



**CERTIFICATION DOCUMENT**  
**BS-RC-0018**  
Issued : 04<sup>th</sup> June 2024

**Sherwin-Williams Protective & Marine  
Coatings**

No. 101 W Prospect Avenue  
Cleveland  
OH 44115-1093  
USA

The product has been assessed against the requirements of the UL Guide Category: CDXA

**UL Certified Product**

**FIRETEX FX5090**

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333 Pfingsten Road, Northbrook, IL 60062-2096 USA

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## **CERTIFICATION of FIRETEX FX5090**

### **Sherwin-Williams Protective & Marine Coatings**

This certification relates to the use of a reactive coating known as FIRETEX FX5090 for the fire protection of structural steel hollow section columns. The performance scope of the certification is given in the tables below, which show the total dry film thickness of FIRETEX FX5090 (excluding primer and top coat) required to provide fire resistance periods in accordance with BS 476: Part 21: 1987 within the range of 15 minutes to 150 minutes for differing section shapes, section factors and steel design temperatures.

This certification is designed to demonstrate compliance of the product or system specifically with Approved Document B (England and Wales), Section D of the technical Standard (Scotland), Technical Booklet E (Northern Ireland). If compliance is required to other regulatory or guidance documents there may be additional considerations or conflict to be taken into account.

The products are certified on the basis of:

- a) Initial type testing.
- b) Audit testing
- c) FUS-FPC
- d) Quality system – ISO 9001
- e) Performance assessment adopting the principles of the ASFP 'Yellow Book' 5<sup>th</sup> edition as required by UL guide category CDXA.

The data given in the performance tables of this certificate is applicable to steel sections blast cleaned to ISO 8501-1 Sa 2½ or equivalent and primed with a suitable compatible primer. Guidance with respect to surface preparations, primers and top coats should be obtained from Sherwin-Williams Protective & Marine Coatings whose responsibility it is to ensure that FIRETEX FX5090 is compatible for use in respect of both ambient and fire conditions. The dry film thickness of primer and top coat should not exceed that tested.

The data given in the performance tables relates to steel design temperatures for the section type and size. Selection of the appropriate design temperature is dependent on the actual load conditions for the section and as such the design temperature should be provided by a suitably qualified structural engineer.

In the absence of an appropriate design temperature guidance may be obtained by reference to the 'Yellow Book' clause relating to default limiting and critical temperatures.

It is acceptable to derive a protection thickness by linear interpolation between the temperatures given in the tables should the actual design or limiting critical temperature fall between two given temperatures.

This certification relates to ongoing production. Product and/or its immediate packaging are identified with the manufacturers name, the product name and the UL Certified label.





FIRETEX FX5090																		
Table A2: I-Section Beams: Fire Resistance Period: 30 Minutes																		
Section Factor up to m <sup>2</sup>	Thickness (mm) Required for a Design Temperature of																	
	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C	750°C
30	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
35	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
40	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
45	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
50	0.217	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
55	0.250	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
60	0.283	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
65	0.316	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
70	0.350	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
75	0.383	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
80	0.416	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
85	0.449	0.208	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
90	0.483	0.220	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
95	0.516	0.232	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
100	0.530	0.244	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
105	0.542	0.256	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
110	0.553	0.269	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
115	0.565	0.281	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
120	0.576	0.293	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
125	0.588	0.305	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
130	0.599	0.317	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
135	0.610	0.329	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
140	0.622	0.341	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
145	0.633	0.353	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
150	0.645	0.366	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
155	0.656	0.378	0.201	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
160	0.668	0.390	0.215	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
165	0.679	0.402	0.228	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
170	0.690	0.414	0.242	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
175	0.702	0.426	0.256	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
180	0.713	0.438	0.270	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
185	0.725	0.450	0.283	0.207	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
190	0.736	0.463	0.297	0.218	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
195	0.748	0.475	0.311	0.229	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
200	0.759	0.487	0.325	0.241	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
205	0.770	0.499	0.338	0.252	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
210	0.782	0.511	0.352	0.264	0.204	0.197	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
215	0.793	0.523	0.366	0.275	0.214	0.206	0.203	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
220	0.805	0.536	0.380	0.286	0.223	0.216	0.212	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
225	0.816	0.548	0.393	0.298	0.233	0.225	0.221	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
230	0.828	0.561	0.407	0.309	0.242	0.234	0.231	0.204	0.203	0.199	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
235	0.839	0.573	0.421	0.320	0.252	0.244	0.240	0.213	0.212	0.207	0.204	0.196	0.196	0.196	0.196	0.196	0.196	0.196
240	0.850	0.586	0.435	0.332	0.262	0.253	0.249	0.221	0.220	0.215	0.212	0.196	0.196	0.196	0.196	0.196	0.196	0.196
245	0.862	0.598	0.448	0.343	0.271	0.262	0.258	0.230	0.228	0.224	0.220	0.202	0.199	0.196	0.196	0.196	0.196	0.196
250	0.873	0.611	0.462	0.354	0.281	0.272	0.267	0.238	0.237	0.232	0.228	0.209	0.206	0.199	0.196	0.196	0.196	0.196
255	0.885	0.623	0.476	0.366	0.290	0.281	0.277	0.246	0.245	0.240	0.236	0.217	0.213	0.206	0.197	0.196	0.196	0.196
260	0.896	0.636	0.489	0.377	0.300	0.290	0.286	0.255	0.254	0.248	0.244	0.224	0.221	0.213	0.204	0.196	0.196	0.196
265	0.908	0.649	0.503	0.388	0.309	0.300	0.295	0.263	0.262	0.256	0.253	0.232	0.228	0.220	0.210	0.196	0.196	0.196
270	0.926	0.661	0.517	0.400	0.319	0.309	0.304	0.272	0.270	0.265	0.261	0.239	0.236	0.228	0.217	0.196	0.196	0.196
275	0.955	0.674	0.529	0.411	0.328	0.318	0.313	0.280	0.279	0.273	0.269	0.247	0.243	0.235	0.224	0.198	0.196	0.196
280	0.985	0.686	0.540	0.423	0.338	0.328	0.323	0.288	0.287	0.281	0.277	0.254	0.251	0.242	0.231	0.204	0.196	0.196
285	1.014	0.699	0.551	0.434	0.347	0.337	0.332	0.297	0.295	0.289	0.285	0.262	0.258	0.249	0.238	0.209	0.196	0.196
290	1.044	0.711	0.562	0.445	0.357	0.346	0.341	0.305	0.304	0.298	0.293	0.269	0.265	0.256	0.244	0.215	0.196	0.196
295	1.073	0.724	0.573	0.457	0.366	0.356	0.350	0.314	0.312	0.306	0.301	0.277	0.273	0.264	0.251	0.221	0.196	0.196
300	1.103	0.736	0.584	0.468	0.376	0.365	0.359	0.322	0.321	0.314	0.309	0.284	0.280	0.271	0.258	0.226	0.196	0.196
305	1.132	0.749	0.595	0.479	0.385	0.374	0.369	0.331	0.329	0.322	0.318	0.292	0.288	0.278	0.265	0.232	0.196	0.196
310	1.162	0.761	0.606	0.491	0.395	0.383	0.378	0.339	0.337	0.331	0.326	0.300	0.295	0.285	0.272	0.238	0.196	0.196
315	1.191	0.774	0.618	0.502	0.404	0.393	0.387	0.347	0.346	0.339	0.334	0.307	0.302	0.292	0.278	0.244	0.196	0.196
320	1.220	0.786	0.629	0.513	0.414	0.402	0.396	0.356	0.354	0.347	0.342	0.315	0.310	0.299	0.285	0.249	0.196	0.196
325	1.250	0.799	0.640	0.524	0.423	0.411	0.406	0.364	0.362	0.355	0.350	0.322	0.317	0.307	0.292	0.255	0.200	0.196
330	1.279	0.811	0.651	0.534	0.433	0.421	0.415	0.373	0.371	0.363	0.358	0.330	0.325	0.314	0.299	0.261	0.205	0.196
335	1.309	0.824	0.662	0.543	0.442	0.430	0.424	0.381	0.379	0.372	0.366	0.337	0.332	0.321	0.306	0.266	0.209	0.196

Table applies to beams with protection to three sides and a concrete slab



FIRETEX FX5090																	
Section Factor up to m <sup>2</sup>	Table A3: I-Section Beams: Fire Resistance Period: 45 Minutes																
	Thickness (mm) Required for a Design Temperature of																
	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C
30	0.469	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
35	0.492	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
40	0.536	0.267	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
45	0.579	0.339	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
50	0.622	0.411	0.210	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
55	0.666	0.484	0.252	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
60	0.709	0.528	0.294	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
65	0.753	0.544	0.336	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
70	0.796	0.560	0.378	0.208	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
75	0.839	0.576	0.420	0.225	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
80	0.883	0.591	0.462	0.242	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
85	0.925	0.607	0.505	0.259	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
90	0.964	0.623	0.527	0.276	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
95	1.004	0.638	0.537	0.293	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
100	1.043	0.654	0.547	0.309	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
105	1.082	0.670	0.558	0.326	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
110	1.121	0.686	0.568	0.343	0.205	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
115	1.161	0.701	0.578	0.360	0.217	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
120	1.200	0.717	0.588	0.377	0.230	0.203	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
125	1.239	0.733	0.598	0.394	0.242	0.216	0.200	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
130	1.279	0.749	0.609	0.411	0.254	0.229	0.214	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
135	1.318	0.764	0.619	0.428	0.266	0.242	0.227	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
140	1.357	0.780	0.629	0.445	0.279	0.255	0.241	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
145	1.396	0.796	0.639	0.462	0.291	0.268	0.254	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
150	1.436	0.812	0.650	0.479	0.303	0.281	0.267	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
155	1.475	0.827	0.660	0.496	0.316	0.294	0.281	0.209	0.207	0.203	0.199	0.196	0.196	0.196	0.196	0.196	0.196
160	1.514	0.843	0.670	0.513	0.328	0.307	0.294	0.223	0.222	0.217	0.213	0.196	0.196	0.196	0.196	0.196	0.196
165	1.553	0.859	0.680	0.527	0.340	0.320	0.307	0.238	0.237	0.231	0.227	0.206	0.203	0.196	0.196	0.196	0.196
170	1.593	0.875	0.690	0.538	0.352	0.332	0.321	0.253	0.251	0.246	0.242	0.220	0.216	0.196	0.196	0.196	0.196
175	1.632	0.890	0.701	0.549	0.365	0.345	0.334	0.267	0.266	0.260	0.256	0.233	0.229	0.196	0.196	0.196	0.196
180	1.671	0.906	0.711	0.560	0.377	0.358	0.347	0.282	0.280	0.275	0.270	0.247	0.242	0.209	0.199	0.196	0.196
185	1.710	0.927	0.721	0.571	0.389	0.371	0.361	0.297	0.295	0.289	0.284	0.260	0.256	0.223	0.212	0.196	0.196
190	1.744	0.954	0.731	0.582	0.402	0.384	0.374	0.311	0.310	0.303	0.299	0.273	0.269	0.238	0.226	0.196	0.196
195	1.775	0.982	0.741	0.593	0.414	0.397	0.387	0.326	0.324	0.318	0.313	0.287	0.282	0.252	0.239	0.205	0.196
200	1.805	1.009	0.752	0.604	0.426	0.410	0.401	0.341	0.339	0.332	0.327	0.300	0.296	0.266	0.253	0.217	0.196
205	1.835	1.036	0.762	0.615	0.438	0.423	0.414	0.355	0.353	0.347	0.341	0.314	0.309	0.280	0.266	0.229	0.196
210	1.866	1.063	0.772	0.626	0.451	0.436	0.428	0.370	0.368	0.361	0.356	0.327	0.322	0.294	0.279	0.240	0.196
215	1.896	1.091	0.782	0.637	0.463	0.449	0.441	0.384	0.383	0.375	0.370	0.341	0.336	0.308	0.293	0.252	0.196
220	1.926	1.118	0.793	0.648	0.475	0.462	0.454	0.399	0.397	0.390	0.384	0.354	0.349	0.322	0.306	0.264	0.196
225	1.957	1.145	0.803	0.659	0.488	0.475	0.468	0.414	0.412	0.404	0.399	0.368	0.362	0.336	0.320	0.275	0.196
230	1.987	1.173	0.813	0.670	0.500	0.488	0.481	0.428	0.427	0.419	0.413	0.381	0.376	0.350	0.333	0.287	0.196
235	2.017	1.200	0.823	0.681	0.512	0.501	0.494	0.443	0.441	0.433	0.427	0.395	0.389	0.364	0.347	0.299	0.196
240	2.048	1.227	0.833	0.692	0.525	0.514	0.508	0.458	0.456	0.447	0.441	0.408	0.402	0.378	0.360	0.310	0.196
245	2.078	1.254	0.844	0.703	0.538	0.527	0.521	0.472	0.470	0.462	0.456	0.422	0.416	0.392	0.373	0.322	0.245
250	2.108	1.282	0.854	0.714	0.551	0.539	0.534	0.487	0.485	0.476	0.470	0.435	0.429	0.407	0.387	0.334	0.254
255	2.139	1.309	0.864	0.725	0.564	0.552	0.547	0.502	0.500	0.491	0.484	0.449	0.442	0.421	0.400	0.346	0.263
260	2.169	1.336	0.874	0.736	0.577	0.565	0.559	0.516	0.514	0.505	0.498	0.462	0.456	0.435	0.414	0.357	0.273
265	2.199	1.363	0.884	0.747	0.590	0.578	0.572	0.529	0.527	0.519	0.513	0.476	0.469	0.449	0.427	0.369	0.282
270	2.230	1.391	0.895	0.758	0.603	0.591	0.585	0.541	0.539	0.532	0.526	0.489	0.482	0.463	0.441	0.381	0.292
275	2.260	1.418	0.905	0.769	0.616	0.604	0.597	0.553	0.551	0.543	0.538	0.503	0.496	0.477	0.454	0.392	0.301
280	2.290	1.445	0.917	0.780	0.629	0.616	0.610	0.565	0.563	0.555	0.549	0.516	0.509	0.491	0.468	0.404	0.311
285	2.321	1.473	0.953	0.791	0.642	0.629	0.623	0.577	0.575	0.567	0.561	0.528	0.522	0.505	0.481	0.416	0.320
290	2.351	1.500	0.990	0.802	0.655	0.642	0.636	0.589	0.587	0.579	0.573	0.539	0.533	0.519	0.494	0.428	0.329
295	2.381	1.527	1.027	0.813	0.668	0.655	0.648	0.601	0.599	0.591	0.585	0.551	0.544	0.531	0.508	0.439	0.339
300	2.412	1.554	1.063	0.824	0.681	0.668	0.661	0.613	0.611	0.603	0.596	0.562	0.556	0.542	0.521	0.451	0.348
305	2.442	1.582	1.100	0.835	0.695	0.680	0.674	0.625	0.623	0.615	0.608	0.573	0.567	0.553	0.532	0.463	0.358
310	2.472	1.609	1.137	0.846	0.708	0.693	0.687	0.637	0.635	0.626	0.620	0.584	0.578	0.564	0.543	0.474	0.367
315	2.503	1.636	1.173	0.857	0.721	0.706	0.699	0.649	0.647	0.638	0.632	0.596	0.589	0.575	0.553	0.486	0.377
320	2.533	1.663	1.210	0.868	0.734	0.719	0.712	0.661	0.659	0.650	0.643	0.607	0.600	0.586	0.564	0.498	0.386
325	2.563	1.691	1.247	0.879	0.747	0.732	0.725	0.673	0.671	0.662	0.655	0.618	0.612	0.597	0.575	0.510	0.396
330	2.594	1.718	1.283	0.890	0.760	0.745	0.737	0.685	0.683	0.674	0.667	0.629	0.623	0.607	0.586	0.521	0.405
335	2.624	1.753	1.320	0.901	0.773	0.757	0.750	0.697	0.695	0.686	0.679	0.641	0.634	0.618	0.596	0.531	0.414

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.



FIRETEX FX5090																		
Section Factor up to m <sup>2</sup>	Table A4: I-Section Beams: Fire Resistance Period: 60 Minutes																	
	Thickness (mm) Required for a Design Temperature of																	
	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C	750°C
30	0.674	0.488	0.235	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
35	0.755	0.539	0.334	0.197	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
40	0.847	0.590	0.433	0.263	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
45	0.937	0.641	0.523	0.329	0.211	0.197	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
50	1.023	0.693	0.545	0.395	0.256	0.239	0.232	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
55	1.108	0.744	0.567	0.460	0.301	0.282	0.273	0.215	0.213	0.204	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
60	1.194	0.795	0.588	0.522	0.346	0.325	0.315	0.249	0.246	0.235	0.227	0.196	0.196	0.196	0.196	0.196	0.196	0.196
65	1.279	0.847	0.610	0.535	0.391	0.368	0.357	0.283	0.279	0.267	0.258	0.212	0.205	0.196	0.196	0.196	0.196	0.196
70	1.365	0.898	0.632	0.548	0.436	0.410	0.398	0.316	0.313	0.299	0.289	0.237	0.229	0.196	0.196	0.196	0.196	0.196
75	1.450	0.945	0.654	0.561	0.481	0.453	0.440	0.350	0.346	0.331	0.320	0.263	0.253	0.196	0.196	0.196	0.196	0.196
80	1.536	0.990	0.676	0.574	0.522	0.496	0.481	0.384	0.379	0.363	0.351	0.288	0.277	0.196	0.196	0.196	0.196	0.196
85	1.621	1.035	0.698	0.587	0.532	0.525	0.521	0.417	0.413	0.395	0.382	0.313	0.301	0.196	0.196	0.196	0.196	0.196
90	1.706	1.081	0.719	0.600	0.543	0.535	0.531	0.451	0.446	0.427	0.413	0.338	0.325	0.201	0.196	0.196	0.196	0.196
95	1.752	1.126	0.741	0.613	0.553	0.545	0.541	0.485	0.479	0.459	0.444	0.364	0.349	0.230	0.196	0.196	0.196	0.196
100	1.785	1.171	0.763	0.627	0.563	0.555	0.551	0.518	0.513	0.491	0.475	0.389	0.372	0.260	0.196	0.196	0.196	0.196
105	1.819	1.216	0.785	0.640	0.574	0.565	0.561	0.529	0.528	0.521	0.506	0.414	0.396	0.290	0.209	0.196	0.196	0.196
110	1.852	1.261	0.807	0.653	0.584	0.575	0.571	0.539	0.537	0.531	0.525	0.439	0.420	0.320	0.234	0.196	0.196	0.196
115	1.886	1.306	0.828	0.666	0.594	0.586	0.581	0.548	0.547	0.540	0.535	0.465	0.444	0.349	0.259	0.196	0.196	0.196
120	1.920	1.351	0.850	0.679	0.605	0.596	0.591	0.558	0.556	0.549	0.544	0.490	0.468	0.379	0.285	0.196	0.196	0.196
125	1.953	1.397	0.872	0.692	0.615	0.606	0.601	0.567	0.565	0.559	0.554	0.515	0.492	0.409	0.310	0.196	0.196	0.196
130	1.987	1.442	0.894	0.705	0.626	0.616	0.611	0.576	0.575	0.568	0.563	0.528	0.516	0.438	0.335	0.196	0.196	0.196
135	2.020	1.487	0.916	0.718	0.636	0.626	0.621	0.586	0.584	0.578	0.573	0.538	0.529	0.468	0.360	0.196	0.196	0.196
140	2.054	1.532	0.948	0.731	0.646	0.636	0.631	0.595	0.594	0.587	0.582	0.547	0.538	0.498	0.385	0.196	0.196	0.196
145	2.087	1.577	0.979	0.745	0.657	0.646	0.641	0.605	0.603	0.597	0.592	0.557	0.548	0.523	0.410	0.196	0.196	0.196
150	2.121	1.622	1.011	0.758	0.667	0.656	0.651	0.615	0.613	0.606	0.601	0.567	0.558	0.533	0.435	0.196	0.196	0.196
155	2.155	1.668	1.042	0.771	0.678	0.666	0.661	0.624	0.622	0.615	0.610	0.576	0.568	0.543	0.460	0.215	0.196	0.196
160	2.188	1.713	1.074	0.784	0.688	0.677	0.671	0.633	0.631	0.625	0.620	0.586	0.577	0.553	0.485	0.234	0.196	0.196
165	2.222	1.750	1.106	0.797	0.698	0.687	0.681	0.642	0.641	0.634	0.629	0.596	0.587	0.563	0.510	0.254	0.196	0.196
170	2.255	1.785	1.137	0.810	0.709	0.697	0.691	0.652	0.650	0.644	0.639	0.605	0.597	0.574	0.527	0.273	0.199	0.196
175	2.289	1.819	1.169	0.823	0.719	0.707	0.701	0.661	0.660	0.653	0.648	0.615	0.607	0.584	0.538	0.292	0.215	0.196
180	2.322	1.854	1.200	0.836	0.730	0.717	0.711	0.671	0.669	0.663	0.658	0.625	0.616	0.594	0.549	0.312	0.231	0.196
185	2.356	1.888	1.232	0.850	0.740	0.727	0.721	0.680	0.678	0.672	0.667	0.634	0.626	0.604	0.560	0.331	0.247	0.196
190	2.390	1.923	1.263	0.863	0.750	0.737	0.731	0.689	0.688	0.682	0.677	0.644	0.636	0.614	0.571	0.350	0.263	0.197
195	2.423	1.957	1.295	0.876	0.761	0.747	0.741	0.699	0.697	0.691	0.686	0.654	0.646	0.624	0.582	0.369	0.279	0.210
200	2.457	1.992	1.327	0.889	0.771	0.758	0.751	0.708	0.707	0.700	0.695	0.663	0.656	0.634	0.593	0.389	0.295	0.222
205	2.490	2.026	1.358	0.902	0.782	0.768	0.761	0.718	0.716	0.710	0.705	0.673	0.665	0.644	0.604	0.408	0.311	0.234
210	2.524	2.061	1.390	0.916	0.792	0.778	0.771	0.727	0.726	0.719	0.714	0.683	0.675	0.655	0.614	0.427	0.327	0.247
215	2.557	2.095	1.421	0.949	0.802	0.788	0.781	0.737	0.735	0.729	0.724	0.692	0.685	0.665	0.625	0.447	0.343	0.259
220	2.591	2.129	1.453	0.982	0.813	0.798	0.791	0.746	0.744	0.738	0.733	0.702	0.695	0.675	0.636	0.466	0.359	0.271
225	2.625	2.164	1.484	1.015	0.823	0.808	0.801	0.755	0.754	0.748	0.743	0.712	0.704	0.685	0.647	0.485	0.376	0.284
230	2.658	2.198	1.516	1.048	0.833	0.818	0.811	0.765	0.763	0.757	0.752	0.721	0.714	0.695	0.658	0.505	0.392	0.296
235	2.692	2.233	1.548	1.081	0.844	0.828	0.821	0.774	0.773	0.766	0.762	0.731	0.724	0.705	0.669	0.523	0.408	0.308
240	2.725	2.267	1.579	1.114	0.854	0.838	0.831	0.784	0.782	0.776	0.771	0.741	0.734	0.715	0.680	0.537	0.424	0.321
245	2.759	2.302	1.611	1.147	0.865	0.849	0.841	0.793	0.792	0.785	0.780	0.750	0.743	0.725	0.691	0.551	0.440	0.333
250	2.792	2.336	1.642	1.180	0.875	0.859	0.851	0.802	0.801	0.795	0.790	0.760	0.753	0.735	0.702	0.565	0.456	0.346
255	2.826	2.371	1.674	1.213	0.885	0.869	0.861	0.812	0.810	0.804	0.799	0.770	0.763	0.746	0.713	0.579	0.472	0.358
260	2.860	2.405	1.705	1.246	0.896	0.879	0.871	0.821	0.820	0.814	0.809	0.779	0.773	0.756	0.724	0.593	0.488	0.370
265	2.893	2.440	1.741	1.279	0.906	0.889	0.881	0.831	0.829	0.823	0.818	0.789	0.783	0.766	0.735	0.607	0.504	0.383
270	2.927	2.474	1.782	1.312	0.922	0.899	0.891	0.840	0.839	0.832	0.828	0.799	0.792	0.776	0.746	0.621	0.520	0.395
275	2.960	2.509	1.824	1.345	0.962	0.909	0.901	0.850	0.848	0.842	0.837	0.808	0.802	0.786	0.757	0.635	0.533	0.407
280	2.994	2.543	1.865	1.378	1.001	0.934	0.911	0.859	0.857	0.851	0.847	0.818	0.812	0.796	0.768	0.649	0.545	0.420
285	3.027	2.578	1.907	1.411	1.041	0.975	0.941	0.868	0.867	0.861	0.856	0.827	0.822	0.806	0.779	0.663	0.558	0.432
290	3.061	2.612	1.948	1.444	1.080	1.015	0.982	0.878	0.876	0.870	0.865	0.837	0.831	0.816	0.790	0.677	0.571	0.444
295	3.095	2.647	1.990	1.477	1.119	1.056	1.023	0.887	0.886	0.880	0.875	0.847	0.841	0.827	0.801	0.692	0.583	0.457
300	3.128	2.681	2.032	1.511	1.159	1.097	1.064	0.897	0.895	0.889	0.884	0.856	0.851	0.837	0.812	0.706	0.596	0.469
305	3.162	2.715	2.073	1.544	1.198	1.137	1.106	0.906	0.905	0.898	0.894	0.866	0.861	0.847	0.822	0.720	0.608	0.481
310	3.195	2.750	2.115	1.577	1.238	1.178	1.147	0.919	0.914	0.908	0.903	0.876	0.870	0.857	0.833	0.734	0.621	0.494
315	3.229	2.784	2.156	1.610	1.277	1.218	1.188	0.963	0.956	0.928	0.913	0.885	0.880	0.867	0.844	0.748	0.633	0.506
320	3.262	2.819	2.198	1.643	1.316	1.259	1.230	1.008	1.001	0.972	0.950	0.895	0.890	0.877	0.855	0.762	0.646	0.518
325	3.296	2.853	2.239	1.676	1.356	1.300	1.271	1.052	1.045	1.016	0.994	0.905	0.900	0.887	0.866	0.776	0.658	0.529
330	3.330	2.888	2.281	1.709	1.395	1.340	1.312	1.097	1.089	1.060	1.038	0.914	0.910	0.897	0.877	0.790	0.671	0.540
335	3.363	2.922	2.322	1.747	1.435	1.381	1.353	1.141	1.134	1.104	1.082	0.957	0.935	0.907	0.888	0.804	0.684	0.552

Table applies to beams with protection to three sides and a concrete slab



FIRETEX FX5090																			
Table A5: I-Section Beams: Fire Resistance Period: 75 Minutes																			
Section Factor up to m <sup>2</sup>	Thickness (mm) Required for a Design Temperature of																		
	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C	750°C	
30	0.927	0.692	0.563	0.469	0.242	0.229	0.224	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196	0.196
35	1.062	0.780	0.610	0.505	0.327	0.311	0.304	0.254	0.252	0.243	0.237	0.204	0.198	0.196	0.196	0.196	0.196	0.196	0.196
40	1.197	0.869	0.663	0.535	0.412	0.394	0.385	0.324	0.321	0.311	0.303	0.262	0.255	0.225	0.196	0.196	0.196	0.196	0.196
45	1.332	0.956	0.716	0.564	0.497	0.476	0.465	0.393	0.390	0.378	0.369	0.320	0.312	0.282	0.250	0.196	0.196	0.196	0.196
50	1.467	1.040	0.769	0.593	0.532	0.528	0.525	0.463	0.459	0.445	0.434	0.379	0.369	0.339	0.304	0.199	0.196	0.196	0.196
55	1.602	1.123	0.822	0.623	0.549	0.543	0.541	0.523	0.522	0.512	0.500	0.437	0.426	0.396	0.358	0.245	0.196	0.196	0.196
60	1.729	1.207	0.874	0.652	0.565	0.559	0.556	0.536	0.536	0.532	0.530	0.495	0.484	0.453	0.412	0.291	0.196	0.196	0.196
65	1.769	1.291	0.926	0.681	0.581	0.575	0.572	0.550	0.549	0.545	0.543	0.527	0.525	0.510	0.467	0.337	0.196	0.196	0.196
70	1.808	1.375	0.972	0.711	0.597	0.590	0.587	0.564	0.563	0.559	0.556	0.539	0.537	0.530	0.521	0.384	0.196	0.196	0.196
75	1.848	1.459	1.019	0.740	0.613	0.606	0.602	0.577	0.576	0.572	0.569	0.551	0.548	0.541	0.532	0.430	0.196	0.196	0.196
80	1.888	1.542	1.066	0.770	0.630	0.622	0.618	0.591	0.590	0.585	0.582	0.563	0.560	0.553	0.543	0.476	0.196	0.196	0.196
85	1.928	1.626	1.112	0.799	0.646	0.637	0.633	0.604	0.603	0.598	0.595	0.575	0.572	0.564	0.554	0.521	0.200	0.196	0.196
90	1.967	1.710	1.159	0.828	0.662	0.653	0.649	0.618	0.617	0.612	0.608	0.587	0.584	0.576	0.565	0.531	0.236	0.196	0.196
95	2.007	1.756	1.205	0.858	0.678	0.669	0.664	0.632	0.630	0.625	0.621	0.599	0.595	0.587	0.576	0.541	0.272	0.196	0.196
100	2.047	1.792	1.252	0.887	0.694	0.684	0.679	0.645	0.644	0.638	0.634	0.611	0.607	0.599	0.587	0.551	0.307	0.196	0.196
105	2.087	1.829	1.298	0.917	0.711	0.700	0.695	0.659	0.657	0.651	0.647	0.623	0.619	0.610	0.598	0.561	0.343	0.196	0.196
110	2.126	1.866	1.345	0.955	0.727	0.716	0.710	0.672	0.671	0.665	0.660	0.635	0.631	0.622	0.609	0.571	0.379	0.196	0.196
115	2.166	1.903	1.392	0.992	0.743	0.731	0.726	0.686	0.684	0.678	0.673	0.646	0.643	0.633	0.620	0.581	0.415	0.196	0.196
120	2.206	1.940	1.438	1.030	0.759	0.747	0.741	0.700	0.698	0.691	0.686	0.658	0.654	0.645	0.631	0.591	0.451	0.196	0.196
125	2.246	1.977	1.485	1.068	0.775	0.763	0.756	0.713	0.711	0.704	0.699	0.670	0.666	0.656	0.642	0.601	0.487	0.196	0.196
130	2.285	2.014	1.531	1.105	0.792	0.778	0.772	0.727	0.725	0.718	0.712	0.682	0.678	0.668	0.654	0.611	0.521	0.196	0.196
135	2.325	2.050	1.578	1.143	0.808	0.794	0.787	0.740	0.739	0.731	0.725	0.694	0.690	0.679	0.665	0.622	0.531	0.196	0.196
140	2.365	2.087	1.624	1.181	0.824	0.810	0.803	0.754	0.752	0.744	0.738	0.706	0.701	0.691	0.676	0.632	0.541	0.196	0.196
145	2.405	2.124	1.671	1.218	0.840	0.825	0.818	0.768	0.766	0.757	0.751	0.718	0.713	0.702	0.687	0.642	0.551	0.196	0.196
150	2.445	2.161	1.718	1.256	0.856	0.841	0.833	0.781	0.779	0.771	0.764	0.730	0.725	0.714	0.698	0.652	0.561	0.196	0.196
155	2.484	2.198	1.758	1.293	0.873	0.857	0.849	0.795	0.793	0.784	0.777	0.742	0.737	0.725	0.709	0.662	0.571	0.199	0.199
160	2.524	2.235	1.798	1.331	0.889	0.872	0.864	0.808	0.806	0.797	0.790	0.754	0.749	0.737	0.720	0.672	0.581	0.218	0.218
165	2.564	2.271	1.837	1.369	0.905	0.888	0.880	0.822	0.820	0.810	0.803	0.766	0.760	0.748	0.731	0.682	0.591	0.237	0.237
170	2.604	2.308	1.876	1.406	0.920	0.904	0.895	0.836	0.833	0.824	0.816	0.778	0.772	0.760	0.742	0.692	0.601	0.256	0.256
175	2.643	2.345	1.916	1.444	0.966	0.925	0.910	0.849	0.847	0.837	0.829	0.789	0.784	0.771	0.753	0.702	0.611	0.275	0.275
180	2.683	2.382	1.955	1.482	1.003	0.960	0.940	0.863	0.860	0.850	0.842	0.801	0.796	0.783	0.764	0.712	0.622	0.294	0.294
185	2.723	2.419	1.995	1.519	1.040	0.995	0.974	0.876	0.874	0.863	0.855	0.813	0.807	0.794	0.775	0.722	0.632	0.313	0.313
190	2.763	2.456	2.034	1.557	1.076	1.031	1.009	0.890	0.887	0.876	0.868	0.825	0.819	0.805	0.787	0.732	0.642	0.333	0.333
195	2.802	2.493	2.073	1.595	1.113	1.066	1.043	0.904	0.901	0.890	0.881	0.837	0.831	0.817	0.798	0.742	0.652	0.352	0.352
200	2.842	2.529	2.113	1.632	1.150	1.101	1.078	0.921	0.914	0.903	0.895	0.849	0.843	0.828	0.809	0.752	0.662	0.371	0.371
205	2.882	2.566	2.152	1.670	1.186	1.136	1.112	0.956	0.949	0.939	0.930	0.861	0.855	0.840	0.820	0.762	0.672	0.390	0.390
210	2.922	2.603	2.192	1.708	1.223	1.171	1.147	0.991	0.984	0.974	0.965	0.931	0.873	0.866	0.851	0.831	0.772	0.682	0.682
215	2.961	2.640	2.231	1.748	1.260	1.207	1.182	1.026	1.019	1.009	0.967	0.885	0.878	0.863	0.842	0.782	0.692	0.702	0.702
220	3.001	2.677	2.270	1.790	1.297	1.242	1.216	1.061	1.054	1.026	1.003	0.897	0.890	0.874	0.853	0.792	0.702	0.712	0.712
225	3.041	2.714	2.310	1.833	1.333	1.277	1.251	1.096	1.089	1.061	1.039	0.909	0.902	0.886	0.864	0.802	0.712	0.722	0.722
230	3.081	2.750	2.349	1.876	1.370	1.312	1.285	1.131	1.125	1.097	1.075	0.934	0.913	0.897	0.875	0.813	0.722	0.732	0.732
235	3.120	2.787	2.389	1.918	1.407	1.347	1.320	1.166	1.160	1.132	1.111	0.972	0.950	0.909	0.886	0.823	0.732	0.742	0.742
240	3.160	2.824	2.428	1.961	1.443	1.383	1.354	1.201	1.195	1.168	1.147	1.011	0.988	0.934	0.897	0.833	0.742	0.752	0.752
245	3.200	2.861	2.467	2.003	1.480	1.418	1.389	1.236	1.230	1.203	1.183	1.049	1.027	0.974	0.908	0.843	0.752	0.762	0.762
250	3.240	2.898	2.507	2.046	1.517	1.453	1.423	1.271	1.265	1.239	1.219	1.087	1.065	1.013	0.932	0.853	0.762	0.772	0.772
255	3.279	2.935	2.546	2.089	1.553	1.488	1.458	1.306	1.300	1.274	1.255	1.126	1.104	1.052	0.973	0.863	0.772	0.782	0.782
260	3.319	2.972	2.586	2.131	1.590	1.523	1.492	1.341	1.335	1.310	1.291	1.164	1.143	1.092	1.013	0.873	0.782	0.792	0.792
265	3.359	3.008	2.625	2.174	1.627	1.559	1.527	1.376	1.370	1.345	1.327	1.202	1.181	1.131	1.053	0.883	0.792	0.802	0.802
270	3.399	3.045	2.664	2.216	1.663	1.594	1.561	1.411	1.405	1.381	1.362	1.241	1.220	1.170	1.093	0.893	0.802	0.812	0.812
275	3.438	3.082	2.704	2.259	1.700	1.629	1.596	1.446	1.440	1.417	1.398	1.279	1.259	1.210	1.134	0.903	0.812	0.822	0.822
280	3.478	3.119	2.743	2.302	1.740	1.664	1.630	1.481	1.475	1.452	1.434	1.318	1.297	1.249	1.174	0.913	0.822	0.832	0.832
285	3.518	3.156	2.783	2.344	1.789	1.699	1.665	1.516	1.510	1.488	1.470	1.356	1.336	1.288	1.214	0.952	0.832	0.842	0.842
290	3.558	3.193	2.822	2.387	1.837	1.738	1.699	1.551	1.545	1.523	1.506	1.394	1.374	1.328	1.254	0.995	0.842	0.852	0.852
295	3.597	3.229	2.861	2.429	1.886	1.788	1.737	1.586	1.580	1.559	1.542	1.433	1.413	1.367	1.295	1.039	0.852	0.862	0.862
300	3.637	3.266	2.901	2.472	1.934	1.837	1.787	1.621	1.615	1.594	1.578	1.471	1.452	1.406	1.335	1.083	0.862	0.872	0.872
305	3.677	3.303	2.940	2.515	1.982	1.886	1.837	1.656	1.651	1.630	1.614	1.510	1.490	1.445	1.375	1.126	0.872	0.882	0.882
310	3.717	3.340	2.980	2.557	2.031	1.936	1.887	1.691	1.686	1.665	1.650	1.548	1.529	1.485	1.415	1.170	0.882	0.892	0.892
315	3.756	3.377	3.019	2.600	2.079	1.985	1.937	1.726	1.721	1.701	1.686	1.586	1.567	1.524	1.456	1.214	0.892	0.902	0.902
320	0.000	3.414	3.058	2.642	2.127	2.035	1.987	1.775	1.768	1.740	1.722	1.625	1.606	1.563	1.496	1.257	0.903	0.913	0.913
325	0.000	3.450	3.098	2															



FIRETEX FX5090																		
Section Factor up to m <sup>2</sup>	Table A6: I-Section Beams: Fire Resistance Period: 90 Minutes																	
	Thickness (mm) Required for a Design Temperature of																	
	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C	750°C
30	1.431	0.908	0.705	0.595	0.500	0.469	0.469	0.469	0.469	0.467	0.467	0.421	0.413	0.384	0.357	0.214	0.196	0.196
35	1.633	1.033	0.797	0.651	0.538	0.531	0.528	0.510	0.509	0.507	0.467	0.421	0.413	0.384	0.357	0.282	0.196	0.196
40	1.764	1.158	0.884	0.706	0.575	0.566	0.562	0.535	0.534	0.531	0.528	0.499	0.491	0.466	0.436	0.350	0.207	0.196
45	1.834	1.283	0.970	0.761	0.613	0.601	0.596	0.561	0.559	0.554	0.551	0.533	0.531	0.526	0.515	0.419	0.260	0.196
50	1.903	1.408	1.055	0.815	0.651	0.636	0.629	0.586	0.585	0.578	0.574	0.551	0.548	0.543	0.536	0.487	0.313	0.196
55	1.973	1.533	1.141	0.870	0.689	0.671	0.663	0.612	0.610	0.602	0.596	0.569	0.566	0.560	0.552	0.528	0.366	0.196
60	2.043	1.658	1.226	0.924	0.727	0.707	0.697	0.637	0.635	0.626	0.619	0.587	0.583	0.577	0.568	0.542	0.420	0.196
65	2.113	1.745	1.312	0.974	0.764	0.742	0.731	0.662	0.660	0.649	0.642	0.604	0.600	0.593	0.584	0.556	0.473	0.197
70	2.183	1.788	1.397	1.023	0.802	0.777	0.765	0.688	0.685	0.673	0.665	0.622	0.618	0.610	0.600	0.570	0.522	0.259
75	2.253	1.830	1.482	1.073	0.840	0.815	0.799	0.713	0.710	0.697	0.688	0.640	0.635	0.627	0.616	0.583	0.533	0.321
80	2.323	1.873	1.568	1.122	0.878	0.847	0.833	0.739	0.735	0.721	0.710	0.657	0.652	0.644	0.632	0.597	0.544	0.383
85	2.392	1.916	1.653	1.172	0.915	0.882	0.867	0.764	0.760	0.745	0.733	0.675	0.669	0.660	0.648	0.611	0.556	0.444
90	2.462	1.958	1.732	1.222	0.957	0.918	0.900	0.789	0.785	0.768	0.756	0.693	0.687	0.677	0.664	0.625	0.567	0.506
95	2.532	2.001	1.772	1.271	0.999	0.960	0.939	0.815	0.810	0.792	0.779	0.711	0.704	0.694	0.680	0.639	0.579	0.538
100	2.602	2.043	1.812	1.321	1.041	1.001	0.981	0.840	0.835	0.816	0.802	0.728	0.721	0.710	0.696	0.653	0.590	0.538
105	2.672	2.086	1.852	1.370	1.083	1.043	1.022	0.865	0.860	0.840	0.825	0.746	0.738	0.727	0.712	0.667	0.601	0.548
110	2.742	2.129	1.892	1.420	1.125	1.085	1.064	0.891	0.885	0.863	0.847	0.764	0.756	0.744	0.728	0.681	0.613	0.557
115	2.812	2.171	1.933	1.469	1.167	1.126	1.106	0.917	0.910	0.887	0.870	0.781	0.773	0.761	0.744	0.695	0.624	0.567
120	2.881	2.214	1.973	1.519	1.209	1.168	1.147	0.960	0.950	0.911	0.893	0.799	0.790	0.777	0.760	0.709	0.636	0.577
125	2.951	2.257	2.013	1.568	1.251	1.210	1.189	1.002	0.992	0.950	0.917	0.817	0.807	0.794	0.776	0.723	0.647	0.587
130	3.021	2.299	2.053	1.618	1.293	1.252	1.231	1.044	1.034	0.990	0.960	0.834	0.825	0.811	0.792	0.737	0.658	0.596
135	3.091	2.342	2.093	1.667	1.335	1.293	1.272	1.066	1.076	1.036	1.003	0.852	0.842	0.828	0.808	0.751	0.670	0.606
140	3.161	2.384	2.133	1.717	1.377	1.335	1.314	1.108	1.118	1.078	1.046	0.870	0.859	0.844	0.824	0.765	0.681	0.616
145	3.231	2.427	2.173	1.761	1.419	1.377	1.356	1.170	1.161	1.121	1.089	0.888	0.877	0.861	0.840	0.779	0.692	0.625
150	3.301	2.470	2.213	1.804	1.461	1.418	1.397	1.212	1.203	1.163	1.132	0.905	0.894	0.878	0.856	0.793	0.704	0.635
155	3.370	2.512	2.254	1.847	1.503	1.460	1.439	1.254	1.245	1.206	1.174	0.937	0.911	0.895	0.872	0.807	0.715	0.645
160	3.440	2.555	2.294	1.891	1.544	1.502	1.481	1.296	1.287	1.248	1.217	0.985	0.952	0.911	0.888	0.820	0.727	0.655
165	3.510	2.597	2.334	1.934	1.586	1.544	1.522	1.338	1.329	1.291	1.260	1.032	1.000	0.952	0.904	0.834	0.738	0.664
170	3.580	2.640	2.374	1.977	1.628	1.585	1.564	1.380	1.371	1.334	1.303	1.080	1.047	0.997	0.928	0.848	0.749	0.674
175	3.666	2.683	2.414	2.020	1.670	1.627	1.606	1.422	1.414	1.376	1.346	1.127	1.094	1.043	0.971	0.862	0.761	0.684
180	3.752	2.725	2.454	2.063	1.712	1.669	1.647	1.464	1.456	1.419	1.389	1.174	1.142	1.088	1.014	0.876	0.772	0.694
185	3.838	2.768	2.494	2.106	1.756	1.710	1.689	1.506	1.498	1.461	1.432	1.222	1.189	1.134	1.057	0.890	0.784	0.703
190	3.924	2.811	2.534	2.149	1.801	1.754	1.731	1.549	1.540	1.504	1.475	1.269	1.236	1.180	1.100	0.904	0.795	0.713
195	4.010	2.853	2.575	2.192	1.846	1.799	1.776	1.591	1.582	1.546	1.518	1.317	1.283	1.225	1.143	0.924	0.806	0.723
200	4.096	2.896	2.615	2.236	1.891	1.844	1.821	1.633	1.625	1.589	1.561	1.364	1.331	1.271	1.186	0.960	0.818	0.733
205	4.182	2.938	2.655	2.279	1.936	1.889	1.866	1.675	1.667	1.631	1.604	1.412	1.378	1.317	1.229	0.997	0.829	0.742
210	4.269	2.981	2.695	2.322	1.981	1.934	1.911	1.717	1.709	1.674	1.647	1.459	1.425	1.362	1.272	1.033	0.840	0.752
215	4.355	3.024	2.735	2.365	2.026	1.979	1.956	1.762	1.753	1.717	1.690	1.507	1.473	1.408	1.314	1.070	0.852	0.762
220	4.441	3.066	2.775	2.408	2.070	2.024	2.001	1.808	1.799	1.762	1.733	1.554	1.520	1.453	1.357	1.106	0.863	0.772
225	4.527	3.109	2.815	2.451	2.115	2.069	2.046	1.854	1.845	1.808	1.779	1.601	1.567	1.499	1.400	1.142	0.875	0.781
230	4.613	3.151	2.855	2.494	2.160	2.114	2.091	1.899	1.891	1.854	1.825	1.649	1.615	1.545	1.443	1.179	0.886	0.791
235	4.699	3.194	2.896	2.537	2.205	2.159	2.136	1.945	1.937	1.900	1.872	1.696	1.662	1.590	1.486	1.215	0.897	0.801
240	4.785	3.237	2.936	2.580	2.250	2.204	2.181	1.991	1.983	1.946	1.918	1.744	1.709	1.636	1.529	1.252	0.909	0.811
245	4.871	3.279	2.976	2.624	2.295	2.249	2.226	2.037	2.029	1.992	1.964	1.791	1.757	1.681	1.572	1.288	0.935	0.830
250	4.958	3.322	3.016	2.667	2.340	2.294	2.271	2.083	2.074	2.038	2.010	1.838	1.804	1.727	1.615	1.324	0.976	0.830
255	5.044	3.365	3.056	2.710	2.385	2.339	2.316	2.129	2.120	2.084	2.056	1.885	1.852	1.775	1.658	1.361	1.017	0.840
260	5.130	3.407	3.096	2.753	2.430	2.384	2.361	2.174	2.166	2.130	2.103	1.933	1.899	1.823	1.700	1.397	1.058	0.850
265	5.216	3.450	3.136	2.796	2.475	2.429	2.406	2.220	2.212	2.176	2.149	1.980	1.947	1.871	1.746	1.434	1.099	0.859
270	5.302	3.492	3.177	2.839	2.520	2.474	2.451	2.266	2.258	2.222	2.195	2.027	1.994	1.918	1.795	1.470	1.141	0.869
275	5.388	3.535	3.217	2.882	2.564	2.519	2.496	2.312	2.304	2.268	2.241	2.075	2.042	1.966	1.843	1.506	1.182	0.879
280	5.474	3.578	3.257	2.925	2.609	2.564	2.541	2.358	2.350	2.314	2.287	2.122	2.089	2.014	1.892	1.543	1.223	0.889
285	-	3.968	3.297	2.968	2.654	2.609	2.586	2.404	2.395	2.360	2.333	2.169	2.137	2.062	1.941	1.579	1.264	0.898
290	-	4.398	3.337	3.012	2.699	2.654	2.631	2.449	2.441	2.406	2.380	2.216	2.184	2.110	1.990	1.616	1.305	0.908
295	-	4.829	3.377	3.055	2.744	2.699	2.676	2.495	2.487	2.452	2.426	2.264	2.232	2.157	2.039	1.652	1.346	0.929
300	-	5.259	3.417	3.098	2.789	2.744	2.721	2.541	2.533	2.498	2.472	2.311	2.279	2.205	2.088	1.689	1.387	0.973
305	-	-	3.457	3.141	2.834	2.789	2.766	2.587	2.579	2.545	2.518	2.358	2.327	2.253	2.137	1.725	1.428	1.017
310	-	-	3.498	3.184	2.879	2.834	2.811	2.633	2.625	2.591	2.564	2.405	2.374	2.301	2.185	1.782	1.469	1.061
315	-	-	3.538	3.227	2.924	2.879	2.856	2.679	2.671	2.637	2.611	2.453	2.422	2.349	2.234	1.839	1.511	1.105
320	-	-	3.578	3.270	2.969	2.924	2.901	2.725	2.716	2.683	2.657	2.500	2.469	2.396	2.283	1.897	1.552	1.149
325	-	-	3.618	3.313	3.014	2.969	2.946	2.770	2.762	2.729	2.703	2.547	2.516	2.444	2.332	1.954	1.593	1.193
330	-	-	3.658	3.356	3.058	3.014	2.992	2.816	2.808	2.775	2.749	2.594	2.564	2.492	2.381	2.012	1.634	1.236
335	-	-	3.698	3.400	3.103	3.059	3.037	2.862	2.854	2.821	2.795	2.642	2.611	2.540	2.430	2.069	1.675	1.280

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.





FIRETEX FX5090																		
Table A7: I-Section Beams: Fire Resistance Period: 105 Minutes																		
Section Factor up to m <sup>2</sup>	Thickness (mm) Required for a Design Temperature of																	
	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C	750°C
30	1.812	1.371	0.887	0.716	0.627	0.617	0.611	0.575	0.574	0.568	0.563	0.538	0.534	0.505	0.469	0.469	0.264	0.196
35	1.961	1.556	1.015	0.813	0.692	0.678	0.672	0.628	0.626	0.619	0.613	0.583	0.578	0.541	0.530	0.507	0.336	0.196
40	2.110	1.732	1.142	0.896	0.750	0.734	0.726	0.673	0.670	0.662	0.655	0.620	0.614	0.577	0.563	0.530	0.408	0.256
45	2.260	1.803	1.269	0.984	0.808	0.789	0.780	0.718	0.715	0.705	0.697	0.657	0.650	0.613	0.596	0.554	0.480	0.370
50	2.409	1.875	1.397	1.073	0.867	0.845	0.834	0.763	0.760	0.748	0.740	0.693	0.685	0.650	0.628	0.577	0.527	0.484
55	2.558	1.946	1.524	1.163	0.925	0.900	0.889	0.808	0.805	0.792	0.782	0.730	0.721	0.686	0.661	0.601	0.543	0.528
60	2.708	2.018	1.651	1.252	0.985	0.957	0.943	0.853	0.849	0.835	0.824	0.766	0.757	0.722	0.694	0.625	0.559	0.540
65	2.857	2.090	1.747	1.341	1.045	1.013	0.998	0.898	0.894	0.878	0.866	0.803	0.792	0.758	0.727	0.648	0.575	0.551
70	3.007	2.161	1.798	1.430	1.104	1.069	1.053	0.944	0.940	0.922	0.909	0.840	0.828	0.795	0.760	0.672	0.591	0.563
75	3.156	2.233	1.850	1.520	1.164	1.126	1.108	0.991	0.986	0.968	0.954	0.876	0.864	0.831	0.792	0.696	0.607	0.574
80	3.305	2.304	1.901	1.609	1.224	1.182	1.162	1.037	1.033	1.014	1.000	0.913	0.899	0.867	0.825	0.719	0.622	0.586
85	3.455	2.376	1.952	1.698	1.284	1.239	1.217	1.084	1.079	1.061	1.046	0.957	0.940	0.903	0.858	0.743	0.638	0.597
90	3.590	2.447	2.003	1.755	1.343	1.295	1.272	1.131	1.126	1.107	1.092	1.002	0.985	0.945	0.891	0.767	0.654	0.609
95	3.648	2.519	2.054	1.798	1.403	1.352	1.327	1.177	1.173	1.153	1.138	1.047	1.030	0.990	0.926	0.790	0.670	0.620
100	3.706	2.591	2.106	1.841	1.463	1.408	1.382	1.224	1.219	1.199	1.184	1.092	1.074	1.034	0.971	0.814	0.686	0.632
105	3.764	2.662	2.157	1.883	1.523	1.464	1.436	1.270	1.266	1.245	1.229	1.137	1.119	1.079	1.015	0.838	0.702	0.643
110	3.821	2.734	2.208	1.926	1.582	1.521	1.491	1.317	1.312	1.292	1.275	1.181	1.164	1.123	1.059	0.861	0.717	0.655
115	3.879	2.805	2.259	1.969	1.642	1.577	1.546	1.364	1.359	1.338	1.321	1.226	1.208	1.168	1.103	0.885	0.733	0.666
120	3.937	2.877	2.311	2.012	1.702	1.634	1.601	1.410	1.405	1.384	1.367	1.271	1.253	1.212	1.147	0.909	0.749	0.678
125	3.995	2.948	2.362	2.054	1.753	1.680	1.656	1.457	1.452	1.430	1.413	1.316	1.298	1.257	1.192	0.949	0.765	0.689
130	4.052	3.020	2.413	2.097	1.797	1.742	1.711	1.503	1.499	1.476	1.459	1.361	1.342	1.301	1.236	0.994	0.781	0.701
135	4.110	3.092	2.464	2.140	1.842	1.787	1.758	1.550	1.545	1.522	1.505	1.406	1.387	1.346	1.280	1.039	0.797	0.712
140	4.168	3.163	2.516	2.182	1.886	1.832	1.804	1.597	1.592	1.569	1.551	1.451	1.432	1.390	1.324	1.084	0.812	0.723
145	4.226	3.235	2.567	2.225	1.930	1.877	1.849	1.643	1.638	1.615	1.597	1.495	1.476	1.435	1.368	1.130	0.828	0.735
150	4.283	3.306	2.618	2.268	1.975	1.922	1.894	1.690	1.685	1.661	1.642	1.540	1.521	1.479	1.412	1.175	0.844	0.746
155	4.341	3.378	2.669	2.311	2.019	1.967	1.939	1.737	1.731	1.707	1.688	1.585	1.566	1.524	1.457	1.220	0.860	0.758
160	4.399	3.449	2.721	2.353	2.064	2.012	1.984	1.784	1.778	1.754	1.734	1.630	1.610	1.568	1.501	1.265	0.876	0.769
165	4.457	3.521	2.772	2.396	2.108	2.057	2.030	1.831	1.825	1.801	1.781	1.675	1.655	1.613	1.545	1.311	0.891	0.781
170	4.514	3.595	2.823	2.439	2.153	2.102	2.075	1.877	1.872	1.848	1.828	1.720	1.700	1.657	1.589	1.356	0.907	0.792
175	4.572	3.680	2.874	2.481	2.197	2.147	2.120	1.924	1.919	1.894	1.875	1.766	1.745	1.702	1.633	1.401	0.938	0.804
180	4.630	3.765	2.925	2.524	2.242	2.192	2.165	1.971	1.966	1.941	1.922	1.813	1.792	1.747	1.677	1.446	0.981	0.815
185	4.688	3.850	2.977	2.567	2.286	2.237	2.210	2.018	2.013	1.988	1.969	1.860	1.839	1.794	1.722	1.492	1.025	0.827
190	4.745	3.935	3.028	2.610	2.331	2.281	2.256	2.065	2.060	2.035	2.016	1.907	1.886	1.841	1.768	1.537	1.068	0.838
195	4.803	4.020	3.079	2.652	2.375	2.326	2.301	2.112	2.107	2.082	2.063	1.954	1.933	1.887	1.815	1.582	1.111	0.850
200	4.861	4.105	3.130	2.695	2.420	2.371	2.346	2.159	2.154	2.129	2.110	2.001	1.980	1.934	1.862	1.627	1.154	0.861
205	4.919	4.191	3.182	2.738	2.464	2.416	2.391	2.206	2.201	2.176	2.156	2.047	2.027	1.981	1.909	1.673	1.198	0.873
210	4.976	4.276	3.233	2.781	2.509	2.461	2.437	2.253	2.248	2.223	2.203	2.094	2.073	2.027	1.955	1.718	1.241	0.884
215	5.034	4.361	3.284	2.823	2.553	2.506	2.482	2.300	2.294	2.270	2.250	2.141	2.120	2.074	2.002	1.768	1.284	0.896
220	5.092	4.446	3.335	2.866	2.598	2.551	2.527	2.347	2.341	2.316	2.297	2.188	2.167	2.121	2.049	1.818	1.328	0.907
225	5.150	4.531	3.387	2.909	2.642	2.596	2.572	2.394	2.388	2.363	2.344	2.235	2.214	2.167	2.096	1.869	1.371	0.920
230	5.207	4.616	3.438	2.951	2.687	2.641	2.617	2.441	2.435	2.410	2.391	2.282	2.261	2.214	2.143	1.919	1.414	0.971
235	5.265	4.702	3.489	2.994	2.731	2.686	2.663	2.488	2.482	2.457	2.438	2.329	2.308	2.261	2.189	1.970	1.457	1.013
240	-	4.787	3.540	3.037	2.776	2.731	2.708	2.535	2.529	2.504	2.485	2.375	2.355	2.307	2.236	2.020	1.501	1.054
245	-	4.872	3.617	3.080	2.820	2.776	2.753	2.582	2.576	2.551	2.532	2.422	2.401	2.354	2.283	2.071	1.544	1.096
250	-	4.957	3.807	3.122	2.865	2.821	2.798	2.629	2.623	2.598	2.579	2.469	2.448	2.401	2.330	2.122	1.587	1.138
255	-	5.042	3.997	3.165	2.909	2.866	2.843	2.676	2.670	2.645	2.625	2.516	2.495	2.447	2.377	2.172	1.630	1.179
260	-	5.127	4.187	3.208	2.954	2.911	2.889	2.723	2.717	2.692	2.672	2.563	2.542	2.494	2.423	2.223	1.674	1.221
265	-	5.212	4.376	3.250	2.998	2.956	2.934	2.770	2.764	2.738	2.719	2.610	2.589	2.541	2.470	2.273	1.717	1.263
270	-	5.298	4.566	3.293	3.043	3.001	2.979	2.816	2.811	2.785	2.766	2.657	2.636	2.587	2.517	2.324	1.775	1.304
275	-	5.383	4.756	3.336	3.087	3.045	3.024	2.863	2.857	2.832	2.813	2.703	2.683	2.634	2.564	2.374	1.837	1.346
280	-	5.468	4.946	3.379	3.132	3.090	3.069	2.910	2.904	2.879	2.860	2.750	2.730	2.681	2.610	2.425	1.899	1.388
285	-	-	5.135	3.421	3.176	3.135	3.115	2.957	2.951	2.926	2.907	2.797	2.776	2.727	2.657	2.476	1.961	1.429
290	-	-	5.325	3.464	3.221	3.180	3.160	3.004	2.998	2.973	2.954	2.844	2.823	2.774	2.704	2.526	2.022	1.471
295	-	-	5.515	3.507	3.265	3.225	3.205	3.051	3.045	3.020	3.001	2.891	2.870	2.821	2.751	2.577	2.084	1.513
300	-	-	-	3.549	3.310	3.270	3.250	3.098	3.092	3.067	3.047	2.938	2.917	2.867	2.798	2.627	2.146	1.554
305	-	-	-	3.592	3.354	3.315	3.295	3.145	3.139	3.114	3.094	2.985	2.964	2.914	2.844	2.678	2.208	1.596
310	-	-	-	3.635	3.398	3.360	3.341	3.192	3.186	3.160	3.141	3.031	3.011	2.961	2.891	2.728	2.270	1.638
315	-	-	-	3.678	3.443	3.405	3.386	3.239	3.233	3.207	3.188	3.078	3.058	3.007	2.938	2.779	2.332	1.679
320	-	-	-	3.720	3.487	3.450	3.431	3.286	3.280	3.254	3.235	3.125	3.105	3.054	2.985	2.829	2.393	1.721
325	-	-	-	3.763	3.532	3.495	3.476	3.333	3.327	3.301	3.282	3.172	3.151	3.101	3.032	2.880	2.455	1.806
330	-	-	-	3.806	3.576	3.540	3.522	3.380	3.374	3.348	3.329	3.219	3.198	3.147	3.078	2.931	2.517	1.897
335	-	-	-	-	3.621	3.585	3.567	3.427	3.421	3.395	3.376	3.266	3.245	3.194	3.125	2.981	2.579	1.988

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.



FIRETEX FX5090																		
Table A8: I-Section Beams: Fire Resistance Period: 120 Minutes																		
Section Factor up to m <sup>2</sup>	Thickness (mm) Required for a Design Temperature of																	
	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C	750°C
30	2.429	1.760	1.323	0.875	0.733	0.721	0.715	0.673	0.671	0.664	0.659	0.630	0.625	0.614	0.598	0.554	0.469	0.469
35	2.646	1.897	1.510	1.006	0.836	0.818	0.810	0.752	0.749	0.740	0.733	0.695	0.689	0.675	0.656	0.602	0.518	0.518
40	2.862	2.034	1.697	1.137	0.920	0.898	0.888	0.819	0.816	0.805	0.796	0.752	0.744	0.728	0.705	0.642	0.541	0.533
45	3.078	2.172	1.790	1.268	1.020	0.991	0.977	0.886	0.882	0.869	0.860	0.808	0.799	0.781	0.755	0.683	0.570	0.549
50	3.295	2.309	1.865	1.399	1.120	1.088	1.071	0.960	0.955	0.938	0.925	0.864	0.855	0.834	0.804	0.723	0.599	0.564
55	3.511	2.446	1.941	1.530	1.220	1.184	1.166	1.040	1.035	1.014	0.999	0.922	0.910	0.886	0.853	0.764	0.628	0.580
60	3.628	2.584	2.017	1.661	1.321	1.281	1.260	1.119	1.114	1.091	1.074	0.986	0.972	0.942	0.903	0.804	0.657	0.596
65	3.696	2.721	2.093	1.755	1.421	1.377	1.355	1.199	1.193	1.168	1.149	1.051	1.034	1.001	0.955	0.844	0.686	0.611
70	3.763	2.858	2.168	1.814	1.521	1.473	1.449	1.279	1.272	1.244	1.223	1.115	1.097	1.060	1.008	0.885	0.715	0.627
75	3.831	2.996	2.244	1.872	1.621	1.570	1.543	1.359	1.351	1.321	1.298	1.180	1.160	1.118	1.061	0.927	0.744	0.642
80	3.899	3.133	2.320	1.930	1.721	1.666	1.638	1.438	1.431	1.398	1.373	1.244	1.222	1.177	1.113	0.974	0.773	0.658
85	3.967	3.270	2.396	1.989	1.768	1.713	1.729	1.518	1.510	1.474	1.448	1.309	1.285	1.236	1.166	1.021	0.802	0.674
90	4.035	3.408	2.471	2.047	1.813	1.787	1.773	1.598	1.589	1.551	1.522	1.373	1.348	1.295	1.219	1.067	0.831	0.689
95	4.103	3.545	2.547	2.105	1.858	1.832	1.818	1.677	1.668	1.628	1.597	1.438	1.410	1.354	1.272	1.114	0.860	0.705
100	4.171	3.624	2.623	2.164	1.902	1.876	1.862	1.743	1.728	1.704	1.672	1.502	1.473	1.412	1.325	1.161	0.889	0.721
105	4.239	3.682	2.699	2.222	1.947	1.921	1.907	1.788	1.783	1.758	1.728	1.567	1.536	1.471	1.378	1.208	0.919	0.736
110	4.307	3.739	2.774	2.281	1.992	1.966	1.951	1.833	1.827	1.803	1.783	1.631	1.598	1.530	1.430	1.255	0.964	0.752
115	4.375	3.797	2.850	2.339	2.037	2.010	1.996	1.877	1.872	1.848	1.828	1.696	1.661	1.589	1.483	1.302	1.008	0.767
120	4.443	3.854	2.926	2.397	2.081	2.055	2.040	1.922	1.917	1.892	1.873	1.750	1.723	1.648	1.536	1.349	1.052	0.783
125	4.511	3.912	3.002	2.456	2.126	2.099	2.085	1.967	1.962	1.937	1.918	1.796	1.770	1.706	1.589	1.395	1.096	0.799
130	4.579	3.970	3.077	2.514	2.171	2.144	2.130	2.012	2.006	1.982	1.963	1.842	1.816	1.752	1.642	1.442	1.141	0.814
135	4.646	4.027	3.153	2.572	2.215	2.188	2.174	2.056	2.051	2.027	2.008	1.887	1.862	1.803	1.695	1.489	1.185	0.830
140	4.714	4.085	3.229	2.631	2.260	2.233	2.219	2.101	2.096	2.072	2.052	1.933	1.908	1.850	1.745	1.536	1.229	0.846
145	4.782	4.142	3.305	2.689	2.305	2.277	2.263	2.146	2.140	2.116	2.097	1.979	1.954	1.896	1.793	1.583	1.273	0.861
150	4.850	4.200	3.380	2.747	2.349	2.322	2.308	2.190	2.185	2.161	2.142	2.025	2.000	1.942	1.840	1.630	1.318	0.877
155	4.918	4.258	3.456	2.806	2.394	2.367	2.352	2.235	2.230	2.206	2.187	2.070	2.046	1.989	1.888	1.676	1.362	0.892
160	4.986	4.315	3.532	2.864	2.439	2.411	2.397	2.280	2.274	2.251	2.232	2.116	2.092	2.035	1.936	1.723	1.406	0.908
165	5.054	4.373	3.611	2.922	2.484	2.456	2.441	2.324	2.319	2.295	2.277	2.162	2.138	2.081	1.983	1.774	1.450	0.944
170	5.122	4.430	3.698	2.981	2.528	2.500	2.486	2.369	2.364	2.340	2.322	2.207	2.184	2.128	2.031	1.826	1.495	0.994
175	5.190	4.488	3.785	3.039	2.573	2.545	2.530	2.414	2.409	2.385	2.367	2.253	2.230	2.174	2.078	1.877	1.539	1.044
180	5.258	4.546	3.871	3.097	2.618	2.589	2.575	2.458	2.453	2.430	2.412	2.299	2.276	2.220	2.126	1.928	1.583	1.095
185	-	4.603	3.958	3.156	2.662	2.634	2.619	2.503	2.498	2.475	2.457	2.345	2.322	2.267	2.174	1.979	1.627	1.145
190	-	4.661	4.044	3.214	2.707	2.679	2.664	2.548	2.543	2.519	2.501	2.390	2.367	2.313	2.221	2.030	1.672	1.195
195	-	4.718	4.131	3.272	2.752	2.723	2.709	2.593	2.587	2.564	2.546	2.436	2.413	2.359	2.269	2.082	1.716	1.245
200	-	4.776	4.218	3.331	2.796	2.768	2.753	2.637	2.632	2.609	2.591	2.482	2.459	2.406	2.316	2.133	1.770	1.295
205	-	4.834	4.304	3.389	2.841	2.812	2.798	2.682	2.677	2.654	2.636	2.528	2.505	2.452	2.364	2.184	1.827	1.346
210	-	4.891	4.391	3.447	2.886	2.857	2.842	2.727	2.721	2.699	2.681	2.573	2.551	2.498	2.411	2.235	1.884	1.396
215	-	4.949	4.478	3.506	2.931	2.901	2.887	2.771	2.766	2.743	2.726	2.619	2.597	2.545	2.459	2.286	1.941	1.446
220	-	5.006	4.564	3.564	2.975	2.946	2.931	2.816	2.811	2.788	2.771	2.665	2.643	2.591	2.507	2.338	1.999	1.496
225	-	5.064	4.651	3.684	3.020	2.991	2.976	2.861	2.855	2.833	2.816	2.710	2.689	2.638	2.554	2.389	2.056	1.546
230	-	5.122	4.737	3.831	3.065	3.035	3.020	2.905	2.900	2.878	2.861	2.756	2.735	2.684	2.602	2.440	2.113	1.597
235	-	5.179	4.824	3.978	3.109	3.080	3.065	2.950	2.945	2.923	2.905	2.802	2.781	2.730	2.649	2.491	2.170	1.647
240	-	5.237	4.911	4.125	3.154	3.124	3.109	2.995	2.990	2.967	2.950	2.848	2.827	2.777	2.697	2.543	2.227	1.697
245	-	-	4.997	4.271	3.199	3.169	3.154	3.039	3.034	3.012	2.995	2.893	2.873	2.823	2.745	2.594	2.284	1.759
250	-	-	5.084	4.418	3.243	3.213	3.198	3.084	3.079	3.057	3.040	2.939	2.919	2.869	2.792	2.645	2.342	1.837
255	-	-	5.171	4.565	3.288	3.258	3.243	3.129	3.124	3.102	3.085	2.985	2.965	2.916	2.840	2.696	2.399	1.915
260	-	-	5.257	4.712	3.333	3.303	3.288	3.174	3.168	3.147	3.130	3.031	3.011	2.962	2.887	2.747	2.456	1.993
265	-	-	5.344	4.859	3.378	3.347	3.332	3.218	3.213	3.191	3.175	3.076	3.057	3.008	2.935	2.799	2.513	2.071
270	-	-	-	5.006	3.422	3.392	3.377	3.263	3.258	3.236	3.220	3.122	3.103	3.055	2.983	2.850	2.570	2.150
275	-	-	-	5.153	3.467	3.436	3.421	3.308	3.302	3.281	3.265	3.168	3.149	3.101	3.030	2.901	2.627	2.228
280	-	-	-	5.300	3.512	3.481	3.466	3.352	3.347	3.326	3.310	3.214	3.195	3.147	3.078	2.952	2.684	2.306
285	-	-	-	5.447	3.556	3.525	3.510	3.397	3.392	3.371	3.354	3.259	3.241	3.194	3.125	3.004	2.742	2.384
290	-	-	-	5.594	4.673	3.570	3.555	3.442	3.437	3.415	3.399	3.305	3.287	3.240	3.173	3.055	2.799	2.462
295	-	-	-	-	5.075	3.615	3.599	3.486	3.481	3.460	3.444	3.351	3.333	3.286	3.221	3.106	2.856	2.540
300	-	-	-	-	-	3.659	3.644	3.531	3.526	3.505	3.489	3.396	3.379	3.333	3.268	3.157	2.913	2.618
305	-	-	-	-	-	3.704	3.688	3.576	3.571	3.550	3.534	3.442	3.425	3.379	3.316	3.208	2.970	2.696
310	-	-	-	-	-	3.748	3.733	3.620	3.615	3.595	3.579	3.488	3.471	3.425	3.363	3.260	3.027	2.774
315	-	-	-	-	-	3.793	3.777	3.665	3.660	3.639	3.624	3.534	3.516	3.472	3.411	3.311	3.085	2.852
320	-	-	-	-	-	-	-	3.710	3.705	3.684	3.669	3.579	3.562	3.518	3.459	3.362	3.142	2.930
325	-	-	-	-	-	-	-	3.755	3.749	3.729	3.714	3.625	3.608	3.565	3.506	3.413	3.199	3.008
330	-	-	-	-	-	-	-	3.799	3.794	3.774	3.759	3.671	3.654	3.611	3.554	3.464	3.256	3.086
335	-	-	-	-	-	-	-	3.844	3.839	3.819	3.803	3.717	3.700	3.657	3.601	3.516	3.313	3.164

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.



FIRETEX FX5090																		
Table A9: I-Section Beams: Fire Resistance Period: 150 Minutes																		
Section Factor up to m <sup>2</sup>	Thickness (mm) Required for a Design Temperature of																	
	0	350°C	400°C	450°C	500°C	544°C	550°C	553°C	575°C	576°C	580°C	583°C	600°C	603°C	610°C	620°C	650°C	700°C
30	3.379	2.682	2.152	1.698	1.281	1.229	1.069	0.927	0.922	0.902	0.888	0.852	0.843	0.827	0.803	0.720	0.638	0.600
35	-	2.953	2.349	1.833	1.491	1.433	1.321	1.125	1.117	1.089	1.069	0.970	0.955	0.926	0.894	0.816	0.706	0.661
40	-	3.224	2.546	1.968	1.702	1.638	1.573	1.322	1.313	1.276	1.249	1.119	1.100	1.065	1.016	0.895	0.767	0.698
45	-	3.494	2.742	2.102	1.799	1.773	1.758	1.520	1.508	1.462	1.430	1.268	1.244	1.203	1.146	0.996	0.829	0.736
50	-	3.700	2.939	2.237	1.883	1.856	1.841	1.717	1.704	1.649	1.610	1.417	1.388	1.342	1.277	1.105	0.890	0.773
55	-	3.874	3.135	2.372	1.966	1.939	1.923	1.801	1.796	1.772	1.754	1.566	1.532	1.480	1.407	1.213	0.959	0.810
60	-	4.048	3.322	2.507	2.049	2.022	2.006	1.880	1.875	1.850	1.831	1.715	1.677	1.619	1.538	1.322	1.032	0.848
65	-	4.222	3.529	2.641	2.132	2.105	2.088	1.959	1.953	1.928	1.909	1.795	1.775	1.743	1.668	1.431	1.106	0.885
70	-	4.396	3.638	2.776	2.215	2.188	2.171	2.038	2.032	2.007	1.987	1.869	1.849	1.816	1.766	1.540	1.179	0.925
75	-	4.570	3.716	2.911	2.298	2.271	2.253	2.117	2.111	2.085	2.064	1.943	1.924	1.889	1.837	1.649	1.252	0.974
80	-	4.744	3.794	3.045	2.381	2.354	2.336	2.196	2.190	2.163	2.142	2.018	1.998	1.962	1.909	1.747	1.326	1.024
85	-	4.918	3.871	3.180	2.465	2.437	2.418	2.275	2.269	2.241	2.220	2.092	2.072	2.035	1.981	1.820	1.399	1.073
90	-	5.092	3.949	3.315	2.548	2.520	2.501	2.354	2.348	2.320	2.297	2.166	2.146	2.108	2.053	1.892	1.473	1.122
95	-	-	4.026	3.450	2.631	2.603	2.583	2.433	2.427	2.398	2.375	2.241	2.221	2.182	2.124	1.965	1.546	1.171
100	-	-	4.104	3.583	2.714	2.686	2.666	2.512	2.505	2.476	2.452	2.315	2.295	2.255	2.196	2.037	1.620	1.220
105	-	-	4.181	3.649	2.797	2.769	2.748	2.591	2.584	2.554	2.530	2.389	2.369	2.328	2.268	2.110	1.693	1.269
110	-	-	4.259	3.714	2.880	2.852	2.831	2.670	2.663	2.633	2.608	2.464	2.444	2.401	2.340	2.182	1.763	1.318
115	-	-	4.336	3.780	2.964	2.935	2.913	2.750	2.742	2.711	2.685	2.538	2.518	2.474	2.411	2.255	1.830	1.367
120	-	-	4.414	3.845	3.047	3.018	2.996	2.829	2.821	2.789	2.763	2.612	2.592	2.547	2.483	2.327	1.898	1.416
125	-	-	4.491	3.911	3.130	3.101	3.078	2.908	2.900	2.868	2.840	2.687	2.667	2.621	2.555	2.400	1.965	1.466
130	-	-	4.569	3.977	3.213	3.184	3.161	2.987	2.979	2.946	2.918	2.761	2.741	2.694	2.627	2.472	2.033	1.515
135	-	-	4.646	4.042	3.296	3.267	3.243	3.066	3.058	3.024	2.996	2.835	2.815	2.767	2.698	2.545	2.100	1.564
140	-	-	4.724	4.108	3.379	3.350	3.326	3.145	3.136	3.102	3.073	2.910	2.890	2.840	2.770	2.617	2.168	1.613
145	-	-	4.801	4.173	3.463	3.434	3.408	3.224	3.215	3.181	3.151	2.984	2.964	2.913	2.842	2.690	2.235	1.662
150	-	-	4.879	4.239	3.546	3.517	3.490	3.303	3.294	3.259	3.229	3.058	3.038	2.987	2.914	2.762	2.302	1.711
155	-	-	4.957	4.304	3.631	3.600	3.573	3.382	3.373	3.337	3.306	3.133	3.113	3.060	2.985	2.835	2.370	1.796
160	-	-	5.034	4.370	3.718	3.687	3.660	3.461	3.452	3.415	3.384	3.207	3.187	3.133	3.057	2.907	2.437	1.895
165	-	-	5.112	4.436	3.805	3.773	3.747	3.540	3.531	3.494	3.461	3.281	3.261	3.206	3.129	2.980	2.505	1.994
170	-	-	5.189	4.501	3.891	3.860	3.834	3.625	3.614	3.577	3.539	3.356	3.336	3.279	3.201	3.052	2.572	2.094
175	-	-	5.267	4.567	3.978	3.946	3.921	3.717	3.707	3.665	3.626	3.430	3.410	3.352	3.272	3.124	2.640	2.193
180	-	-	5.344	4.632	4.065	4.033	4.008	3.810	3.800	3.753	3.713	3.504	3.484	3.426	3.344	3.197	2.707	2.292
185	-	-	5.421	4.698	4.152	4.119	4.095	3.903	3.893	3.855	3.820	3.579	3.559	3.499	3.416	3.269	2.774	2.392
190	-	-	5.498	4.763	4.238	4.206	4.182	3.995	3.986	3.950	3.918	3.689	3.666	3.572	3.488	3.342	2.842	2.491
195	-	-	5.575	4.829	4.325	4.293	4.269	4.088	4.079	4.046	4.015	3.802	3.774	3.685	3.559	3.414	2.909	2.591
200	-	-	5.652	4.895	4.412	4.379	4.357	4.180	4.171	4.141	4.112	3.914	3.888	3.805	3.670	3.487	2.977	2.690
205	-	-	5.729	4.960	4.499	4.466	4.444	4.273	4.264	4.236	4.210	4.027	4.002	3.924	3.798	3.559	3.044	2.789
210	-	-	5.806	5.026	4.586	4.552	4.531	4.365	4.357	4.331	4.307	4.139	4.116	4.044	3.926	3.675	3.112	2.889
215	-	-	5.883	5.091	4.672	4.639	4.618	4.458	4.450	4.426	4.404	4.252	4.230	4.164	4.054	3.810	3.179	2.988
220	-	-	5.960	5.157	4.759	4.725	4.705	4.550	4.543	4.521	4.502	4.364	4.344	4.283	4.182	3.945	3.246	3.087
225	-	-	6.037	5.222	4.846	4.812	4.792	4.643	4.636	4.617	4.599	4.477	4.458	4.403	4.310	4.080	3.314	3.187
230	-	-	6.114	5.288	4.933	4.898	4.879	4.735	4.728	4.712	4.696	4.589	4.573	4.522	4.438	4.215	3.381	3.286
235	-	-	6.191	5.353	5.020	4.985	4.967	4.828	4.821	4.807	4.794	4.702	4.687	4.642	4.567	4.349	3.449	3.385
240	-	-	6.268	5.418	5.106	5.071	5.054	4.920	4.914	4.902	4.891	4.814	4.801	4.762	4.695	4.484	3.516	3.485
245	-	-	6.345	5.483	5.193	5.158	5.141	5.013	5.007	4.997	4.988	4.927	4.915	4.881	4.823	4.619	3.586	3.584
250	-	-	6.422	5.548	5.280	5.244	5.228	5.105	5.100	5.093	5.086	5.039	5.029	5.001	4.951	4.754	3.750	3.684
255	-	-	6.499	5.613	5.367	5.331	5.315	5.198	5.193	5.188	5.183	5.152	5.143	5.120	5.079	4.889	3.915	3.783
260	-	-	6.576	5.678	5.453	5.417	5.401	5.290	5.285	5.283	5.280	5.265	5.257	5.240	5.207	5.024	4.080	3.882
265	-	-	6.653	5.743	5.538	5.502	5.486	5.380	5.375	5.373	5.370	5.365	5.357	5.340	5.307	5.124	4.180	3.984
270	-	-	6.730	5.808	5.623	5.587	5.571	5.470	5.465	5.463	5.460	5.455	5.447	5.430	5.397	5.214	4.270	4.086
275	-	-	6.807	5.873	5.708	5.672	5.656	5.560	5.555	5.553	5.550	5.545	5.537	5.520	5.487	5.304	4.360	4.182
280	-	-	6.884	5.938	5.783	5.747	5.731	5.640	5.635	5.633	5.630	5.625	5.617	5.600	5.567	5.384	4.440	4.266
285	-	-	6.961	6.003	5.858	5.822	5.806	5.720	5.715	5.713	5.710	5.705	5.697	5.680	5.647	5.464	4.520	4.346
290	-	-	7.038	6.068	5.933	5.897	5.881	5.800	5.795	5.793	5.790	5.785	5.777	5.760	5.727	5.544	4.600	4.426
295	-	-	7.115	6.133	6.008	5.972	5.956	5.880	5.875	5.873	5.870	5.865	5.857	5.840	5.807	5.624	4.680	4.506
300	-	-	7.192	6.198	6.083	6.047	6.031	5.960	5.955	5.953	5.950	5.945	5.937	5.920	5.887	5.704	4.740	4.566
305	-	-	7.269	6.263	6.158	6.122	6.106	6.040	6.035	6.033	6.030	6.025	6.017	6.000	5.967	5.784	4.820	4.646
310	-	-	7.346	6.328	6.233	6.197	6.181	6.120	6.115	6.113	6.110	6.105	6.097	6.080	6.047	5.864	4.900	4.726
315	-	-	7.423	6.393	6.308	6.272	6.256	6.200	6.195	6.193	6.190	6.185	6.177	6.160	6.127	5.944	4.980	4.806
320	-	-	7.500	6.458	6.383	6.347	6.331	6.280	6.275	6.273	6.270	6.265	6.257	6.240	6.207	6.024	5.060	4.886
325	-	-	7.577	6.523	6.458	6.422	6.406	6.360	6.355	6.353	6.350	6.345	6.337	6.320	6.287	6.104	5.140	4.966
330	-	-	7.654	6.588	6.533	6.497	6.481	6.440	6.435	6.433	6.430	6.425	6.417	6.400	6.367	6.184	5.220	5.046
335	-	-	7.731	6.653	6.608	6.572	6.556	6.520	6.515	6.513	6.510	6.505	6.497	6.480	6.447	6.264	5.300	5.126

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.





**FIRETEX FX5090**

Section Factor up to m <sup>2</sup>	Table B2: H-Section Columns: Fire Resistance Period: 30 Minutes														
	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
30	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
35	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
40	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
45	0.185	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
50	0.212	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
55	0.240	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
60	0.267	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
65	0.295	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
70	0.322	0.180	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
75	0.350	0.190	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
80	0.377	0.199	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
85	0.405	0.209	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
90	0.432	0.219	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
95	0.460	0.228	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
100	0.487	0.238	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
105	0.514	0.248	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
110	0.529	0.257	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
115	0.542	0.267	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
120	0.555	0.277	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
125	0.568	0.286	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
130	0.581	0.296	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
135	0.594	0.305	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
140	0.607	0.315	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
145	0.621	0.325	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
150	0.634	0.334	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
155	0.647	0.344	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
160	0.660	0.354	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
165	0.673	0.363	0.185	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
170	0.686	0.373	0.202	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
175	0.699	0.383	0.218	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
180	0.712	0.392	0.235	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
185	0.725	0.402	0.251	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
190	0.738	0.412	0.268	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
195	0.751	0.421	0.284	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
200	0.764	0.431	0.301	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
205	0.777	0.441	0.317	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
210	0.790	0.450	0.334	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
215	0.803	0.460	0.350	0.178	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
220	0.816	0.470	0.367	0.196	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
225	0.829	0.479	0.383	0.213	0.187	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
230	0.842	0.489	0.400	0.231	0.204	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
235	0.855	0.499	0.416	0.248	0.221	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
240	0.868	0.508	0.433	0.266	0.238	0.184	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
245	0.881	0.518	0.449	0.284	0.255	0.200	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
250	0.895	0.535	0.466	0.301	0.272	0.217	0.191	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
255	0.908	0.551	0.482	0.319	0.290	0.233	0.207	0.190	0.177	0.177	0.177	0.177	0.177	0.177	0.177
260	0.921	0.568	0.499	0.336	0.307	0.249	0.223	0.206	0.191	0.177	0.177	0.177	0.177	0.177	0.177
265	0.934	0.584	0.515	0.354	0.324	0.266	0.239	0.222	0.207	0.177	0.177	0.177	0.177	0.177	0.177
270	0.947	0.601	0.528	0.371	0.341	0.282	0.255	0.238	0.223	0.181	0.177	0.177	0.177	0.177	0.177
275	0.960	0.617	0.540	0.389	0.358	0.299	0.272	0.254	0.239	0.197	0.177	0.177	0.177	0.177	0.177
280	0.973	0.634	0.552	0.407	0.375	0.315	0.288	0.269	0.254	0.212	0.177	0.177	0.177	0.177	0.177
285	0.986	0.651	0.564	0.424	0.393	0.331	0.304	0.285	0.270	0.228	0.177	0.177	0.177	0.177	0.177
290	0.999	0.667	0.576	0.442	0.410	0.348	0.320	0.301	0.286	0.243	0.177	0.177	0.177	0.177	0.177
295	1.012	0.684	0.588	0.459	0.427	0.364	0.336	0.317	0.302	0.259	0.177	0.177	0.177	0.177	0.177
300	1.025	0.700	0.600	0.477	0.444	0.381	0.352	0.333	0.317	0.274	0.177	0.177	0.177	0.177	0.177
305	1.038	0.717	0.612	0.495	0.461	0.397	0.368	0.349	0.333	0.290	0.177	0.177	0.177	0.177	0.177
310	1.051	0.733	0.624	0.512	0.478	0.414	0.384	0.365	0.349	0.305	0.177	0.177	0.177	0.177	0.177
315	1.064	0.750	0.636	0.525	0.495	0.430	0.401	0.381	0.365	0.321	0.177	0.177	0.177	0.177	0.177
320	1.077	0.767	0.648	0.535	0.513	0.446	0.417	0.397	0.380	0.336	0.177	0.177	0.177	0.177	0.177
325	1.090	0.783	0.660	0.545	0.525	0.463	0.433	0.413	0.396	0.352	0.177	0.177	0.177	0.177	0.177
330	1.103	0.800	0.672	0.555	0.535	0.479	0.449	0.429	0.412	0.367	0.177	0.177	0.177	0.177	0.177
335	1.116	0.816	0.684	0.566	0.544	0.496	0.465	0.444	0.428	0.383	0.177	0.177	0.177	0.177	0.177
340	1.129	0.833	0.696	0.576	0.554	0.512	0.481	0.460	0.443	0.399	0.177	0.177	0.177	0.177	0.177
345	1.142	0.849	0.708	0.586	0.564	0.524	0.497	0.476	0.459	0.414	0.193	0.177	0.177	0.177	0.177
350	1.155	0.866	0.720	0.596	0.574	0.533	0.513	0.492	0.475	0.430	0.223	0.177	0.177	0.177	0.177
355	1.169	0.883	0.732	0.606	0.584	0.542	0.524	0.508	0.491	0.445	0.253	0.177	0.177	0.177	0.177
360	1.182	0.899	0.744	0.617	0.594	0.552	0.533	0.521	0.506	0.461	0.283	0.177	0.177	0.177	0.177
365	1.195	0.916	0.757	0.627	0.604	0.561	0.542	0.530	0.520	0.476	0.313	0.196	0.177	0.177	0.177
370	1.208	0.932	0.769	0.637	0.614	0.570	0.551	0.539	0.529	0.492	0.343	0.225	0.177	0.177	0.177
375	1.221	0.949	0.781	0.647	0.624	0.579	0.560	0.548	0.538	0.507	0.372	0.254	0.177	0.177	0.177
380	1.234	0.965	0.793	0.658	0.634	0.589	0.569	0.557	0.546	0.520	0.402	0.283	0.177	0.177	0.177

Table applies to columns with protection to all sides. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table B3: H-Section Columns: Fire Resistance Period: 45 Minutes														
	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
30	0.452	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
35	0.452	0.213	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
40	0.526	0.258	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
45	0.563	0.302	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
50	0.600	0.347	0.211	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
55	0.637	0.392	0.249	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
60	0.673	0.436	0.288	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
65	0.710	0.481	0.326	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
70	0.747	0.520	0.364	0.191	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
75	0.784	0.536	0.403	0.211	0.192	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
80	0.820	0.552	0.441	0.232	0.209	0.178	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
85	0.857	0.568	0.480	0.252	0.226	0.190	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
90	0.894	0.584	0.518	0.272	0.243	0.202	0.185	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
95	0.931	0.600	0.531	0.293	0.260	0.215	0.198	0.185	0.177	0.177	0.177	0.177	0.177	0.177	0.177
100	0.968	0.616	0.544	0.313	0.277	0.227	0.210	0.198	0.187	0.177	0.177	0.177	0.177	0.177	0.177
105	1.004	0.632	0.558	0.333	0.294	0.239	0.223	0.211	0.200	0.177	0.177	0.177	0.177	0.177	0.177
110	1.041	0.648	0.571	0.354	0.311	0.252	0.235	0.223	0.213	0.182	0.177	0.177	0.177	0.177	0.177
115	1.078	0.664	0.584	0.374	0.328	0.264	0.248	0.236	0.226	0.195	0.177	0.177	0.177	0.177	0.177
120	1.115	0.680	0.598	0.394	0.345	0.276	0.260	0.248	0.238	0.208	0.177	0.177	0.177	0.177	0.177
125	1.151	0.696	0.611	0.415	0.362	0.289	0.273	0.261	0.251	0.222	0.177	0.177	0.177	0.177	0.177
130	1.188	0.712	0.624	0.435	0.379	0.301	0.285	0.274	0.264	0.235	0.187	0.177	0.177	0.177	0.177
135	1.225	0.728	0.638	0.455	0.396	0.313	0.297	0.286	0.276	0.248	0.201	0.177	0.177	0.177	0.177
140	1.262	0.744	0.651	0.476	0.414	0.326	0.310	0.299	0.289	0.261	0.215	0.177	0.177	0.177	0.177
145	1.299	0.760	0.664	0.496	0.431	0.338	0.322	0.311	0.302	0.274	0.229	0.177	0.177	0.177	0.177
150	1.329	0.776	0.678	0.516	0.448	0.350	0.335	0.324	0.314	0.287	0.243	0.177	0.177	0.177	0.177
155	1.358	0.791	0.691	0.530	0.465	0.363	0.347	0.337	0.327	0.300	0.256	0.183	0.177	0.177	0.177
160	1.387	0.807	0.704	0.543	0.482	0.375	0.360	0.349	0.340	0.313	0.270	0.200	0.177	0.177	0.177
165	1.416	0.823	0.718	0.556	0.499	0.387	0.372	0.362	0.353	0.326	0.284	0.216	0.177	0.177	0.177
170	1.445	0.839	0.731	0.570	0.516	0.400	0.385	0.374	0.365	0.339	0.298	0.232	0.177	0.177	0.177
175	1.474	0.855	0.744	0.583	0.530	0.412	0.397	0.387	0.378	0.353	0.312	0.248	0.177	0.177	0.177
180	1.503	0.871	0.757	0.596	0.543	0.424	0.410	0.399	0.391	0.366	0.326	0.264	0.177	0.177	0.177
185	1.532	0.887	0.771	0.609	0.557	0.437	0.422	0.412	0.403	0.379	0.340	0.280	0.177	0.177	0.177
190	1.561	0.903	0.784	0.623	0.570	0.449	0.435	0.425	0.416	0.392	0.354	0.296	0.177	0.177	0.177
195	1.590	0.919	0.797	0.636	0.584	0.461	0.447	0.437	0.429	0.405	0.367	0.312	0.177	0.177	0.177
200	1.619	0.935	0.811	0.649	0.598	0.474	0.460	0.450	0.441	0.418	0.381	0.328	0.177	0.177	0.177
205	1.648	0.951	0.824	0.662	0.611	0.486	0.472	0.462	0.454	0.431	0.395	0.344	0.191	0.177	0.177
210	1.677	0.967	0.837	0.676	0.625	0.498	0.485	0.475	0.467	0.444	0.409	0.360	0.204	0.177	0.177
215	1.706	0.983	0.851	0.689	0.638	0.511	0.497	0.488	0.480	0.457	0.423	0.376	0.218	0.177	0.177
220	1.735	0.999	0.864	0.702	0.652	0.524	0.510	0.500	0.492	0.470	0.437	0.392	0.232	0.177	0.177
225	1.764	1.015	0.877	0.715	0.665	0.539	0.523	0.513	0.505	0.484	0.451	0.408	0.246	0.177	0.177
230	1.793	1.031	0.891	0.729	0.679	0.553	0.537	0.526	0.518	0.497	0.465	0.424	0.260	0.177	0.177
235	1.822	1.047	0.904	0.742	0.692	0.568	0.551	0.540	0.531	0.510	0.478	0.440	0.274	0.177	0.177
240	1.851	1.063	0.917	0.755	0.706	0.582	0.565	0.554	0.545	0.523	0.492	0.456	0.288	0.177	0.177
245	1.880	1.079	0.931	0.768	0.720	0.597	0.580	0.568	0.559	0.536	0.506	0.472	0.301	0.180	0.177
250	1.909	1.094	0.944	0.781	0.733	0.611	0.594	0.582	0.573	0.549	0.520	0.488	0.315	0.192	0.177
255	1.938	1.110	0.957	0.795	0.747	0.626	0.608	0.596	0.586	0.562	0.533	0.504	0.329	0.203	0.177
260	1.967	1.126	0.971	0.808	0.760	0.640	0.622	0.610	0.600	0.576	0.545	0.519	0.343	0.215	0.177
265	1.996	1.142	0.984	0.821	0.774	0.655	0.636	0.624	0.614	0.589	0.558	0.531	0.357	0.227	0.177
270	2.025	1.158	0.997	0.834	0.787	0.670	0.650	0.638	0.628	0.602	0.571	0.543	0.371	0.239	0.177
275	2.054	1.174	1.011	0.848	0.801	0.684	0.665	0.652	0.641	0.615	0.583	0.555	0.384	0.251	0.177
280	2.083	1.190	1.024	0.861	0.814	0.699	0.679	0.666	0.655	0.628	0.596	0.566	0.398	0.263	0.177
285	2.112	1.206	1.037	0.874	0.828	0.713	0.693	0.680	0.669	0.642	0.609	0.578	0.412	0.275	0.177
290	2.141	1.222	1.050	0.887	0.842	0.728	0.707	0.693	0.683	0.655	0.621	0.590	0.426	0.287	0.177
295	2.170	1.238	1.064	0.901	0.855	0.742	0.721	0.707	0.696	0.668	0.634	0.602	0.440	0.299	0.177
300	2.199	1.254	1.077	0.914	0.869	0.757	0.736	0.721	0.710	0.681	0.647	0.613	0.454	0.311	0.177
305	2.228	1.270	1.090	0.927	0.882	0.771	0.750	0.735	0.724	0.694	0.660	0.625	0.468	0.323	0.177
310	2.257	1.286	1.104	0.940	0.896	0.786	0.764	0.749	0.738	0.708	0.672	0.637	0.481	0.335	0.177
315	2.286	1.302	1.117	0.953	0.909	0.800	0.778	0.763	0.751	0.721	0.685	0.649	0.495	0.347	0.183
320	2.315	1.319	1.130	0.967	0.923	0.815	0.792	0.777	0.765	0.734	0.698	0.660	0.509	0.359	0.194
325	2.344	1.338	1.144	0.980	0.936	0.830	0.807	0.791	0.779	0.747	0.710	0.672	0.522	0.371	0.205
330	2.373	1.436	1.157	0.993	0.950	0.844	0.821	0.805	0.792	0.760	0.723	0.684	0.533	0.382	0.216
335	2.402	1.485	1.170	1.006	0.964	0.859	0.835	0.819	0.806	0.774	0.736	0.696	0.544	0.394	0.226
340	2.431	1.533	1.184	1.020	0.977	0.873	0.849	0.833	0.820	0.787	0.749	0.707	0.555	0.406	0.237
345	2.460	1.582	1.197	1.033	0.991	0.888	0.863	0.847	0.834	0.800	0.761	0.719	0.566	0.418	0.248
350	2.489	1.630	1.210	1.046	1.004	0.902	0.878	0.861	0.847	0.813	0.774	0.731	0.578	0.430	0.259
355	2.525	1.679	1.224	1.059	1.018	0.917	0.892	0.875	0.861	0.826	0.787	0.743	0.589	0.442	0.270
360	2.564	1.728	1.237	1.073	1.031	0.931	0.906	0.889	0.875	0.840	0.799	0.754	0.600	0.454	0.281
365	2.604	1.776	1.250	1.086	1.045	0.946	0.920	0.902	0.889	0.853	0.812	0.766	0.611	0.466	0.292
370	2.644	1.825	1.264	1.099	1.058	0.960	0.934	0.916	0.902	0.866	0.825	0.778	0.622	0.478	0.303
375	2.683	1.873	1.277	1.112	1.072	0.975	0.948	0.930	0.916	0.879	0.837	0.789	0.633	0.490	0.313
380	2.723	1.922	1.290	1.126	1.086	0.990	0.963	0.944	0.930	0.892	0.850	0.801	0.645	0.502	0.324

Table applies to columns with protection to all sides. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.



**FIRETEX FX5090**

Section Factor up to m <sup>2</sup>	Table B4: H-Section Columns: Fire Resistance Period: 60 Minutes														
	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
30	0.729	0.495	0.326	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
35	0.796	0.511	0.365	0.210	0.186	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
40	0.889	0.576	0.445	0.272	0.244	0.186	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177	0.177
45	0.982	0.641	0.520	0.333	0.301	0.237	0.206	0.184	0.177	0.177	0.177	0.177	0.177	0.177	0.177
50	1.075	0.706	0.547	0.395	0.358	0.287	0.254	0.231	0.210	0.177	0.177	0.177	0.177	0.177	0.177
55	1.167	0.771	0.574	0.456	0.415	0.338	0.302	0.278	0.256	0.193	0.177	0.177	0.177	0.177	0.177
60	1.260	0.835	0.601	0.517	0.472	0.388	0.351	0.325	0.302	0.238	0.177	0.177	0.177	0.177	0.177
65	1.342	0.900	0.628	0.532	0.521	0.439	0.399	0.372	0.348	0.282	0.210	0.177	0.177	0.177	0.177
70	1.412	0.965	0.655	0.547	0.535	0.489	0.447	0.419	0.394	0.326	0.249	0.191	0.177	0.177	0.177
75	1.482	1.030	0.682	0.561	0.549	0.524	0.495	0.466	0.440	0.371	0.288	0.225	0.177	0.177	0.177
80	1.552	1.095	0.709	0.576	0.564	0.538	0.525	0.513	0.486	0.415	0.327	0.258	0.177	0.177	0.177
85	1.622	1.160	0.736	0.591	0.578	0.551	0.539	0.530	0.522	0.459	0.366	0.291	0.186	0.177	0.177
90	1.692	1.225	0.763	0.605	0.592	0.565	0.552	0.543	0.535	0.504	0.405	0.325	0.198	0.177	0.177
95	1.762	1.290	0.789	0.620	0.606	0.579	0.566	0.557	0.549	0.527	0.444	0.358	0.209	0.177	0.177
100	1.832	1.326	0.816	0.634	0.621	0.593	0.579	0.570	0.562	0.540	0.483	0.391	0.221	0.177	0.177
105	1.902	1.352	0.843	0.649	0.635	0.607	0.593	0.584	0.575	0.553	0.519	0.425	0.232	0.177	0.177
110	1.972	1.378	0.870	0.663	0.649	0.620	0.607	0.597	0.589	0.566	0.532	0.458	0.244	0.177	0.177
115	2.043	1.404	0.897	0.678	0.664	0.634	0.620	0.611	0.602	0.579	0.545	0.491	0.255	0.177	0.177
120	2.113	1.429	0.924	0.693	0.678	0.648	0.634	0.624	0.616	0.592	0.558	0.520	0.267	0.185	0.177
125	2.183	1.455	0.951	0.707	0.692	0.662	0.647	0.637	0.629	0.606	0.571	0.533	0.278	0.196	0.177
130	2.253	1.481	0.978	0.722	0.707	0.676	0.661	0.651	0.642	0.619	0.584	0.546	0.289	0.208	0.177
135	2.323	1.507	1.005	0.736	0.721	0.689	0.675	0.664	0.656	0.632	0.597	0.558	0.301	0.219	0.177
140	2.393	1.533	1.032	0.751	0.735	0.703	0.688	0.678	0.669	0.645	0.610	0.571	0.312	0.230	0.177
145	2.463	1.559	1.059	0.766	0.750	0.717	0.702	0.691	0.683	0.658	0.623	0.584	0.324	0.242	0.177
150	2.510	1.585	1.086	0.780	0.764	0.731	0.716	0.705	0.696	0.671	0.636	0.596	0.335	0.253	0.177
155	2.534	1.610	1.113	0.795	0.778	0.744	0.729	0.718	0.709	0.684	0.650	0.609	0.347	0.264	0.177
160	2.558	1.636	1.140	0.809	0.792	0.758	0.743	0.732	0.723	0.698	0.663	0.622	0.358	0.276	0.177
165	2.582	1.662	1.166	0.824	0.807	0.772	0.756	0.745	0.736	0.711	0.676	0.634	0.370	0.287	0.177
170	2.606	1.688	1.193	0.838	0.821	0.786	0.770	0.759	0.749	0.724	0.689	0.647	0.381	0.298	0.177
175	2.630	1.714	1.220	0.853	0.835	0.800	0.784	0.772	0.763	0.737	0.702	0.660	0.393	0.309	0.177
180	2.653	1.740	1.247	0.868	0.850	0.813	0.797	0.786	0.776	0.750	0.715	0.673	0.404	0.321	0.177
185	2.677	1.765	1.274	0.882	0.864	0.827	0.811	0.799	0.790	0.763	0.728	0.685	0.416	0.332	0.182
190	2.701	1.791	1.301	0.897	0.878	0.841	0.824	0.813	0.803	0.776	0.741	0.698	0.427	0.343	0.196
195	2.725	1.817	1.332	0.911	0.893	0.855	0.838	0.826	0.816	0.790	0.754	0.711	0.439	0.355	0.210
200	2.749	1.843	1.364	0.926	0.907	0.869	0.852	0.840	0.830	0.803	0.767	0.723	0.450	0.366	0.223
205	2.773	1.869	1.396	0.941	0.921	0.882	0.865	0.853	0.843	0.816	0.780	0.736	0.462	0.377	0.237
210	2.796	1.895	1.428	0.955	0.936	0.896	0.879	0.867	0.857	0.829	0.793	0.749	0.473	0.389	0.250
215	2.820	1.920	1.460	0.970	0.950	0.910	0.892	0.880	0.870	0.842	0.806	0.761	0.484	0.400	0.264
220	2.844	1.946	1.492	0.984	0.964	0.924	0.906	0.894	0.883	0.855	0.819	0.774	0.496	0.411	0.278
225	2.868	1.972	1.524	0.999	0.978	0.938	0.920	0.907	0.897	0.869	0.832	0.787	0.507	0.423	0.291
230	2.892	1.998	1.556	1.014	0.993	0.951	0.933	0.920	0.910	0.882	0.845	0.799	0.519	0.434	0.305
235	2.916	2.024	1.588	1.028	1.007	0.965	0.947	0.934	0.923	0.895	0.858	0.812	0.535	0.445	0.318
240	2.940	2.050	1.621	1.043	1.021	0.979	0.960	0.947	0.937	0.908	0.872	0.825	0.551	0.457	0.332
245	2.963	2.076	1.653	1.057	1.036	0.993	0.974	0.961	0.950	0.921	0.885	0.837	0.566	0.468	0.345
250	2.987	2.101	1.685	1.072	1.050	1.007	0.988	0.974	0.964	0.934	0.898	0.850	0.582	0.479	0.359
255	3.011	2.127	1.717	1.086	1.064	1.020	1.001	0.988	0.977	0.947	0.911	0.863	0.598	0.491	0.373
260	3.035	2.153	1.749	1.101	1.079	1.034	1.015	1.001	0.990	0.961	0.924	0.875	0.614	0.502	0.386
265	3.059	2.179	1.781	1.116	1.093	1.048	1.028	1.015	1.004	0.974	0.937	0.888	0.629	0.513	0.400
270	3.083	2.205	1.813	1.130	1.107	1.062	1.042	1.028	1.017	0.987	0.950	0.901	0.645	0.527	0.413
275	3.107	2.231	1.845	1.145	1.122	1.076	1.056	1.042	1.031	1.000	0.963	0.913	0.661	0.542	0.427
280	3.130	2.256	1.877	1.159	1.136	1.089	1.069	1.055	1.044	1.013	0.976	0.926	0.676	0.557	0.441
285	3.154	2.282	1.909	1.174	1.150	1.103	1.083	1.069	1.057	1.026	0.989	0.939	0.692	0.571	0.454
290	3.178	2.308	1.941	1.189	1.164	1.117	1.097	1.082	1.071	1.039	1.002	0.951	0.708	0.586	0.468
295	3.202	2.334	1.973	1.203	1.179	1.131	1.110	1.096	1.084	1.053	1.015	0.964	0.724	0.601	0.481
300	3.226	2.360	2.005	1.218	1.193	1.144	1.124	1.109	1.097	1.066	1.028	0.977	0.739	0.616	0.495
305	3.250	2.386	2.037	1.232	1.207	1.158	1.137	1.123	1.111	1.079	1.041	0.989	0.755	0.631	0.509
310	3.274	2.412	2.069	1.247	1.222	1.172	1.151	1.136	1.124	1.092	1.054	1.002	0.771	0.646	0.522
315	3.297	2.437	2.101	1.261	1.236	1.186	1.165	1.150	1.138	1.105	1.067	1.015	0.786	0.661	0.535
320	3.321	2.463	2.133	1.276	1.250	1.200	1.178	1.163	1.151	1.118	1.080	1.027	0.802	0.675	0.548
325	3.345	2.489	2.165	1.291	1.265	1.213	1.192	1.177	1.164	1.131	1.093	1.040	0.818	0.690	0.560
330	3.369	2.511	2.197	1.305	1.279	1.227	1.205	1.190	1.178	1.145	1.107	1.053	0.834	0.705	0.573
335	3.393	2.583	2.230	1.359	1.293	1.241	1.219	1.203	1.191	1.158	1.120	1.065	0.849	0.720	0.586
340	3.417	2.635	2.262	1.419	1.308	1.255	1.233	1.217	1.205	1.171	1.133	1.078	0.865	0.735	0.599
345	3.440	2.687	2.294	1.479	1.368	1.269	1.246	1.230	1.218	1.184	1.146	1.091	0.881	0.750	0.612
350	3.464	2.739	2.326	1.540	1.427	1.282	1.260	1.244	1.231	1.197	1.159	1.104	0.896	0.765	0.625
355	3.488	2.791	2.358	1.600	1.486	1.296	1.273	1.257	1.245	1.210	1.172	1.116	0.912	0.779	0.637
360	3.581	2.843	2.390	1.660	1.546	1.319	1.287	1.271	1.258	1.223	1.185	1.129	0.928	0.794	0.650
365	3.690	2.895	2.422	1.720	1.605	1.377	1.301	1.284	1.271	1.237	1.198	1.142	0.943	0.809	0.663
370	3.800	2.947	2.454	1.780	1.664	1.435	1.337	1.298	1.285	1.250	1.211	1.154	0.959	0.824	0.676
375	3.910	2.998	2.486	1.840	1.724	1.493	1.394	1.324	1.298	1.263	1.224	1.167	0.975	0.839	0.689
380	4.019	3.050	2.530	1.900	1.783	1.551	1.451	1.381	1.326	1.276	1.237	1.180	0.991	0.854	0.702

Table applies to columns with protection to all sides. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.



**FIRETEX FX5090**

Section Factor up to m <sup>2</sup>	Table B5: H-Section Columns: Fire Resistance Period: 75 Minutes														
	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
30	0.997	0.742	0.599	0.476	0.441	0.363	0.331	0.311	0.294	0.254	0.205	0.177	0.177	0.177	0.177
35	1.158	0.811	0.639	0.501	0.449	0.393	0.369	0.353	0.339	0.306	0.262	0.211	0.177	0.177	0.177
40	1.314	0.930	0.706	0.544	0.523	0.468	0.441	0.424	0.409	0.372	0.323	0.269	0.177	0.177	0.177
45	1.463	1.050	0.773	0.586	0.561	0.527	0.513	0.495	0.479	0.438	0.385	0.328	0.177	0.177	0.177
50	1.613	1.170	0.841	0.629	0.598	0.556	0.542	0.533	0.527	0.504	0.446	0.386	0.177	0.177	0.177
55	1.762	1.290	0.908	0.672	0.636	0.585	0.567	0.556	0.548	0.531	0.508	0.445	0.200	0.177	0.177
60	1.912	1.371	0.975	0.714	0.674	0.614	0.592	0.579	0.569	0.547	0.530	0.503	0.237	0.177	0.177
65	2.061	1.445	1.043	0.757	0.712	0.643	0.618	0.602	0.590	0.563	0.545	0.528	0.274	0.177	0.177
70	2.211	1.519	1.110	0.799	0.750	0.672	0.643	0.625	0.611	0.580	0.560	0.543	0.311	0.191	0.177
75	2.360	1.593	1.177	0.842	0.788	0.701	0.668	0.648	0.633	0.596	0.575	0.557	0.347	0.209	0.177
80	2.502	1.667	1.244	0.884	0.826	0.730	0.694	0.671	0.654	0.613	0.590	0.571	0.384	0.227	0.177
85	2.551	1.741	1.310	0.927	0.864	0.759	0.719	0.694	0.675	0.629	0.605	0.586	0.421	0.244	0.177
90	2.601	1.815	1.346	0.969	0.902	0.788	0.745	0.717	0.696	0.645	0.620	0.600	0.458	0.262	0.185
95	2.650	1.889	1.383	1.012	0.940	0.816	0.770	0.740	0.717	0.662	0.635	0.614	0.494	0.280	0.197
100	2.699	1.963	1.420	1.055	0.978	0.845	0.795	0.763	0.738	0.678	0.650	0.629	0.523	0.298	0.208
105	2.748	2.037	1.456	1.097	1.016	0.874	0.821	0.786	0.759	0.694	0.665	0.643	0.537	0.315	0.220
110	2.798	2.111	1.493	1.140	1.054	0.903	0.846	0.809	0.780	0.711	0.680	0.657	0.552	0.333	0.232
115	2.847	2.185	1.530	1.182	1.092	0.932	0.872	0.832	0.802	0.727	0.695	0.672	0.566	0.351	0.244
120	2.896	2.259	1.566	1.225	1.130	0.961	0.897	0.855	0.823	0.744	0.710	0.686	0.580	0.368	0.256
125	2.945	2.333	1.603	1.267	1.168	0.990	0.922	0.878	0.844	0.760	0.725	0.700	0.595	0.386	0.268
130	2.995	2.407	1.640	1.309	1.206	1.019	0.948	0.901	0.865	0.776	0.740	0.715	0.609	0.404	0.280
135	3.044	2.481	1.676	1.337	1.244	1.048	0.973	0.924	0.886	0.793	0.755	0.729	0.624	0.421	0.292
140	3.093	2.518	1.713	1.366	1.282	1.077	0.998	0.946	0.907	0.809	0.770	0.743	0.638	0.439	0.304
145	3.142	2.542	1.749	1.394	1.317	1.106	1.024	0.969	0.928	0.825	0.785	0.758	0.652	0.457	0.316
150	3.192	2.567	1.786	1.422	1.346	1.135	1.049	0.992	0.949	0.842	0.800	0.772	0.667	0.475	0.328
155	3.241	2.592	1.823	1.450	1.375	1.164	1.075	1.015	0.971	0.858	0.815	0.786	0.681	0.492	0.340
160	3.290	2.617	1.859	1.479	1.404	1.193	1.100	1.038	0.992	0.875	0.830	0.800	0.695	0.510	0.351
165	3.339	2.642	1.896	1.507	1.433	1.222	1.125	1.061	1.013	0.891	0.845	0.815	0.710	0.527	0.363
170	3.389	2.667	1.933	1.535	1.462	1.250	1.151	1.084	1.034	0.907	0.860	0.829	0.724	0.543	0.375
175	3.438	2.691	1.969	1.564	1.491	1.279	1.176	1.107	1.055	0.924	0.875	0.843	0.739	0.559	0.387
180	3.487	2.716	2.006	1.592	1.520	1.308	1.201	1.130	1.076	0.940	0.889	0.858	0.753	0.575	0.399
185	3.536	2.741	2.043	1.620	1.549	1.341	1.227	1.153	1.097	0.956	0.904	0.872	0.767	0.591	0.411
190	3.584	2.766	2.079	1.648	1.578	1.373	1.252	1.176	1.118	0.973	0.919	0.886	0.782	0.608	0.423
195	3.632	2.791	2.116	1.677	1.607	1.405	1.278	1.199	1.140	0.989	0.934	0.901	0.796	0.624	0.435
200	3.681	2.816	2.153	1.705	1.636	1.437	1.303	1.222	1.161	1.006	0.949	0.915	0.810	0.640	0.447
205	3.729	2.840	2.189	1.733	1.665	1.470	1.336	1.245	1.182	1.022	0.964	0.929	0.825	0.656	0.459
210	3.777	2.865	2.226	1.761	1.694	1.502	1.371	1.268	1.203	1.038	0.979	0.944	0.839	0.672	0.471
215	3.826	2.890	2.262	1.790	1.723	1.534	1.406	1.291	1.224	1.055	0.994	0.958	0.854	0.688	0.483
220	3.874	2.915	2.299	1.818	1.753	1.566	1.440	1.318	1.245	1.071	1.009	0.972	0.868	0.704	0.495
225	3.922	2.940	2.336	1.846	1.782	1.599	1.475	1.356	1.266	1.087	1.024	0.987	0.882	0.721	0.506
230	3.971	2.964	2.372	1.875	1.811	1.631	1.510	1.393	1.287	1.104	1.039	1.001	0.897	0.737	0.519
235	4.019	2.989	2.409	1.903	1.840	1.663	1.545	1.431	1.310	1.120	1.054	1.015	0.911	0.753	0.536
240	4.067	3.014	2.446	1.931	1.869	1.695	1.579	1.469	1.350	1.136	1.069	1.030	0.926	0.769	0.553
245	4.116	3.039	2.482	1.959	1.898	1.727	1.614	1.506	1.391	1.153	1.084	1.044	0.940	0.785	0.570
250	4.164	3.064	2.520	1.988	1.927	1.760	1.649	1.544	1.432	1.169	1.099	1.058	0.954	0.801	0.588
255	4.212	3.089	2.559	2.016	1.956	1.792	1.684	1.581	1.472	1.186	1.114	1.073	0.969	0.817	0.605
260	4.261	3.113	2.598	2.044	1.985	1.824	1.718	1.619	1.513	1.202	1.129	1.087	0.983	0.834	0.622
265	4.309	3.138	2.637	2.073	2.014	1.856	1.753	1.656	1.553	1.218	1.144	1.101	0.997	0.850	0.639
270	4.357	3.163	2.676	2.101	2.043	1.889	1.788	1.694	1.594	1.235	1.159	1.115	1.012	0.866	0.657
275	4.406	3.188	2.715	2.129	2.072	1.921	1.823	1.732	1.634	1.251	1.174	1.130	1.026	0.882	0.674
280	4.454	3.213	2.754	2.157	2.101	1.953	1.858	1.769	1.675	1.267	1.189	1.144	1.041	0.898	0.691
285	4.502	3.238	2.793	2.186	2.130	1.985	1.892	1.807	1.716	1.284	1.204	1.158	1.055	0.914	0.708
290	4.551	3.262	2.832	2.214	2.159	2.018	1.927	1.844	1.756	1.300	1.219	1.173	1.069	0.930	0.726
295	4.599	3.287	2.871	2.242	2.188	2.050	1.962	1.882	1.797	1.314	1.234	1.187	1.084	0.947	0.743
300	4.647	3.312	2.910	2.271	2.217	2.082	1.997	1.919	1.837	1.401	1.249	1.201	1.098	0.963	0.760
305	4.696	3.337	2.949	2.299	2.246	2.114	2.031	1.957	1.878	1.460	1.264	1.216	1.112	0.979	0.777
310	4.744	3.362	2.988	2.327	2.275	2.146	2.066	1.995	1.918	1.520	1.279	1.230	1.127	0.995	0.795
315	4.792	3.386	3.027	2.355	2.305	2.179	2.101	2.032	1.959	1.579	1.294	1.244	1.141	1.011	0.812
320	4.841	3.411	3.066	2.384	2.334	2.211	2.136	2.070	2.000	1.639	1.314	1.259	1.156	1.027	0.829
325	4.889	3.436	3.104	2.412	2.363	2.243	2.170	2.107	2.040	1.698	1.381	1.273	1.170	1.043	0.846
330	4.937	3.461	3.143	2.440	2.392	2.275	2.205	2.145	2.081	1.758	1.449	1.287	1.184	1.060	0.864
335	4.986	3.486	3.182	2.469	2.421	2.308	2.240	2.183	2.121	1.817	1.517	1.302	1.199	1.076	0.881
340	5.034	3.602	3.221	2.497	2.450	2.340	2.275	2.220	2.162	1.877	1.584	1.348	1.213	1.092	0.898
345	5.082	3.757	3.260	2.563	2.479	2.372	2.309	2.258	2.202	1.936	1.652	1.416	1.227	1.108	0.915
350	5.131	3.911	3.299	2.632	2.521	2.404	2.344	2.295	2.243	1.996	1.720	1.483	1.242	1.124	0.933
355	5.179	4.065	3.338	2.700	2.592	2.437	2.379	2.333	2.284	2.055	1.787	1.550	1.256	1.140	0.950
360	5.227	4.220	3.377	2.769	2.662	2.469	2.414	2.370	2.324	2.115	1.855	1.618	1.271	1.156	0.967
365	5.276	4.374	3.416	2.837	2.732	2.504	2.448	2.408	2.365	2.174	1.923	1.685	1.285	1.173	0.984
370	5.324	4.528	3.455	2.906	2.803	2.574	2.483	2.446	2.405	2.234	1.990	1.752	1.299	1.189	1.001
375	-	4.682	3.497	2.975	2.873	2.643	2.537	2.483	2.446	2.294	2.058	1.820	1.333	1.205	1.019
380	-	4.837	3.656	3.043	2.943	2.713	2.607	2.540	2.486	2.353	2.126	1.887	1.391	1.221	1.036

Table applies to columns with protection to all sides. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.





FIRETEX FX5090															
Section Factor up to m <sup>-1</sup>	Table B6: H-Section Columns: Fire Resistance Period: 90 Minutes														
	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
30	1.370	0.989	0.794	0.652	0.626	0.578	0.557	0.544	0.533	0.505	0.469	0.407	0.243	0.177	0.177
35	1.600	1.155	0.880	0.702	0.671	0.615	0.591	0.577	0.564	0.533	0.493	0.426	0.290	0.177	0.177
40	1.830	1.331	0.990	0.781	0.745	0.678	0.651	0.633	0.618	0.582	0.535	0.500	0.339	0.206	0.177
45	2.060	1.477	1.101	0.860	0.818	0.741	0.710	0.689	0.673	0.630	0.578	0.543	0.389	0.246	0.177
50	2.290	1.622	1.211	0.939	0.892	0.805	0.769	0.746	0.727	0.679	0.621	0.576	0.439	0.285	0.177
55	2.511	1.768	1.319	1.017	0.965	0.868	0.828	0.802	0.781	0.727	0.663	0.610	0.489	0.325	0.177
60	2.645	1.914	1.416	1.096	1.039	0.931	0.887	0.858	0.835	0.776	0.706	0.643	0.526	0.364	0.177
65	2.780	2.060	1.513	1.175	1.112	0.994	0.946	0.914	0.889	0.824	0.749	0.676	0.544	0.404	0.185
70	2.914	2.206	1.610	1.254	1.186	1.058	1.005	0.971	0.943	0.872	0.791	0.710	0.563	0.443	0.221
75	3.049	2.352	1.707	1.325	1.259	1.121	1.065	1.027	0.997	0.921	0.834	0.743	0.582	0.483	0.257
80	3.183	2.498	1.803	1.380	1.324	1.184	1.124	1.083	1.051	0.969	0.877	0.776	0.601	0.520	0.292
85	3.317	2.556	1.900	1.435	1.372	1.247	1.183	1.140	1.105	1.018	0.919	0.810	0.620	0.535	0.328
90	3.452	2.614	1.997	1.490	1.420	1.309	1.242	1.196	1.159	1.066	0.962	0.843	0.639	0.551	0.363
95	3.534	2.671	2.094	1.544	1.468	1.345	1.301	1.252	1.214	1.115	1.005	0.876	0.658	0.567	0.399
100	3.594	2.729	2.191	1.599	1.517	1.381	1.335	1.308	1.268	1.163	1.047	0.910	0.677	0.583	0.435
105	3.653	2.787	2.287	1.654	1.565	1.417	1.366	1.336	1.315	1.212	1.090	0.943	0.696	0.599	0.470
110	3.712	2.845	2.384	1.709	1.613	1.454	1.397	1.364	1.343	1.260	1.133	0.976	0.715	0.615	0.506
115	3.772	2.902	2.481	1.764	1.661	1.490	1.428	1.392	1.371	1.308	1.175	1.010	0.734	0.630	0.528
120	3.831	2.960	2.519	1.819	1.709	1.526	1.459	1.421	1.399	1.337	1.218	1.043	0.753	0.646	0.544
125	3.891	3.018	2.545	1.873	1.757	1.562	1.490	1.449	1.428	1.365	1.261	1.076	0.772	0.662	0.559
130	3.950	3.075	2.571	1.928	1.806	1.598	1.521	1.477	1.456	1.394	1.303	1.110	0.791	0.678	0.575
135	4.010	3.133	2.596	1.983	1.854	1.634	1.552	1.505	1.484	1.422	1.334	1.143	0.810	0.694	0.590
140	4.069	3.191	2.622	2.038	1.902	1.670	1.583	1.533	1.512	1.451	1.363	1.176	0.829	0.709	0.606
145	4.128	3.249	2.647	2.093	1.950	1.706	1.614	1.562	1.540	1.479	1.392	1.210	0.848	0.725	0.621
150	4.188	3.306	2.673	2.148	1.998	1.742	1.645	1.590	1.569	1.508	1.421	1.243	0.867	0.741	0.637
155	4.247	3.364	2.698	2.202	2.046	1.778	1.676	1.618	1.597	1.537	1.450	1.277	0.885	0.757	0.652
160	4.307	3.422	2.724	2.257	2.095	1.815	1.707	1.646	1.625	1.565	1.479	1.310	0.904	0.773	0.668
165	4.366	3.479	2.750	2.312	2.143	1.851	1.738	1.674	1.653	1.594	1.508	1.341	0.923	0.789	0.684
170	4.426	3.531	2.775	2.367	2.191	1.887	1.769	1.702	1.682	1.622	1.537	1.372	0.942	0.804	0.699
175	4.485	3.581	2.801	2.422	2.239	1.923	1.800	1.731	1.710	1.651	1.566	1.404	0.961	0.820	0.715
180	4.544	3.631	2.826	2.477	2.287	1.959	1.831	1.759	1.738	1.679	1.595	1.435	0.980	0.836	0.730
185	4.604	3.680	2.852	2.517	2.335	1.995	1.862	1.787	1.766	1.708	1.624	1.467	0.999	0.852	0.746
190	4.663	3.730	2.877	2.548	2.384	2.031	1.893	1.815	1.794	1.737	1.653	1.498	1.018	0.868	0.761
195	4.723	3.780	2.903	2.579	2.432	2.067	1.924	1.843	1.823	1.765	1.682	1.529	1.037	0.884	0.777
200	4.782	3.829	2.928	2.611	2.480	2.103	1.955	1.872	1.851	1.794	1.711	1.561	1.056	0.899	0.792
205	4.841	3.879	2.954	2.642	2.520	2.139	1.986	1.900	1.879	1.822	1.740	1.592	1.075	0.915	0.808
210	4.901	3.929	2.980	2.673	2.554	2.176	2.017	1.928	1.907	1.851	1.769	1.623	1.094	0.931	0.824
215	4.960	3.979	3.005	2.704	2.588	2.212	2.048	1.956	1.935	1.879	1.798	1.655	1.113	0.947	0.839
220	5.020	4.028	3.031	2.735	2.623	2.248	2.079	1.984	1.964	1.908	1.827	1.686	1.132	0.963	0.855
225	5.079	4.078	3.056	2.766	2.657	2.284	2.110	2.012	1.992	1.936	1.856	1.717	1.151	0.978	0.870
230	5.139	4.128	3.082	2.797	2.691	2.320	2.141	2.041	2.020	1.965	1.885	1.749	1.170	0.994	0.886
235	5.198	4.178	3.107	2.829	2.726	2.356	2.172	2.069	2.048	1.994	1.915	1.780	1.189	1.010	0.901
240	5.257	4.227	3.133	2.860	2.760	2.392	2.203	2.097	2.076	2.022	1.944	1.812	1.208	1.026	0.917
245	5.317	4.277	3.159	2.891	2.794	2.428	2.234	2.125	2.105	2.051	1.973	1.843	1.226	1.042	0.932
250	-	4.327	3.184	2.922	2.829	2.464	2.265	2.153	2.133	2.079	2.002	1.874	1.245	1.058	0.948
255	-	4.377	3.210	2.953	2.863	2.501	2.296	2.181	2.161	2.108	2.031	1.906	1.264	1.073	0.964
260	-	4.426	3.235	2.984	2.897	2.548	2.326	2.210	2.189	2.136	2.060	1.937	1.283	1.089	0.979
265	-	4.476	3.261	3.015	2.932	2.595	2.357	2.238	2.217	2.165	2.089	1.968	1.302	1.105	0.995
270	-	4.526	3.286	3.047	2.966	2.643	2.388	2.266	2.246	2.194	2.118	2.000	1.343	1.121	1.010
275	-	4.575	3.312	3.078	3.001	2.690	2.419	2.294	2.274	2.222	2.147	2.031	1.392	1.137	1.026
280	-	4.625	3.337	3.109	3.035	2.737	2.450	2.322	2.302	2.251	2.176	2.062	1.440	1.152	1.041
285	-	4.675	3.363	3.140	3.069	2.784	2.481	2.351	2.330	2.279	2.205	2.094	1.489	1.168	1.057
290	-	4.725	3.389	3.171	3.104	2.831	2.527	2.379	2.359	2.308	2.234	2.125	1.538	1.184	1.073
295	-	4.774	3.414	3.202	3.138	2.878	2.590	2.407	2.387	2.336	2.263	2.157	1.587	1.200	1.088
300	-	4.824	3.440	3.233	3.172	2.926	2.653	2.435	2.415	2.365	2.292	2.188	1.635	1.216	1.104
305	-	4.874	3.465	3.265	3.207	2.973	2.716	2.463	2.443	2.394	2.321	2.219	1.684	1.232	1.119
310	-	4.924	3.491	3.296	3.241	3.020	2.779	2.491	2.471	2.422	2.350	2.251	1.733	1.247	1.135
315	-	4.973	3.566	3.327	3.275	3.067	2.842	2.561	2.502	2.451	2.379	2.282	1.781	1.263	1.150
320	-	5.023	3.856	3.358	3.310	3.114	2.905	2.645	2.586	2.479	2.408	2.313	1.830	1.279	1.166
325	-	5.073	4.046	3.389	3.344	3.161	2.968	2.729	2.671	2.526	2.437	2.345	1.879	1.295	1.181
330	-	5.122	4.235	3.420	3.378	3.209	3.031	2.813	2.756	2.611	2.466	2.376	1.927	1.322	1.197
335	-	5.172	4.425	3.451	3.413	3.256	3.095	2.897	2.840	2.696	2.495	2.407	1.976	1.388	1.213
340	-	5.222	4.614	3.483	3.447	3.303	3.158	2.981	2.925	2.780	2.575	2.439	2.025	1.454	1.228
345	-	5.272	4.804	3.626	3.482	3.350	3.221	3.065	3.010	2.865	2.660	2.470	2.073	1.520	1.244
350	-	5.321	4.994	3.825	3.622	3.397	3.284	3.149	3.094	2.950	2.745	2.507	2.122	1.586	1.259
355	-	5.371	5.183	4.025	3.816	3.444	3.347	3.232	3.179	3.034	2.830	2.594	2.171	1.652	1.275
360	-	-	5.373	4.224	4.010	3.492	3.410	3.316	3.264	3.119	2.916	2.680	2.219	1.718	1.290
365	-	-	-	4.423	4.204	3.686	3.473	3.400	3.348	3.204	3.001	2.767	2.268	1.784	1.306
370	-	-	-	4.623	4.398	3.886	3.632	3.484	3.433	3.288	3.086	2.854	2.317	1.850	1.442
375	-	-	-	4.822	4.591	4.085	3.836	3.677	3.554	3.373	3.171	2.940	2.365	1.916	1.590
380	-	-	-	5.022	4.785	4.284	4.040	3.882	3.761	3.458	3.256	3.027	2.414	1.982	1.738

Table applies to columns with protection to all sides. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.



**FIRETEX FX5090**

**Table B7: H-Section Columns: Fire Resistance Period: 105 Minutes**

Section Factor up to m <sup>2</sup>	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
	30	1.805	1.319	0.990	0.828	0.799	0.744	0.721	0.706	0.694	0.662	0.622	0.579	0.421	0.293
35	2.108	1.540	1.149	0.925	0.887	0.816	0.787	0.768	0.753	0.715	0.665	0.616	0.442	0.335	0.193
40	2.410	1.761	1.306	1.043	0.998	0.915	0.881	0.859	0.841	0.796	0.739	0.680	0.504	0.387	0.242
45	2.676	1.983	1.473	1.162	1.110	1.014	0.975	0.949	0.929	0.877	0.813	0.744	0.557	0.439	0.291
50	2.926	2.204	1.640	1.280	1.222	1.113	1.069	1.040	1.017	0.958	0.887	0.808	0.608	0.491	0.341
55	3.177	2.425	1.807	1.395	1.332	1.212	1.163	1.131	1.105	1.039	0.962	0.872	0.658	0.535	0.390
60	3.428	2.589	1.974	1.508	1.437	1.311	1.257	1.221	1.193	1.121	1.036	0.936	0.709	0.572	0.439
65	3.570	2.724	2.141	1.622	1.542	1.400	1.345	1.311	1.281	1.202	1.110	0.999	0.759	0.608	0.488
70	3.673	2.859	2.308	1.736	1.647	1.488	1.427	1.389	1.358	1.283	1.184	1.063	0.809	0.645	0.526
75	3.777	2.994	2.475	1.849	1.752	1.577	1.508	1.466	1.432	1.353	1.258	1.127	0.860	0.681	0.546
80	3.880	3.129	2.568	1.963	1.857	1.666	1.590	1.543	1.505	1.417	1.325	1.191	0.910	0.717	0.566
85	3.983	3.264	2.649	2.076	1.962	1.754	1.671	1.620	1.578	1.482	1.377	1.255	0.961	0.754	0.585
90	4.087	3.399	2.729	2.190	2.067	1.843	1.752	1.697	1.651	1.546	1.430	1.315	1.011	0.790	0.605
95	4.190	3.515	2.810	2.304	2.172	1.932	1.834	1.774	1.725	1.611	1.483	1.356	1.062	0.827	0.625
100	4.294	3.586	2.890	2.417	2.277	2.020	1.915	1.851	1.798	1.675	1.535	1.397	1.112	0.863	0.645
105	4.397	3.657	2.971	2.512	2.382	2.109	1.997	1.928	1.871	1.740	1.588	1.438	1.163	0.900	0.665
110	4.501	3.728	3.052	2.558	2.487	2.198	2.078	2.005	1.944	1.804	1.641	1.480	1.213	0.936	0.685
115	4.604	3.799	3.132	2.604	2.536	2.286	2.160	2.083	2.018	1.869	1.693	1.521	1.263	0.972	0.705
120	4.708	3.870	3.213	2.651	2.579	2.375	2.241	2.160	2.091	1.933	1.746	1.562	1.311	1.009	0.725
125	4.811	3.941	3.294	2.697	2.621	2.464	2.322	2.237	2.164	1.998	1.799	1.603	1.339	1.045	0.745
130	4.915	4.012	3.374	2.744	2.663	2.518	2.404	2.314	2.237	2.062	1.851	1.645	1.368	1.082	0.764
135	5.018	4.083	3.455	2.790	2.706	2.549	2.485	2.391	2.311	2.127	1.904	1.686	1.396	1.118	0.784
140	5.122	4.154	3.521	2.836	2.748	2.581	2.522	2.468	2.384	2.191	1.956	1.727	1.425	1.154	0.804
145	5.225	4.225	3.573	2.883	2.791	2.612	2.550	2.516	2.457	2.256	2.009	1.768	1.453	1.191	0.824
150	5.329	4.296	3.626	2.929	2.833	2.644	2.578	2.545	2.511	2.320	2.062	1.810	1.482	1.227	0.844
155	-	4.367	3.679	2.976	2.875	2.676	2.607	2.573	2.540	2.385	2.114	1.851	1.510	1.264	0.864
160	-	4.438	3.731	3.022	2.918	2.707	2.635	2.602	2.570	2.449	2.167	1.892	1.539	1.300	0.884
165	-	4.509	3.784	3.068	2.960	2.739	2.663	2.631	2.599	2.506	2.220	1.934	1.567	1.332	0.904
170	-	4.580	3.836	3.115	3.003	2.770	2.691	2.659	2.628	2.537	2.272	1.975	1.596	1.363	0.924
175	-	4.651	3.889	3.161	3.045	2.802	2.719	2.688	2.657	2.567	2.325	2.016	1.624	1.395	0.943
180	-	4.722	3.941	3.207	3.088	2.833	2.748	2.717	2.687	2.598	2.378	2.057	1.653	1.426	0.963
185	-	4.793	3.994	3.254	3.130	2.865	2.776	2.745	2.716	2.629	2.430	2.099	1.681	1.457	0.983
190	-	4.864	4.047	3.300	3.172	2.897	2.804	2.774	2.745	2.660	2.483	2.140	1.710	1.488	1.003
195	-	4.935	4.099	3.347	3.215	2.928	2.832	2.802	2.774	2.691	2.523	2.181	1.738	1.519	1.023
200	-	5.006	4.152	3.393	3.257	2.960	2.860	2.831	2.803	2.722	2.558	2.222	1.767	1.551	1.043
205	-	5.077	4.204	3.439	3.300	2.991	2.889	2.860	2.833	2.752	2.592	2.264	1.795	1.582	1.063
210	-	5.148	4.257	3.486	3.342	3.023	2.917	2.888	2.862	2.783	2.627	2.305	1.824	1.613	1.083
215	-	5.219	4.309	3.550	3.384	3.055	2.945	2.917	2.891	2.814	2.662	2.346	1.852	1.644	1.103
220	-	5.290	4.362	3.618	3.427	3.086	2.973	2.946	2.920	2.845	2.696	2.387	1.881	1.676	1.123
225	-	5.361	4.415	3.686	3.469	3.118	3.001	2.974	2.950	2.876	2.731	2.429	1.909	1.707	1.142
230	-	-	4.467	3.753	3.526	3.149	3.029	3.003	2.979	2.907	2.766	2.470	1.938	1.738	1.162
235	-	-	4.520	3.821	3.602	3.181	3.058	3.032	3.008	2.938	2.801	2.512	1.966	1.769	1.182
240	-	-	4.572	3.889	3.678	3.212	3.086	3.060	3.037	2.968	2.835	2.557	1.995	1.800	1.202
245	-	-	4.625	3.957	3.753	3.244	3.114	3.089	3.067	2.999	2.870	2.601	2.023	1.832	1.222
250	-	-	4.677	4.024	3.829	3.276	3.142	3.118	3.096	3.030	2.905	2.645	2.052	1.863	1.242
255	-	-	4.730	4.092	3.905	3.307	3.170	3.146	3.125	3.061	2.939	2.690	2.080	1.894	1.262
260	-	-	4.783	4.160	3.981	3.339	3.199	3.175	3.154	3.092	2.974	2.734	2.109	1.925	1.282
265	-	-	4.835	4.228	4.056	3.370	3.227	3.204	3.183	3.123	3.009	2.779	2.137	1.956	1.302
270	-	-	4.888	4.295	4.132	3.402	3.255	3.232	3.213	3.153	3.044	2.823	2.166	1.988	1.386
275	-	-	4.940	4.363	4.208	3.434	3.283	3.261	3.242	3.184	3.078	2.868	2.194	2.019	1.497
280	-	-	4.993	4.431	4.283	3.465	3.311	3.290	3.271	3.215	3.113	2.912	2.223	2.050	1.608
285	-	-	5.045	4.499	4.359	3.509	3.340	3.318	3.300	3.246	3.148	2.957	2.251	2.081	1.718
290	-	-	5.098	4.566	4.435	3.648	3.368	3.347	3.330	3.277	3.182	3.001	2.280	2.112	1.829
295	-	-	5.150	4.634	4.510	3.787	3.396	3.376	3.359	3.308	3.217	3.046	2.308	2.144	1.940
300	-	-	5.203	4.702	4.586	3.927	3.424	3.404	3.388	3.339	3.252	3.090	2.337	2.175	2.050
305	-	-	5.256	4.770	4.662	4.066	3.452	3.433	3.417	3.369	3.287	3.135	2.365	2.206	2.161
310	-	-	5.308	4.837	4.737	4.205	3.481	3.462	3.446	3.400	3.321	3.179	2.394	2.271	2.271
315	-	-	-	4.905	4.813	4.344	3.627	3.490	3.476	3.431	3.356	3.223	2.422	2.382	2.382
320	-	-	-	4.973	4.889	4.483	3.866	3.711	3.592	3.462	3.391	3.268	2.493	2.493	2.493
325	-	-	-	5.040	4.964	4.622	4.106	3.953	3.836	3.493	3.425	3.312	2.603	2.603	2.603
330	-	-	-	5.108	5.040	4.761	4.345	4.194	4.079	3.746	3.460	3.357	2.714	2.714	2.714
335	-	-	-	5.176	5.116	4.900	4.585	4.436	4.322	4.000	3.507	3.401	2.824	2.824	2.824
340	-	-	-	5.244	5.192	5.039	4.824	4.677	4.566	4.254	3.768	3.446	2.935	2.935	2.935
345	-	-	-	5.311	5.267	5.178	5.064	4.919	4.809	4.508	4.029	3.490	3.046	3.046	3.046
350	-	-	-	5.379	5.343	5.317	5.303	5.160	5.053	4.762	4.290	3.736	3.156	3.156	3.156
355	-	-	-	-	-	-	-	-	-	5.016	4.550	3.995	3.267	3.267	3.267
360	-	-	-	-	-	-	-	-	-	5.270	4.811	4.255	3.378	3.378	3.378
365	-	-	-	-	-	-	-	-	-	-	5.072	4.514	3.488	3.488	3.488
370	-	-	-	-	-	-	-	-	-	-	-	4.773	3.573	3.573	3.573
375	-	-	-	-	-	-	-	-	-	-	-	5.032	3.656	3.656	3.656
380	-	-	-	-	-	-	-	-	-	-	-	-	3.840	3.739	3.739

Table applies to columns with protection to all sides. Thickness is intumescent only.  
 Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.



FIRETEX FX5090															
Section Factor up to m <sup>2</sup>	Table B8: H-Section Columns: Fire Resistance Period: 120 Minutes														
	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
30	2.240	1.707	1.229	1.009	0.972	0.910	0.885	0.868	0.854	0.820	0.775	0.727	0.579	0.450	0.311
35	2.620	1.993	1.471	1.170	1.123	1.036	1.001	0.978	0.959	0.914	0.855	0.794	0.608	0.464	0.352
40	3.014	2.278	1.713	1.334	1.276	1.174	1.133	1.106	1.084	1.030	0.963	0.890	0.692	0.528	0.412
45	3.408	2.552	1.956	1.514	1.442	1.312	1.264	1.234	1.208	1.147	1.070	0.986	0.775	0.598	0.471
50	3.610	2.787	2.198	1.693	1.612	1.462	1.402	1.365	1.334	1.263	1.178	1.081	0.858	0.669	0.529
55	3.758	3.022	2.440	1.873	1.782	1.612	1.543	1.500	1.465	1.382	1.286	1.177	0.942	0.739	0.577
60	3.907	3.257	2.617	2.053	1.951	1.762	1.684	1.636	1.596	1.501	1.391	1.273	1.025	0.810	0.625
65	4.055	3.492	2.772	2.233	2.121	1.912	1.825	1.771	1.727	1.621	1.496	1.364	1.109	0.880	0.673
70	4.204	3.601	2.927	2.413	2.291	2.062	1.966	1.907	1.857	1.741	1.600	1.454	1.192	0.951	0.721
75	4.352	3.710	3.083	2.553	2.460	2.212	2.107	2.042	1.988	1.860	1.704	1.543	1.276	1.021	0.768
80	4.501	3.819	3.238	2.657	2.575	2.362	2.248	2.178	2.119	1.980	1.809	1.632	1.340	1.092	0.816
85	4.650	3.928	3.394	2.761	2.673	2.506	2.389	2.313	2.250	2.100	1.913	1.721	1.392	1.162	0.864
90	4.798	4.037	3.524	2.865	2.771	2.587	2.515	2.449	2.381	2.220	2.018	1.811	1.445	1.233	0.912
95	4.947	4.146	3.611	2.969	2.869	2.668	2.589	2.543	2.505	2.339	2.122	1.900	1.498	1.303	0.960
100	5.095	4.255	3.698	3.073	2.967	2.749	2.663	2.613	2.572	2.459	2.226	1.989	1.550	1.340	1.008
105	5.244	4.364	3.784	3.177	3.065	2.830	2.737	2.683	2.640	2.538	2.331	2.078	1.603	1.374	1.056
110	5.392	4.473	3.871	3.281	3.163	2.912	2.811	2.753	2.707	2.598	2.435	2.168	1.655	1.409	1.104
115	-	4.582	3.958	3.385	3.261	2.993	2.886	2.823	2.774	2.657	2.518	2.257	1.708	1.444	1.152
120	-	4.691	4.044	3.489	3.359	3.074	2.960	2.893	2.842	2.717	2.568	2.346	1.761	1.478	1.200
125	-	4.800	4.131	3.561	3.457	3.155	3.034	2.963	2.909	2.776	2.618	2.435	1.813	1.513	1.248
130	-	4.909	4.217	3.631	3.535	3.236	3.108	3.033	2.976	2.836	2.668	2.510	1.866	1.547	1.296
135	-	5.018	4.304	3.702	3.602	3.318	3.182	3.103	3.043	2.895	2.718	2.552	1.919	1.582	1.354
140	-	5.127	4.391	3.772	3.669	3.399	3.256	3.173	3.111	2.955	2.768	2.593	1.971	1.616	1.414
145	-	5.236	4.477	3.842	3.735	3.480	3.330	3.243	3.178	3.014	2.818	2.634	2.024	1.651	1.474
150	-	5.345	4.564	3.913	3.802	3.545	3.404	3.313	3.245	3.074	2.868	2.675	2.076	1.685	1.534
155	-	-	4.650	3.983	3.869	3.606	3.479	3.383	3.313	3.133	2.918	2.716	2.129	1.720	1.595
160	-	-	4.737	4.054	3.935	3.668	3.541	3.453	3.380	3.193	2.968	2.757	2.182	1.754	1.655
165	-	-	4.824	4.124	4.002	3.729	3.601	3.518	3.447	3.252	3.018	2.798	2.234	1.789	1.715
170	-	-	4.910	4.194	4.068	3.790	3.660	3.576	3.511	3.312	3.068	2.839	2.287	1.824	1.776
175	-	-	4.997	4.265	4.135	3.852	3.720	3.635	3.569	3.371	3.118	2.880	2.339	1.858	1.836
180	-	-	5.084	4.335	4.202	3.913	3.779	3.693	3.626	3.431	3.168	2.921	2.392	1.896	1.896
185	-	-	5.170	4.406	4.268	3.975	3.839	3.751	3.684	3.490	3.218	2.962	2.445	1.956	1.956
190	-	-	5.257	4.476	4.335	4.036	3.899	3.810	3.741	3.552	3.268	3.003	2.497	2.017	2.017
195	-	-	5.343	4.546	4.402	4.098	3.958	3.868	3.799	3.614	3.318	3.044	2.535	2.077	2.077
200	-	-	-	4.617	4.468	4.159	4.018	3.926	3.856	3.676	3.368	3.085	2.572	2.137	2.137
205	-	-	-	4.687	4.535	4.221	4.077	3.985	3.914	3.739	3.418	3.126	2.610	2.198	2.198
210	-	-	-	4.758	4.601	4.282	4.137	4.043	3.971	3.801	3.468	3.167	2.647	2.258	2.258
215	-	-	-	4.828	4.668	4.344	4.197	4.101	4.029	3.863	3.529	3.208	2.685	2.318	2.318
220	-	-	-	4.899	4.735	4.405	4.256	4.160	4.087	3.925	3.603	3.250	2.722	2.378	2.378
225	-	-	-	4.969	4.801	4.467	4.316	4.218	4.144	3.987	3.677	3.291	2.760	2.439	2.439
230	-	-	-	5.039	4.868	4.528	4.375	4.276	4.202	4.049	3.751	3.332	2.797	2.499	2.499
235	-	-	-	5.110	4.935	4.590	4.435	4.335	4.259	4.111	3.825	3.373	2.835	2.559	2.559
240	-	-	-	5.180	5.001	4.651	4.495	4.393	4.317	4.173	3.899	3.414	2.872	2.620	2.620
245	-	-	-	5.251	5.068	4.713	4.554	4.451	4.374	4.235	3.973	3.455	2.909	2.680	2.680
250	-	-	-	5.321	5.135	4.774	4.614	4.510	4.432	4.297	4.047	3.500	2.947	2.740	2.740
255	-	-	-	-	5.201	4.836	4.673	4.568	4.489	4.359	4.121	3.601	2.984	2.800	2.800
260	-	-	-	-	5.268	4.897	4.733	4.626	4.547	4.421	4.194	3.702	3.022	2.861	2.861
265	-	-	-	-	5.334	4.958	4.793	4.685	4.604	4.484	4.268	3.804	3.059	2.921	2.921
270	-	-	-	-	-	5.020	4.852	4.743	4.662	4.546	4.342	3.905	3.097	2.981	2.981
275	-	-	-	-	-	5.081	4.912	4.801	4.719	4.608	4.416	4.006	3.134	3.042	3.042
280	-	-	-	-	-	5.143	4.971	4.860	4.777	4.670	4.490	4.107	3.171	3.102	3.102
285	-	-	-	-	-	5.204	5.031	4.918	4.834	4.732	4.564	4.208	3.209	3.162	3.162
290	-	-	-	-	-	5.266	5.091	4.976	4.892	4.794	4.638	4.309	3.246	3.222	3.222
295	-	-	-	-	-	5.327	5.150	5.035	4.949	4.856	4.712	4.411	3.284	3.283	3.283
300	-	-	-	-	-	5.389	5.210	5.093	5.007	4.918	4.785	4.512	3.343	3.343	3.343
305	-	-	-	-	-	-	5.269	5.151	5.064	4.980	4.859	4.613	3.403	3.403	3.403
310	-	-	-	-	-	-	5.329	5.210	5.122	5.042	4.933	4.714	3.464	3.464	3.464
315	-	-	-	-	-	-	5.389	5.268	5.179	5.104	5.007	4.815	3.543	3.543	3.543
320	-	-	-	-	-	-	-	5.326	5.237	5.167	5.081	4.916	3.640	3.640	3.640
325	-	-	-	-	-	-	-	-	5.294	5.229	5.155	5.018	3.737	3.737	3.737
330	-	-	-	-	-	-	-	-	5.352	5.291	5.229	5.119	3.898	3.835	3.835
335	-	-	-	-	-	-	-	-	5.409	5.353	5.303	5.220	4.185	3.932	3.932
340	-	-	-	-	-	-	-	-	-	5.415	5.377	5.321	4.472	4.029	4.029
345	-	-	-	-	-	-	-	-	-	-	5.450	5.422	4.759	4.126	4.126
350	-	-	-	-	-	-	-	-	-	-	-	-	5.046	4.224	4.224
355	-	-	-	-	-	-	-	-	-	-	-	-	-	4.394	4.321
360	-	-	-	-	-	-	-	-	-	-	-	-	-	4.582	4.418
365	-	-	-	-	-	-	-	-	-	-	-	-	-	4.769	4.515
370	-	-	-	-	-	-	-	-	-	-	-	-	-	4.957	4.613
375	-	-	-	-	-	-	-	-	-	-	-	-	-	5.144	4.710
380	-	-	-	-	-	-	-	-	-	-	-	-	-	5.331	4.807

Table applies to columns with protection to all sides. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.



**FIRETEX FX5090**

Section Factor up to m <sup>2</sup>	Table B9: H-Section Columns: Fire Resistance Period: 150 Minutes														
	Thickness (mm) Required for a Design Temperature of														
	350°C	400°C	450°C	500°C	510°C	530°C	539°C	545°C	550°C	563°C	580°C	600°C	650°C	700°C	750°C
30	4.174	2.517	1.978	1.564	1.488	1.338	1.275	1.234	1.223	1.170	1.101	1.031	0.882	0.750	0.607
35	4.174	2.986	2.345	1.872	1.787	1.619	1.546	1.500	1.461	1.380	1.284	1.197	1.000	0.820	0.633
40	4.174	3.454	2.701	2.180	2.086	1.899	1.817	1.765	1.721	1.626	1.504	1.375	1.155	0.960	0.745
45	4.174	3.663	3.048	2.488	2.385	2.179	2.089	2.030	1.982	1.871	1.728	1.578	1.309	1.099	0.857
50	4.637	3.849	3.396	2.745	2.650	2.460	2.360	2.296	2.243	2.116	1.953	1.781	1.455	1.239	0.969
55	4.791	4.034	3.605	3.001	2.895	2.684	2.598	2.545	2.502	2.362	2.178	1.984	1.601	1.364	1.082
60	4.944	4.220	3.760	3.256	3.139	2.898	2.800	2.740	2.693	2.577	2.403	2.186	1.747	1.476	1.194
65	5.098	4.405	3.915	3.503	3.384	3.113	3.003	2.936	2.884	2.755	2.591	2.389	1.892	1.587	1.306
70	5.252	4.591	4.070	3.635	3.564	3.328	3.206	3.132	3.074	2.932	2.753	2.566	2.038	1.699	1.512
75	-	4.776	4.225	3.768	3.692	3.521	3.409	3.327	3.265	3.110	2.914	2.713	2.184	1.811	1.720
80	-	4.962	4.380	3.901	3.820	3.642	3.562	3.511	3.456	3.287	3.076	2.859	2.330	1.928	1.928
85	-	5.147	4.535	4.034	3.948	3.762	3.680	3.627	3.585	3.465	3.237	3.006	2.476	2.136	2.136
90	-	5.333	4.690	4.166	4.076	3.883	3.798	3.743	3.700	3.588	3.399	3.152	2.603	2.344	2.344
95	-	-	4.845	4.299	4.204	4.003	3.915	3.859	3.815	3.700	3.538	3.299	2.727	2.552	2.552
100	-	-	5.000	4.432	4.331	4.124	4.033	3.975	3.930	3.812	3.646	3.445	2.851	2.760	2.760
105	-	-	5.155	4.565	4.459	4.244	4.151	4.091	4.045	3.925	3.753	3.561	2.974	2.967	2.967
110	-	-	5.310	4.697	4.587	4.365	4.269	4.207	4.160	4.037	3.861	3.663	3.175	3.175	3.175
115	-	-	5.465	4.830	4.715	4.485	4.386	4.323	4.275	4.150	3.968	3.765	3.383	3.383	3.383
120	-	-	-	4.963	4.843	4.606	4.504	4.439	4.390	4.262	4.076	3.867	3.513	3.513	3.513
125	-	-	-	5.096	4.971	4.726	4.622	4.555	4.505	4.374	4.184	3.968	3.555	3.555	3.555
130	-	-	-	5.228	5.099	4.847	4.740	4.671	4.620	4.487	4.291	4.070	3.597	3.597	3.597
135	-	-	-	5.361	5.227	4.967	4.858	4.787	4.735	4.599	4.399	4.172	3.647	3.639	3.639
140	-	-	-	-	5.355	5.088	4.975	4.903	4.850	4.712	4.506	4.273	3.732	3.682	3.682
145	-	-	-	-	-	5.208	5.093	5.019	4.965	4.824	4.614	4.375	3.818	3.724	3.724
150	-	-	-	-	-	5.329	5.211	5.135	5.080	4.936	4.722	4.477	3.903	3.766	3.766
155	-	-	-	-	-	-	5.329	5.251	5.195	5.049	4.829	4.579	3.988	3.808	3.808
160	-	-	-	-	-	-	-	5.367	5.310	5.161	4.937	4.680	4.073	3.850	3.850
165	-	-	-	-	-	-	-	5.483	5.425	5.274	5.044	4.782	4.159	3.892	3.892
170	-	-	-	-	-	-	-	-	-	5.386	5.152	4.884	4.244	3.946	3.935
175	-	-	-	-	-	-	-	-	-	-	5.260	4.985	4.329	4.007	3.977
180	-	-	-	-	-	-	-	-	-	-	5.367	5.087	4.414	4.069	4.019
185	-	-	-	-	-	-	-	-	-	-	-	5.189	4.500	4.130	4.061
190	-	-	-	-	-	-	-	-	-	-	-	5.291	4.585	4.191	4.103
195	-	-	-	-	-	-	-	-	-	-	-	5.392	4.670	4.252	4.145
200	-	-	-	-	-	-	-	-	-	-	-	-	4.755	4.313	4.188
205	-	-	-	-	-	-	-	-	-	-	-	-	4.841	4.374	4.230
210	-	-	-	-	-	-	-	-	-	-	-	-	4.926	4.436	4.272
215	-	-	-	-	-	-	-	-	-	-	-	-	5.011	4.497	4.314
220	-	-	-	-	-	-	-	-	-	-	-	-	5.096	4.558	4.356
225	-	-	-	-	-	-	-	-	-	-	-	-	5.182	4.619	4.398
230	-	-	-	-	-	-	-	-	-	-	-	-	5.267	4.680	4.441
235	-	-	-	-	-	-	-	-	-	-	-	-	5.352	4.741	4.483
240	-	-	-	-	-	-	-	-	-	-	-	-	5.437	4.803	4.525
245	-	-	-	-	-	-	-	-	-	-	-	-	-	4.864	4.567
250	-	-	-	-	-	-	-	-	-	-	-	-	-	4.925	4.609
255	-	-	-	-	-	-	-	-	-	-	-	-	-	4.986	4.651
260	-	-	-	-	-	-	-	-	-	-	-	-	-	5.047	4.694
265	-	-	-	-	-	-	-	-	-	-	-	-	-	5.108	4.736
270	-	-	-	-	-	-	-	-	-	-	-	-	-	5.170	4.778
275	-	-	-	-	-	-	-	-	-	-	-	-	-	5.231	4.820
280	-	-	-	-	-	-	-	-	-	-	-	-	-	5.292	4.862
285	-	-	-	-	-	-	-	-	-	-	-	-	-	5.353	4.904
290	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.947
295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.989
300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.031
305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.073
310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.115
315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.157
320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.200
325	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.242
330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.284
335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.326
340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table applies to columns with protection to all sides. Thickness is intumescent only.  
 Table also applies to beams protected on four sides up to a maximum protection thickness of 5.643 mm.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table C1: Circular Hollow Columns: Fire Resistance Period: 15 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
55	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
60	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
65	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
70	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
75	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
80	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
85	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
90	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
95	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
100	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
105	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
110	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
115	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
120	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
125	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
130	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
135	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
140	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
145	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
150	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
155	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
160	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
165	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
170	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
175	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
180	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
185	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
190	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
195	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
200	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
205	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
210	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
215	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
220	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
225	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
230	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
235	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
240	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
245	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
250	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
255	0.378	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
260	0.400	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
265	0.423	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
270	0.445	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
275	0.467	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
280	0.490	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
285	0.512	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
290	0.534	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
295	0.557	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
300	0.579	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
305	0.601	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
310	0.624	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
315	0.646	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
320	0.668	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
325	0.691	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
330	0.713	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
335	0.735	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
340	0.758	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359

Table applies to columns with protection to all sides. Thickness is intumescent only.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table C2: Circular Hollow Columns: Fire Resistance Period: 30 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
55	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
60	0.383	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
65	0.416	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
70	0.450	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
75	0.483	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
80	0.516	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
85	0.550	0.361	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
90	0.583	0.389	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
95	0.617	0.416	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
100	0.650	0.443	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
105	0.683	0.470	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
110	0.717	0.497	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
115	0.750	0.524	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
120	0.783	0.551	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
125	0.817	0.578	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
130	0.850	0.606	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
135	0.884	0.633	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
140	0.917	0.660	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
145	0.950	0.687	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
150	0.984	0.714	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
155	1.017	0.741	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
160	1.050	0.768	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
165	1.084	0.795	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
170	1.117	0.823	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
175	1.151	0.850	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
180	1.184	0.877	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
185	1.217	0.904	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
190	1.251	0.931	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
195	1.284	0.958	0.380	0.359	0.359	0.359	0.359	0.359	0.359	0.359
200	1.317	0.985	0.412	0.359	0.359	0.359	0.359	0.359	0.359	0.359
205	1.351	1.012	0.445	0.359	0.359	0.359	0.359	0.359	0.359	0.359
210	1.384	1.039	0.477	0.359	0.359	0.359	0.359	0.359	0.359	0.359
215	1.418	1.067	0.510	0.359	0.359	0.359	0.359	0.359	0.359	0.359
220	1.451	1.094	0.542	0.359	0.359	0.359	0.359	0.359	0.359	0.359
225	1.484	1.121	0.575	0.359	0.359	0.359	0.359	0.359	0.359	0.359
230	1.518	1.148	0.607	0.359	0.359	0.359	0.359	0.359	0.359	0.359
235	1.551	1.175	0.639	0.359	0.359	0.359	0.359	0.359	0.359	0.359
240	1.584	1.202	0.672	0.359	0.359	0.359	0.359	0.359	0.359	0.359
245	1.618	1.229	0.704	0.376	0.359	0.359	0.359	0.359	0.359	0.359
250	1.651	1.256	0.737	0.406	0.359	0.359	0.359	0.359	0.359	0.359
255	1.685	1.284	0.769	0.436	0.359	0.359	0.359	0.359	0.359	0.359
260	1.718	1.311	0.802	0.466	0.363	0.359	0.359	0.359	0.359	0.359
265	1.745	1.338	0.834	0.497	0.392	0.359	0.359	0.359	0.359	0.359
270	1.772	1.365	0.866	0.527	0.421	0.359	0.359	0.359	0.359	0.359
275	1.799	1.392	0.899	0.557	0.449	0.359	0.359	0.359	0.359	0.359
280	1.826	1.419	0.931	0.588	0.478	0.359	0.359	0.359	0.359	0.359
285	1.853	1.446	0.964	0.618	0.507	0.359	0.359	0.359	0.359	0.359
290	1.880	1.473	0.996	0.648	0.536	0.362	0.359	0.359	0.359	0.359
295	1.908	1.501	1.029	0.679	0.565	0.389	0.359	0.359	0.359	0.359
300	1.935	1.528	1.061	0.709	0.594	0.416	0.359	0.359	0.359	0.359
305	1.962	1.555	1.093	0.739	0.623	0.442	0.359	0.359	0.359	0.359
310	1.989	1.582	1.126	0.770	0.652	0.469	0.359	0.359	0.359	0.359
315	2.016	1.609	1.158	0.800	0.681	0.496	0.359	0.359	0.359	0.359
320	2.043	1.636	1.191	0.830	0.710	0.523	0.359	0.359	0.359	0.359
325	2.070	1.663	1.223	0.861	0.738	0.549	0.359	0.359	0.359	0.359
330	2.097	1.690	1.256	0.891	0.767	0.576	0.359	0.359	0.359	0.359
335	2.125	1.717	1.288	0.921	0.796	0.603	0.359	0.359	0.359	0.359
340	2.152	1.743	1.320	0.951	0.825	0.630	0.359	0.359	0.359	0.359

Table applies to columns with protection to all sides. Thickness is intumescent only.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table C3: Circular Hollow Columns: Fire Resistance Period: 45 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	0.838	0.528	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
55	0.918	0.576	0.384	0.359	0.359	0.359	0.359	0.359	0.359	0.359
60	0.997	0.624	0.420	0.359	0.359	0.359	0.359	0.359	0.359	0.359
65	1.077	0.671	0.456	0.359	0.359	0.359	0.359	0.359	0.359	0.359
70	1.157	0.719	0.493	0.381	0.359	0.359	0.359	0.359	0.359	0.359
75	1.237	0.767	0.529	0.411	0.365	0.359	0.359	0.359	0.359	0.359
80	1.317	0.814	0.565	0.440	0.393	0.359	0.359	0.359	0.359	0.359
85	1.397	0.862	0.601	0.470	0.421	0.359	0.359	0.359	0.359	0.359
90	1.477	0.909	0.638	0.500	0.449	0.365	0.359	0.359	0.359	0.359
95	1.557	0.957	0.674	0.530	0.477	0.391	0.359	0.359	0.359	0.359
100	1.636	1.005	0.710	0.560	0.505	0.418	0.359	0.359	0.359	0.359
105	1.716	1.052	0.746	0.590	0.533	0.445	0.359	0.359	0.359	0.359
110	1.746	1.100	0.783	0.620	0.561	0.471	0.359	0.359	0.359	0.359
115	1.776	1.148	0.819	0.650	0.589	0.498	0.359	0.359	0.359	0.359
120	1.805	1.195	0.855	0.679	0.617	0.524	0.359	0.359	0.359	0.359
125	1.835	1.243	0.891	0.709	0.645	0.551	0.359	0.359	0.359	0.359
130	1.864	1.291	0.928	0.739	0.673	0.578	0.359	0.359	0.359	0.359
135	1.894	1.338	0.964	0.769	0.701	0.604	0.359	0.359	0.359	0.359
140	1.923	1.386	1.000	0.799	0.729	0.631	0.359	0.359	0.359	0.359
145	1.953	1.433	1.036	0.829	0.757	0.658	0.359	0.359	0.359	0.359
150	1.982	1.481	1.073	0.859	0.785	0.684	0.360	0.359	0.359	0.359
155	2.012	1.529	1.109	0.888	0.813	0.711	0.388	0.359	0.359	0.359
160	2.041	1.576	1.145	0.918	0.841	0.737	0.416	0.359	0.359	0.359
165	2.071	1.624	1.181	0.948	0.869	0.764	0.444	0.359	0.359	0.359
170	2.101	1.672	1.218	0.978	0.897	0.791	0.472	0.359	0.359	0.359
175	2.130	1.718	1.254	1.008	0.925	0.817	0.500	0.359	0.359	0.359
180	2.160	1.748	1.290	1.038	0.953	0.844	0.528	0.359	0.359	0.359
185	2.189	1.778	1.326	1.068	0.981	0.870	0.557	0.359	0.359	0.359
190	2.219	1.808	1.363	1.098	1.009	0.897	0.585	0.359	0.359	0.359
195	2.248	1.837	1.399	1.127	1.037	0.924	0.613	0.359	0.359	0.359
200	2.278	1.867	1.435	1.157	1.065	0.950	0.641	0.359	0.359	0.359
205	2.307	1.897	1.471	1.187	1.093	0.977	0.669	0.359	0.359	0.359
210	2.337	1.926	1.508	1.217	1.121	1.004	0.697	0.359	0.359	0.359
215	2.366	1.956	1.544	1.247	1.149	1.030	0.725	0.359	0.359	0.359
220	2.396	1.986	1.580	1.277	1.177	1.057	0.753	0.359	0.359	0.359
225	2.425	2.015	1.616	1.307	1.205	1.083	0.781	0.359	0.359	0.359
230	2.455	2.045	1.653	1.336	1.233	1.110	0.809	0.373	0.359	0.359
235	2.484	2.075	1.689	1.366	1.261	1.137	0.837	0.403	0.359	0.359
240	2.514	2.104	1.725	1.396	1.289	1.163	0.866	0.434	0.359	0.359
245	2.543	2.134	1.758	1.426	1.317	1.190	0.894	0.465	0.359	0.359
250	2.573	2.164	1.791	1.456	1.345	1.216	0.922	0.495	0.359	0.359
255	2.602	2.194	1.824	1.486	1.373	1.243	0.950	0.526	0.359	0.359
260	2.632	2.223	1.857	1.516	1.401	1.270	0.978	0.556	0.359	0.359
265	2.661	2.253	1.890	1.546	1.429	1.296	1.006	0.587	0.384	0.359
270	2.691	2.283	1.923	1.575	1.457	1.323	1.034	0.618	0.410	0.359
275	2.720	2.312	1.956	1.605	1.485	1.350	1.062	0.648	0.435	0.359
280	2.750	2.342	1.990	1.635	1.513	1.376	1.090	0.679	0.461	0.359
285	2.780	2.372	2.023	1.665	1.541	1.403	1.118	0.710	0.486	0.359
290	2.809	2.401	2.056	1.695	1.569	1.429	1.146	0.740	0.512	0.359
295	2.839	2.431	2.089	1.726	1.597	1.456	1.174	0.771	0.537	0.359
300	2.868	2.461	2.122	1.761	1.625	1.483	1.203	0.802	0.562	0.362
305	2.898	2.490	2.155	1.795	1.653	1.509	1.231	0.832	0.588	0.381
310	2.927	2.520	2.188	1.830	1.681	1.536	1.259	0.863	0.613	0.400
315	2.957	2.550	2.221	1.865	1.709	1.562	1.287	0.894	0.639	0.419
320	2.986	2.579	2.255	1.900	1.742	1.589	1.315	0.924	0.664	0.438
325	3.016	2.609	2.288	1.934	1.777	1.616	1.343	0.955	0.689	0.457
330	-	2.639	2.321	1.969	1.812	1.642	1.371	0.986	0.715	0.476
335	-	2.669	2.354	2.004	1.847	1.669	1.399	1.016	0.740	0.495
340	-	2.698	2.387	2.039	1.882	1.696	1.427	1.047	0.766	0.515

Table applies to columns with protection to all sides. Thickness is intumescent only.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table C4: Circular Hollow Columns: Fire Resistance Period: 60 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	1.425	1.035	0.768	0.574	0.510	0.415	0.359	0.359	0.359	0.359
55	1.562	1.132	0.838	0.623	0.551	0.452	0.359	0.359	0.359	0.359
60	1.698	1.229	0.908	0.671	0.592	0.489	0.391	0.359	0.359	0.359
65	1.786	1.326	0.978	0.720	0.633	0.526	0.422	0.359	0.359	0.359
70	1.866	1.423	1.048	0.768	0.674	0.563	0.454	0.359	0.359	0.359
75	1.947	1.520	1.118	0.816	0.715	0.600	0.485	0.370	0.359	0.359
80	2.027	1.617	1.188	0.865	0.756	0.636	0.517	0.398	0.359	0.359
85	2.107	1.715	1.258	0.913	0.797	0.673	0.548	0.425	0.359	0.359
90	2.187	1.760	1.328	0.962	0.838	0.710	0.580	0.453	0.359	0.359
95	2.267	1.804	1.398	1.010	0.879	0.747	0.611	0.480	0.359	0.359
100	2.348	1.849	1.468	1.058	0.920	0.784	0.643	0.508	0.359	0.359
105	2.428	1.893	1.538	1.107	0.962	0.820	0.674	0.535	0.359	0.359
110	2.508	1.937	1.608	1.155	1.003	0.857	0.705	0.563	0.359	0.359
115	2.588	1.981	1.678	1.204	1.044	0.894	0.737	0.591	0.359	0.359
120	2.668	2.025	1.732	1.252	1.085	0.931	0.768	0.618	0.377	0.359
125	2.748	2.070	1.765	1.301	1.126	0.968	0.800	0.646	0.404	0.359
130	2.836	2.114	1.799	1.349	1.167	1.005	0.831	0.673	0.432	0.359
135	2.963	2.158	1.832	1.397	1.208	1.041	0.863	0.701	0.459	0.359
140	3.090	2.202	1.866	1.446	1.249	1.078	0.894	0.728	0.487	0.359
145	3.217	2.247	1.900	1.494	1.290	1.115	0.926	0.756	0.514	0.359
150	3.344	2.291	1.933	1.543	1.331	1.152	0.957	0.784	0.542	0.359
155	3.471	2.335	1.967	1.591	1.372	1.189	0.989	0.811	0.569	0.359
160	3.598	2.379	2.000	1.639	1.413	1.225	1.020	0.839	0.596	0.359
165	3.725	2.424	2.034	1.688	1.454	1.262	1.052	0.866	0.624	0.359
170	3.852	2.468	2.067	1.730	1.495	1.299	1.083	0.894	0.651	0.359
175	3.979	2.512	2.101	1.763	1.536	1.336	1.115	0.922	0.679	0.359
180	4.106	2.556	2.134	1.797	1.577	1.373	1.146	0.949	0.706	0.359
185	4.233	2.600	2.168	1.830	1.618	1.410	1.178	0.977	0.734	0.359
190	4.360	2.645	2.201	1.863	1.659	1.446	1.209	1.004	0.761	0.359
195	-	2.689	2.235	1.896	1.700	1.483	1.240	1.032	0.789	0.359
200	-	2.733	2.268	1.930	1.739	1.520	1.272	1.059	0.816	0.359
205	-	2.777	2.302	1.963	1.775	1.557	1.303	1.087	0.844	0.359
210	-	2.862	2.336	1.996	1.812	1.594	1.335	1.115	0.871	0.360
215	-	3.226	2.369	2.030	1.848	1.630	1.366	1.142	0.898	0.390
220	-	3.590	2.403	2.063	1.885	1.667	1.398	1.170	0.926	0.421
225	-	3.954	2.436	2.096	1.921	1.704	1.429	1.197	0.953	0.452
230	-	4.318	2.470	2.129	1.958	1.742	1.461	1.225	0.981	0.483
235	-	-	2.503	2.163	1.994	1.780	1.492	1.252	1.008	0.513
240	-	-	2.537	2.196	2.031	1.818	1.524	1.280	1.036	0.544
245	-	-	2.570	2.229	2.067	1.856	1.555	1.308	1.063	0.575
250	-	-	2.604	2.262	2.104	1.895	1.587	1.335	1.091	0.606
255	-	-	2.637	2.296	2.140	1.933	1.618	1.363	1.118	0.636
260	-	-	2.671	2.329	2.176	1.971	1.650	1.390	1.145	0.667
265	-	-	2.704	2.362	2.213	2.009	1.681	1.418	1.173	0.698
270	-	-	2.738	2.395	2.249	2.048	1.713	1.445	1.200	0.729
275	-	-	2.771	2.429	2.286	2.086	1.751	1.473	1.228	0.759
280	-	-	2.805	2.462	2.322	2.124	1.790	1.501	1.255	0.790
285	-	-	2.839	2.495	2.359	2.162	1.829	1.528	1.283	0.821
290	-	-	2.872	2.529	2.395	2.201	1.868	1.556	1.310	0.852
295	-	-	2.906	2.562	2.432	2.239	1.907	1.583	1.338	0.882
300	-	-	2.939	2.595	2.468	2.277	1.947	1.611	1.365	0.913
305	-	-	2.973	2.628	2.505	2.315	1.986	1.639	1.393	0.944
310	-	-	3.006	2.662	2.541	2.353	2.025	1.666	1.420	0.975
315	-	-	-	2.695	2.578	2.392	2.064	1.694	1.447	1.005
320	-	-	-	2.728	2.614	2.430	2.103	1.723	1.475	1.036
325	-	-	-	2.761	2.651	2.468	2.143	1.762	1.502	1.067
330	-	-	-	2.795	2.687	2.506	2.182	1.801	1.530	1.098
335	-	-	-	2.828	2.724	2.545	2.221	1.840	1.557	1.128
340	-	-	-	2.861	2.760	2.583	2.260	1.879	1.585	1.159

Table applies to columns with protection to all sides. Thickness is intumescent only.





**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table C5: Circular Hollow Columns: Fire Resistance Period: 75 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	2.352	1.530	1.211	0.973	0.893	0.784	0.620	0.468	0.359	0.359
55	2.545	1.677	1.324	1.058	0.968	0.846	0.664	0.503	0.376	0.359
60	2.738	1.803	1.436	1.143	1.043	0.908	0.709	0.538	0.407	0.359
65	2.880	1.922	1.549	1.228	1.118	0.970	0.753	0.573	0.439	0.359
70	2.988	2.041	1.662	1.313	1.193	1.032	0.798	0.608	0.470	0.359
75	3.096	2.160	1.746	1.398	1.269	1.094	0.842	0.643	0.501	0.359
80	3.204	2.279	1.803	1.484	1.344	1.156	0.887	0.678	0.532	0.365
85	3.311	2.398	1.859	1.569	1.419	1.218	0.931	0.713	0.563	0.393
90	3.419	2.516	1.916	1.654	1.494	1.280	0.976	0.748	0.594	0.421
95	3.527	2.635	1.973	1.729	1.569	1.342	1.020	0.783	0.625	0.449
100	3.634	2.754	2.029	1.775	1.645	1.404	1.065	0.818	0.656	0.477
105	3.742	2.869	2.086	1.821	1.719	1.466	1.109	0.853	0.687	0.505
110	3.850	2.980	2.142	1.867	1.761	1.528	1.154	0.888	0.718	0.533
115	3.957	3.092	2.199	1.912	1.804	1.590	1.198	0.923	0.749	0.561
120	4.065	3.203	2.256	1.958	1.847	1.652	1.243	0.958	0.780	0.589
125	4.173	3.314	2.312	2.004	1.889	1.714	1.287	0.993	0.811	0.617
130	4.281	3.425	2.369	2.050	1.932	1.754	1.332	1.028	0.842	0.645
135	4.388	3.536	2.425	2.096	1.975	1.792	1.376	1.063	0.873	0.673
140	-	3.647	2.482	2.142	2.017	1.831	1.421	1.098	0.904	0.701
145	-	3.759	2.539	2.188	2.060	1.869	1.465	1.133	0.936	0.729
150	-	3.870	2.595	2.234	2.102	1.908	1.510	1.167	0.967	0.757
155	-	3.981	2.652	2.280	2.145	1.946	1.554	1.202	0.998	0.785
160	-	4.092	2.708	2.326	2.188	1.985	1.599	1.237	1.029	0.814
165	-	4.203	2.765	2.372	2.230	2.024	1.643	1.272	1.060	0.842
170	-	4.314	2.844	2.417	2.273	2.062	1.688	1.307	1.091	0.870
175	-	4.426	3.127	2.463	2.316	2.101	1.730	1.342	1.122	0.898
180	-	-	3.409	2.509	2.358	2.139	1.767	1.377	1.153	0.926
185	-	-	3.692	2.555	2.401	2.178	1.804	1.412	1.184	0.954
190	-	-	3.975	2.601	2.444	2.216	1.841	1.447	1.215	0.982
195	-	-	4.257	2.647	2.486	2.255	1.878	1.482	1.246	1.010
200	-	-	-	2.693	2.529	2.294	1.915	1.517	1.277	1.038
205	-	-	-	2.739	2.572	2.332	1.952	1.552	1.308	1.066
210	-	-	-	2.785	2.614	2.371	1.989	1.587	1.339	1.094
215	-	-	-	2.919	2.657	2.409	2.026	1.622	1.370	1.122
220	-	-	-	3.242	2.699	2.448	2.063	1.657	1.402	1.150
225	-	-	-	3.566	2.742	2.486	2.100	1.692	1.433	1.178
230	-	-	-	3.889	2.785	2.525	2.137	1.729	1.464	1.206
235	-	-	-	4.213	2.903	2.564	2.174	1.772	1.495	1.234
240	-	-	-	-	3.231	2.602	2.211	1.815	1.526	1.262
245	-	-	-	-	3.560	2.641	2.248	1.858	1.557	1.290
250	-	-	-	-	3.888	2.679	2.285	1.900	1.588	1.319
255	-	-	-	-	4.216	2.718	2.322	1.943	1.619	1.347
260	-	-	-	-	-	2.757	2.359	1.986	1.650	1.375
265	-	-	-	-	-	2.795	2.396	2.029	1.681	1.403
270	-	-	-	-	-	2.966	2.433	2.072	1.712	1.431
275	-	-	-	-	-	3.294	2.470	2.115	1.753	1.459
280	-	-	-	-	-	3.622	2.507	2.158	1.795	1.487
285	-	-	-	-	-	3.950	2.544	2.201	1.838	1.515
290	-	-	-	-	-	4.278	2.581	2.244	1.880	1.543
295	-	-	-	-	-	-	2.618	2.286	1.923	1.571
300	-	-	-	-	-	-	2.655	2.329	1.965	1.599
305	-	-	-	-	-	-	2.692	2.372	2.007	1.627
310	-	-	-	-	-	-	2.729	2.415	2.050	1.655
315	-	-	-	-	-	-	2.766	2.458	2.092	1.683
320	-	-	-	-	-	-	2.803	2.501	2.135	1.711
325	-	-	-	-	-	-	2.840	2.544	2.177	1.748
330	-	-	-	-	-	-	2.877	2.587	2.219	1.787
335	-	-	-	-	-	-	2.914	2.630	2.262	1.826
340	-	-	-	-	-	-	2.951	2.673	2.304	1.865

Table applies to columns with protection to all sides. Thickness is intumescent only.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table C6: Circular Hollow Columns: Fire Resistance Period: 90 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	3.389	2.455	1.713	1.365	1.270	1.140	0.947	0.774	0.609	0.380
55	3.594	2.653	1.870	1.488	1.381	1.237	1.021	0.828	0.643	0.416
60	3.799	2.851	2.028	1.611	1.493	1.334	1.095	0.882	0.678	0.452
65	4.004	2.995	2.186	1.728	1.604	1.430	1.170	0.936	0.713	0.488
70	4.209	3.139	2.344	1.809	1.716	1.527	1.244	0.990	0.747	0.524
75	4.414	3.283	2.502	1.889	1.776	1.624	1.318	1.044	0.782	0.560
80	-	3.426	2.659	1.970	1.836	1.719	1.393	1.098	0.816	0.596
85	-	3.570	2.817	2.051	1.896	1.773	1.467	1.152	0.851	0.632
90	-	3.714	2.919	2.131	1.956	1.827	1.541	1.206	0.885	0.668
95	-	3.858	3.022	2.212	2.015	1.881	1.616	1.261	0.920	0.704
100	-	4.001	3.125	2.293	2.075	1.935	1.690	1.315	0.954	0.740
105	-	4.145	3.228	2.373	2.135	1.988	1.747	1.369	0.989	0.776
110	-	4.289	3.330	2.454	2.195	2.042	1.793	1.423	1.024	0.812
115	-	-	3.433	2.534	2.254	2.096	1.840	1.477	1.058	0.848
120	-	-	3.536	2.615	2.314	2.150	1.886	1.531	1.093	0.883
125	-	-	3.638	2.696	2.374	2.204	1.933	1.585	1.127	0.919
130	-	-	3.741	2.776	2.434	2.258	1.979	1.639	1.162	0.955
135	-	-	3.844	2.897	2.494	2.312	2.026	1.693	1.196	0.991
140	-	-	3.946	3.057	2.553	2.365	2.073	1.741	1.231	1.027
145	-	-	4.049	3.218	2.613	2.419	2.119	1.782	1.265	1.063
150	-	-	4.152	3.378	2.673	2.473	2.166	1.824	1.300	1.099
155	-	-	4.254	3.538	2.733	2.527	2.212	1.866	1.334	1.135
160	-	-	4.357	3.699	2.792	2.581	2.259	1.908	1.369	1.171
165	-	-	-	3.859	2.992	2.635	2.305	1.949	1.404	1.207
170	-	-	-	4.019	3.283	2.689	2.352	1.991	1.438	1.243
175	-	-	-	4.179	3.574	2.742	2.398	2.033	1.473	1.279
180	-	-	-	4.340	3.865	2.796	2.445	2.075	1.507	1.315
185	-	-	-	-	4.156	2.989	2.491	2.117	1.542	1.351
190	-	-	-	-	-	3.262	2.538	2.158	1.576	1.387
195	-	-	-	-	-	3.536	2.585	2.200	1.611	1.423
200	-	-	-	-	-	3.809	2.631	2.242	1.645	1.458
205	-	-	-	-	-	4.083	2.678	2.284	1.680	1.494
210	-	-	-	-	-	4.356	2.724	2.325	1.715	1.530
215	-	-	-	-	-	-	2.771	2.367	1.762	1.566
220	-	-	-	-	-	-	2.822	2.409	1.810	1.602
225	-	-	-	-	-	-	3.038	2.451	1.859	1.638
230	-	-	-	-	-	-	3.253	2.493	1.907	1.674
235	-	-	-	-	-	-	3.469	2.534	1.956	1.710
240	-	-	-	-	-	-	3.685	2.576	2.004	1.751
245	-	-	-	-	-	-	3.901	2.618	2.053	1.792
250	-	-	-	-	-	-	4.116	2.660	2.101	1.834
255	-	-	-	-	-	-	4.332	2.702	2.149	1.875
260	-	-	-	-	-	-	-	2.743	2.198	1.917
265	-	-	-	-	-	-	-	2.785	2.246	1.959
270	-	-	-	-	-	-	-	2.853	2.295	2.000
275	-	-	-	-	-	-	-	2.995	2.343	2.042
280	-	-	-	-	-	-	-	3.138	2.392	2.083
285	-	-	-	-	-	-	-	3.280	2.440	2.125
290	-	-	-	-	-	-	-	3.422	2.488	2.167
295	-	-	-	-	-	-	-	3.565	2.537	2.208
300	-	-	-	-	-	-	-	3.707	2.585	2.250
305	-	-	-	-	-	-	-	3.849	2.634	2.291
310	-	-	-	-	-	-	-	3.992	2.682	2.333
315	-	-	-	-	-	-	-	4.134	2.731	2.375
320	-	-	-	-	-	-	-	4.276	2.779	2.416
325	-	-	-	-	-	-	-	4.419	2.827	2.458
330	-	-	-	-	-	-	-	-	2.876	2.500
335	-	-	-	-	-	-	-	-	2.924	2.541
340	-	-	-	-	-	-	-	-	2.973	2.583

Table applies to columns with protection to all sides. Thickness is intumescent only.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table C7: Circular Hollow Columns: Fire Resistance Period: 105 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	-	3.433	2.655	1.932	1.691	1.462	1.268	1.069	0.879	0.633
55	-	3.670	2.832	2.116	1.852	1.606	1.374	1.152	0.942	0.681
60	-	3.907	3.010	2.300	2.014	1.750	1.480	1.235	1.004	0.730
65	-	4.144	3.188	2.484	2.175	1.866	1.586	1.317	1.067	0.778
70	-	4.381	3.366	2.668	2.336	1.982	1.692	1.400	1.129	0.827
75	-	-	3.544	2.836	2.497	2.097	1.762	1.483	1.191	0.875
80	-	-	3.721	2.935	2.659	2.213	1.822	1.565	1.254	0.924
85	-	-	3.899	3.035	2.819	2.328	1.882	1.648	1.316	0.972
90	-	-	4.077	3.135	2.921	2.444	1.941	1.726	1.379	1.021
95	-	-	4.255	3.234	3.023	2.560	2.001	1.778	1.441	1.069
.00	-	-	-	3.334	3.126	2.675	2.060	1.831	1.503	1.118
.05	-	-	-	3.434	3.228	2.791	2.120	1.883	1.566	1.166
.10	-	-	-	3.533	3.330	2.905	2.180	1.935	1.628	1.215
.15	-	-	-	3.633	3.433	3.020	2.239	1.988	1.691	1.263
.20	-	-	-	3.733	3.535	3.134	2.299	2.040	1.744	1.311
.25	-	-	-	3.832	3.637	3.249	2.358	2.093	1.791	1.360
.30	-	-	-	3.932	3.739	3.363	2.418	2.145	1.837	1.408
.35	-	-	-	4.032	3.842	3.477	2.478	2.197	1.884	1.457
.40	-	-	-	4.131	3.944	3.592	2.537	2.250	1.931	1.505
.45	-	-	-	4.231	4.046	3.706	2.597	2.302	1.978	1.554
.50	-	-	-	4.331	4.149	3.821	2.657	2.355	2.024	1.602
.55	-	-	-	-	4.251	3.935	2.716	2.407	2.071	1.651
.60	-	-	-	-	4.353	4.050	2.776	2.459	2.118	1.699
.65	-	-	-	-	-	4.164	2.892	2.512	2.165	1.742
.70	-	-	-	-	-	4.278	3.125	2.564	2.211	1.782
.75	-	-	-	-	-	4.393	3.358	2.617	2.258	1.822
.80	-	-	-	-	-	-	3.592	2.669	2.305	1.862
.85	-	-	-	-	-	-	3.825	2.721	2.351	1.902
.90	-	-	-	-	-	-	4.058	2.774	2.398	1.942
.95	-	-	-	-	-	-	4.291	2.846	2.445	1.982
.100	-	-	-	-	-	-	-	3.001	2.492	2.022
.105	-	-	-	-	-	-	-	3.155	2.538	2.062
.110	-	-	-	-	-	-	-	3.310	2.585	2.102
.115	-	-	-	-	-	-	-	3.465	2.632	2.142
.120	-	-	-	-	-	-	-	3.620	2.679	2.182
.125	-	-	-	-	-	-	-	3.774	2.725	2.221
.130	-	-	-	-	-	-	-	3.929	2.772	2.261
.135	-	-	-	-	-	-	-	4.084	2.823	2.301
.140	-	-	-	-	-	-	-	4.239	2.945	2.341
.145	-	-	-	-	-	-	-	4.394	3.066	2.381
.150	-	-	-	-	-	-	-	-	3.188	2.421
.155	-	-	-	-	-	-	-	-	3.309	2.461
.160	-	-	-	-	-	-	-	-	3.431	2.501
.165	-	-	-	-	-	-	-	-	3.552	2.541
.170	-	-	-	-	-	-	-	-	3.674	2.581
.175	-	-	-	-	-	-	-	-	3.795	2.621
.180	-	-	-	-	-	-	-	-	3.916	2.661
.185	-	-	-	-	-	-	-	-	4.038	2.701
.190	-	-	-	-	-	-	-	-	4.159	2.741
.195	-	-	-	-	-	-	-	-	4.281	2.780
.100	-	-	-	-	-	-	-	-	4.402	2.820
.105	-	-	-	-	-	-	-	-	-	2.860
.110	-	-	-	-	-	-	-	-	-	2.900
.115	-	-	-	-	-	-	-	-	-	2.940
.120	-	-	-	-	-	-	-	-	-	2.980
.125	-	-	-	-	-	-	-	-	-	3.020
.130	-	-	-	-	-	-	-	-	-	3.060
.135	-	-	-	-	-	-	-	-	-	3.100
.140	-	-	-	-	-	-	-	-	-	3.140

Table applies to columns with protection to all sides. Thickness is intumescent only.



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table C8: Circular Hollow Columns: Fire Resistance Period: 120 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	-	-	3.570	2.835	2.524	2.130	1.575	1.363	1.149	0.879
55	-	-	3.833	3.038	2.721	2.333	1.725	1.474	1.238	0.947
60	-	-	4.096	3.241	2.918	2.536	1.875	1.585	1.327	1.016
65	-	-	4.359	3.443	3.087	2.740	2.024	1.696	1.415	1.085
70	-	-	-	3.646	3.256	2.881	2.174	1.781	1.504	1.154
75	-	-	-	3.848	3.426	2.986	2.324	1.859	1.593	1.223
80	-	-	-	4.051	3.595	3.091	2.474	1.937	1.681	1.292
85	-	-	-	4.254	3.765	3.196	2.623	2.016	1.751	1.361
90	-	-	-	-	3.934	3.301	2.773	2.094	1.807	1.430
95	-	-	-	-	4.103	3.406	2.885	2.172	1.864	1.499
100	-	-	-	-	4.273	3.511	2.982	2.251	1.920	1.568
105	-	-	-	-	-	3.616	3.079	2.329	1.977	1.637
110	-	-	-	-	-	3.721	3.176	2.407	2.033	1.706
115	-	-	-	-	-	3.826	3.273	2.486	2.090	1.758
120	-	-	-	-	-	3.931	3.370	2.564	2.146	1.808
125	-	-	-	-	-	4.036	3.468	2.642	2.203	1.858
130	-	-	-	-	-	4.140	3.565	2.721	2.259	1.908
135	-	-	-	-	-	4.245	3.662	2.799	2.316	1.957
140	-	-	-	-	-	4.350	3.759	2.910	2.372	2.007
145	-	-	-	-	-	-	3.856	3.029	2.429	2.057
150	-	-	-	-	-	-	3.953	3.149	2.485	2.106
155	-	-	-	-	-	-	4.050	3.269	2.542	2.156
160	-	-	-	-	-	-	4.147	3.389	2.598	2.206
165	-	-	-	-	-	-	4.244	3.508	2.655	2.255
170	-	-	-	-	-	-	4.341	3.628	2.711	2.305
175	-	-	-	-	-	-	-	3.748	2.768	2.355
180	-	-	-	-	-	-	-	3.867	2.838	2.404
185	-	-	-	-	-	-	-	3.987	2.983	2.454
190	-	-	-	-	-	-	-	4.107	3.129	2.504
195	-	-	-	-	-	-	-	4.226	3.274	2.553
200	-	-	-	-	-	-	-	4.346	3.420	2.603
205	-	-	-	-	-	-	-	-	3.566	2.653
210	-	-	-	-	-	-	-	-	3.711	2.702
215	-	-	-	-	-	-	-	-	3.857	2.752
220	-	-	-	-	-	-	-	-	4.002	2.802
225	-	-	-	-	-	-	-	-	4.148	2.933
230	-	-	-	-	-	-	-	-	4.293	3.096
235	-	-	-	-	-	-	-	-	-	3.260
240	-	-	-	-	-	-	-	-	-	3.424
245	-	-	-	-	-	-	-	-	-	3.587
250	-	-	-	-	-	-	-	-	-	3.751
255	-	-	-	-	-	-	-	-	-	3.915
260	-	-	-	-	-	-	-	-	-	4.078
265	-	-	-	-	-	-	-	-	-	4.242
270	-	-	-	-	-	-	-	-	-	4.406
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-

Table applies to columns with protection to all sides. Thickness is intumescent only.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table D1: Rectangular Hollow Columns: Fire Resistance Period: 15 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
55	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
60	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
65	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
70	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
75	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
80	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
85	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
90	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
95	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
100	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
105	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
110	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
115	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
120	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
125	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
130	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
135	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
140	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
145	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
150	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
155	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
160	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
165	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
170	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
175	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
180	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
185	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
190	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
195	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
200	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
205	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
210	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
215	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
220	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
225	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
230	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
235	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
240	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
245	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
250	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
255	0.378	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
260	0.400	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
265	0.423	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
270	0.445	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
275	0.467	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
280	0.490	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
285	0.512	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
290	0.534	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
295	0.557	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
300	0.579	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
305	0.601	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
310	0.624	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
315	0.646	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
320	0.668	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
325	0.691	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
330	0.713	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
335	0.735	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
340	0.758	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm

BS-RC-0018



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table D2: Rectangular Hollow Columns: Fire Resistance Period: 30 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
55	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
60	0.383	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
65	0.416	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
70	0.450	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
75	0.483	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
80	0.516	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
85	0.550	0.361	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
90	0.583	0.389	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
95	0.617	0.416	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
100	0.650	0.443	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
105	0.683	0.470	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
110	0.717	0.497	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
115	0.750	0.524	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
120	0.783	0.551	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
125	0.817	0.578	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
130	0.850	0.606	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
135	0.884	0.633	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
140	0.917	0.660	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
145	0.950	0.687	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
150	0.984	0.714	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
155	1.017	0.741	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
160	1.050	0.768	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
165	1.084	0.795	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
170	1.117	0.823	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
175	1.151	0.850	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
180	1.184	0.877	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
185	1.217	0.904	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
190	1.251	0.931	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
195	1.284	0.958	0.380	0.359	0.359	0.359	0.359	0.359	0.359	0.359
200	1.317	0.985	0.412	0.359	0.359	0.359	0.359	0.359	0.359	0.359
205	1.351	1.012	0.445	0.359	0.359	0.359	0.359	0.359	0.359	0.359
210	1.384	1.039	0.477	0.359	0.359	0.359	0.359	0.359	0.359	0.359
215	1.418	1.067	0.510	0.359	0.359	0.359	0.359	0.359	0.359	0.359
220	1.451	1.094	0.542	0.359	0.359	0.359	0.359	0.359	0.359	0.359
225	1.484	1.121	0.575	0.359	0.359	0.359	0.359	0.359	0.359	0.359
230	1.518	1.148	0.607	0.359	0.359	0.359	0.359	0.359	0.359	0.359
235	1.551	1.175	0.639	0.359	0.359	0.359	0.359	0.359	0.359	0.359
240	1.584	1.202	0.672	0.359	0.359	0.359	0.359	0.359	0.359	0.359
245	1.618	1.229	0.704	0.376	0.359	0.359	0.359	0.359	0.359	0.359
250	1.651	1.256	0.737	0.406	0.359	0.359	0.359	0.359	0.359	0.359
255	1.685	1.284	0.769	0.436	0.359	0.359	0.359	0.359	0.359	0.359
260	1.718	1.311	0.802	0.466	0.363	0.359	0.359	0.359	0.359	0.359
265	1.745	1.338	0.834	0.497	0.392	0.359	0.359	0.359	0.359	0.359
270	1.772	1.365	0.866	0.527	0.421	0.359	0.359	0.359	0.359	0.359
275	1.799	1.392	0.899	0.557	0.449	0.359	0.359	0.359	0.359	0.359
280	1.826	1.419	0.931	0.588	0.478	0.359	0.359	0.359	0.359	0.359
285	1.853	1.446	0.964	0.618	0.507	0.359	0.359	0.359	0.359	0.359
290	1.880	1.473	0.996	0.648	0.536	0.362	0.359	0.359	0.359	0.359
295	1.908	1.501	1.029	0.679	0.565	0.389	0.359	0.359	0.359	0.359
300	1.935	1.528	1.061	0.709	0.594	0.416	0.359	0.359	0.359	0.359
305	1.962	1.555	1.093	0.739	0.623	0.442	0.359	0.359	0.359	0.359
310	1.989	1.582	1.126	0.770	0.652	0.469	0.359	0.359	0.359	0.359
315	2.016	1.609	1.158	0.800	0.681	0.496	0.359	0.359	0.359	0.359
320	2.043	1.636	1.191	0.830	0.710	0.523	0.359	0.359	0.359	0.359
325	2.070	1.663	1.223	0.861	0.738	0.549	0.359	0.359	0.359	0.359
330	2.097	1.690	1.256	0.891	0.767	0.576	0.359	0.359	0.359	0.359
335	2.125	1.717	1.288	0.921	0.796	0.603	0.359	0.359	0.359	0.359
340	2.152	1.743	1.320	0.951	0.825	0.630	0.359	0.359	0.359	0.359

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table D3: Rectangular Hollow Columns: Fire Resistance Period: 45 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	0.838	0.528	0.359	0.359	0.359	0.359	0.359	0.359	0.359	0.359
55	0.918	0.576	0.384	0.359	0.359	0.359	0.359	0.359	0.359	0.359
60	0.997	0.624	0.420	0.359	0.359	0.359	0.359	0.359	0.359	0.359
65	1.077	0.671	0.456	0.359	0.359	0.359	0.359	0.359	0.359	0.359
70	1.157	0.719	0.493	0.381	0.359	0.359	0.359	0.359	0.359	0.359
75	1.237	0.767	0.529	0.411	0.365	0.359	0.359	0.359	0.359	0.359
80	1.317	0.814	0.565	0.440	0.393	0.359	0.359	0.359	0.359	0.359
85	1.397	0.862	0.601	0.470	0.421	0.359	0.359	0.359	0.359	0.359
90	1.477	0.909	0.638	0.500	0.449	0.365	0.359	0.359	0.359	0.359
95	1.557	0.957	0.674	0.530	0.477	0.391	0.359	0.359	0.359	0.359
100	1.636	1.005	0.710	0.560	0.505	0.418	0.359	0.359	0.359	0.359
105	1.716	1.052	0.746	0.590	0.533	0.445	0.359	0.359	0.359	0.359
110	1.746	1.100	0.783	0.620	0.561	0.471	0.359	0.359	0.359	0.359
115	1.776	1.148	0.819	0.650	0.589	0.498	0.359	0.359	0.359	0.359
120	1.805	1.195	0.855	0.679	0.617	0.524	0.359	0.359	0.359	0.359
125	1.835	1.243	0.891	0.709	0.645	0.551	0.359	0.359	0.359	0.359
130	1.864	1.291	0.928	0.739	0.673	0.578	0.359	0.359	0.359	0.359
135	1.894	1.338	0.964	0.769	0.701	0.604	0.359	0.359	0.359	0.359
140	1.923	1.386	1.000	0.799	0.729	0.631	0.359	0.359	0.359	0.359
145	1.953	1.433	1.036	0.829	0.757	0.658	0.359	0.359	0.359	0.359
150	1.982	1.481	1.073	0.859	0.785	0.684	0.360	0.359	0.359	0.359
155	2.012	1.529	1.109	0.888	0.813	0.711	0.388	0.359	0.359	0.359
160	2.041	1.576	1.145	0.918	0.841	0.737	0.416	0.359	0.359	0.359
165	2.071	1.624	1.181	0.948	0.869	0.764	0.444	0.359	0.359	0.359
170	2.101	1.672	1.218	0.978	0.897	0.791	0.472	0.359	0.359	0.359
175	2.130	1.718	1.254	1.008	0.925	0.817	0.500	0.359	0.359	0.359
180	2.160	1.748	1.290	1.038	0.953	0.844	0.528	0.359	0.359	0.359
185	2.189	1.778	1.326	1.068	0.981	0.870	0.557	0.359	0.359	0.359
190	2.219	1.808	1.363	1.098	1.009	0.897	0.585	0.359	0.359	0.359
195	2.248	1.837	1.399	1.127	1.037	0.924	0.613	0.359	0.359	0.359
200	2.278	1.867	1.435	1.157	1.065	0.950	0.641	0.359	0.359	0.359
205	2.307	1.897	1.471	1.187	1.093	0.977	0.669	0.359	0.359	0.359
210	2.337	1.926	1.508	1.217	1.121	1.004	0.697	0.359	0.359	0.359
215	2.366	1.956	1.544	1.247	1.149	1.030	0.725	0.359	0.359	0.359
220	2.396	1.986	1.580	1.277	1.177	1.057	0.753	0.359	0.359	0.359
225	2.425	2.015	1.616	1.307	1.205	1.083	0.781	0.359	0.359	0.359
230	2.455	2.045	1.653	1.336	1.233	1.110	0.809	0.373	0.359	0.359
235	2.484	2.075	1.689	1.366	1.261	1.137	0.837	0.403	0.359	0.359
240	2.514	2.104	1.725	1.396	1.289	1.163	0.866	0.434	0.359	0.359
245	2.543	2.134	1.758	1.426	1.317	1.190	0.894	0.465	0.359	0.359
250	2.573	2.164	1.791	1.456	1.345	1.216	0.922	0.495	0.359	0.359
255	2.602	2.194	1.824	1.486	1.373	1.243	0.950	0.526	0.359	0.359
260	2.632	2.223	1.857	1.516	1.401	1.270	0.978	0.556	0.359	0.359
265	2.661	2.253	1.890	1.546	1.429	1.296	1.006	0.587	0.384	0.359
270	2.691	2.283	1.923	1.575	1.457	1.323	1.034	0.618	0.410	0.359
275	2.720	2.312	1.956	1.605	1.485	1.350	1.062	0.648	0.435	0.359
280	2.750	2.342	1.990	1.635	1.513	1.376	1.090	0.679	0.461	0.359
285	2.780	2.372	2.023	1.665	1.541	1.403	1.118	0.710	0.486	0.359
290	2.809	2.401	2.056	1.695	1.569	1.429	1.146	0.740	0.512	0.359
295	2.839	2.431	2.089	1.726	1.597	1.456	1.174	0.771	0.537	0.359
300	2.868	2.461	2.122	1.761	1.625	1.483	1.203	0.802	0.562	0.362
305	2.898	2.490	2.155	1.795	1.653	1.509	1.231	0.832	0.588	0.381
310	2.927	2.520	2.188	1.830	1.681	1.536	1.259	0.863	0.613	0.400
315	2.957	2.550	2.221	1.865	1.709	1.562	1.287	0.894	0.639	0.419
320	2.986	2.579	2.255	1.900	1.742	1.589	1.315	0.924	0.664	0.438
325	3.016	2.609	2.288	1.934	1.777	1.616	1.343	0.955	0.689	0.457
330	-	2.639	2.321	1.969	1.812	1.642	1.371	0.986	0.715	0.476
335	-	2.669	2.354	2.004	1.847	1.669	1.399	1.016	0.740	0.495
340	-	2.698	2.387	2.039	1.882	1.696	1.427	1.047	0.766	0.515

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm

BS-RC-0018



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table D4: Rectangular Hollow Columns: Fire Resistance Period: 60 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	1.425	1.035	0.768	0.574	0.510	0.415	0.359	0.359	0.359	0.359
55	1.562	1.132	0.838	0.623	0.551	0.452	0.359	0.359	0.359	0.359
60	1.698	1.229	0.908	0.671	0.592	0.489	0.391	0.359	0.359	0.359
65	1.786	1.326	0.978	0.720	0.633	0.526	0.422	0.359	0.359	0.359
70	1.866	1.423	1.048	0.768	0.674	0.563	0.454	0.359	0.359	0.359
75	1.947	1.520	1.118	0.816	0.715	0.600	0.485	0.370	0.359	0.359
80	2.027	1.617	1.188	0.865	0.756	0.636	0.517	0.398	0.359	0.359
85	2.107	1.715	1.258	0.913	0.797	0.673	0.548	0.425	0.359	0.359
90	2.187	1.760	1.328	0.962	0.838	0.710	0.580	0.453	0.359	0.359
95	2.267	1.804	1.398	1.010	0.879	0.747	0.611	0.480	0.359	0.359
100	2.348	1.849	1.468	1.058	0.920	0.784	0.643	0.508	0.359	0.359
105	2.428	1.893	1.538	1.107	0.962	0.820	0.674	0.535	0.359	0.359
110	2.508	1.937	1.608	1.155	1.003	0.857	0.705	0.563	0.359	0.359
115	2.588	1.981	1.678	1.204	1.044	0.894	0.737	0.591	0.359	0.359
120	2.668	2.025	1.732	1.252	1.085	0.931	0.768	0.618	0.377	0.359
125	2.748	2.070	1.765	1.301	1.126	0.968	0.800	0.646	0.404	0.359
130	2.836	2.114	1.799	1.349	1.167	1.005	0.831	0.673	0.432	0.359
135	2.963	2.158	1.832	1.397	1.208	1.041	0.863	0.701	0.459	0.359
140	3.090	2.202	1.866	1.446	1.249	1.078	0.894	0.728	0.487	0.359
145	3.217	2.247	1.900	1.494	1.290	1.115	0.926	0.756	0.514	0.359
150	3.344	2.291	1.933	1.543	1.331	1.152	0.957	0.784	0.542	0.359
155	3.471	2.335	1.967	1.591	1.372	1.189	0.989	0.811	0.569	0.359
160	3.598	2.379	2.000	1.639	1.413	1.225	1.020	0.839	0.596	0.359
165	3.725	2.424	2.034	1.688	1.454	1.262	1.052	0.866	0.624	0.359
170	3.852	2.468	2.067	1.730	1.495	1.299	1.083	0.894	0.651	0.359
175	3.979	2.512	2.101	1.763	1.536	1.336	1.115	0.922	0.679	0.359
180	4.106	2.556	2.134	1.797	1.577	1.373	1.146	0.949	0.706	0.359
185	4.233	2.600	2.168	1.830	1.618	1.410	1.178	0.977	0.734	0.359
190	4.360	2.645	2.201	1.863	1.659	1.446	1.209	1.004	0.761	0.359
195	-	2.689	2.235	1.896	1.700	1.483	1.240	1.032	0.789	0.359
200	-	2.733	2.268	1.930	1.739	1.520	1.272	1.059	0.816	0.359
205	-	2.777	2.302	1.963	1.775	1.557	1.303	1.087	0.844	0.359
210	-	2.862	2.336	1.996	1.812	1.594	1.335	1.115	0.871	0.360
215	-	3.226	2.369	2.030	1.848	1.630	1.366	1.142	0.898	0.390
220	-	3.590	2.403	2.063	1.885	1.667	1.398	1.170	0.926	0.421
225	-	3.954	2.436	2.096	1.921	1.704	1.429	1.197	0.953	0.452
230	-	4.318	2.470	2.129	1.958	1.742	1.461	1.225	0.981	0.483
235	-	-	2.503	2.163	1.994	1.780	1.492	1.252	1.008	0.513
240	-	-	2.537	2.196	2.031	1.818	1.524	1.280	1.036	0.544
245	-	-	2.570	2.229	2.067	1.856	1.555	1.308	1.063	0.575
250	-	-	2.604	2.262	2.104	1.895	1.587	1.335	1.091	0.606
255	-	-	2.637	2.296	2.140	1.933	1.618	1.363	1.118	0.636
260	-	-	2.671	2.329	2.176	1.971	1.650	1.390	1.145	0.667
265	-	-	2.704	2.362	2.213	2.009	1.681	1.418	1.173	0.698
270	-	-	2.738	2.395	2.249	2.048	1.713	1.445	1.200	0.729
275	-	-	2.771	2.429	2.286	2.086	1.751	1.473	1.228	0.759
280	-	-	2.805	2.462	2.322	2.124	1.790	1.501	1.255	0.790
285	-	-	2.839	2.495	2.359	2.162	1.829	1.528	1.283	0.821
290	-	-	2.872	2.529	2.395	2.201	1.868	1.556	1.310	0.852
295	-	-	2.906	2.562	2.432	2.239	1.907	1.583	1.338	0.882
300	-	-	2.939	2.595	2.468	2.277	1.947	1.611	1.365	0.913
305	-	-	2.973	2.628	2.505	2.315	1.986	1.639	1.393	0.944
310	-	-	3.006	2.662	2.541	2.353	2.025	1.666	1.420	0.975
315	-	-	-	2.695	2.578	2.392	2.064	1.694	1.447	1.005
320	-	-	-	2.728	2.614	2.430	2.103	1.723	1.475	1.036
325	-	-	-	2.761	2.651	2.468	2.143	1.762	1.502	1.067
330	-	-	-	2.795	2.687	2.506	2.182	1.801	1.530	1.098
335	-	-	-	2.828	2.724	2.545	2.221	1.840	1.557	1.128
340	-	-	-	2.861	2.760	2.583	2.260	1.879	1.585	1.159

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm

BS-RC-0018





**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table D5: Rectangular Hollow Columns: Fire Resistance Period: 75 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	2.352	1.530	1.211	0.973	0.893	0.784	0.620	0.468	0.359	0.359
55	2.545	1.677	1.324	1.058	0.968	0.846	0.664	0.503	0.376	0.359
60	2.738	1.803	1.436	1.143	1.043	0.908	0.709	0.538	0.407	0.359
65	2.880	1.922	1.549	1.228	1.118	0.970	0.753	0.573	0.439	0.359
70	2.988	2.041	1.662	1.313	1.193	1.032	0.798	0.608	0.470	0.359
75	3.096	2.160	1.746	1.398	1.269	1.094	0.842	0.643	0.501	0.359
80	3.204	2.279	1.803	1.484	1.344	1.156	0.887	0.678	0.532	0.365
85	3.311	2.398	1.859	1.569	1.419	1.218	0.931	0.713	0.563	0.393
90	3.419	2.516	1.916	1.654	1.494	1.280	0.976	0.748	0.594	0.421
95	3.527	2.635	1.973	1.729	1.569	1.342	1.020	0.783	0.625	0.449
100	3.634	2.754	2.029	1.775	1.645	1.404	1.065	0.818	0.656	0.477
105	3.742	2.869	2.086	1.821	1.719	1.466	1.109	0.853	0.687	0.505
110	3.850	2.980	2.142	1.867	1.761	1.528	1.154	0.888	0.718	0.533
115	3.957	3.092	2.199	1.912	1.804	1.590	1.198	0.923	0.749	0.561
120	4.065	3.203	2.256	1.958	1.847	1.652	1.243	0.958	0.780	0.589
125	4.173	3.314	2.312	2.004	1.889	1.714	1.287	0.993	0.811	0.617
130	4.281	3.425	2.369	2.050	1.932	1.754	1.332	1.028	0.842	0.645
135	4.388	3.536	2.425	2.096	1.975	1.792	1.376	1.063	0.873	0.673
140	-	3.647	2.482	2.142	2.017	1.831	1.421	1.098	0.904	0.701
145	-	3.759	2.539	2.188	2.060	1.869	1.465	1.133	0.936	0.729
150	-	3.870	2.595	2.234	2.102	1.908	1.510	1.167	0.967	0.757
155	-	3.981	2.652	2.280	2.145	1.946	1.554	1.202	0.998	0.785
160	-	4.092	2.708	2.326	2.188	1.985	1.599	1.237	1.029	0.814
165	-	4.203	2.765	2.372	2.230	2.024	1.643	1.272	1.060	0.842
170	-	4.314	2.844	2.417	2.273	2.062	1.688	1.307	1.091	0.870
175	-	4.426	3.127	2.463	2.316	2.101	1.730	1.342	1.122	0.898
180	-	-	3.409	2.509	2.358	2.139	1.767	1.377	1.153	0.926
185	-	-	3.692	2.555	2.401	2.178	1.804	1.412	1.184	0.954
190	-	-	3.975	2.601	2.444	2.216	1.841	1.447	1.215	0.982
195	-	-	4.257	2.647	2.486	2.255	1.878	1.482	1.246	1.010
200	-	-	-	2.693	2.529	2.294	1.915	1.517	1.277	1.038
205	-	-	-	2.739	2.572	2.332	1.952	1.552	1.308	1.066
210	-	-	-	2.785	2.614	2.371	1.989	1.587	1.339	1.094
215	-	-	-	2.919	2.657	2.409	2.026	1.622	1.370	1.122
220	-	-	-	3.242	2.699	2.448	2.063	1.657	1.402	1.150
225	-	-	-	3.566	2.742	2.486	2.100	1.692	1.433	1.178
230	-	-	-	3.889	2.785	2.525	2.137	1.729	1.464	1.206
235	-	-	-	4.213	2.903	2.564	2.174	1.772	1.495	1.234
240	-	-	-	-	3.231	2.602	2.211	1.815	1.526	1.262
245	-	-	-	-	3.560	2.641	2.248	1.858	1.557	1.290
250	-	-	-	-	3.888	2.679	2.285	1.900	1.588	1.319
255	-	-	-	-	4.216	2.718	2.322	1.943	1.619	1.347
260	-	-	-	-	-	2.757	2.359	1.986	1.650	1.375
265	-	-	-	-	-	2.795	2.396	2.029	1.681	1.403
270	-	-	-	-	-	2.966	2.433	2.072	1.712	1.431
275	-	-	-	-	-	3.294	2.470	2.115	1.753	1.459
280	-	-	-	-	-	3.622	2.507	2.158	1.795	1.487
285	-	-	-	-	-	3.950	2.544	2.201	1.838	1.515
290	-	-	-	-	-	4.278	2.581	2.244	1.880	1.543
295	-	-	-	-	-	-	2.618	2.286	1.923	1.571
300	-	-	-	-	-	-	2.655	2.329	1.965	1.599
305	-	-	-	-	-	-	2.692	2.372	2.007	1.627
310	-	-	-	-	-	-	2.729	2.415	2.050	1.655
315	-	-	-	-	-	-	2.766	2.458	2.092	1.683
320	-	-	-	-	-	-	2.803	2.501	2.135	1.711
325	-	-	-	-	-	-	2.840	2.544	2.177	1.748
330	-	-	-	-	-	-	2.877	2.587	2.219	1.787
335	-	-	-	-	-	-	2.914	2.630	2.262	1.826
340	-	-	-	-	-	-	2.951	2.673	2.304	1.865

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm

BS-RC-0018



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table D6: Rectangular Hollow Columns: Fire Resistance Period: 90 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	3.389	2.455	1.713	1.365	1.270	1.140	0.947	0.774	0.609	0.380
55	3.594	2.653	1.870	1.488	1.381	1.237	1.021	0.828	0.643	0.416
60	3.799	2.851	2.028	1.611	1.493	1.334	1.095	0.882	0.678	0.452
65	4.004	2.995	2.186	1.728	1.604	1.430	1.170	0.936	0.713	0.488
70	4.209	3.139	2.344	1.809	1.716	1.527	1.244	0.990	0.747	0.524
75	4.414	3.283	2.502	1.889	1.776	1.624	1.318	1.044	0.782	0.560
80	-	3.426	2.659	1.970	1.836	1.719	1.393	1.098	0.816	0.596
85	-	3.570	2.817	2.051	1.896	1.773	1.467	1.152	0.851	0.632
90	-	3.714	2.919	2.131	1.956	1.827	1.541	1.206	0.885	0.668
95	-	3.858	3.022	2.212	2.015	1.881	1.616	1.261	0.920	0.704
100	-	4.001	3.125	2.293	2.075	1.935	1.690	1.315	0.954	0.740
105	-	4.145	3.228	2.373	2.135	1.988	1.747	1.369	0.989	0.776
110	-	4.289	3.330	2.454	2.195	2.042	1.793	1.423	1.024	0.812
115	-	-	3.433	2.534	2.254	2.096	1.840	1.477	1.058	0.848
120	-	-	3.536	2.615	2.314	2.150	1.886	1.531	1.093	0.883
125	-	-	3.638	2.696	2.374	2.204	1.933	1.585	1.127	0.919
130	-	-	3.741	2.776	2.434	2.258	1.979	1.639	1.162	0.955
135	-	-	3.844	2.897	2.494	2.312	2.026	1.693	1.196	0.991
140	-	-	3.946	3.057	2.553	2.365	2.073	1.741	1.231	1.027
145	-	-	4.049	3.218	2.613	2.419	2.119	1.782	1.265	1.063
150	-	-	4.152	3.378	2.673	2.473	2.166	1.824	1.300	1.099
155	-	-	4.254	3.538	2.733	2.527	2.212	1.866	1.334	1.135
160	-	-	4.357	3.699	2.792	2.581	2.259	1.908	1.369	1.171
165	-	-	-	3.859	2.992	2.635	2.305	1.949	1.404	1.207
170	-	-	-	4.019	3.283	2.689	2.352	1.991	1.438	1.243
175	-	-	-	4.179	3.574	2.742	2.398	2.033	1.473	1.279
180	-	-	-	4.340	3.865	2.796	2.445	2.075	1.507	1.315
185	-	-	-	-	4.156	2.989	2.491	2.117	1.542	1.351
190	-	-	-	-	-	3.262	2.538	2.158	1.576	1.387
195	-	-	-	-	-	3.536	2.585	2.200	1.611	1.423
200	-	-	-	-	-	3.809	2.631	2.242	1.645	1.458
205	-	-	-	-	-	4.083	2.678	2.284	1.680	1.494
210	-	-	-	-	-	4.356	2.724	2.325	1.715	1.530
215	-	-	-	-	-	-	2.771	2.367	1.762	1.566
220	-	-	-	-	-	-	2.822	2.409	1.810	1.602
225	-	-	-	-	-	-	3.038	2.451	1.859	1.638
230	-	-	-	-	-	-	3.253	2.493	1.907	1.674
235	-	-	-	-	-	-	3.469	2.534	1.956	1.710
240	-	-	-	-	-	-	3.685	2.576	2.004	1.751
245	-	-	-	-	-	-	3.901	2.618	2.053	1.792
250	-	-	-	-	-	-	4.116	2.660	2.101	1.834
255	-	-	-	-	-	-	4.332	2.702	2.149	1.875
260	-	-	-	-	-	-	-	2.743	2.198	1.917
265	-	-	-	-	-	-	-	2.785	2.246	1.959
270	-	-	-	-	-	-	-	2.853	2.295	2.000
275	-	-	-	-	-	-	-	2.995	2.343	2.042
280	-	-	-	-	-	-	-	3.138	2.392	2.083
285	-	-	-	-	-	-	-	3.280	2.440	2.125
290	-	-	-	-	-	-	-	3.422	2.488	2.167
295	-	-	-	-	-	-	-	3.565	2.537	2.208
300	-	-	-	-	-	-	-	3.707	2.585	2.250
305	-	-	-	-	-	-	-	3.849	2.634	2.291
310	-	-	-	-	-	-	-	3.992	2.682	2.333
315	-	-	-	-	-	-	-	4.134	2.731	2.375
320	-	-	-	-	-	-	-	4.276	2.779	2.416
325	-	-	-	-	-	-	-	4.419	2.827	2.458
330	-	-	-	-	-	-	-	-	2.876	2.500
335	-	-	-	-	-	-	-	-	2.924	2.541
340	-	-	-	-	-	-	-	-	2.973	2.583

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm

BS-RC-0018



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table D7: Rectangular Hollow Columns: Fire Resistance Period: 105 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	-	3.433	2.655	1.932	1.691	1.462	1.268	1.069	0.879	0.633
55	-	3.670	2.832	2.116	1.852	1.606	1.374	1.152	0.942	0.681
60	-	3.907	3.010	2.300	2.014	1.750	1.480	1.235	1.004	0.730
65	-	4.144	3.188	2.484	2.175	1.866	1.586	1.317	1.067	0.778
70	-	4.381	3.366	2.668	2.336	1.982	1.692	1.400	1.129	0.827
75	-	-	3.544	2.836	2.497	2.097	1.762	1.483	1.191	0.875
80	-	-	3.721	2.935	2.659	2.213	1.822	1.565	1.254	0.924
85	-	-	3.899	3.035	2.819	2.328	1.882	1.648	1.316	0.972
90	-	-	4.077	3.135	2.921	2.444	1.941	1.726	1.379	1.021
95	-	-	4.255	3.234	3.023	2.560	2.001	1.778	1.441	1.069
100	-	-	-	3.334	3.126	2.675	2.060	1.831	1.503	1.118
105	-	-	-	3.434	3.228	2.791	2.120	1.883	1.566	1.166
110	-	-	-	3.533	3.330	2.905	2.180	1.935	1.628	1.215
115	-	-	-	3.633	3.433	3.020	2.239	1.988	1.691	1.263
120	-	-	-	3.733	3.535	3.134	2.299	2.040	1.744	1.311
125	-	-	-	3.832	3.637	3.249	2.358	2.093	1.791	1.360
130	-	-	-	3.932	3.739	3.363	2.418	2.145	1.837	1.408
135	-	-	-	4.032	3.842	3.477	2.478	2.197	1.884	1.457
140	-	-	-	4.131	3.944	3.592	2.537	2.250	1.931	1.505
145	-	-	-	4.231	4.046	3.706	2.597	2.302	1.978	1.554
150	-	-	-	4.331	4.149	3.821	2.657	2.355	2.024	1.602
155	-	-	-	-	4.251	3.935	2.716	2.407	2.071	1.651
160	-	-	-	-	4.353	4.050	2.776	2.459	2.118	1.699
165	-	-	-	-	-	4.164	2.892	2.512	2.165	1.742
170	-	-	-	-	-	4.278	3.125	2.564	2.211	1.782
175	-	-	-	-	-	4.393	3.358	2.617	2.258	1.822
180	-	-	-	-	-	-	3.592	2.669	2.305	1.862
185	-	-	-	-	-	-	3.825	2.721	2.351	1.902
190	-	-	-	-	-	-	4.058	2.774	2.398	1.942
195	-	-	-	-	-	-	4.291	2.846	2.445	1.982
200	-	-	-	-	-	-	-	3.001	2.492	2.022
205	-	-	-	-	-	-	-	3.155	2.538	2.062
210	-	-	-	-	-	-	-	3.310	2.585	2.102
215	-	-	-	-	-	-	-	3.465	2.632	2.142
220	-	-	-	-	-	-	-	3.620	2.679	2.182
225	-	-	-	-	-	-	-	3.774	2.725	2.221
230	-	-	-	-	-	-	-	3.929	2.772	2.261
235	-	-	-	-	-	-	-	4.084	2.819	2.301
240	-	-	-	-	-	-	-	4.239	2.865	2.341
245	-	-	-	-	-	-	-	4.394	3.066	2.381
250	-	-	-	-	-	-	-	-	3.188	2.421
255	-	-	-	-	-	-	-	-	3.309	2.461
260	-	-	-	-	-	-	-	-	3.431	2.501
265	-	-	-	-	-	-	-	-	3.552	2.541
270	-	-	-	-	-	-	-	-	3.674	2.581
275	-	-	-	-	-	-	-	-	3.795	2.621
280	-	-	-	-	-	-	-	-	3.916	2.661
285	-	-	-	-	-	-	-	-	4.038	2.701
290	-	-	-	-	-	-	-	-	4.159	2.741
295	-	-	-	-	-	-	-	-	4.281	2.780
300	-	-	-	-	-	-	-	-	4.402	2.820
305	-	-	-	-	-	-	-	-	-	2.860
310	-	-	-	-	-	-	-	-	-	2.900
315	-	-	-	-	-	-	-	-	-	2.940
320	-	-	-	-	-	-	-	-	-	2.980
325	-	-	-	-	-	-	-	-	-	3.020
330	-	-	-	-	-	-	-	-	-	3.060
335	-	-	-	-	-	-	-	-	-	3.100
340	-	-	-	-	-	-	-	-	-	3.140

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm

BS-RC-0018



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table D8: Rectangular Hollow Columns: Fire Resistance Period: 120 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	520°C	550°C	600°C	650°C	700°C	750°C
50	-	-	3.570	2.835	2.524	2.130	1.575	1.363	1.149	0.879
55	-	-	3.833	3.038	2.721	2.333	1.725	1.474	1.238	0.947
60	-	-	4.096	3.241	2.918	2.536	1.875	1.585	1.327	1.016
65	-	-	4.359	3.443	3.087	2.740	2.024	1.696	1.415	1.085
70	-	-	-	3.646	3.256	2.881	2.174	1.781	1.504	1.154
75	-	-	-	3.848	3.426	2.986	2.324	1.859	1.593	1.223
80	-	-	-	4.051	3.595	3.091	2.474	1.937	1.681	1.292
85	-	-	-	4.254	3.765	3.196	2.623	2.016	1.751	1.361
90	-	-	-	-	3.934	3.301	2.773	2.094	1.807	1.430
95	-	-	-	-	4.103	3.406	2.885	2.172	1.864	1.499
100	-	-	-	-	4.273	3.511	2.982	2.251	1.920	1.568
105	-	-	-	-	-	3.616	3.079	2.329	1.977	1.637
110	-	-	-	-	-	3.721	3.176	2.407	2.033	1.706
115	-	-	-	-	-	3.826	3.273	2.486	2.090	1.758
120	-	-	-	-	-	3.931	3.370	2.564	2.146	1.808
125	-	-	-	-	-	4.036	3.468	2.642	2.203	1.858
130	-	-	-	-	-	4.140	3.565	2.721	2.259	1.908
135	-	-	-	-	-	4.245	3.662	2.799	2.316	1.957
140	-	-	-	-	-	4.350	3.759	2.910	2.372	2.007
145	-	-	-	-	-	-	3.856	3.029	2.429	2.057
150	-	-	-	-	-	-	3.953	3.149	2.485	2.106
155	-	-	-	-	-	-	4.050	3.269	2.542	2.156
160	-	-	-	-	-	-	4.147	3.389	2.598	2.206
165	-	-	-	-	-	-	4.244	3.508	2.655	2.255
170	-	-	-	-	-	-	4.341	3.628	2.711	2.305
175	-	-	-	-	-	-	-	3.748	2.768	2.355
180	-	-	-	-	-	-	-	3.867	2.838	2.404
185	-	-	-	-	-	-	-	3.987	2.983	2.454
190	-	-	-	-	-	-	-	4.107	3.129	2.504
195	-	-	-	-	-	-	-	4.226	3.274	2.553
200	-	-	-	-	-	-	-	4.346	3.420	2.603
205	-	-	-	-	-	-	-	-	3.566	2.653
210	-	-	-	-	-	-	-	-	3.711	2.702
215	-	-	-	-	-	-	-	-	3.857	2.752
220	-	-	-	-	-	-	-	-	4.002	2.802
225	-	-	-	-	-	-	-	-	4.148	2.933
230	-	-	-	-	-	-	-	-	4.293	3.096
235	-	-	-	-	-	-	-	-	-	3.260
240	-	-	-	-	-	-	-	-	-	3.424
245	-	-	-	-	-	-	-	-	-	3.587
250	-	-	-	-	-	-	-	-	-	3.751
255	-	-	-	-	-	-	-	-	-	3.915
260	-	-	-	-	-	-	-	-	-	4.078
265	-	-	-	-	-	-	-	-	-	4.242
270	-	-	-	-	-	-	-	-	-	4.406
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-

Table applies to beams with protection to three sides and a concrete slab. Thickness is intumescent only.

Table also applies to beams protected on four sides up to a maximum protection thickness of 4.933 mm

BS-RC-0018



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E1: Rectangular Hollow Beams: Fire Resistance Period: 15 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
55	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
60	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
65	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
70	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
75	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
80	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
85	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
90	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
95	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
100	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
105	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
110	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
115	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
120	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
125	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
130	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
135	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
140	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
145	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
150	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
155	0.198	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
160	0.215	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
165	0.232	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
170	0.249	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
175	0.266	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
180	0.283	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
185	0.300	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
190	0.317	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
195	0.334	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
200	0.351	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
205	0.368	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
210	0.384	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
215	0.401	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
220	0.418	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
225	0.435	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
230	0.452	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
235	0.469	0.183	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
240	0.486	0.198	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
245	0.503	0.213	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
250	0.520	0.228	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
255	0.537	0.243	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
260	0.553	0.258	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
265	0.570	0.273	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
270	0.587	0.288	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
275	0.604	0.303	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182

Table applies to columns with protection to all sides. Thickness is intumescent only.



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E2: Rectangular Hollow Beams: Fire Resistance Period: 30 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	0.423	0.247	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
55	0.451	0.272	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
60	0.479	0.297	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
65	0.507	0.322	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
70	0.535	0.347	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
75	0.562	0.372	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
80	0.590	0.397	0.182	0.182	0.182	0.182	0.182	0.182	0.182	0.182
85	0.618	0.422	0.196	0.182	0.182	0.182	0.182	0.182	0.182	0.182
90	0.646	0.447	0.220	0.182	0.182	0.182	0.182	0.182	0.182	0.182
95	0.674	0.473	0.244	0.182	0.182	0.182	0.182	0.182	0.182	0.182
100	0.702	0.498	0.268	0.182	0.182	0.182	0.182	0.182	0.182	0.182
105	0.730	0.523	0.291	0.182	0.182	0.182	0.182	0.182	0.182	0.182
110	0.758	0.548	0.315	0.182	0.182	0.182	0.182	0.182	0.182	0.182
115	0.786	0.573	0.339	0.182	0.182	0.182	0.182	0.182	0.182	0.182
120	0.814	0.598	0.363	0.182	0.182	0.182	0.182	0.182	0.182	0.182
125	0.842	0.623	0.387	0.192	0.182	0.182	0.182	0.182	0.182	0.182
130	0.870	0.648	0.410	0.214	0.182	0.182	0.182	0.182	0.182	0.182
135	0.898	0.673	0.434	0.236	0.182	0.182	0.182	0.182	0.182	0.182
140	0.926	0.699	0.458	0.258	0.182	0.182	0.182	0.182	0.182	0.182
145	0.954	0.724	0.482	0.280	0.182	0.182	0.182	0.182	0.182	0.182
150	0.982	0.749	0.505	0.302	0.182	0.182	0.182	0.182	0.182	0.182
155	1.010	0.774	0.529	0.324	0.182	0.182	0.182	0.182	0.182	0.182
160	1.038	0.799	0.553	0.346	0.190	0.182	0.182	0.182	0.182	0.182
165	1.066	0.824	0.577	0.369	0.210	0.182	0.182	0.182	0.182	0.182
170	1.094	0.849	0.601	0.391	0.230	0.182	0.182	0.182	0.182	0.182
175	1.122	0.874	0.624	0.413	0.250	0.182	0.182	0.182	0.182	0.182
180	1.150	0.900	0.648	0.435	0.270	0.182	0.182	0.182	0.182	0.182
185	1.178	0.925	0.672	0.457	0.290	0.182	0.182	0.182	0.182	0.182
190	1.206	0.950	0.696	0.479	0.310	0.182	0.182	0.182	0.182	0.182
195	1.234	0.975	0.720	0.501	0.330	0.182	0.182	0.182	0.182	0.182
200	1.262	1.000	0.743	0.523	0.350	0.182	0.182	0.182	0.182	0.182
205	1.290	1.025	0.767	0.545	0.370	0.182	0.182	0.182	0.182	0.182
210	1.318	1.050	0.791	0.567	0.390	0.182	0.182	0.182	0.182	0.182
215	1.346	1.075	0.815	0.589	0.409	0.182	0.182	0.182	0.182	0.182
220	1.374	1.100	0.839	0.612	0.429	0.197	0.182	0.182	0.182	0.182
225	1.402	1.126	0.862	0.634	0.449	0.216	0.182	0.182	0.182	0.182
230	1.430	1.151	0.886	0.656	0.469	0.234	0.182	0.182	0.182	0.182
235	1.458	1.176	0.910	0.678	0.489	0.253	0.182	0.182	0.182	0.182
240	1.486	1.201	0.934	0.700	0.509	0.271	0.193	0.182	0.182	0.182
245	1.514	1.226	0.958	0.722	0.529	0.290	0.211	0.182	0.182	0.182
250	1.542	1.251	0.981	0.744	0.549	0.308	0.228	0.182	0.182	0.182
255	1.570	1.276	1.005	0.766	0.569	0.327	0.246	0.182	0.182	0.182
260	1.598	1.301	1.029	0.788	0.589	0.345	0.264	0.182	0.182	0.182
265	1.626	1.326	1.053	0.810	0.609	0.364	0.281	0.189	0.182	0.182
270	1.654	1.352	1.077	0.832	0.629	0.382	0.299	0.205	0.182	0.182
275	1.682	1.377	1.100	0.854	0.649	0.401	0.316	0.221	0.182	0.182

Table applies to columns with protection to all sides. Thickness is intumescent only.



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E3: Rectangular Hollow Beams: Fire Resistance Period: 45 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	0.868	0.635	0.462	0.330	0.226	0.182	0.182	0.182	0.182	0.182
55	0.905	0.667	0.493	0.359	0.253	0.182	0.182	0.182	0.182	0.182
60	0.943	0.699	0.523	0.387	0.279	0.182	0.182	0.182	0.182	0.182
65	0.981	0.732	0.554	0.416	0.305	0.182	0.182	0.182	0.182	0.182
70	1.018	0.764	0.585	0.444	0.331	0.192	0.182	0.182	0.182	0.182
75	1.056	0.796	0.615	0.473	0.358	0.217	0.182	0.182	0.182	0.182
80	1.094	0.828	0.646	0.501	0.384	0.241	0.182	0.182	0.182	0.182
85	1.131	0.861	0.676	0.529	0.410	0.266	0.182	0.182	0.182	0.182
90	1.169	0.893	0.707	0.558	0.436	0.291	0.182	0.182	0.182	0.182
95	1.207	0.925	0.737	0.586	0.463	0.316	0.204	0.182	0.182	0.182
100	1.244	0.958	0.768	0.615	0.489	0.340	0.228	0.182	0.182	0.182
105	1.282	0.990	0.798	0.643	0.515	0.365	0.253	0.182	0.182	0.182
110	1.320	1.022	0.829	0.672	0.541	0.390	0.278	0.182	0.182	0.182
115	1.357	1.054	0.859	0.700	0.568	0.414	0.303	0.187	0.182	0.182
120	1.395	1.087	0.890	0.728	0.594	0.439	0.327	0.211	0.182	0.182
125	1.433	1.119	0.920	0.757	0.620	0.464	0.352	0.235	0.182	0.182
130	1.470	1.151	0.951	0.785	0.646	0.488	0.377	0.259	0.182	0.182
135	1.508	1.183	0.981	0.814	0.673	0.513	0.402	0.283	0.182	0.182
140	1.546	1.216	1.012	0.842	0.699	0.538	0.426	0.306	0.182	0.182
145	1.583	1.248	1.043	0.871	0.725	0.562	0.451	0.330	0.182	0.182
150	1.621	1.280	1.073	0.899	0.751	0.587	0.476	0.354	0.182	0.182
155	1.659	1.312	1.104	0.927	0.778	0.612	0.500	0.378	0.190	0.182
160	1.696	1.345	1.134	0.956	0.804	0.636	0.525	0.401	0.211	0.182
165	1.734	1.377	1.165	0.984	0.830	0.661	0.550	0.425	0.233	0.182
170	1.772	1.409	1.195	1.013	0.856	0.686	0.575	0.449	0.254	0.182
175	1.809	1.441	1.226	1.041	0.883	0.711	0.599	0.473	0.276	0.182
180	1.847	1.474	1.256	1.070	0.909	0.735	0.624	0.497	0.297	0.182
185	1.885	1.506	1.287	1.098	0.935	0.760	0.649	0.520	0.319	0.182
190	1.922	1.538	1.317	1.126	0.961	0.785	0.674	0.544	0.340	0.182
195	1.960	1.571	1.348	1.155	0.988	0.809	0.698	0.568	0.361	0.182
200	1.998	1.603	1.378	1.183	1.014	0.834	0.723	0.592	0.383	0.182
205	2.147	1.635	1.409	1.212	1.040	0.859	0.748	0.615	0.404	0.182
210	2.311	1.667	1.439	1.240	1.066	0.883	0.773	0.639	0.426	0.184
215	2.474	1.700	1.470	1.269	1.093	0.908	0.797	0.663	0.447	0.202
220	2.638	1.732	1.501	1.297	1.119	0.933	0.822	0.687	0.469	0.220
225	2.801	1.764	1.531	1.325	1.145	0.957	0.847	0.711	0.490	0.239
230	2.965	1.796	1.562	1.354	1.171	0.982	0.871	0.734	0.511	0.257
235	3.128	1.829	1.592	1.382	1.198	1.007	0.896	0.758	0.533	0.275
240	3.292	1.861	1.623	1.411	1.224	1.031	0.921	0.782	0.554	0.294
245	3.455	1.893	1.653	1.439	1.250	1.056	0.946	0.806	0.576	0.312
250	3.523	1.925	1.684	1.468	1.276	1.081	0.970	0.829	0.597	0.330
255	3.583	1.958	1.714	1.496	1.303	1.106	0.995	0.853	0.619	0.349
260	3.643	1.990	1.745	1.524	1.329	1.130	1.020	0.877	0.640	0.367
265	3.703	2.248	1.775	1.553	1.355	1.155	1.045	0.901	0.662	0.385
270	3.763	2.642	1.806	1.581	1.381	1.180	1.069	0.925	0.683	0.404
275	3.823	3.035	1.836	1.610	1.408	1.204	1.094	0.948	0.704	0.422

Table applies to columns with protection to all sides. Thickness is intumescent only.



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E4: Rectangular Hollow Beams: Fire Resistance Period: 60 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	1.313	1.023	0.812	0.648	0.516	0.403	0.361	0.294	0.182	0.182
55	1.356	1.065	0.849	0.682	0.548	0.433	0.390	0.323	0.211	0.182
60	1.399	1.107	0.887	0.715	0.580	0.464	0.420	0.351	0.237	0.182
65	1.442	1.148	0.925	0.748	0.612	0.494	0.449	0.379	0.263	0.182
70	1.485	1.190	0.962	0.781	0.643	0.524	0.478	0.407	0.289	0.182
75	1.528	1.232	1.000	0.815	0.675	0.554	0.508	0.435	0.315	0.182
80	1.571	1.274	1.038	0.848	0.707	0.584	0.537	0.464	0.342	0.182
85	1.614	1.316	1.075	0.881	0.739	0.614	0.566	0.492	0.368	0.182
90	1.656	1.357	1.113	0.914	0.771	0.644	0.596	0.520	0.394	0.182
95	1.699	1.399	1.150	0.948	0.802	0.674	0.625	0.548	0.420	0.182
100	1.742	1.441	1.188	0.981	0.834	0.704	0.655	0.577	0.446	0.182
105	1.785	1.483	1.226	1.014	0.866	0.734	0.684	0.605	0.472	0.182
110	1.828	1.524	1.263	1.047	0.898	0.765	0.713	0.633	0.498	0.182
115	1.871	1.566	1.301	1.081	0.929	0.795	0.743	0.661	0.524	0.187
120	1.914	1.608	1.339	1.114	0.961	0.825	0.772	0.689	0.550	0.213
125	1.957	1.650	1.376	1.147	0.993	0.855	0.801	0.718	0.576	0.239
130	2.000	1.692	1.414	1.180	1.025	0.885	0.831	0.746	0.602	0.265
135	2.276	1.733	1.452	1.214	1.056	0.915	0.860	0.774	0.628	0.291
140	2.563	1.775	1.489	1.247	1.088	0.945	0.889	0.802	0.654	0.317
145	2.851	1.817	1.527	1.280	1.120	0.975	0.919	0.830	0.680	0.343
150	3.138	1.859	1.565	1.313	1.152	1.005	0.948	0.859	0.706	0.369
155	3.426	1.900	1.602	1.347	1.183	1.035	0.978	0.887	0.732	0.395
160	3.520	1.942	1.640	1.380	1.215	1.066	1.007	0.915	0.758	0.421
165	3.582	1.984	1.678	1.413	1.247	1.096	1.036	0.943	0.784	0.447
170	3.643	2.170	1.715	1.446	1.279	1.126	1.066	0.971	0.810	0.473
175	3.704	2.466	1.753	1.480	1.310	1.156	1.095	1.000	0.836	0.499
180	3.766	2.762	1.790	1.513	1.342	1.186	1.124	1.028	0.862	0.525
185	3.827	3.057	1.828	1.546	1.374	1.216	1.154	1.056	0.888	0.551
190	3.888	3.353	1.866	1.579	1.406	1.246	1.183	1.084	0.914	0.577
195	3.949	3.507	1.903	1.613	1.437	1.276	1.212	1.113	0.941	0.603
200	4.011	3.570	1.941	1.646	1.469	1.306	1.242	1.141	0.967	0.629
205	4.072	3.634	1.979	1.679	1.501	1.336	1.271	1.169	0.993	0.655
210	4.133	3.697	2.108	1.712	1.533	1.367	1.301	1.197	1.019	0.681
215	4.195	3.761	2.388	1.746	1.564	1.397	1.330	1.225	1.045	0.707
220	4.256	3.824	2.667	1.779	1.596	1.427	1.359	1.254	1.071	0.733
225	4.317	3.888	2.947	1.812	1.628	1.457	1.389	1.282	1.097	0.759
230	4.379	3.951	3.226	1.845	1.660	1.487	1.418	1.310	1.123	0.785
235	4.440	4.015	3.477	1.879	1.691	1.517	1.447	1.338	1.149	0.811
240	4.501	4.078	3.545	1.912	1.723	1.547	1.477	1.366	1.175	0.837
245	4.563	4.142	3.612	1.945	1.755	1.577	1.506	1.395	1.201	0.863
250	4.624	4.206	3.680	1.978	1.787	1.607	1.535	1.423	1.227	0.889
255	4.685	4.269	3.748	2.190	1.819	1.637	1.565	1.451	1.253	0.915
260	4.746	4.333	3.815	2.837	1.850	1.667	1.594	1.479	1.279	0.941
265	4.808	4.396	3.883	3.470	1.882	1.698	1.624	1.508	1.305	0.967
270	4.869	4.460	3.950	3.532	1.914	1.728	1.653	1.536	1.331	0.993
275	4.930	4.523	4.018	3.594	1.946	1.758	1.682	1.564	1.357	1.019

Table applies to columns with protection to all sides. Thickness is intumescent only.





FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E5: Rectangular Hollow Beams: Fire Resistance Period: 75 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	1.753	1.410	1.161	0.966	0.807	0.670	0.619	0.544	0.423	0.289
55	1.841	1.467	1.204	1.007	0.845	0.705	0.652	0.577	0.454	0.318
60	1.929	1.523	1.247	1.048	0.883	0.739	0.686	0.610	0.485	0.347
65	2.038	1.579	1.291	1.089	0.920	0.773	0.719	0.642	0.516	0.376
70	2.246	1.636	1.334	1.130	0.958	0.807	0.753	0.675	0.547	0.405
75	2.454	1.692	1.377	1.171	0.996	0.841	0.786	0.708	0.578	0.434
80	2.662	1.748	1.420	1.212	1.034	0.875	0.819	0.740	0.609	0.463
85	2.870	1.805	1.463	1.253	1.071	0.909	0.853	0.773	0.640	0.492
90	3.078	1.861	1.507	1.294	1.109	0.944	0.886	0.805	0.671	0.521
95	3.286	1.917	1.550	1.335	1.147	0.978	0.920	0.838	0.702	0.550
100	3.481	1.973	1.593	1.377	1.184	1.012	0.953	0.871	0.733	0.579
105	3.585	2.110	1.636	1.418	1.222	1.046	0.986	0.903	0.765	0.608
110	3.689	2.330	1.679	1.459	1.260	1.080	1.020	0.936	0.796	0.637
115	3.793	2.550	1.723	1.500	1.297	1.114	1.053	0.969	0.827	0.666
120	3.897	2.771	1.766	1.541	1.335	1.149	1.087	1.001	0.858	0.695
125	4.001	2.991	1.809	1.582	1.373	1.183	1.120	1.034	0.889	0.724
130	4.105	3.211	1.852	1.623	1.410	1.217	1.153	1.066	0.920	0.753
135	4.209	3.431	1.895	1.664	1.448	1.251	1.187	1.099	0.951	0.781
140	4.313	3.524	1.938	1.705	1.486	1.285	1.220	1.132	0.982	0.810
145	4.417	3.591	1.982	1.746	1.523	1.319	1.254	1.164	1.013	0.839
150	4.521	3.658	2.258	1.787	1.561	1.353	1.287	1.197	1.044	0.868
155	4.625	3.725	2.742	1.828	1.599	1.388	1.320	1.230	1.075	0.897
160	4.730	3.791	3.227	1.869	1.636	1.422	1.354	1.262	1.106	0.926
165	4.834	3.858	3.501	1.910	1.674	1.456	1.387	1.295	1.137	0.955
170	4.938	3.925	3.568	1.951	1.712	1.490	1.421	1.327	1.168	0.984
175	5.042	3.992	3.634	1.992	1.750	1.524	1.454	1.360	1.199	1.013
180	5.146	4.059	3.700	2.317	1.787	1.558	1.487	1.393	1.230	1.042
185	5.250	4.126	3.766	2.730	1.825	1.593	1.521	1.425	1.261	1.071
190	-	4.193	3.832	3.144	1.863	1.627	1.554	1.458	1.292	1.100
195	-	4.260	3.899	3.482	1.900	1.661	1.587	1.491	1.323	1.129
200	-	4.327	3.965	3.549	1.938	1.695	1.621	1.523	1.354	1.158
205	-	4.394	4.031	3.616	1.976	1.729	1.654	1.556	1.385	1.187
210	-	4.461	4.097	3.683	2.089	1.763	1.688	1.588	1.416	1.216
215	-	4.528	4.164	3.749	2.377	1.797	1.721	1.621	1.447	1.245
220	-	4.595	4.230	3.816	2.666	1.832	1.754	1.654	1.478	1.274
225	-	4.662	4.296	3.883	2.954	1.866	1.788	1.686	1.509	1.303
230	-	4.729	4.362	3.950	3.243	1.900	1.821	1.719	1.540	1.332
235	-	4.796	4.429	4.016	3.483	1.934	1.855	1.752	1.571	1.361
240	-	4.863	4.495	4.083	3.554	1.968	1.888	1.784	1.602	1.390
245	-	4.930	4.561	4.150	3.624	2.007	1.921	1.817	1.633	1.419
250	-	4.997	4.627	4.217	3.694	2.410	1.955	1.849	1.664	1.448
255	-	5.064	4.694	4.283	3.764	2.813	1.988	1.882	1.695	1.477
260	-	5.131	4.760	4.350	3.834	3.216	2.236	1.915	1.726	1.506
265	-	5.198	4.826	4.417	3.904	3.491	2.633	1.947	1.757	1.534
270	-	-	4.892	4.484	3.974	3.553	3.031	1.980	1.788	1.563
275	-	-	4.958	4.551	4.045	3.615	3.428	2.107	1.819	1.592

Table applies to columns with protection to all sides. Thickness is intumescent only.



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E6: Rectangular Hollow Beams: Fire Resistance Period: 90 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	2.480	1.795	1.508	1.285	1.099	0.937	0.877	0.790	0.649	0.475
55	2.811	1.889	1.574	1.327	1.141	0.978	0.916	0.828	0.684	0.509
60	3.141	1.984	1.639	1.370	1.183	1.018	0.956	0.866	0.719	0.543
65	3.470	2.218	1.704	1.412	1.226	1.059	0.996	0.903	0.754	0.577
70	3.686	2.485	1.770	1.455	1.268	1.099	1.035	0.941	0.789	0.611
75	3.902	2.751	1.835	1.497	1.311	1.140	1.075	0.979	0.824	0.645
80	4.117	3.018	1.900	1.540	1.353	1.180	1.114	1.017	0.858	0.679
85	4.333	3.285	1.966	1.582	1.396	1.221	1.154	1.055	0.893	0.712
90	4.549	3.512	2.098	1.625	1.438	1.262	1.193	1.093	0.928	0.746
95	4.764	3.652	2.314	1.667	1.480	1.302	1.233	1.130	0.963	0.780
100	4.980	3.792	2.530	1.710	1.523	1.343	1.273	1.168	0.998	0.814
105	5.196	3.932	2.746	1.752	1.565	1.383	1.312	1.206	1.032	0.848
110	-	4.072	2.962	1.795	1.608	1.424	1.352	1.244	1.067	0.882
115	-	4.212	3.178	1.837	1.650	1.464	1.391	1.282	1.102	0.916
120	-	4.352	3.395	1.880	1.692	1.505	1.431	1.320	1.137	0.949
125	-	4.492	3.531	1.922	1.735	1.546	1.470	1.357	1.172	0.983
130	-	4.632	3.627	1.965	1.777	1.586	1.510	1.395	1.207	1.017
135	-	4.772	3.723	2.081	1.820	1.627	1.550	1.433	1.241	1.051
140	-	4.912	3.819	2.750	1.862	1.667	1.589	1.471	1.276	1.085
145	-	5.052	3.915	3.419	1.905	1.708	1.629	1.509	1.311	1.119
150	-	5.192	4.011	3.532	1.947	1.748	1.668	1.546	1.346	1.153
155	-	-	4.106	3.600	1.989	1.789	1.708	1.584	1.381	1.186
160	-	-	4.202	3.669	2.370	1.830	1.747	1.622	1.415	1.220
165	-	-	4.298	3.738	2.893	1.870	1.787	1.660	1.450	1.254
170	-	-	4.394	3.807	3.415	1.911	1.827	1.698	1.485	1.288
175	-	-	4.490	3.875	3.528	1.951	1.866	1.736	1.520	1.322
180	-	-	4.586	3.944	3.595	1.992	1.906	1.773	1.555	1.356
185	-	-	4.682	4.013	3.662	2.257	1.945	1.811	1.590	1.390
190	-	-	4.777	4.082	3.729	2.598	1.985	1.849	1.624	1.423
195	-	-	4.873	4.151	3.796	2.940	2.160	1.887	1.659	1.457
200	-	-	4.969	4.219	3.862	3.281	2.440	1.925	1.694	1.491
205	-	-	5.065	4.288	3.929	3.498	2.719	1.963	1.729	1.525
210	-	-	5.161	4.357	3.996	3.563	2.999	2.000	1.764	1.559
215	-	-	5.257	4.426	4.063	3.629	3.278	2.225	1.799	1.593
220	-	-	5.353	4.494	4.130	3.695	3.489	2.458	1.833	1.627
225	-	-	-	4.563	4.197	3.761	3.554	2.692	1.868	1.660
230	-	-	-	4.632	4.264	3.826	3.620	2.925	1.903	1.694
235	-	-	-	4.701	4.330	3.892	3.685	3.158	1.938	1.728
240	-	-	-	4.769	4.397	3.958	3.750	3.391	1.973	1.762
245	-	-	-	4.838	4.464	4.024	3.815	3.510	2.042	1.796
250	-	-	-	4.907	4.531	4.089	3.881	3.572	2.298	1.830
255	-	-	-	4.976	4.598	4.155	3.946	3.633	2.554	1.864
260	-	-	-	5.044	4.665	4.221	4.011	3.695	2.810	1.897
265	-	-	-	5.113	4.732	4.286	4.077	3.757	3.066	1.931
270	-	-	-	5.182	4.799	4.352	4.142	3.819	3.322	1.965
275	-	-	-	5.251	4.865	4.418	4.207	3.881	3.493	1.999

Table applies to columns with protection to all sides. Thickness is intumescent only.



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E7: Rectangular Hollow Beans: Fire Resistance Period: 105 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	3.598	2.494	1.854	1.599	1.390	1.204	1.135	1.036	0.875	0.678
55	3.965	2.864	1.953	1.672	1.436	1.247	1.178	1.077	0.915	0.717
60	4.333	3.234	2.158	1.745	1.482	1.289	1.220	1.119	0.956	0.756
65	4.700	3.557	2.460	1.818	1.529	1.332	1.263	1.161	0.996	0.794
70	5.068	3.798	2.763	1.891	1.575	1.374	1.305	1.203	1.036	0.833
75	-	4.039	3.066	1.964	1.622	1.417	1.348	1.245	1.076	0.871
80	-	4.280	3.368	2.125	1.668	1.459	1.390	1.287	1.116	0.910
85	-	4.521	3.573	2.379	1.714	1.502	1.433	1.329	1.156	0.948
90	-	4.762	3.730	2.632	1.761	1.544	1.475	1.371	1.196	0.987
95	-	5.003	3.886	2.886	1.807	1.587	1.518	1.412	1.236	1.026
100	-	-	4.043	3.140	1.853	1.629	1.560	1.454	1.276	1.064
105	-	-	4.199	3.394	1.900	1.672	1.603	1.496	1.316	1.103
110	-	-	4.356	3.548	1.946	1.714	1.645	1.538	1.356	1.141
115	-	-	4.513	3.660	1.992	1.757	1.688	1.580	1.396	1.180
120	-	-	4.669	3.773	2.323	1.799	1.730	1.622	1.436	1.218
125	-	-	4.826	3.886	2.727	1.842	1.772	1.664	1.476	1.257
130	-	-	4.982	3.998	3.132	1.884	1.815	1.705	1.517	1.296
135	-	-	5.139	4.111	3.480	1.927	1.857	1.747	1.557	1.334
140	-	-	5.296	4.224	3.552	1.969	1.900	1.789	1.597	1.373
145	-	-	-	4.336	3.623	2.141	1.942	1.831	1.637	1.411
150	-	-	-	4.449	3.695	2.748	1.985	1.873	1.677	1.450
155	-	-	-	4.562	3.766	3.356	2.312	1.915	1.717	1.488
160	-	-	-	4.674	3.838	3.522	2.831	1.957	1.757	1.527
165	-	-	-	4.787	3.910	3.587	3.350	1.998	1.797	1.566
170	-	-	-	4.900	3.981	3.653	3.517	2.364	1.837	1.604
175	-	-	-	5.012	4.053	3.719	3.581	2.759	1.877	1.643
180	-	-	-	5.125	4.124	3.785	3.645	3.154	1.917	1.681
185	-	-	-	5.237	4.196	3.851	3.709	3.480	1.957	1.720
190	-	-	-	-	4.267	3.916	3.773	3.541	1.997	1.758
195	-	-	-	-	4.339	3.982	3.837	3.602	2.198	1.797
200	-	-	-	-	4.410	4.048	3.900	3.662	2.419	1.836
205	-	-	-	-	4.482	4.114	3.964	3.723	2.640	1.874
210	-	-	-	-	4.554	4.180	4.028	3.783	2.861	1.913
215	-	-	-	-	4.625	4.245	4.092	3.844	3.082	1.951
220	-	-	-	-	4.697	4.311	4.156	3.905	3.303	1.990
225	-	-	-	-	4.768	4.377	4.220	3.965	3.484	2.118
230	-	-	-	-	4.840	4.443	4.284	4.026	3.549	2.286
235	-	-	-	-	4.911	4.509	4.347	4.086	3.614	2.455
240	-	-	-	-	4.983	4.574	4.411	4.147	3.678	2.624
245	-	-	-	-	5.054	4.640	4.475	4.208	3.743	2.792
250	-	-	-	-	5.126	4.706	4.539	4.268	3.807	2.961
255	-	-	-	-	5.198	4.772	4.603	4.329	3.872	3.130
260	-	-	-	-	-	4.838	4.667	4.389	3.936	3.298
265	-	-	-	-	-	4.903	4.731	4.450	4.001	3.467
270	-	-	-	-	-	4.969	4.794	4.511	4.065	3.541
275	-	-	-	-	-	5.035	4.858	4.571	4.130	3.615

Table applies to columns with protection to all sides. Thickness is intumescent only.



**FIRETEX FX5090**

Section Factor up to m <sup>-1</sup>	Table E8: Rectangular Hollow Beams: Fire Resistance Period: 120 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	-	3.537	2.575	1.913	1.677	1.470	1.394	1.282	1.102	0.881
55	-	3.928	2.966	2.052	1.756	1.526	1.437	1.324	1.144	0.924
60	-	4.319	3.357	2.377	1.834	1.582	1.481	1.365	1.187	0.967
65	-	4.710	3.647	2.702	1.913	1.639	1.525	1.407	1.229	1.010
70	-	5.102	3.898	3.027	1.992	1.695	1.568	1.449	1.271	1.053
75	-	-	4.149	3.352	2.247	1.751	1.612	1.490	1.314	1.096
80	-	-	4.400	3.572	2.528	1.807	1.655	1.532	1.356	1.139
85	-	-	4.651	3.733	2.809	1.863	1.699	1.574	1.398	1.182
90	-	-	4.902	3.894	3.090	1.919	1.743	1.615	1.441	1.224
95	-	-	-	4.056	3.371	1.975	1.786	1.657	1.483	1.267
100	-	-	-	4.217	3.547	2.135	1.830	1.699	1.525	1.310
105	-	-	-	4.378	3.667	2.386	1.874	1.740	1.568	1.353
110	-	-	-	4.539	3.787	2.638	1.917	1.782	1.610	1.396
115	-	-	-	4.701	3.908	2.889	1.961	1.824	1.652	1.439
120	-	-	-	4.862	4.028	3.141	2.032	1.866	1.695	1.482
125	-	-	-	5.023	4.149	3.392	2.543	1.907	1.737	1.525
130	-	-	-	5.184	4.269	3.525	3.053	1.949	1.780	1.567
135	-	-	-	5.346	4.389	3.608	3.481	1.991	1.822	1.610
140	-	-	-	-	4.510	3.690	3.547	2.516	1.864	1.653
145	-	-	-	-	4.630	3.773	3.614	3.222	1.907	1.696
150	-	-	-	-	4.750	3.855	3.680	3.509	1.949	1.739
155	-	-	-	-	4.871	3.937	3.747	3.571	1.991	1.782
160	-	-	-	-	4.991	4.020	3.814	3.633	2.309	1.825
165	-	-	-	-	5.111	4.102	3.880	3.695	2.719	1.868
170	-	-	-	-	5.232	4.184	3.947	3.758	3.129	1.910
175	-	-	-	-	5.352	4.267	4.013	3.820	3.479	1.953
180	-	-	-	-	-	4.349	4.080	3.882	3.541	1.996
185	-	-	-	-	-	4.431	4.147	3.944	3.604	2.168
190	-	-	-	-	-	4.514	4.213	4.007	3.666	2.359
195	-	-	-	-	-	4.596	4.280	4.069	3.729	2.551
200	-	-	-	-	-	4.679	4.346	4.131	3.791	2.743
205	-	-	-	-	-	4.761	4.413	4.193	3.854	2.935
210	-	-	-	-	-	4.843	4.480	4.256	3.917	3.127
215	-	-	-	-	-	4.926	4.546	4.318	3.979	3.319
220	-	-	-	-	-	5.008	4.613	4.380	4.042	3.485
225	-	-	-	-	-	5.090	4.679	4.442	4.104	3.564
230	-	-	-	-	-	5.173	4.746	4.505	4.167	3.643
235	-	-	-	-	-	5.255	4.813	4.567	4.229	3.721
240	-	-	-	-	-	-	4.879	4.629	4.292	3.800
245	-	-	-	-	-	-	4.946	4.691	4.354	3.879
250	-	-	-	-	-	-	5.012	4.754	4.417	3.957
255	-	-	-	-	-	-	5.079	4.816	4.479	4.036
260	-	-	-	-	-	-	5.146	4.878	4.542	4.115
265	-	-	-	-	-	-	-	4.940	4.604	4.193
270	-	-	-	-	-	-	-	5.003	4.667	4.272
275	-	-	-	-	-	-	-	5.065	4.729	4.351

Table applies to columns with protection to all sides. Thickness is intumescent only.



FIRETEX FX5090										
Section Factor up to m <sup>-1</sup>	Table E9: Rectangular Hollow Beams: Fire Resistance Period: 150 Minutes									
	Thickness (mm) Required for a Design Temperature of									
	350°C	400°C	450°C	500°C	550°C	600°C	620°C	650°C	700°C	750°C
50	-	-	4.545	3.525	2.760	1.986	1.903	1.768	1.554	1.289
55	-	-	5.000	3.930	3.172	2.403	2.003	1.852	1.605	1.332
60	-	-	-	4.335	3.540	2.820	2.413	1.936	1.655	1.376
65	-	-	-	4.739	3.796	3.238	2.822	2.088	1.706	1.419
70	-	-	-	5.144	4.051	3.535	3.231	2.487	1.756	1.463
75	-	-	-	-	4.306	3.686	3.528	2.885	1.807	1.506
80	-	-	-	-	4.562	3.836	3.669	3.284	1.857	1.550
85	-	-	-	-	4.817	3.987	3.810	3.530	1.908	1.593
90	-	-	-	-	5.072	4.137	3.951	3.646	1.958	1.637
95	-	-	-	-	-	4.287	4.093	3.761	2.080	1.680
100	-	-	-	-	-	4.438	4.234	3.876	2.684	1.724
105	-	-	-	-	-	4.588	4.375	3.992	3.288	1.767
110	-	-	-	-	-	4.738	4.516	4.107	3.526	1.811
115	-	-	-	-	-	4.889	4.658	4.223	3.608	1.854
120	-	-	-	-	-	5.039	4.799	4.338	3.691	1.898
125	-	-	-	-	-	5.190	4.940	4.453	3.773	1.941
130	-	-	-	-	-	-	5.082	4.569	3.855	1.985
135	-	-	-	-	-	-	5.223	4.684	3.938	2.424
140	-	-	-	-	-	-	-	4.800	4.020	3.123
145	-	-	-	-	-	-	-	4.915	4.102	3.505
150	-	-	-	-	-	-	-	5.030	4.185	3.578
155	-	-	-	-	-	-	-	5.146	4.267	3.650
160	-	-	-	-	-	-	-	-	4.349	3.723
165	-	-	-	-	-	-	-	-	4.432	3.796
170	-	-	-	-	-	-	-	-	4.514	3.869
175	-	-	-	-	-	-	-	-	4.597	3.942
180	-	-	-	-	-	-	-	-	4.679	4.014
185	-	-	-	-	-	-	-	-	4.761	4.087
190	-	-	-	-	-	-	-	-	4.844	4.160
195	-	-	-	-	-	-	-	-	4.926	4.233
200	-	-	-	-	-	-	-	-	5.008	4.306
205	-	-	-	-	-	-	-	-	5.091	4.378
210	-	-	-	-	-	-	-	-	5.173	4.451
215	-	-	-	-	-	-	-	-	-	4.524
220	-	-	-	-	-	-	-	-	-	4.597
225	-	-	-	-	-	-	-	-	-	4.670
230	-	-	-	-	-	-	-	-	-	4.742
235	-	-	-	-	-	-	-	-	-	4.815
240	-	-	-	-	-	-	-	-	-	4.888
245	-	-	-	-	-	-	-	-	-	4.961
250	-	-	-	-	-	-	-	-	-	5.033
255	-	-	-	-	-	-	-	-	-	5.106
260	-	-	-	-	-	-	-	-	-	5.179
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-

Table applies to columns with protection to all sides. Thickness is intumescent only.