	1.600	1.119	0.615

Thickness is intumescent only.



Table 10: I Section Columns 60 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	2.281	2.003	1.804	1.468	1.235	1.050	0.850	0.637	0.508
50	2.382	2.093	1.887	1.539	1.299	1.109	0.903	0.684	0.508
55	2.622	2.308	2.083	1.708	1.450	1.245	1.025	0.792	0.517
60	2.852	2.512	2.268	1.867	1.591	1.373	1.139	0.893	0.604
65	3.071	2.705	2.443	2.016	1.723	1.492	1.245	0.986	0.683
70	3.281	2.890	2.609	2.158	1.848	1.603	1.344	1.073	0.757
75	3.482	3.066	2.766	2.291	1.965	1.708	1.436	1.154	0.826
80	3.674	3.233	2.916	2.418	2.076	1.806	1.523	1.230	0.890
85	3.858	3.393	3.059	2.538	2.181	1.899	1.605	1.301	0.950
90	4.035	3.546	3.194	2.652	2.280	1.987	1.682	1.367	1.007
95	4.205	3.693	3.324	2.760	2.374	2.070	1.754	1.430	1.059
100	4.368	3.833	3.448	2.864	2.463	2.148	1.823	1.489	1.109
105	-	3.968	3.566	2.962	2.548	2.223	1.887	1.545	1.156
110	-	4.097	3.679	3.056	2.628	2.294	1.949	1.598	1.200
115	-	4.221	3.787	3.146	2.705	2.361	2.007	1.648	1.241
120	-	4.340	3.891	3.231	2.779	2.425	2.062	1.695	1.281
125	-	-	3.991	3.314	2.849	2.486	2.115	1.740	1.318
130	-	-	4.087	3.392	2.916	2.544	2.165	1.783	1.354
135	-	-	4.179	3.468	2.980	2.600	2.213	1.824	1.388
140	-	-	4.267	3.540	3.042	2.653	2.259	1.863	1.420
145	-	-	4.353	3.610	3.101	2.704	2.302	1.900	1.450
150	-	-	-	3.677	3.157	2.753	2.344	1.935	1.480
155	-	-	-	3.741	3.212	2.800	2.384	1.969	1.508
160	-	-	-	3.803	3.264	2.845	2.423	2.002	1.534
165	-	-	-	3.863	3.314	2.888	2.459	2.033	1.560
170	-	-	-	3.920	3.362	2.929	2.495	2.063	1.584
175	-	-	-	3.976	3.409	2.969	2.529	2.091	1.608
180	-	-	-	4.029	3.454	3.008	2.561	2.119	1.630
185	-	-	-	4.081	3.497	3.045	2.593	2.145	1.652
190	-	-	-	4.131	3.539	3.080	2.623	2.170	1.673
195	-	-	-	4.180	3.580	3.115	2.652	2.195	1.693
200	-	-	-	4.226	3.619	3.148	2.680	2.219	1.712
205	-	-	-	4.272	3.656	3.180	2.707	2.241	1.731
210	-	-	-	4.316	3.693	3.211	2.733	2.263	1.749
215	-	-	-	4.358	3.728	3.241	2.759	2.284	1.766
220	-	-	-	4.400	3.762	3.270	2.783	2.305	1.783
225	-	-	-	-	3.796	3.298	2.807	2.325	1.799
230	-	-	-	-	3.828	3.326	2.830	2.344	1.814
235	-	-	-	-	3.859	3.352	2.852	2.362	1.829
240	-	-	-	-	3.889	3.378	2.874	2.380	1.844
245	-	-	-	-	3.919	3.402	2.894	2.398	1.858
250	-	-	-	-	3.947	3.426	2.915	2.414	1.872
255	-	-	-	-	3.975	3.450	2.934	2.431	1.885
260	-	-	-	-	4.002	3.473	2.953	2.447	1.898
265	-	-	-	-	4.028	3.495	2.972	2.462	1.910
270	-	-	-	-	4.054	3.516	2.990	2.477	1.922
275	-	-	-	-	4.079	3.537	3.007	2.491	1.934
280	-	-	-	-	4.103	3.557	3.024	2.505	1.945
285	-	-	-	-	4.126	3.577	3.041	2.519	1.956
290	-	-	-	-	4.149	3.596	3.057	2.532	1.967
295	-	-	-	-	4.172	3.615	3.072	2.545	1.977
300	-	-	-	-	4.194	3.633	3.087	2.558	1.988
305	-	-	-	-	4.215	3.651	3.102	2.570	1.997
310	-	-	-	-	4.236	3.669	3.117	2.582	2.007
315	-	-	-	-	4.256	3.685	3.131	2.594	2.016
320	-	-	-	-	4.276	3.702	3.144	2.605	2.026
325	-	-	-	-	4.295	3.718	3.158	2.616	2.034
330	-	-	-	-	4.314	3.734	3.171	2.627	2.043
335	-	-	-	-	4.332	3.749	3.184	2.637	2.052
340	-	-	-	-	4.350	3.764	3.196	2.648	2.060
345	-	-	-	-	4.368	3.779	3.208	2.658	2.068
350	-	-	-	-	4.385	3.793	3.220	2.667	2.076
355	-	-	-	-	4.402	3.807	3.232	2.677	2.084
356	-	-	-	-	4.405	3.810	3.234	2.679	2.085

Thickness is intumescent only.



Table 11: I Section Columns 75 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	3.067	2.777	2.583	2.216	1.978	1.798	1.596	1.378	1.108
50	3.193	2.891	2.689	2.310	2.063	1.876	1.668	1.443	1.166
55	3.494	3.163	2.940	2.530	2.262	2.060	1.836	1.595	1.300
60	3.781	3.421	3.178	2.736	2.449	2.232	1.993	1.736	1.424
65	4.055	3.666	3.402	2.932	2.625	2.392	2.138	1.867	1.539
70	4.317	3.899	3.615	3.116	2.790	2.542	2.274	1.989	1.646
75	-	4.122	3.817	3.290	2.945	2.683	2.401	2.102	1.745
80	-	4.334	4.009	3.455	3.092	2.816	2.520	2.208	1.837
85	-	-	4.192	3.611	3.230	2.941	2.632	2.308	1.923
90	-	-	4.366	3.760	3.362	3.059	2.737	2.401	2.004
95	-	-	-	3.901	3.486	3.171	2.837	2.489	2.080
100	-	-	-	4.036	3.604	3.277	2.931	2.572	2.151
105	-	-	-	4.164	3.717	3.377	3.020	2.650	2.218
110	-	-	-	4.286	3.824	3.472	3.104	2.724	2.282
115	-	-	-	4.403	3.926	3.563	3.184	2.794	2.342
120	-	-	-	-	4.023	3.649	3.260	2.861	2.398
125	-	-	-	-	4.116	3.732	3.332	2.924	2.452
130	-	-	-	-	4.205	3.810	3.401	2.984	2.503
135	-	-	-	-	4.290	3.885	3.467	3.041	2.552
140	-	-	-	-	4.371	3.957	3.529	3.095	2.598
145	-	-	-	-	-	4.025	3.589	3.147	2.642
150	-	-	-	-	-	4.091	3.647	3.197	2.684
155	-	-	-	-	-	4.154	3.702	3.244	2.725
160	-	-	-	-	-	4.215	3.754	3.290	2.763
165	-	-	-	-	-	4.273	3.805	3.333	2.800
170	-	-	-	-	-	4.329	3.853	3.375	2.835
175	-	-	-	-	-	4.382	3.900	3.415	2.869
180	-	-	-	-	-	-	3.944	3.454	2.901
185	-	-	-	-	-	-	3.987	3.491	2.932
190	-	-	-	-	-	-	4.029	3.526	2.962
195	-	-	-	-	-	-	4.069	3.561	2.991
200	-	-	-	-	-	-	4.108	3.594	3.019
205	-	-	-	-	-	-	4.145	3.626	3.045
210	-	-	-	-	-	-	4.181	3.656	3.071
215	-	-	-	-	-	-	4.215	3.686	3.096
220	-	-	-	-	-	-	4.249	3.715	3.120
225	-	-	-	-	-	-	4.282	3.742	3.143
230	-	-	-	-	-	-	4.313	3.769	3.165
235	-	-	-	-	-	-	4.343	3.795	3.187
240	-	-	-	-	-	-	4.373	3.820	3.208
245	-	-	-	-	-	-	4.401	3.844	3.228
250	-	-	-	-	-	-	-	3.868	3.248
255	-	-	-	-	-	-	-	3.891	3.267
260	-	-	-	-	-	-	-	3.913	3.285
265	-	-	-	-	-	-	-	3.935	3.303
270	-	-	-	-	-	-	-	3.955	3.321
275	-	-	-	-	-	-	-	3.976	3.337
280	-	-	-	-	-	-	-	3.995	3.354
285	-	-	-	-	-	-	-	4.015	3.370
290	-	-	-	-	-	-	-	4.033	3.385
295	-	-	-	-	-	-	-	4.051	3.400
300	-	-	-	-	-	-	-	4.069	3.415
305	-	-	-	-	-	-	-	4.086	3.429
310	-	-	-	-	-	-	-	4.103	3.443
315	-	-	-	-	-	-	-	4.119	3.456
320	-	-	-	-	-	-	-	4.135	3.469
325	-	-	-	-	-	-	-	4.151	3.482
330	-	-	-	-	-	-	-	4.166	3.495
335	-	-	-	-	-	-	-	4.181	3.507
340	-	-	-	-	-	-	-	4.195	3.519
345	-	-	-	-	-	-	-	4.209	3.530
350	-	-	-	-	-	-	-	4.223	3.542
355	-	-	-	-	-	-	-	4.236	3.553
356	-	-	-	-	-	-	-	4.239	3.555

Thickness is intumescent only.



Table 12: I Section Columns 90 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
48	3.853	3.551	3.362	2.965	2.721	2.545	2.343	2.119	1.832
50	4.005	3.689	3.492	3.080	2.827	2.643	2.434	2.203	1.908
55	4.366	4.018	3.798	3.351	3.075	2.875	2.648	2.399	2.083
60	-	4.330	4.088	3.606	3.308	3.091	2.846	2.580	2.245
65	-	-	4.362	3.847	3.526	3.292	3.031	2.748	2.395
70	-	-	-	4.074	3.731	3.481	3.204	2.904	2.534
75	-	-	-	4.288	3.925	3.659	3.365	3.050	2.663
80	-	-	-	-	4.108	3.826	3.517	3.187	2.783
85	-	-	-	-	4.280	3.983	3.659	3.315	2.896
90	-	-	-	-	-	4.132	3.793	3.435	3.001
95	-	-	-	-	-	4.272	3.920	3.548	3.100
100	-	-	-	-	-	4.405	4.039	3.655	3.193
105	-	-	-	-	-	-	4.152	3.755	3.281
110	-	-	-	-	-	-	4.259	3.850	3.364
115	-	-	-	-	-	-	4.361	3.940	3.442
120	-	-	-	-	-	-	-	4.026	3.516
125	-	-	-	-	-	-	-	4.107	3.586
130	-	-	-	-	-	-	-	4.184	3.653
135	-	-	-	-	-	-	-	4.258	3.716
140	-	-	-	-	-	-	-	4.328	3.777
145	-	-	-	-	-	-	-	4.395	3.834
150	-	-	-	-	-	-	-	-	3.889
155	-	-	-	-	-	-	-	-	3.941
160	-	-	-	-	-	-	-	-	3.992
165	-	-	-	-	-	-	-	-	4.039
170	-	-	-	-	-	-	-	-	4.085
175	-	-	-	-	-	-	-	-	4.130
180	-	-	-	-	-	-	-	-	4.172
185	-	-	-	-	-	-	-	-	4.212
190	-	-	-	-	-	-	-	-	4.251
195	-	-	-	-	-	-	-	-	4.289
200	-	-	-	-	-	-	-	-	4.325
205	-	-	-	-	-	-	-	-	4.360
210	-	-	-	-	-	-	-	-	4.394

Thickness is intumescent only.



Table 13: CHS sections 15 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
50	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
55	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
60	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
65	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
70	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
75	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
80	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
85	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
90	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
95	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
100	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
105	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
110	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
115	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
120	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
125	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
130	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
135	1.011	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
140	1.067	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
145	1.120	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
150	1.172	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
155	1.221	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
160	1.269	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
165	1.316	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
170	1.361	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
175	1.404	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
180	1.446	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
185	1.487	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
190	1.526	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
195	1.565	1.001	0.974	0.974	0.974	0.974	0.974	0.974	0.974
200	1.602	1.032	0.974	0.974	0.974	0.974	0.974	0.974	0.974
205	1.638	1.062	0.974	0.974	0.974	0.974	0.974	0.974	0.974
210	1.673	1.090	0.974	0.974	0.974	0.974	0.974	0.974	0.974
215	1.707	1.118	0.974	0.974	0.974	0.974	0.974	0.974	0.974
220	1.740	1.145	0.974	0.974	0.974	0.974	0.974	0.974	0.974
225	1.772	1.172	0.974	0.974	0.974	0.974	0.974	0.974	0.974
230	1.804	1.197	0.974	0.974	0.974	0.974	0.974	0.974	0.974
235	1.834	1.222	0.974	0.974	0.974	0.974	0.974	0.974	0.974
240	1.864	1.246	0.974	0.974	0.974	0.974	0.974	0.974	0.974
245	1.893	1.270	0.974	0.974	0.974	0.974	0.974	0.974	0.974
250	1.921	1.292	0.974	0.974	0.974	0.974	0.974	0.974	0.974
255	1.948	1.315	0.974	0.974	0.974	0.974	0.974	0.974	0.974
260	1.975	1.336	0.974	0.974	0.974	0.974	0.974	0.974	0.974
265	2.001	1.357	0.974	0.974	0.974	0.974	0.974	0.974	0.974
270	2.026	1.378	0.974	0.974	0.974	0.974	0.974	0.974	0.974
275	2.051	1.398	0.974	0.974	0.974	0.974	0.974	0.974	0.974
280	2.075	1.417	0.974	0.974	0.974	0.974	0.974	0.974	0.974
285	2.099	1.436	0.974	0.974	0.974	0.974	0.974	0.974	0.974
290	2.122	1.454	0.974	0.974	0.974	0.974	0.974	0.974	0.974
295	2.145	1.472	0.974	0.974	0.974	0.974	0.974	0.974	0.974
300	2.167	1.490	0.983	0.974	0.974	0.974	0.974	0.974	0.974
305	2.188	1.507	0.997	0.974	0.974	0.974	0.974	0.974	0.974
310	2.209	1.524	1.012	0.974	0.974	0.974	0.974	0.974	0.974
315	2.230	1.540	1.025	0.974	0.974	0.974	0.974	0.974	0.974
320	2.250	1.556	1.039	0.974	0.974	0.974	0.974	0.974	0.974
325	2.269	1.572	1.052	0.974	0.974	0.974	0.974	0.974	0.974
330	2.289	1.587	1.064	0.974	0.974	0.974	0.974	0.974	0.974
333	2.300	1.596	1.072	0.974	0.974	0.974	0.974	0.974	0.974

Thickness is intumescent only.



Table 14: CHS sections 30 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
50	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
55	1.016	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
60	1.207	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
65	1.389	0.989	0.974	0.974	0.974	0.974	0.974	0.974	0.974
70	1.562	1.146	0.974	0.974	0.974	0.974	0.974	0.974	0.974
75	1.727	1.295	0.974	0.974	0.974	0.974	0.974	0.974	0.974
80	1.884	1.437	1.083	0.974	0.974	0.974	0.974	0.974	0.974
85	2.034	1.571	1.207	0.974	0.974	0.974	0.974	0.974	0.974
90	2.178	1.698	1.324	0.974	0.974	0.974	0.974	0.974	0.974
95	2.315	1.820	1.434	1.039	0.974	0.974	0.974	0.974	0.974
100	2.446	1.935	1.539	1.134	0.974	0.974	0.974	0.974	0.974
105	2.572	2.045	1.639	1.225	0.974	0.974	0.974	0.974	0.974
110	2.693	2.151	1.734	1.311	0.974	0.974	0.974	0.974	0.974
115	2.809	2.251	1.824	1.393	0.986	0.974	0.974	0.974	0.974
120	2.921	2.348	1.910	1.470	1.056	0.974	0.974	0.974	0.974
125	3.028	2.440	1.993	1.544	1.124	0.974	0.974	0.974	0.974
130	3.131	2.529	2.071	1.614	1.187	0.974	0.974	0.974	0.974
135	3.230	2.613	2.146	1.681	1.248	0.974	0.974	0.974	0.974
140	3.326	2.695	2.218	1.745	1.305	0.974	0.974	0.974	0.974
145	3.419	2.773	2.287	1.806	1.360	0.974	0.974	0.974	0.974
150	3.508	2.849	2.353	1.865	1.413	0.974	0.974	0.974	0.974
155	3.594	2.921	2.417	1.921	1.463	1.009	0.974	0.974	0.974
160	3.677	2.991	2.478	1.974	1.511	1.053	0.974	0.974	0.974
165	3.757	3.058	2.536	2.026	1.557	1.094	0.974	0.974	0.974
170	3.835	3.123	2.593	2.075	1.601	1.134	0.974	0.974	0.974
175	3.911	3.186	2.647	2.123	1.643	1.171	0.974	0.974	0.974
180	3.983	3.247	2.699	2.169	1.684	1.208	0.974	0.974	0.974
185	4.054	3.305	2.750	2.212	1.723	1.243	0.974	0.974	0.974
190	4.123	3.362	2.799	2.255	1.760	1.276	0.974	0.974	0.974
195	4.189	3.417	2.846	2.296	1.796	1.308	0.974	0.974	0.974
200	4.253	3.470	2.891	2.335	1.831	1.339	0.974	0.974	0.974
205	4.316	3.521	2.935	2.373	1.865	1.369	0.974	0.974	0.974
210	4.377	3.571	2.977	2.410	1.897	1.398	0.974	0.974	0.974
215	4.436	3.619	3.018	2.445	1.928	1.425	0.974	0.974	0.974
220	4.493	3.666	3.058	2.479	1.958	1.452	0.974	0.974	0.974
225	4.549	3.711	3.097	2.512	1.987	1.478	0.976	0.974	0.974
230	4.603	3.755	3.134	2.545	2.015	1.503	0.998	0.974	0.974
235	4.656	3.798	3.170	2.576	2.042	1.527	1.020	0.974	0.974
240	4.707	3.839	3.205	2.606	2.068	1.550	1.040	0.974	0.974
245	-	3.880	3.239	2.635	2.094	1.572	1.061	0.974	0.974
250	-	3.919	3.272	2.663	2.119	1.594	1.080	0.974	0.974
255	-	3.957	3.305	2.691	2.142	1.615	1.099	0.974	0.974
260	-	3.994	3.336	2.717	2.166	1.635	1.117	0.974	0.974
265	-	4.031	3.366	2.743	2.188	1.655	1.134	0.974	0.974
270	-	4.066	3.396	2.768	2.210	1.674	1.151	0.974	0.974
275	-	4.100	3.425	2.793	2.231	1.693	1.168	0.974	0.974
280	-	4.134	3.453	2.816	2.252	1.711	1.184	0.974	0.974
285	-	4.166	3.480	2.839	2.272	1.729	1.199	0.974	0.974
290	-	4.198	3.506	2.862	2.291	1.746	1.215	0.974	0.974
295	-	4.229	3.532	2.884	2.310	1.762	1.229	0.974	0.974
300	-	4.259	3.557	2.905	2.328	1.778	1.244	0.974	0.974
305	-	4.289	3.582	2.926	2.346	1.794	1.257	0.974	0.974
310	-	4.318	3.606	2.946	2.364	1.809	1.271	0.974	0.974
315	-	4.346	3.629	2.966	2.381	1.824	1.284	0.974	0.974
320	-	4.374	3.652	2.985	2.397	1.838	1.297	0.974	0.974
325	-	4.400	3.674	3.004	2.413	1.852	1.309	0.974	0.974
330	-	4.427	3.696	3.022	2.429	1.866	1.321	0.974	0.974
333	-	4.442	3.709	3.033	2.438	1.874	1.328	0.974	0.974

Thickness is intumescent only.



Table 15: CHS sections 45 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
50	2.011	1.632	1.333	1.000	0.974	0.974	0.974	0.974	0.974
55	2.298	1.898	1.586	1.240	0.974	0.974	0.974	0.974	0.974
60	2.571	2.148	1.823	1.463	1.102	0.974	0.974	0.974	0.974
65	2.829	2.385	2.045	1.671	1.298	0.974	0.974	0.974	0.974
70	3.075	2.608	2.254	1.865	1.479	1.065	0.974	0.974	0.974
75	3.310	2.820	2.450	2.046	1.648	1.222	0.974	0.974	0.974
80	3.534	3.021	2.635	2.217	1.806	1.369	0.974	0.974	0.974
85	3.747	3.211	2.810	2.377	1.954	1.505	1.027	0.974	0.974
90	3.951	3.392	2.975	2.527	2.092	1.632	1.145	0.974	0.974
95	4.146	3.564	3.131	2.670	2.222	1.752	1.254	0.974	0.974
100	4.333	3.728	3.280	2.804	2.345	1.863	1.356	0.974	0.974
105	4.513	3.885	3.421	2.931	2.460	1.968	1.452	1.041	0.974
110	4.685	4.035	3.555	3.051	2.569	2.067	1.542	1.125	0.974
115	-	4.178	3.683	3.165	2.672	2.161	1.626	1.203	0.974
120	-	4.314	3.804	3.274	2.770	2.249	1.706	1.277	0.974
125	-	4.445	3.921	3.377	2.862	2.332	1.782	1.347	1.003
130	-	4.571	4.032	3.476	2.950	2.411	1.853	1.413	1.065
135	-	4.692	4.138	3.569	3.034	2.486	1.920	1.475	1.124
140	-	-	4.239	3.659	3.114	2.558	1.984	1.534	1.179
145	-	-	4.337	3.744	3.190	2.625	2.045	1.590	1.232
150	-	-	4.430	3.826	3.263	2.690	2.103	1.643	1.281
155	-	-	4.520	3.905	3.332	2.752	2.158	1.693	1.329
160	-	-	4.606	3.980	3.398	2.811	2.210	1.741	1.374
165	-	-	4.689	4.052	3.462	2.867	2.260	1.787	1.416
170	-	-	-	4.121	3.523	2.921	2.308	1.831	1.457
175	-	-	-	4.188	3.581	2.972	2.354	1.872	1.496
180	-	-	-	4.252	3.637	3.022	2.397	1.912	1.533
185	-	-	-	4.313	3.691	3.069	2.439	1.950	1.568
190	-	-	-	4.373	3.743	3.114	2.479	1.987	1.602
195	-	-	-	4.430	3.793	3.158	2.518	2.022	1.635
200	-	-	-	4.485	3.841	3.200	2.555	2.055	1.666
205	-	-	-	4.538	3.887	3.241	2.591	2.088	1.696
210	-	-	-	4.589	3.931	3.280	2.625	2.119	1.725
215	-	-	-	4.639	3.974	3.317	2.658	2.148	1.752
220	-	-	-	4.687	4.016	3.354	2.690	2.177	1.779
225	-	-	-	4.733	4.056	3.388	2.720	2.205	1.804
230	-	-	-	-	4.095	3.422	2.750	2.232	1.829
235	-	-	-	-	4.132	3.455	2.779	2.257	1.853
240	-	-	-	-	4.169	3.486	2.806	2.282	1.876
245	-	-	-	-	4.204	3.517	2.833	2.306	1.898
250	-	-	-	-	4.238	3.546	2.859	2.329	1.919
255	-	-	-	-	4.271	3.575	2.884	2.352	1.940
260	-	-	-	-	4.303	3.603	2.908	2.373	1.960
265	-	-	-	-	4.334	3.630	2.931	2.394	1.979
270	-	-	-	-	4.364	3.656	2.954	2.415	1.998
275	-	-	-	-	4.393	3.681	2.976	2.434	2.016
280	-	-	-	-	4.422	3.706	2.997	2.453	2.033
285	-	-	-	-	4.449	3.729	3.018	2.472	2.050
290	-	-	-	-	4.476	3.752	3.038	2.490	2.067
295	-	-	-	-	4.502	3.775	3.058	2.507	2.083
300	-	-	-	-	4.528	3.797	3.076	2.524	2.098
305	-	-	-	-	4.553	3.818	3.095	2.541	2.113
310	-	-	-	-	4.577	3.839	3.113	2.557	2.128
315	-	-	-	-	4.600	3.859	3.130	2.572	2.142
320	-	-	-	-	4.623	3.879	3.147	2.588	2.156
325	-	-	-	-	4.645	3.898	3.164	2.602	2.170
330	-	-	-	-	4.667	3.916	3.180	2.617	2.183
333	-	-	-	-	4.680	3.927	3.189	2.625	2.190

Thickness is intumescent only.



Table 16: CHS sections 60 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
50	3.209	2.805	2.505	2.153	1.792	1.386	0.974	0.974	0.974
55	3.581	3.149	2.832	2.462	2.084	1.662	1.190	0.974	0.974
60	3.934	3.474	3.138	2.749	2.354	1.914	1.426	1.031	0.974
65	4.269	3.781	3.425	3.016	2.604	2.147	1.642	1.236	0.974
70	4.589	4.070	3.694	3.266	2.835	2.362	1.841	1.424	1.089
75	-	4.345	3.948	3.499	3.051	2.561	2.024	1.596	1.254
80	-	4.605	4.187	3.718	3.253	2.746	2.193	1.755	1.406
85	-	-	4.413	3.924	3.441	2.918	2.351	1.901	1.546
90	-	-	4.626	4.118	3.618	3.079	2.497	2.038	1.675
95	-	-	-	4.300	3.784	3.230	2.633	2.164	1.795
100	-	-	-	4.473	3.940	3.371	2.761	2.282	1.906
105	-	-	-	4.636	4.088	3.504	2.881	2.393	2.010
110	-	-	-	-	4.227	3.629	2.993	2.496	2.107
115	-	-	-	-	4.358	3.747	3.099	2.593	2.198
120	-	-	-	-	4.483	3.858	3.198	2.684	2.283
125	-	-	-	-	4.601	3.964	3.292	2.770	2.363
130	-	-	-	-	4.714	4.064	3.381	2.851	2.439
135	-	-	-	-	-	4.159	3.465	2.928	2.510
140	-	-	-	-	-	4.249	3.545	3.000	2.577
145	-	-	-	-	-	4.334	3.621	3.069	2.641
150	-	-	-	-	-	4.416	3.693	3.135	2.702
155	-	-	-	-	-	4.494	3.762	3.197	2.759
160	-	-	-	-	-	4.569	3.827	3.256	2.814
165	-	-	-	-	-	4.640	3.890	3.312	2.866
170	-	-	-	-	-	4.708	3.950	3.366	2.915
175	-	-	-	-	-	-	4.007	3.417	2.962
180	-	-	-	-	-	-	4.061	3.466	3.007
185	-	-	-	-	-	-	4.114	3.513	3.051
190	-	-	-	-	-	-	4.164	3.558	3.092
195	-	-	-	-	-	-	4.212	3.601	3.131
200	-	-	-	-	-	-	4.258	3.643	3.169
205	-	-	-	-	-	-	4.303	3.683	3.206
210	-	-	-	-	-	-	4.346	3.721	3.241
215	-	-	-	-	-	-	4.387	3.758	3.274
220	-	-	-	-	-	-	4.427	3.793	3.306
225	-	-	-	-	-	-	4.465	3.827	3.338
230	-	-	-	-	-	-	4.502	3.860	3.367
235	-	-	-	-	-	-	4.537	3.892	3.396
240	-	-	-	-	-	-	4.572	3.922	3.424
245	-	-	-	-	-	-	4.605	3.952	3.451
250	-	-	-	-	-	-	4.637	3.980	3.477
255	-	-	-	-	-	-	4.669	4.008	3.502
260	-	-	-	-	-	-	4.699	4.035	3.526
265	-	-	-	-	-	-	4.728	4.061	3.550
270	-	-	-	-	-	-	-	4.086	3.573
275	-	-	-	-	-	-	-	4.110	3.595
280	-	-	-	-	-	-	-	4.134	3.616
285	-	-	-	-	-	-	-	4.156	3.637
290	-	-	-	-	-	-	-	4.179	3.657
295	-	-	-	-	-	-	-	4.200	3.676
300	-	-	-	-	-	-	-	4.221	3.695
305	-	-	-	-	-	-	-	4.241	3.713
310	-	-	-	-	-	-	-	4.261	3.731
315	-	-	-	-	-	-	-	4.280	3.748
320	-	-	-	-	-	-	-	4.299	3.765
325	-	-	-	-	-	-	-	4.317	3.782
330	-	-	-	-	-	-	-	4.335	3.798
333	-	-	-	-	-	-	-	4.345	3.807

Thickness is intumescent only.



Table 17: CHS sections 75 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
50	4.406	3.978	3.676	3.307	2.922	2.479	1.972	1.564	1.235
55	-	4.401	4.077	3.684	3.278	2.812	2.282	1.859	1.520
60	-	-	4.453	4.035	3.606	3.117	2.565	2.126	1.778
65	-	-	-	4.362	3.910	3.399	2.824	2.370	2.011
70	-	-	-	4.667	4.192	3.658	3.062	2.593	2.223
75	-	-	-	-	4.454	3.899	3.282	2.797	2.418
80	-	-	-	-	4.700	4.123	3.485	2.986	2.596
85	-	-	-	-	-	4.331	3.674	3.161	2.761
90	-	-	-	-	-	4.526	3.849	3.322	2.913
95	-	-	-	-	-	4.708	4.013	3.473	3.054
100	-	-	-	-	-	-	4.166	3.613	3.185
105	-	-	-	-	-	-	4.309	3.744	3.307
110	-	-	-	-	-	-	4.444	3.867	3.422
115	-	-	-	-	-	-	4.571	3.983	3.529
120	-	-	-	-	-	-	4.690	4.091	3.629
125	-	-	-	-	-	-	-	4.193	3.723
130	-	-	-	-	-	-	-	4.289	3.812
135	-	-	-	-	-	-	-	4.381	3.896
140	-	-	-	-	-	-	-	4.467	3.976
145	-	-	-	-	-	-	-	4.549	4.051
150	-	-	-	-	-	-	-	4.626	4.122
155	-	-	-	-	-	-	-	4.700	4.190
160	-	-	-	-	-	-	-	-	4.254
165	-	-	-	-	-	-	-	-	4.315
170	-	-	-	-	-	-	-	-	4.373
175	-	-	-	-	-	-	-	-	4.429
180	-	-	-	-	-	-	-	-	4.482
185	-	-	-	-	-	-	-	-	4.533
190	-	-	-	-	-	-	-	-	4.581
195	-	-	-	-	-	-	-	-	4.628
200	-	-	-	-	-	-	-	-	4.673
205	-	-	-	-	-	-	-	-	4.715

Thickness is intumescent only.

Table 18: CHS sections 90 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
50	-	-	-	4.460	4.052	3.572	3.013	2.570	2.221
55	-	-	-	-	4.471	3.962	3.374	2.911	2.549
60	-	-	-	-	-	4.320	3.704	3.221	2.844
65	-	-	-	-	-	4.650	4.006	3.503	3.113
70	-	-	-	-	-	-	4.284	3.762	3.357
75	-	-	-	-	-	-	4.540	3.999	3.581
80	-	-	-	-	-	-	-	4.218	3.787
85	-	-	-	-	-	-	-	4.420	3.976
90	-	-	-	-	-	-	-	4.607	4.151
95	-	-	-	-	-	-	-	-	4.313
100	-	-	-	-	-	-	-	-	4.464
105	-	-	-	-	-	-	-	-	4.605

Thickness is intumescent only.

Table 19: CHS sections 120 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
50	-	-	-	-	-	-	-	4.582	4.191
55	-	-	-	-	-	-	-	-	4.605

Thickness is intumescent only.



Table 20: RHS sections 15 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
46	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
50	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
55	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
60	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
65	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
70	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
75	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
80	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
85	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
90	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
95	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
100	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
105	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
110	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
115	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
120	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
125	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
130	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
135	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
140	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
145	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
150	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
155	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
160	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
165	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
170	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
175	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
180	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
185	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
190	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
195	1.058	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
200	1.087	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
205	1.114	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
210	1.141	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
215	1.167	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
220	1.192	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
225	1.217	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
230	1.241	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
235	1.265	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
240	1.288	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
245	1.310	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
250	1.332	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
255	1.353	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
260	1.374	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
265	1.394	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
270	1.414	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
275	1.433	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
280	1.452	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
285	1.471	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
290	1.489	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
293	1.501	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050

Thickness is intumescent only.



Table 21: RHS sections 30 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
46	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
50	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
55	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
60	1.191	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
65	1.347	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
70	1.497	1.089	1.050	1.050	1.050	1.050	1.050	1.050	1.050
75	1.640	1.213	1.050	1.050	1.050	1.050	1.050	1.050	1.050
80	1.776	1.332	1.050	1.050	1.050	1.050	1.050	1.050	1.050
85	1.908	1.445	1.099	1.050	1.050	1.050	1.050	1.050	1.050
90	2.034	1.554	1.195	1.050	1.050	1.050	1.050	1.050	1.050
95	2.154	1.658	1.287	1.050	1.050	1.050	1.050	1.050	1.050
100	2.271	1.758	1.375	1.050	1.050	1.050	1.050	1.050	1.050
105	2.382	1.854	1.460	1.054	1.050	1.050	1.050	1.050	1.050
110	2.490	1.946	1.541	1.124	1.050	1.050	1.050	1.050	1.050
115	2.593	2.034	1.619	1.192	1.050	1.050	1.050	1.050	1.050
120	2.693	2.120	1.694	1.257	1.050	1.050	1.050	1.050	1.050
125	2.789	2.202	1.766	1.319	1.050	1.050	1.050	1.050	1.050
130	2.882	2.281	1.835	1.379	1.050	1.050	1.050	1.050	1.050
135	2.972	2.357	1.902	1.437	1.050	1.050	1.050	1.050	1.050
140	3.059	2.431	1.967	1.492	1.050	1.050	1.050	1.050	1.050
145	3.142	2.502	2.029	1.546	1.059	1.050	1.050	1.050	1.050
150	3.223	2.571	2.089	1.597	1.102	1.050	1.050	1.050	1.050
155	3.302	2.637	2.147	1.647	1.144	1.050	1.050	1.050	1.050
160	3.378	2.701	2.203	1.695	1.185	1.050	1.050	1.050	1.050
165	3.451	2.763	2.257	1.741	1.224	1.050	1.050	1.050	1.050
170	3.523	2.824	2.309	1.786	1.262	1.050	1.050	1.050	1.050
175	3.592	2.882	2.360	1.829	1.298	1.050	1.050	1.050	1.050
180	3.659	2.939	2.409	1.871	1.334	1.050	1.050	1.050	1.050
185	3.724	2.993	2.456	1.912	1.368	1.050	1.050	1.050	1.050
190	3.788	3.047	2.502	1.951	1.401	1.050	1.050	1.050	1.050
195	3.849	3.098	2.547	1.989	1.433	1.050	1.050	1.050	1.050
200	3.909	3.148	2.590	2.026	1.464	1.050	1.050	1.050	1.050
205	3.967	3.197	2.632	2.062	1.494	1.050	1.050	1.050	1.050
210	4.023	3.245	2.673	2.097	1.523	1.050	1.050	1.050	1.050
215	4.078	3.291	2.713	2.131	1.552	1.050	1.050	1.050	1.050
220	4.132	3.335	2.751	2.164	1.579	1.050	1.050	1.050	1.050
225	4.184	3.379	2.789	2.196	1.606	1.050	1.050	1.050	1.050
230	4.235	3.421	2.825	2.227	1.632	1.050	1.050	1.050	1.050
235	4.284	3.463	2.861	2.257	1.657	1.050	1.050	1.050	1.050
240	4.332	3.503	2.895	2.286	1.681	1.068	1.050	1.050	1.050
245	4.379	3.542	2.929	2.314	1.705	1.087	1.050	1.050	1.050
250	4.425	3.580	2.962	2.342	1.728	1.106	1.050	1.050	1.050
255	4.470	3.617	2.994	2.369	1.751	1.124	1.050	1.050	1.050
260	4.514	3.654	3.025	2.396	1.773	1.142	1.050	1.050	1.050
265	4.556	3.689	3.055	2.421	1.794	1.160	1.050	1.050	1.050
270	4.598	3.724	3.085	2.446	1.815	1.176	1.050	1.050	1.050
275	4.639	3.758	3.114	2.471	1.835	1.193	1.050	1.050	1.050
280	4.678	3.791	3.142	2.495	1.855	1.209	1.050	1.050	1.050
285	4.717	3.823	3.170	2.518	1.875	1.225	1.050	1.050	1.050
290	4.755	3.854	3.197	2.541	1.893	1.240	1.050	1.050	1.050
293	-	3.876	3.215	2.556	1.906	1.250	1.050	1.050	1.050

Thickness is intumescent only.



Table 22: RHS sections 45 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
46	1.860	1.529	1.302	1.053	1.050	1.050	1.050	1.050	1.050
50	2.074	1.724	1.484	1.221	1.050	1.050	1.050	1.050	1.050
55	2.336	1.961	1.705	1.425	1.127	1.050	1.050	1.050	1.050
60	2.586	2.187	1.915	1.618	1.303	1.050	1.050	1.050	1.050
65	2.824	2.402	2.115	1.802	1.470	1.109	1.050	1.050	1.050
70	3.052	2.606	2.304	1.976	1.628	1.250	1.050	1.050	1.050
75	3.270	2.802	2.485	2.141	1.778	1.384	1.050	1.050	1.050
80	3.479	2.989	2.658	2.299	1.920	1.511	1.065	1.050	1.050
85	3.679	3.168	2.823	2.449	2.056	1.632	1.170	1.050	1.050
90	3.871	3.339	2.980	2.593	2.185	1.746	1.270	1.050	1.050
95	4.056	3.503	3.131	2.730	2.309	1.856	1.365	1.050	1.050
100	4.233	3.661	3.275	2.861	2.426	1.960	1.455	1.050	1.050
105	4.403	3.812	3.413	2.986	2.539	2.059	1.541	1.050	1.050
110	4.567	3.957	3.546	3.106	2.647	2.154	1.624	1.050	1.050
115	4.725	4.097	3.674	3.221	2.750	2.245	1.702	1.097	1.050
120	-	4.232	3.796	3.332	2.848	2.332	1.777	1.159	1.050
125	-	4.361	3.914	3.438	2.943	2.416	1.849	1.219	1.050
130	-	4.486	4.027	3.540	3.034	2.496	1.918	1.276	1.050
135	-	4.606	4.136	3.638	3.122	2.573	1.984	1.331	1.050
140	-	4.722	4.242	3.733	3.206	2.646	2.047	1.383	1.050
145	-	-	4.343	3.824	3.287	2.717	2.108	1.434	1.050
150	-	-	4.441	3.912	3.365	2.786	2.167	1.482	1.050
155	-	-	4.536	3.996	3.440	2.851	2.223	1.529	1.050
160	-	-	4.627	4.078	3.513	2.915	2.278	1.574	1.050
165	-	-	4.716	4.157	3.583	2.976	2.330	1.617	1.050
170	-	-	-	4.233	3.650	3.035	2.380	1.659	1.050
175	-	-	-	4.307	3.715	3.092	2.429	1.699	1.050
180	-	-	-	4.379	3.779	3.147	2.476	1.737	1.076
185	-	-	-	4.448	3.840	3.200	2.521	1.775	1.107
190	-	-	-	4.515	3.899	3.251	2.565	1.811	1.136
195	-	-	-	4.580	3.956	3.301	2.607	1.846	1.165
200	-	-	-	4.643	4.011	3.349	2.648	1.879	1.192
205	-	-	-	4.704	4.065	3.396	2.688	1.912	1.219
210	-	-	-	4.763	4.117	3.441	2.726	1.943	1.245
215	-	-	-	-	4.168	3.485	2.764	1.974	1.270
220	-	-	-	-	4.217	3.528	2.800	2.004	1.294
225	-	-	-	-	4.265	3.569	2.835	2.032	1.317
230	-	-	-	-	4.311	3.609	2.869	2.060	1.340
235	-	-	-	-	4.356	3.648	2.902	2.087	1.362
240	-	-	-	-	4.400	3.686	2.934	2.114	1.384
245	-	-	-	-	4.442	3.723	2.965	2.139	1.404
250	-	-	-	-	4.484	3.758	2.996	2.164	1.425
255	-	-	-	-	4.524	3.793	3.025	2.188	1.444
260	-	-	-	-	4.563	3.827	3.054	2.212	1.463
265	-	-	-	-	4.602	3.860	3.082	2.234	1.482
270	-	-	-	-	4.639	3.892	3.109	2.257	1.500
275	-	-	-	-	4.675	3.924	3.135	2.278	1.517
280	-	-	-	-	4.711	3.954	3.161	2.299	1.534
285	-	-	-	-	4.745	3.984	3.186	2.320	1.551
290	-	-	-	-	-	4.013	3.211	2.340	1.567
293	-	-	-	-	-	4.033	3.228	2.353	1.578

Thickness is intumescent only.



Table 23: RHS sections 60 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
46	3.005	2.653	2.436	2.187	1.913	1.603	1.252	1.050	1.050
50	3.294	2.919	2.688	2.425	2.134	1.807	1.438	1.050	1.050
55	3.646	3.243	2.995	2.713	2.403	2.054	1.661	1.202	1.050
60	3.981	3.551	3.287	2.986	2.657	2.288	1.871	1.387	1.050
65	4.302	3.844	3.564	3.245	2.897	2.508	2.070	1.560	1.097
70	4.608	4.124	3.827	3.491	3.125	2.716	2.257	1.724	1.241
75	-	4.391	4.078	3.725	3.341	2.913	2.434	1.879	1.376
80	-	4.647	4.318	3.948	3.547	3.100	2.601	2.025	1.503
85	-	-	4.547	4.160	3.742	3.278	2.760	2.163	1.623
90	-	-	4.765	4.363	3.928	3.447	2.911	2.294	1.738
95	-	-	-	4.556	4.106	3.608	3.055	2.419	1.846
100	-	-	-	4.741	4.275	3.761	3.192	2.537	1.949
105	-	-	-	-	4.437	3.908	3.322	2.650	2.046
110	-	-	-	-	4.593	4.048	3.446	2.758	2.139
115	-	-	-	-	4.741	4.182	3.565	2.860	2.228
120	-	-	-	-	-	4.310	3.679	2.959	2.313
125	-	-	-	-	-	4.433	3.788	3.052	2.394
130	-	-	-	-	-	4.551	3.892	3.142	2.471
135	-	-	-	-	-	4.664	3.992	3.228	2.545
140	-	-	-	-	-	-	4.088	3.311	2.616
145	-	-	-	-	-	-	4.180	3.390	2.684
150	-	-	-	-	-	-	4.269	3.466	2.749
155	-	-	-	-	-	-	4.354	3.539	2.812
160	-	-	-	-	-	-	4.436	3.609	2.872
165	-	-	-	-	-	-	4.515	3.677	2.931
170	-	-	-	-	-	-	4.592	3.742	2.986
175	-	-	-	-	-	-	4.665	3.805	3.040
180	-	-	-	-	-	-	4.736	3.866	3.092
185	-	-	-	-	-	-	-	3.924	3.142
190	-	-	-	-	-	-	-	3.981	3.191
195	-	-	-	-	-	-	-	4.036	3.237
200	-	-	-	-	-	-	-	4.089	3.283
205	-	-	-	-	-	-	-	4.140	3.326
210	-	-	-	-	-	-	-	4.189	3.368
215	-	-	-	-	-	-	-	4.237	3.409
220	-	-	-	-	-	-	-	4.284	3.449
225	-	-	-	-	-	-	-	4.329	3.487
230	-	-	-	-	-	-	-	4.373	3.525
235	-	-	-	-	-	-	-	4.415	3.561
240	-	-	-	-	-	-	-	4.457	3.596
245	-	-	-	-	-	-	-	4.497	3.630
250	-	-	-	-	-	-	-	4.536	3.663
255	-	-	-	-	-	-	-	4.573	3.695
260	-	-	-	-	-	-	-	4.610	3.726
265	-	-	-	-	-	-	-	4.646	3.757
270	-	-	-	-	-	-	-	4.681	3.786
275	-	-	-	-	-	-	-	4.715	3.815
280	-	-	-	-	-	-	-	4.748	3.843
285	-	-	-	-	-	-	-	-	3.870
290	-	-	-	-	-	-	-	-	3.897
293	-	-	-	-	-	-	-	-	3.915

Thickness is intumescent only.



Table 24: RHS sections 75 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
46	4.151	3.777	3.570	3.321	3.039	2.711	2.330	1.874	1.459
50	4.513	4.113	3.893	3.628	3.329	2.981	2.579	2.096	1.659
55	-	4.524	4.286	4.001	3.680	3.308	2.878	2.364	1.899
60	-	-	4.659	4.354	4.011	3.616	3.160	2.616	2.124
65	-	-	-	4.689	4.325	3.906	3.425	2.853	2.336
70	-	-	-	-	4.622	4.181	3.676	3.076	2.535
75	-	-	-	-	-	4.442	3.913	3.286	2.722
80	-	-	-	-	-	4.689	4.137	3.485	2.899
85	-	-	-	-	-	-	4.350	3.674	3.067
90	-	-	-	-	-	-	4.553	3.853	3.225
95	-	-	-	-	-	-	4.745	4.022	3.376
100	-	-	-	-	-	-	-	4.184	3.518
105	-	-	-	-	-	-	-	4.338	3.654
110	-	-	-	-	-	-	-	4.484	3.784
115	-	-	-	-	-	-	-	4.624	3.907
120	-	-	-	-	-	-	-	4.758	4.025
125	-	-	-	-	-	-	-	-	4.137
130	-	-	-	-	-	-	-	-	4.245
135	-	-	-	-	-	-	-	-	4.348
140	-	-	-	-	-	-	-	-	4.446
145	-	-	-	-	-	-	-	-	4.541
150	-	-	-	-	-	-	-	-	4.632
155	-	-	-	-	-	-	-	-	4.719

Thickness is intumescent only.

Table 25: RHS sections 90 Minutes									
Section Factor up to m ⁻¹	Thickness (mm) Required for a Design Temperature of								
	350°C	400°C	450°C	500°C	550°C	600°C	650°C	700°C	750°C
46	-	-	4.704	4.455	4.165	3.819	3.408	2.906	2.451
50	-	-	-	-	4.523	4.155	3.720	3.187	2.707
55	-	-	-	-	-	4.561	4.095	3.526	3.015
60	-	-	-	-	-	-	4.448	3.845	3.303
65	-	-	-	-	-	-	-	4.145	3.574
70	-	-	-	-	-	-	-	4.427	3.829
75	-	-	-	-	-	-	-	4.694	4.069
80	-	-	-	-	-	-	-	-	4.295
85	-	-	-	-	-	-	-	-	4.510
90	-	-	-	-	-	-	-	-	4.713

Thickness is intumescent only.

