



CERTIFICATE OF APPROVAL

No CF 5475

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

JOTUN ABU DHABI LTD (L.L.C.)

P.O Box 3714, Mussafah Ind. City Abu Dhabi

Tel: 00 971 56 329 6550

Website: <http://www.jotun.com>

Have been assessed against the requirements of the Technical Schedule(s)
denoted below and are approved for use subject to the conditions
appended hereto:

CERTIFIED PRODUCT
SteelMaster 120SB

TECHNICAL SCHEDULE
TS15 INTUMESCENT
COATINGS FOR STEELWORK

Signed and sealed for and on behalf of Warringtonfire Testing and Certification Limited

Paul Duggan
Certification Manager



Issued: 7th October 2016
Revised: 28th November 2019
Valid to: 26th June 2024

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SteelMaster 120SB

1. This certification is provided to the client for their own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.
2. This approval relates to the use of SteelMaster 120SB for the fire protection of steel I/H beams and columns as well as circular and rectangular hollow columns. The precise scope is given in Tables 1 to 24 which show the total dry film thickness of SteelMaster 120SB (excluding primer and top sealer) required to provide fire resistance periods in accordance with BS476: Parts 20 and 21: 1987 of 15 minutes up to 120 minutes for design temperatures in the range 300⁰ C to 750⁰ C.
3. The products are approved on the basis of:
 - i) Initial type testing
 - ii) A design appraisal against TS15
 - iii) Certification of quality management system to ISO 9001
 - iv) Inspection and surveillance of factory production control
 - v) Audit testing
4. The data referring to three-sided fire exposure of beams relate to beams supporting concrete floor slabs. Separate consideration is required where this is not the case.
5. The data shown is applicable to steel sections blast cleaned to ISO 8501-1 Sa2.5 or equivalent and primed with a suitable and compatible primer. Specifications of surface preparations, primers and top sealers are available from JOTUN ABU DHABI LTD (L.L.C.) whose responsibility is to ensure that SteelMaster 120SB is compatible for use in respect of both ambient and fire conditions. The nominal dry film thickness of primer and top sealer should be applied at a nominal thickness tested.
6. The data shown is applicable to SteelMaster 120SB applied by spray to horizontal, vertical, flexural and compression members supporting loads up to the maximum design loads specified in BS449: Part 2.
7. The approval relates to on-going production. Product and/or its immediate packaging is identified with the manufacturers' name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.
8. The data shown in the tables is based on assessments which comply with the criteria for acceptability now incorporated within the CERTIFIRE scheme.



SteelMaster 120SB

Table 1 I/H Beams: 15 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
35	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
40	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
45	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
50	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
55	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
60	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
65	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
70	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
75	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
80	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
85	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
90	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
95	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
100	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
105	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
110	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
115	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
120	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
125	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
130	0.288	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
135	0.306	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
140	0.323	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
145	0.341	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
150	0.358	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
155	0.376	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
160	0.393	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
165	0.410	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
170	0.428	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
175	0.445	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
180	0.463	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
185	0.480	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
190	0.498	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
195	0.515	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
200	0.533	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
205	0.550	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
210	0.567	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
215	0.585	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
220	0.602	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
225	0.620	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
230	0.637	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
235	0.655	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
240	0.672	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
245	0.690	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
250	0.707	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
255	0.725	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
260	0.742	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
265	0.759	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
270	0.777	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
275	0.794	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
280	0.812	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
285	0.829	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
290	0.847	0.295	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
295	0.864	0.306	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
300	0.882	0.317	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
305	0.899	0.328	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
310	0.916	0.339	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
315	0.934	0.350	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
320	0.951	0.361	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
325	0.969	0.372	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
330	0.986	0.384	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
335	1.004	0.395	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
340	1.021	0.406	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
345	1.039	0.417	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
350	1.056	0.428	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.

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E/140, AH/022, R/014

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SteelMaster 120SB

Table 2 I/H Beams: 30 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
35	0.291	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
40	0.367	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
45	0.442	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
50	0.518	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
55	0.594	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
60	0.670	0.289	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
65	0.745	0.306	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
70	0.821	0.324	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
75	0.897	0.341	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
80	0.973	0.359	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
85	1.048	0.376	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
90	1.124	0.394	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
95	1.200	0.411	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
100	1.276	0.429	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
105	1.351	0.446	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
110	1.427	0.464	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
115	1.499	0.481	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
120	1.569	0.499	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
125	1.639	0.516	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
130	1.709	0.534	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
135	1.779	0.551	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
140	1.849	0.569	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
145	1.919	0.586	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
150	1.989	0.604	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
155	2.059	0.621	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
160	2.129	0.639	0.286	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
165	2.199	0.657	0.301	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
170	2.269	0.674	0.317	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
175	2.338	0.692	0.332	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
180	2.408	0.709	0.347	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
185	2.478	0.727	0.363	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
190	2.548	0.744	0.378	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
195	2.618	0.762	0.394	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
200	2.688	0.779	0.409	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
205	2.758	0.797	0.425	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
210	2.828	0.814	0.440	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
215	2.898	0.832	0.456	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
220	2.968	0.849	0.471	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
225	-	0.867	0.487	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
230	-	0.884	0.502	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
235	-	0.902	0.518	0.293	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
240	-	0.919	0.533	0.307	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
245	-	0.937	0.549	0.320	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
250	-	0.954	0.564	0.334	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
255	-	0.972	0.580	0.348	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
260	-	0.989	0.595	0.362	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
265	-	1.007	0.610	0.375	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
270	-	1.024	0.626	0.389	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
275	-	1.042	0.641	0.403	0.291	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
280	-	1.059	0.657	0.416	0.302	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
285	-	1.077	0.672	0.430	0.314	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
290	-	1.094	0.688	0.444	0.326	0.287	0.284	0.284	0.284	0.284	0.284	0.284	0.284
295	-	1.112	0.703	0.457	0.337	0.298	0.284	0.284	0.284	0.284	0.284	0.284	0.284
300	-	1.129	0.719	0.471	0.349	0.309	0.284	0.284	0.284	0.284	0.284	0.284	0.284
305	-	1.147	0.734	0.485	0.361	0.320	0.287	0.284	0.284	0.284	0.284	0.284	0.284
310	-	1.165	0.750	0.499	0.372	0.331	0.297	0.284	0.284	0.284	0.284	0.284	0.284
315	-	1.182	0.765	0.512	0.384	0.342	0.307	0.284	0.284	0.284	0.284	0.284	0.284
320	-	1.200	0.781	0.526	0.395	0.352	0.317	0.284	0.284	0.284	0.284	0.284	0.284
325	-	1.217	0.796	0.540	0.407	0.363	0.327	0.289	0.284	0.284	0.284	0.284	0.284
330	-	1.235	0.812	0.553	0.419	0.374	0.337	0.298	0.284	0.284	0.284	0.284	0.284
335	-	1.252	0.827	0.567	0.430	0.385	0.347	0.307	0.284	0.284	0.284	0.284	0.284
340	-	1.270	0.843	0.581	0.442	0.396	0.357	0.317	0.284	0.284	0.284	0.284	0.284
345	-	1.287	0.858	0.594	0.454	0.407	0.366	0.326	0.284	0.284	0.284	0.284	0.284
350	-	1.305	0.873	0.608	0.465	0.418	0.376	0.335	0.293	0.284	0.284	0.284	0.284

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.

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SteelMaster 120SB

Table 3 I/H Beams: 45 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	0.939	0.295	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
35	1.118	0.350	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
40	1.297	0.405	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
45	1.474	0.459	0.302	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
50	1.632	0.514	0.321	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
55	1.791	0.569	0.340	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
60	1.949	0.624	0.359	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
65	2.107	0.679	0.377	0.290	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
70	2.266	0.733	0.396	0.306	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
75	2.424	0.788	0.415	0.322	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
80	2.582	0.843	0.433	0.338	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
85	2.740	0.898	0.452	0.354	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
90	2.839	0.953	0.471	0.371	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
95	2.894	1.008	0.490	0.387	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
100	2.950	1.062	0.508	0.403	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
105	3.005	1.117	0.527	0.419	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
110	3.060	1.172	0.546	0.435	0.298	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
115	3.115	1.227	0.565	0.451	0.313	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
120	3.171	1.282	0.583	0.467	0.328	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
125	3.226	1.337	0.602	0.483	0.343	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
130	3.281	1.391	0.621	0.499	0.358	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
135	3.337	1.446	0.640	0.515	0.373	0.288	0.284	0.284	0.284	0.284	0.284	0.284	0.284
140	3.392	1.508	0.658	0.531	0.388	0.303	0.284	0.284	0.284	0.284	0.284	0.284	0.284
145	3.447	1.571	0.677	0.547	0.402	0.317	0.284	0.284	0.284	0.284	0.284	0.284	0.284
150	3.502	1.634	0.696	0.563	0.417	0.332	0.284	0.284	0.284	0.284	0.284	0.284	0.284
155	3.558	1.697	0.715	0.579	0.432	0.347	0.284	0.284	0.284	0.284	0.284	0.284	0.284
160	3.613	1.760	0.733	0.595	0.447	0.362	0.284	0.284	0.284	0.284	0.284	0.284	0.284
165	3.668	1.823	0.752	0.611	0.462	0.377	0.284	0.284	0.284	0.284	0.284	0.284	0.284
170	3.723	1.886	0.771	0.627	0.477	0.392	0.293	0.284	0.284	0.284	0.284	0.284	0.284
175	-	1.949	0.790	0.643	0.492	0.407	0.308	0.284	0.284	0.284	0.284	0.284	0.284
180	-	2.012	0.808	0.659	0.507	0.422	0.323	0.284	0.284	0.284	0.284	0.284	0.284
185	-	2.076	0.827	0.675	0.522	0.436	0.337	0.284	0.284	0.284	0.284	0.284	0.284
190	-	2.139	0.846	0.691	0.536	0.451	0.352	0.284	0.284	0.284	0.284	0.284	0.284
195	-	2.202	0.865	0.707	0.551	0.466	0.367	0.284	0.284	0.284	0.284	0.284	0.284
200	-	2.265	0.883	0.723	0.566	0.481	0.381	0.284	0.284	0.284	0.284	0.284	0.284
205	-	2.328	0.902	0.739	0.581	0.496	0.396	0.294	0.284	0.284	0.284	0.284	0.284
210	-	2.391	0.921	0.755	0.596	0.511	0.411	0.309	0.284	0.284	0.284	0.284	0.284
215	-	2.454	0.939	0.771	0.611	0.526	0.425	0.323	0.291	0.284	0.284	0.284	0.284
220	-	2.517	0.958	0.787	0.626	0.540	0.440	0.338	0.304	0.284	0.284	0.284	0.284
225	-	2.580	0.977	0.803	0.641	0.555	0.455	0.353	0.318	0.287	0.284	0.284	0.284
230	-	2.644	0.996	0.819	0.656	0.570	0.469	0.367	0.331	0.300	0.284	0.284	0.284
235	-	2.707	1.014	0.835	0.670	0.585	0.484	0.382	0.345	0.313	0.284	0.284	0.284
240	-	2.770	1.033	0.851	0.685	0.600	0.499	0.396	0.359	0.326	0.284	0.284	0.284
245	-	2.833	1.052	0.867	0.700	0.615	0.513	0.411	0.372	0.339	0.284	0.284	0.284
250	-	2.896	1.071	0.883	0.715	0.630	0.528	0.426	0.386	0.352	0.284	0.284	0.284
255	-	2.959	1.089	0.899	0.730	0.645	0.543	0.440	0.400	0.365	0.284	0.284	0.284
260	-	3.022	1.108	0.915	0.745	0.659	0.557	0.455	0.413	0.378	0.284	0.284	0.284
265	-	-	1.127	0.931	0.760	0.674	0.572	0.469	0.427	0.391	0.284	0.284	0.284
270	-	-	1.146	0.947	0.775	0.689	0.587	0.484	0.441	0.404	0.291	0.284	0.284
275	-	-	1.164	0.963	0.790	0.704	0.601	0.499	0.454	0.417	0.304	0.284	0.284
280	-	-	1.183	0.979	0.804	0.719	0.616	0.513	0.468	0.430	0.317	0.284	0.284
285	-	-	1.202	0.995	0.819	0.734	0.631	0.528	0.482	0.443	0.329	0.284	0.284
290	-	-	1.221	1.011	0.834	0.749	0.645	0.542	0.495	0.456	0.342	0.284	0.284
295	-	-	1.239	1.027	0.849	0.764	0.660	0.557	0.509	0.469	0.355	0.287	0.284
300	-	-	1.258	1.043	0.864	0.778	0.675	0.572	0.522	0.482	0.367	0.298	0.284
305	-	-	1.277	1.059	0.879	0.793	0.689	0.586	0.536	0.495	0.380	0.309	0.284
310	-	-	1.296	1.075	0.894	0.808	0.704	0.601	0.550	0.508	0.393	0.319	0.284
315	-	-	1.314	1.091	0.909	0.823	0.719	0.615	0.563	0.521	0.405	0.330	0.284
320	-	-	1.333	1.107	0.924	0.838	0.733	0.630	0.577	0.534	0.418	0.340	0.284
325	-	-	1.352	1.123	0.938	0.853	0.748	0.644	0.591	0.547	0.431	0.351	0.284
330	-	-	1.370	1.139	0.953	0.868	0.763	0.659	0.604	0.560	0.443	0.362	0.284
335	-	-	1.389	1.155	0.968	0.883	0.777	0.674	0.618	0.573	0.456	0.372	0.284
340	-	-	1.408	1.171	0.983	0.897	0.792	0.688	0.632	0.586	0.469	0.383	0.284
345	-	-	1.427	1.187	0.998	0.912	0.807	0.703	0.645	0.599	0.482	0.393	0.291
350	-	-	1.445	1.203	1.013	0.927	0.821	0.717	0.659	0.612	0.494	0.404	0.299

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.

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E/140, AH/022, R/014

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SteelMaster 120SB

Table 4 I/H Beams: 60 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	1.731	0.923	0.327	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
35	2.014	1.029	0.371	0.291	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
40	2.297	1.135	0.415	0.336	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
45	2.579	1.242	0.459	0.381	0.302	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284
50	2.834	1.348	0.503	0.427	0.320	0.299	0.284	0.284	0.284	0.284	0.284	0.284	0.284
55	2.974	1.455	0.547	0.472	0.338	0.316	0.294	0.284	0.284	0.284	0.284	0.284	0.284
60	3.114	1.519	0.591	0.518	0.356	0.333	0.310	0.284	0.284	0.284	0.284	0.284	0.284
65	3.254	1.583	0.635	0.563	0.373	0.350	0.326	0.299	0.284	0.284	0.284	0.284	0.284
70	3.395	1.646	0.679	0.608	0.391	0.367	0.343	0.315	0.284	0.284	0.284	0.284	0.284
75	3.535	1.709	0.723	0.654	0.409	0.385	0.359	0.330	0.297	0.284	0.284	0.284	0.284
80	3.675	1.773	0.767	0.699	0.427	0.402	0.375	0.346	0.312	0.284	0.284	0.284	0.284
85	-	1.836	0.811	0.745	0.445	0.419	0.391	0.361	0.327	0.292	0.284	0.284	0.284
90	-	1.900	0.855	0.790	0.463	0.436	0.407	0.377	0.342	0.306	0.284	0.284	0.284
95	-	1.963	0.899	0.835	0.481	0.453	0.424	0.392	0.357	0.321	0.284	0.284	0.284
100	-	2.027	0.943	0.881	0.499	0.470	0.440	0.408	0.372	0.335	0.284	0.284	0.284
105	-	2.090	0.987	0.926	0.517	0.487	0.456	0.423	0.386	0.350	0.284	0.284	0.284
110	-	2.154	1.031	0.972	0.534	0.504	0.472	0.439	0.401	0.365	0.284	0.284	0.284
115	-	2.217	1.075	1.017	0.552	0.522	0.488	0.454	0.416	0.379	0.284	0.284	0.284
120	-	2.281	1.119	1.062	0.570	0.539	0.504	0.470	0.431	0.394	0.284	0.284	0.284
125	-	2.344	1.163	1.108	0.588	0.556	0.521	0.485	0.446	0.408	0.284	0.284	0.284
130	-	2.408	1.207	1.153	0.606	0.573	0.537	0.501	0.461	0.423	0.284	0.284	0.284
135	-	2.471	1.251	1.199	0.624	0.590	0.553	0.516	0.476	0.437	0.284	0.284	0.284
140	-	2.535	1.296	1.244	0.642	0.607	0.569	0.532	0.491	0.452	0.284	0.284	0.284
145	-	2.598	1.340	1.289	0.660	0.624	0.585	0.547	0.506	0.467	0.284	0.284	0.284
150	-	2.662	1.384	1.335	0.678	0.641	0.602	0.562	0.521	0.481	0.284	0.284	0.284
155	-	2.725	1.428	1.380	0.695	0.659	0.618	0.578	0.535	0.496	0.296	0.284	0.284
160	-	2.789	1.484	1.426	0.713	0.676	0.634	0.593	0.550	0.510	0.312	0.284	0.284
165	-	2.903	1.564	1.471	0.731	0.693	0.650	0.609	0.565	0.525	0.328	0.284	0.284
170	-	3.039	1.644	1.516	0.749	0.710	0.666	0.624	0.580	0.540	0.344	0.284	0.284
175	-	3.174	1.724	1.562	0.767	0.727	0.682	0.640	0.595	0.554	0.360	0.284	0.284
180	-	3.309	1.804	1.607	0.785	0.744	0.699	0.655	0.610	0.569	0.376	0.284	0.284
185	-	3.444	1.884	1.653	0.803	0.761	0.715	0.671	0.625	0.583	0.392	0.284	0.284
190	-	3.579	1.964	1.698	0.821	0.778	0.731	0.686	0.640	0.598	0.408	0.284	0.284
195	-	3.714	2.045	1.743	0.839	0.796	0.747	0.702	0.655	0.612	0.424	0.284	0.284
200	-	-	2.125	1.789	0.856	0.813	0.763	0.717	0.669	0.627	0.440	0.284	0.284
205	-	-	2.205	1.834	0.874	0.830	0.779	0.733	0.684	0.642	0.456	0.292	0.284
210	-	-	2.285	1.880	0.892	0.847	0.796	0.748	0.699	0.656	0.472	0.307	0.284
215	-	-	2.365	1.925	0.910	0.864	0.812	0.764	0.714	0.671	0.488	0.322	0.284
220	-	-	2.445	1.970	0.928	0.881	0.828	0.779	0.729	0.685	0.504	0.338	0.284
225	-	-	2.525	2.016	0.946	0.898	0.844	0.795	0.744	0.700	0.520	0.353	0.286
230	-	-	2.605	2.061	0.964	0.915	0.860	0.810	0.759	0.715	0.536	0.368	0.299
235	-	-	2.686	2.107	0.982	0.932	0.877	0.826	0.774	0.729	0.552	0.384	0.312
240	-	-	2.766	2.152	0.999	0.950	0.893	0.841	0.789	0.744	0.568	0.399	0.326
245	-	-	2.846	2.197	1.017	0.967	0.909	0.857	0.803	0.758	0.584	0.414	0.339
250	-	-	2.926	2.243	1.035	0.984	0.925	0.872	0.818	0.773	0.600	0.430	0.352
255	-	-	3.006	2.288	1.053	1.001	0.941	0.887	0.833	0.787	0.616	0.445	0.365
260	-	-	-	2.333	1.071	1.018	0.957	0.903	0.848	0.802	0.632	0.461	0.378
265	-	-	-	2.379	1.089	1.035	0.974	0.918	0.863	0.817	0.648	0.476	0.392
270	-	-	-	2.424	1.107	1.052	0.990	0.934	0.878	0.831	0.664	0.491	0.405
275	-	-	-	2.470	1.125	1.069	1.006	0.949	0.893	0.846	0.680	0.507	0.418
280	-	-	-	2.515	1.143	1.087	1.022	0.965	0.908	0.860	0.696	0.522	0.431
285	-	-	-	2.560	1.160	1.104	1.038	0.980	0.923	0.875	0.712	0.537	0.444
290	-	-	-	2.606	1.178	1.121	1.055	0.996	0.937	0.889	0.728	0.553	0.458
295	-	-	-	2.651	1.196	1.138	1.071	1.011	0.952	0.904	0.744	0.568	0.471
300	-	-	-	2.697	1.214	1.155	1.087	1.027	0.967	0.919	0.760	0.583	0.484
305	-	-	-	2.742	1.232	1.172	1.103	1.042	0.982	0.933	0.776	0.599	0.497
310	-	-	-	2.787	1.250	1.189	1.119	1.058	0.997	0.948	0.791	0.614	0.511
315	-	-	-	2.833	1.268	1.206	1.135	1.073	1.012	0.962	0.807	0.629	0.524
320	-	-	-	2.878	1.286	1.224	1.152	1.089	1.027	0.977	0.823	0.645	0.537
325	-	-	-	2.924	1.304	1.241	1.168	1.104	1.042	0.992	0.839	0.660	0.550
330	-	-	-	2.969	1.321	1.258	1.184	1.120	1.057	1.006	0.855	0.675	0.563
335	-	-	-	3.014	1.339	1.275	1.200	1.135	1.072	1.021	0.871	0.691	0.577
340	-	-	-	3.060	1.357	1.292	1.216	1.151	1.086	1.035	0.887	0.706	0.590
345	-	-	-	-	1.375	1.309	1.233	1.166	1.101	1.050	0.903	0.722	0.603
350	-	-	-	-	1.393	1.326	1.249	1.182	1.116	1.064	0.919	0.737	0.616

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.

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Table 5 I/H Beams: 75 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	2.472	1.521	0.926	0.563	0.310	0.298	0.284	0.284	0.284	0.284	0.284	0.284	0.284
35	2.862	1.675	0.998	0.603	0.338	0.321	0.293	0.293	0.284	0.284	0.284	0.284	0.284
40	3.170	1.829	1.071	0.643	0.366	0.344	0.336	0.312	0.295	0.284	0.284	0.284	0.284
45	3.478	1.983	1.143	0.683	0.394	0.381	0.381	0.330	0.313	0.297	0.284	0.284	0.284
50	-	2.137	1.215	0.723	0.426	0.426	0.426	0.349	0.331	0.315	0.284	0.284	0.284
55	-	2.292	1.288	0.762	0.471	0.471	0.471	0.368	0.349	0.332	0.284	0.284	0.284
60	-	2.446	1.360	0.802	0.516	0.516	0.516	0.387	0.367	0.349	0.294	0.284	0.284
65	-	2.600	1.432	0.842	0.561	0.561	0.561	0.405	0.385	0.367	0.311	0.284	0.284
70	-	2.754	1.497	0.882	0.605	0.605	0.605	0.424	0.403	0.384	0.328	0.284	0.284
75	-	2.840	1.558	0.921	0.650	0.650	0.650	0.443	0.421	0.402	0.345	0.286	0.284
80	-	2.891	1.619	0.961	0.695	0.695	0.695	0.462	0.439	0.419	0.362	0.301	0.284
85	-	2.942	1.680	1.001	0.740	0.740	0.740	0.481	0.456	0.436	0.379	0.317	0.284
90	-	2.992	1.741	1.041	0.785	0.785	0.785	0.499	0.474	0.454	0.396	0.333	0.284
95	-	3.043	1.803	1.081	0.830	0.830	0.830	0.518	0.492	0.471	0.413	0.349	0.284
100	-	3.094	1.864	1.120	0.875	0.875	0.875	0.537	0.510	0.489	0.430	0.365	0.284
105	-	3.145	1.925	1.160	0.920	0.920	0.920	0.556	0.528	0.506	0.447	0.380	0.284
110	-	3.195	1.986	1.200	0.965	0.965	0.965	0.574	0.546	0.523	0.464	0.396	0.296
115	-	3.246	2.047	1.240	1.010	1.010	1.010	0.593	0.564	0.541	0.481	0.412	0.311
120	-	3.297	2.108	1.279	1.055	1.055	1.055	0.612	0.582	0.558	0.498	0.428	0.326
125	-	3.348	2.169	1.319	1.100	1.100	1.100	0.631	0.600	0.576	0.515	0.443	0.341
130	-	3.398	2.230	1.359	1.145	1.145	1.145	0.650	0.618	0.593	0.532	0.459	0.356
135	-	3.449	2.291	1.399	1.190	1.190	1.190	0.668	0.636	0.610	0.549	0.475	0.371
140	-	3.500	2.352	1.439	1.234	1.234	1.234	0.687	0.654	0.628	0.566	0.491	0.386
145	-	3.551	2.413	1.502	1.279	1.279	1.279	0.706	0.672	0.645	0.583	0.506	0.401
150	-	3.601	2.474	1.586	1.324	1.324	1.324	0.725	0.690	0.663	0.600	0.522	0.416
155	-	3.652	2.535	1.671	1.369	1.369	1.369	0.743	0.708	0.680	0.617	0.538	0.431
160	-	3.703	2.596	1.755	1.414	1.414	1.414	0.762	0.726	0.697	0.634	0.554	0.446
165	-	3.754	2.657	1.839	1.459	1.459	1.459	0.781	0.744	0.715	0.651	0.570	0.461
170	-	-	2.718	1.923	1.504	1.504	1.504	0.800	0.762	0.732	0.669	0.585	0.476
175	-	-	2.779	2.007	1.549	1.549	1.549	0.819	0.780	0.750	0.686	0.601	0.491
180	-	-	2.863	2.092	1.594	1.594	1.594	0.837	0.798	0.767	0.703	0.617	0.506
185	-	-	2.966	2.176	1.639	1.639	1.639	0.856	0.816	0.785	0.720	0.633	0.521
190	-	-	3.069	2.260	1.684	1.684	1.684	0.875	0.834	0.802	0.737	0.648	0.536
195	-	-	3.171	2.344	1.729	1.729	1.729	0.894	0.851	0.819	0.754	0.664	0.551
200	-	-	3.274	2.429	1.774	1.774	1.774	0.912	0.869	0.837	0.771	0.680	0.566
205	-	-	3.377	2.513	1.818	1.818	1.818	0.931	0.887	0.854	0.788	0.696	0.581
210	-	-	3.479	2.597	1.863	1.863	1.863	0.950	0.905	0.872	0.805	0.712	0.596
215	-	-	3.582	2.681	1.908	1.908	1.908	0.969	0.923	0.889	0.822	0.727	0.611
220	-	-	3.685	2.766	1.953	1.953	1.953	0.988	0.941	0.906	0.839	0.743	0.626
225	-	-	-	2.835	1.998	1.998	1.998	1.006	0.959	0.924	0.856	0.759	0.641
230	-	-	-	2.891	2.043	2.043	2.043	1.025	0.977	0.941	0.873	0.775	0.656
235	-	-	-	2.946	2.088	2.088	2.088	1.044	0.995	0.959	0.890	0.790	0.671
240	-	-	-	3.001	2.133	2.133	2.133	1.063	1.013	0.976	0.907	0.806	0.686
245	-	-	-	3.057	2.178	2.178	2.178	1.081	1.031	0.993	0.924	0.822	0.700
250	-	-	-	3.112	2.223	2.223	2.223	1.100	1.049	1.011	0.941	0.838	0.715
255	-	-	-	3.168	2.281	2.268	2.268	1.119	1.067	1.028	0.958	0.853	0.730
260	-	-	-	3.223	2.471	2.313	2.313	1.138	1.085	1.046	0.975	0.869	0.745
265	-	-	-	3.279	2.662	2.358	2.358	1.157	1.103	1.063	0.992	0.885	0.760
270	-	-	-	3.334	2.852	2.403	2.403	1.175	1.121	1.080	1.009	0.901	0.775
275	-	-	-	-	-	2.447	2.447	1.194	1.139	1.098	1.026	0.917	0.790
280	-	-	-	-	-	2.492	2.492	1.213	1.157	1.115	1.043	0.932	0.805
285	-	-	-	-	-	2.537	2.537	1.232	1.175	1.133	1.060	0.948	0.820
290	-	-	-	-	-	-	2.582	1.250	1.193	1.150	1.077	0.964	0.835
295	-	-	-	-	-	-	2.627	1.269	1.211	1.168	1.094	0.980	0.850
300	-	-	-	-	-	-	2.672	1.288	1.228	1.185	1.111	0.995	0.865
305	-	-	-	-	-	-	2.717	1.307	1.246	1.202	1.128	1.011	0.880
310	-	-	-	-	-	-	2.762	1.326	1.264	1.220	1.145	1.027	0.895
315	-	-	-	-	-	-	2.807	1.344	1.282	1.237	1.162	1.043	0.910
320	-	-	-	-	-	-	2.852	1.363	1.300	1.255	1.179	1.059	0.925
325	-	-	-	-	-	-	2.897	1.382	1.318	1.272	1.196	1.074	0.940
330	-	-	-	-	-	-	2.942	1.401	1.336	1.289	1.213	1.090	0.955
335	-	-	-	-	-	-	2.987	1.419	1.354	1.307	1.230	1.106	0.970
340	-	-	-	-	-	-	3.031	1.438	1.372	1.324	1.247	1.122	0.985
345	-	-	-	-	-	-	3.076	1.457	1.390	1.342	1.264	1.137	1.000
350	-	-	-	-	-	-	-	1.476	1.408	1.359	1.281	1.153	1.015

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.



SteelMaster 120SB

Table 6 I/H Beams: 90 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	3.269	2.176	1.435	1.006	0.695	0.588	0.337	0.320	0.305	0.284	0.284	0.284	0.284
35	-	2.426	1.529	1.067	0.739	0.624	0.375	0.351	0.331	0.316	0.289	0.284	0.284
40	-	2.677	1.622	1.128	0.783	0.659	0.412	0.382	0.364	0.364	0.309	0.284	0.284
45	-	2.882	1.715	1.189	0.827	0.695	0.449	0.413	0.412	0.412	0.329	0.292	0.284
50	-	3.038	1.809	1.250	0.871	0.731	0.486	0.460	0.460	0.460	0.349	0.311	0.284
55	-	3.194	1.902	1.311	0.915	0.766	0.523	0.509	0.509	0.509	0.369	0.329	0.284
60	-	3.350	1.996	1.373	0.959	0.802	0.561	0.557	0.557	0.557	0.389	0.348	0.291
65	-	3.506	2.089	1.434	1.003	0.838	0.605	0.605	0.605	0.605	0.409	0.366	0.308
70	-	3.662	2.182	1.496	1.047	0.873	0.653	0.653	0.653	0.653	0.429	0.385	0.326
75	-	-	2.276	1.560	1.091	0.909	0.701	0.701	0.701	0.701	0.449	0.403	0.343
80	-	-	2.369	1.624	1.135	0.945	0.750	0.750	0.750	0.750	0.469	0.421	0.360
85	-	-	2.463	1.688	1.179	0.981	0.798	0.798	0.798	0.798	0.489	0.440	0.378
90	-	-	2.556	1.751	1.222	1.016	0.846	0.846	0.846	0.846	0.509	0.458	0.395
95	-	-	2.649	1.815	1.266	1.052	0.894	0.894	0.894	0.894	0.529	0.477	0.412
100	-	-	2.743	1.879	1.310	1.088	0.942	0.942	0.942	0.942	0.548	0.495	0.429
105	-	-	2.827	1.943	1.354	1.123	0.991	0.991	0.991	0.991	0.568	0.514	0.447
110	-	-	2.891	2.006	1.398	1.159	1.039	1.039	1.039	1.039	0.588	0.532	0.464
115	-	-	2.955	2.070	1.442	1.195	1.087	1.087	1.087	1.087	0.608	0.550	0.481
120	-	-	3.019	2.134	1.508	1.230	1.135	1.135	1.135	1.135	0.628	0.569	0.499
125	-	-	3.083	2.198	1.584	1.266	1.183	1.183	1.183	1.183	0.648	0.587	0.516
130	-	-	3.147	2.261	1.660	1.302	1.231	1.231	1.231	1.231	0.668	0.606	0.533
135	-	-	3.211	2.325	1.736	1.337	1.280	1.280	1.280	1.280	0.688	0.624	0.551
140	-	-	3.274	2.389	1.812	1.373	1.328	1.328	1.328	1.328	0.708	0.643	0.568
145	-	-	3.338	2.453	1.888	1.409	1.376	1.376	1.376	1.376	0.728	0.661	0.585
150	-	-	3.402	2.516	1.964	1.445	1.424	1.424	1.424	1.424	0.748	0.679	0.603
155	-	-	3.466	2.580	2.039	1.523	1.472	1.472	1.472	1.472	0.768	0.698	0.620
160	-	-	3.530	2.644	2.115	1.624	1.521	1.521	1.521	1.521	0.788	0.716	0.637
165	-	-	3.594	2.707	2.191	1.725	1.569	1.569	1.569	1.569	0.808	0.735	0.655
170	-	-	3.658	2.771	2.267	1.826	1.617	1.617	1.617	1.617	0.827	0.753	0.672
175	-	-	3.722	2.850	2.343	1.927	1.665	1.665	1.665	1.665	0.847	0.772	0.689
180	-	-	-	2.949	2.419	2.028	1.713	1.713	1.713	1.713	0.867	0.790	0.707
185	-	-	-	3.047	2.495	2.129	1.762	1.762	1.762	1.762	0.887	0.808	0.724
190	-	-	-	3.146	2.571	2.230	1.810	1.810	1.810	1.810	0.907	0.827	0.741
195	-	-	-	3.244	2.647	2.331	1.858	1.858	1.858	1.858	0.927	0.845	0.759
200	-	-	-	3.343	2.723	2.432	1.918	1.906	1.906	1.906	0.947	0.864	0.776
205	-	-	-	3.442	2.799	2.532	2.036	1.954	1.954	1.954	0.967	0.882	0.793
210	-	-	-	3.540	2.867	2.633	2.154	2.003	2.003	2.003	0.987	0.901	0.811
215	-	-	-	3.639	2.935	2.734	2.272	2.051	2.051	2.051	1.007	0.919	0.828
220	-	-	-	3.737	3.002	2.828	2.390	2.099	2.099	2.099	1.027	0.937	0.845
225	-	-	-	-	3.070	2.904	2.508	2.147	2.147	2.147	1.047	0.956	0.863
230	-	-	-	-	3.137	2.979	2.626	2.195	2.195	2.195	1.067	0.974	0.880
235	-	-	-	-	3.205	3.055	2.744	2.244	2.244	2.244	1.087	0.993	0.897
240	-	-	-	-	3.272	3.130	2.851	2.329	2.292	2.292	1.107	1.011	0.915
245	-	-	-	-	3.340	3.206	2.945	2.484	2.340	2.340	1.126	1.030	0.932
250	-	-	-	-	3.407	3.281	3.039	2.640	2.388	2.388	1.146	1.048	0.949
255	-	-	-	-	3.475	3.357	3.133	2.796	2.436	2.436	1.166	1.066	0.967
260	-	-	-	-	3.543	3.432	3.226	2.921	2.485	2.485	1.186	1.085	0.984
265	-	-	-	-	3.610	3.508	3.320	3.044	2.533	2.533	1.206	1.103	1.001
270	-	-	-	-	3.678	3.583	3.414	3.166	2.581	2.581	1.226	1.122	1.019
275	-	-	-	-	3.745	3.659	3.508	3.289	2.803	2.803	1.246	1.140	1.036
280	-	-	-	-	-	3.734	3.602	3.412	2.993	2.677	1.266	1.159	1.053
285	-	-	-	-	-	-	3.696	3.535	3.181	2.726	1.286	1.177	1.071
290	-	-	-	-	-	-	-	3.657	3.370	2.774	1.306	1.195	1.088
295	-	-	-	-	-	-	-	-	3.558	2.929	1.326	1.214	1.105
300	-	-	-	-	-	-	-	-	3.747	3.321	1.346	1.232	1.123
305	-	-	-	-	-	-	-	-	-	-	1.366	1.251	1.140
310	-	-	-	-	-	-	-	-	-	-	1.386	1.269	1.157
315	-	-	-	-	-	-	-	-	-	-	1.406	1.288	1.175
320	-	-	-	-	-	-	-	-	-	-	1.425	1.306	1.192
325	-	-	-	-	-	-	-	-	-	-	1.445	1.324	1.209
330	-	-	-	-	-	-	-	-	-	-	1.465	1.343	1.227
335	-	-	-	-	-	-	-	-	-	-	1.485	1.361	1.244
340	-	-	-	-	-	-	-	-	-	-	1.505	1.380	1.261
345	-	-	-	-	-	-	-	-	-	-	1.525	1.398	1.279
350	-	-	-	-	-	-	-	-	-	-	1.545	1.417	1.296

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.



SteelMaster 120SB

Table 7 I/H Beams: 105 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	-	2.787	2.004	1.437	1.080	0.958	0.820	0.698	0.583	0.343	0.311	0.284	0.284
35	-	3.134	2.189	1.526	1.150	1.014	0.872	0.744	0.622	0.384	0.347	0.306	0.284
40	-	3.480	2.374	1.614	1.221	1.070	0.924	0.790	0.660	0.426	0.382	0.331	0.287
45	-	-	2.559	1.703	1.291	1.125	0.976	0.836	0.699	0.467	0.417	0.356	0.307
50	-	-	2.745	1.792	1.362	1.181	1.028	0.882	0.738	0.508	0.453	0.381	0.327
55	-	-	2.865	1.880	1.432	1.237	1.080	0.928	0.777	0.550	0.488	0.406	0.348
60	-	-	2.951	1.969	1.497	1.293	1.131	0.974	0.815	0.591	0.523	0.431	0.368
65	-	-	3.038	2.057	1.559	1.348	1.183	1.020	0.854	0.633	0.558	0.455	0.388
70	-	-	3.125	2.146	1.620	1.404	1.235	1.065	0.893	0.674	0.594	0.480	0.408
75	-	-	3.211	2.235	1.682	1.460	1.287	1.111	0.932	0.715	0.629	0.505	0.428
80	-	-	3.298	2.323	1.743	1.527	1.339	1.157	0.970	0.757	0.664	0.530	0.449
85	-	-	3.385	2.412	1.805	1.593	1.391	1.203	1.009	0.798	0.700	0.555	0.469
90	-	-	3.471	2.501	1.866	1.659	1.443	1.249	1.048	0.846	0.735	0.580	0.489
95	-	-	3.558	2.589	1.928	1.726	1.507	1.295	1.087	0.894	0.770	0.605	0.509
100	-	-	3.645	2.678	1.990	1.792	1.575	1.341	1.125	0.942	0.805	0.630	0.529
105	-	-	3.731	2.766	2.051	1.858	1.643	1.386	1.164	0.991	0.841	0.654	0.550
110	-	-	-	2.843	2.113	1.925	1.711	1.432	1.203	1.039	0.876	0.679	0.570
115	-	-	-	2.910	2.174	1.991	1.778	1.491	1.241	1.087	0.911	0.704	0.590
120	-	-	-	2.976	2.236	2.057	1.846	1.566	1.280	1.135	0.947	0.729	0.610
125	-	-	-	3.043	2.298	2.124	1.914	1.640	1.319	1.183	0.982	0.754	0.630
130	-	-	-	3.110	2.359	2.190	1.982	1.714	1.358	1.231	1.017	0.779	0.651
135	-	-	-	3.176	2.421	2.256	2.050	1.789	1.396	1.280	1.052	0.804	0.671
140	-	-	-	3.243	2.482	2.323	2.118	1.863	1.435	1.328	1.088	0.829	0.691
145	-	-	-	3.310	2.544	2.389	2.185	1.938	1.497	1.376	1.123	0.854	0.711
150	-	-	-	3.376	2.605	2.455	2.253	2.012	1.588	1.424	1.158	0.878	0.732
155	-	-	-	3.443	2.667	2.522	2.321	2.087	1.679	1.472	1.194	0.903	0.752
160	-	-	-	3.510	2.729	2.588	2.389	2.161	1.770	1.521	1.229	0.928	0.772
165	-	-	-	3.576	2.790	2.655	2.457	2.235	1.861	1.569	1.264	0.953	0.792
170	-	-	-	3.643	2.891	2.721	2.525	2.310	1.952	1.617	1.299	0.978	0.812
175	-	-	-	3.710	3.006	2.787	2.592	2.384	2.042	1.674	1.335	1.003	0.833
180	-	-	-	-	3.121	2.856	2.660	2.459	2.133	1.778	1.370	1.028	0.853
185	-	-	-	-	3.236	2.926	2.728	2.533	2.224	1.883	1.405	1.053	0.873
190	-	-	-	-	3.351	2.995	2.796	2.607	2.315	1.987	1.441	1.077	0.893
195	-	-	-	-	3.466	3.065	2.871	2.682	2.406	2.092	1.521	1.102	0.913
200	-	-	-	-	3.582	3.135	2.948	2.756	2.497	2.196	1.641	1.127	0.934
205	-	-	-	-	3.697	3.204	3.025	2.834	2.588	2.300	1.760	1.152	0.954
210	-	-	-	-	-	3.274	3.101	2.920	2.679	2.405	1.880	1.177	0.974
215	-	-	-	-	-	3.344	3.178	3.005	2.770	2.509	2.000	1.202	0.994
220	-	-	-	-	-	3.413	3.255	3.091	2.866	2.614	2.119	1.227	1.014
225	-	-	-	-	-	3.483	3.332	3.176	2.964	2.718	2.239	1.252	1.035
230	-	-	-	-	-	3.553	3.408	3.262	3.063	2.824	2.358	1.277	1.055
235	-	-	-	-	-	3.622	3.485	3.347	3.161	2.940	2.478	1.301	1.075
240	-	-	-	-	-	3.692	3.562	3.433	3.260	3.056	2.598	1.326	1.095
245	-	-	-	-	-	3.762	3.639	3.519	3.358	3.172	2.717	1.351	1.115
250	-	-	-	-	-	-	3.715	3.604	3.457	3.288	2.848	1.376	1.136
255	-	-	-	-	-	-	-	3.690	3.555	3.404	3.011	1.401	1.156
260	-	-	-	-	-	-	-	-	3.654	3.519	3.174	1.426	1.176
265	-	-	-	-	-	-	-	-	3.752	3.635	3.337	1.451	1.196
270	-	-	-	-	-	-	-	-	-	3.751	3.500	1.711	1.216
275	-	-	-	-	-	-	-	-	-	-	3.663	2.051	1.237
280	-	-	-	-	-	-	-	-	-	-	-	2.391	1.257
285	-	-	-	-	-	-	-	-	-	-	-	2.732	1.277
290	-	-	-	-	-	-	-	-	-	-	-	3.337	1.297
295	-	-	-	-	-	-	-	-	-	-	-	-	1.317
300	-	-	-	-	-	-	-	-	-	-	-	-	1.338
305	-	-	-	-	-	-	-	-	-	-	-	-	1.358
310	-	-	-	-	-	-	-	-	-	-	-	-	1.378
315	-	-	-	-	-	-	-	-	-	-	-	-	1.398
320	-	-	-	-	-	-	-	-	-	-	-	-	1.419
325	-	-	-	-	-	-	-	-	-	-	-	-	1.439
330	-	-	-	-	-	-	-	-	-	-	-	-	1.459
335	-	-	-	-	-	-	-	-	-	-	-	-	1.479
340	-	-	-	-	-	-	-	-	-	-	-	-	1.499
345	-	-	-	-	-	-	-	-	-	-	-	-	1.520
350	-	-	-	-	-	-	-	-	-	-	-	-	1.540

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.



SteelMaster 120SB

Table 8 I/H Beams: 120 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	-	-	2.560	1.947	1.452	1.313	1.157	1.022	0.890	0.784	0.607	0.323	0.284
35	-	-	2.834	2.119	1.548	1.425	1.246	1.093	0.951	0.841	0.660	0.367	0.306
40	-	-	3.073	2.290	1.644	1.503	1.334	1.164	1.011	0.899	0.713	0.412	0.339
45	-	-	3.312	2.461	1.740	1.568	1.423	1.236	1.071	0.956	0.767	0.456	0.371
50	-	-	3.551	2.632	1.836	1.634	1.494	1.307	1.132	1.014	0.820	0.500	0.404
55	-	-	-	2.804	1.931	1.699	1.554	1.378	1.192	1.071	0.874	0.544	0.437
60	-	-	-	2.889	2.027	1.764	1.614	1.449	1.252	1.129	0.927	0.589	0.470
65	-	-	-	2.972	2.123	1.829	1.674	1.513	1.313	1.186	0.980	0.633	0.503
70	-	-	-	3.055	2.219	1.894	1.734	1.575	1.373	1.243	1.034	0.677	0.535
75	-	-	-	3.138	2.315	1.960	1.794	1.637	1.434	1.301	1.087	0.721	0.568
80	-	-	-	3.222	2.411	2.025	1.854	1.699	1.497	1.358	1.141	0.765	0.601
85	-	-	-	3.305	2.507	2.090	1.914	1.761	1.563	1.416	1.194	0.810	0.634
90	-	-	-	3.388	2.603	2.155	1.974	1.824	1.629	1.476	1.247	0.854	0.667
95	-	-	-	3.472	2.699	2.220	2.034	1.886	1.695	1.544	1.301	0.898	0.699
100	-	-	-	3.555	2.795	2.286	2.094	1.948	1.761	1.612	1.354	0.942	0.732
105	-	-	-	3.638	2.863	2.351	2.154	2.010	1.827	1.679	1.408	0.986	0.765
110	-	-	-	3.722	2.927	2.416	2.214	2.072	1.893	1.747	1.462	1.031	0.798
115	-	-	-	-	2.991	2.481	2.274	2.135	1.959	1.815	1.535	1.075	0.831
120	-	-	-	-	3.056	2.546	2.334	2.197	2.025	1.883	1.608	1.119	0.863
125	-	-	-	-	3.120	2.612	2.394	2.259	2.091	1.951	1.681	1.163	0.896
130	-	-	-	-	3.184	2.677	2.454	2.321	2.157	2.019	1.754	1.208	0.929
135	-	-	-	-	3.248	2.742	2.514	2.384	2.223	2.086	1.827	1.252	0.962
140	-	-	-	-	3.313	2.808	2.574	2.446	2.289	2.154	1.900	1.296	0.995
145	-	-	-	-	3.377	2.922	2.634	2.508	2.355	2.222	1.973	1.340	1.027
150	-	-	-	-	3.441	3.036	2.694	2.570	2.421	2.290	2.046	1.384	1.060
155	-	-	-	-	3.505	3.150	2.754	2.632	2.488	2.358	2.119	1.429	1.093
160	-	-	-	-	3.570	3.264	2.822	2.695	2.554	2.426	2.192	1.491	1.126
165	-	-	-	-	3.634	3.378	2.949	2.757	2.620	2.493	2.266	1.586	1.159
170	-	-	-	-	3.698	3.492	3.075	2.829	2.686	2.561	2.339	1.682	1.191
175	-	-	-	-	-	3.606	3.201	2.942	2.752	2.629	2.412	1.777	1.224
180	-	-	-	-	-	3.720	3.327	3.055	2.822	2.697	2.485	1.873	1.257
185	-	-	-	-	-	-	3.454	3.168	2.916	2.765	2.558	1.968	1.290
190	-	-	-	-	-	-	3.580	3.281	3.009	2.840	2.631	2.063	1.323
195	-	-	-	-	-	-	3.706	3.394	3.103	2.929	2.704	2.159	1.355
200	-	-	-	-	-	-	-	3.507	3.196	3.017	2.777	2.254	1.388
205	-	-	-	-	-	-	-	3.619	3.290	3.106	2.867	2.349	1.421
210	-	-	-	-	-	-	-	3.732	3.383	3.194	2.969	2.445	1.454
215	-	-	-	-	-	-	-	-	3.477	3.283	3.071	2.540	1.588
220	-	-	-	-	-	-	-	-	3.570	3.371	3.173	2.636	1.733
225	-	-	-	-	-	-	-	-	3.664	3.459	3.275	2.731	1.878
230	-	-	-	-	-	-	-	-	3.758	3.548	3.377	2.836	2.023
235	-	-	-	-	-	-	-	-	-	3.636	3.479	2.981	2.169
240	-	-	-	-	-	-	-	-	-	3.725	3.581	3.125	2.314
245	-	-	-	-	-	-	-	-	-	-	3.684	3.270	2.459
250	-	-	-	-	-	-	-	-	-	-	-	3.415	2.604
255	-	-	-	-	-	-	-	-	-	-	-	3.559	2.749
260	-	-	-	-	-	-	-	-	-	-	-	3.704	2.933
265	-	-	-	-	-	-	-	-	-	-	-	-	3.142
270	-	-	-	-	-	-	-	-	-	-	-	-	3.352
275	-	-	-	-	-	-	-	-	-	-	-	-	3.561
280	-	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only.

Results apply to I/H beams with concrete slabs with 3 sided fire exposure.

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SteelMaster 120SB

Table 9 I/H Columns: 15 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
35	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
40	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
45	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
50	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
55	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
60	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
65	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
70	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
75	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
80	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
85	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
90	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
95	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
100	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
105	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
110	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
115	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
120	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
125	0.294	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
130	0.314	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
135	0.333	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
140	0.352	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
145	0.371	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
150	0.391	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
155	0.410	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
160	0.429	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
165	0.448	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
170	0.468	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
175	0.487	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
180	0.506	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
185	0.526	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
190	0.545	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
195	0.564	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
200	0.583	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
205	0.603	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
210	0.622	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
215	0.641	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
220	0.660	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
225	0.680	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
230	0.699	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
235	0.718	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
240	0.738	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
245	0.757	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
250	0.776	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
255	0.795	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
260	0.815	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
265	0.834	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
270	0.853	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
275	0.872	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
280	0.892	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
285	0.911	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
290	0.930	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
295	0.949	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
300	0.969	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
305	0.988	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
310	1.007	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
315	1.027	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
320	1.046	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
325	1.065	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
330	1.084	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
335	1.104	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
340	1.123	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
345	1.142	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
350	1.161	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
355	1.181	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
360	1.200	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
365	1.219	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
370	1.239	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
375	1.258	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.



SteelMaster 120SB

Table 10 I/H Columns: 30 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
35	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
40	0.316	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
45	0.361	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
50	0.406	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
55	0.451	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
60	0.496	0.294	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
65	0.541	0.309	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
70	0.586	0.323	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
75	0.631	0.337	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
80	0.676	0.351	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
85	0.721	0.366	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
90	0.766	0.380	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
95	0.811	0.394	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
100	0.856	0.408	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
105	0.901	0.423	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
110	0.946	0.437	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
115	0.991	0.451	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
120	1.036	0.465	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
125	1.081	0.479	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
130	1.126	0.494	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
135	1.171	0.508	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
140	1.216	0.522	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
145	1.261	0.536	0.294	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
150	1.306	0.551	0.307	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
155	1.351	0.565	0.320	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
160	1.396	0.579	0.333	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
165	1.441	0.593	0.346	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
170	1.486	0.608	0.360	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
175	1.531	0.622	0.373	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
180	1.581	0.636	0.386	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
185	1.635	0.650	0.399	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
190	1.689	0.665	0.412	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
195	1.743	0.679	0.425	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
200	1.797	0.693	0.438	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
205	1.851	0.707	0.451	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
210	1.905	0.722	0.464	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
215	1.960	0.736	0.477	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
220	2.014	0.750	0.490	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
225	2.068	0.764	0.503	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
230	2.122	0.778	0.516	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
235	2.176	0.793	0.529	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
240	2.230	0.807	0.542	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
245	2.284	0.821	0.555	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
250	2.338	0.835	0.568	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
255	2.392	0.850	0.581	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
260	2.446	0.864	0.594	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
265	2.501	0.878	0.607	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
270	2.555	0.892	0.620	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
275	2.609	0.907	0.633	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
280	2.663	0.921	0.646	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
285	2.717	0.935	0.659	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
290	2.771	0.949	0.672	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
295	2.825	0.964	0.685	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
300	2.879	0.978	0.698	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
305	2.933	0.992	0.711	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
310	2.987	1.006	0.724	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
315	3.042	1.021	0.737	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
320	3.096	1.035	0.750	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
325	3.150	1.049	0.763	0.297	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
330	-	1.063	0.776	0.312	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
335	-	1.077	0.789	0.327	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
340	-	1.092	0.802	0.343	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
345	-	1.106	0.815	0.358	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
350	-	1.120	0.828	0.373	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
355	-	1.134	0.841	0.388	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
360	-	1.149	0.854	0.404	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
365	-	1.163	0.867	0.419	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
370	-	1.177	0.880	0.434	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
375	-	1.191	0.893	0.449	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.



SteelMaster 120SB

Table 11 I/H Columns: 45 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	0.779	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
35	0.977	0.327	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
40	1.175	0.358	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
45	1.373	0.388	0.306	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
50	1.554	0.419	0.323	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
55	1.600	0.450	0.340	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
60	1.647	0.481	0.357	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
65	1.693	0.512	0.374	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
70	1.739	0.543	0.391	0.302	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
75	1.785	0.574	0.408	0.317	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
80	1.832	0.604	0.425	0.332	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
85	1.878	0.635	0.442	0.348	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
90	1.924	0.666	0.459	0.363	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
95	1.971	0.697	0.476	0.378	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
100	2.017	0.728	0.493	0.393	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
105	2.063	0.759	0.510	0.409	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
110	2.109	0.790	0.527	0.424	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
115	2.156	0.820	0.544	0.439	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
120	2.202	0.851	0.561	0.454	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
125	2.248	0.882	0.578	0.470	0.305	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
130	2.295	0.913	0.595	0.485	0.319	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
135	2.341	0.944	0.612	0.500	0.334	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
140	2.387	0.975	0.629	0.515	0.349	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
145	2.434	1.006	0.646	0.531	0.363	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
150	2.480	1.036	0.663	0.546	0.378	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
155	2.526	1.067	0.680	0.561	0.392	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
160	2.572	1.098	0.697	0.576	0.407	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
165	2.619	1.129	0.714	0.592	0.422	0.311	0.291	0.291	0.291	0.291	0.291	0.291	0.291
170	2.665	1.160	0.731	0.607	0.436	0.326	0.291	0.291	0.291	0.291	0.291	0.291	0.291
175	2.711	1.191	0.748	0.622	0.451	0.341	0.291	0.291	0.291	0.291	0.291	0.291	0.291
180	2.758	1.222	0.765	0.637	0.465	0.356	0.291	0.291	0.291	0.291	0.291	0.291	0.291
185	2.804	1.253	0.782	0.653	0.480	0.371	0.291	0.291	0.291	0.291	0.291	0.291	0.291
190	2.850	1.283	0.799	0.668	0.495	0.386	0.291	0.291	0.291	0.291	0.291	0.291	0.291
195	2.896	1.314	0.816	0.683	0.509	0.401	0.291	0.291	0.291	0.291	0.291	0.291	0.291
200	2.943	1.345	0.833	0.699	0.524	0.416	0.291	0.291	0.291	0.291	0.291	0.291	0.291
205	2.989	1.376	0.850	0.714	0.539	0.430	0.312	0.291	0.291	0.291	0.291	0.291	0.291
210	3.035	1.407	0.867	0.729	0.553	0.445	0.326	0.291	0.291	0.291	0.291	0.291	0.291
215	3.082	1.438	0.884	0.744	0.568	0.460	0.341	0.291	0.291	0.291	0.291	0.291	0.291
220	3.128	1.469	0.901	0.760	0.582	0.475	0.356	0.291	0.291	0.291	0.291	0.291	0.291
225	-	1.499	0.918	0.775	0.597	0.490	0.370	0.291	0.291	0.291	0.291	0.291	0.291
230	-	1.530	0.935	0.790	0.612	0.505	0.385	0.291	0.291	0.291	0.291	0.291	0.291
235	-	1.576	0.952	0.805	0.626	0.520	0.400	0.291	0.291	0.291	0.291	0.291	0.291
240	-	1.646	0.968	0.821	0.641	0.535	0.414	0.291	0.291	0.291	0.291	0.291	0.291
245	-	1.715	0.985	0.836	0.656	0.549	0.429	0.291	0.291	0.291	0.291	0.291	0.291
250	-	1.784	1.002	0.851	0.670	0.564	0.444	0.312	0.291	0.291	0.291	0.291	0.291
255	-	1.854	1.019	0.866	0.685	0.579	0.458	0.327	0.291	0.291	0.291	0.291	0.291
260	-	1.923	1.036	0.882	0.699	0.594	0.473	0.342	0.291	0.291	0.291	0.291	0.291
265	-	1.992	1.053	0.897	0.714	0.609	0.488	0.357	0.291	0.291	0.291	0.291	0.291
270	-	2.062	1.070	0.912	0.729	0.624	0.502	0.372	0.291	0.291	0.291	0.291	0.291
275	-	2.131	1.087	0.927	0.743	0.639	0.517	0.387	0.291	0.291	0.291	0.291	0.291
280	-	2.201	1.104	0.943	0.758	0.654	0.532	0.401	0.291	0.291	0.291	0.291	0.291
285	-	2.270	1.121	0.958	0.772	0.668	0.547	0.416	0.291	0.291	0.291	0.291	0.291
290	-	2.339	1.138	0.973	0.787	0.683	0.561	0.431	0.291	0.291	0.291	0.291	0.291
295	-	2.409	1.155	0.989	0.802	0.698	0.576	0.446	0.291	0.291	0.291	0.291	0.291
300	-	2.478	1.172	1.004	0.816	0.713	0.591	0.461	0.292	0.291	0.291	0.291	0.291
305	-	2.547	1.189	1.019	0.831	0.728	0.605	0.476	0.307	0.291	0.291	0.291	0.291
310	-	2.617	1.206	1.034	0.846	0.743	0.620	0.491	0.323	0.291	0.291	0.291	0.291
315	-	2.686	1.223	1.050	0.860	0.758	0.635	0.506	0.338	0.291	0.291	0.291	0.291
320	-	2.756	1.240	1.065	0.875	0.773	0.649	0.521	0.354	0.291	0.291	0.291	0.291
325	-	2.825	1.257	1.080	0.889	0.787	0.664	0.535	0.369	0.291	0.291	0.291	0.291
330	-	2.894	1.274	1.095	0.904	0.802	0.679	0.550	0.385	0.291	0.291	0.291	0.291
335	-	2.964	1.291	1.111	0.919	0.817	0.693	0.565	0.400	0.305	0.291	0.291	0.291
340	-	3.033	1.308	1.126	0.933	0.832	0.708	0.580	0.416	0.321	0.291	0.291	0.291
345	-	3.102	1.325	1.141	0.948	0.847	0.723	0.595	0.432	0.336	0.291	0.291	0.291
350	-	3.172	1.342	1.156	0.962	0.862	0.737	0.610	0.447	0.352	0.291	0.291	0.291
355	-	-	1.359	1.172	0.977	0.877	0.752	0.625	0.463	0.367	0.291	0.291	0.291
360	-	-	1.376	1.187	0.992	0.892	0.767	0.640	0.478	0.383	0.305	0.291	0.291
365	-	-	1.393	1.202	1.006	0.906	0.782	0.655	0.494	0.398	0.319	0.291	0.291
370	-	-	1.410	1.217	1.021	0.921	0.796	0.669	0.509	0.413	0.334	0.291	0.291
375	-	-	1.427	1.233	1.036	0.936	0.811	0.684	0.525	0.429	0.348	0.291	0.291

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.

SteelMaster 120SB

Table 12 I/H Columns: 60 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	1.582	0.805	0.324	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
35	1.734	0.937	0.358	0.308	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
40	1.886	1.070	0.391	0.327	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
45	2.038	1.203	0.425	0.347	0.299	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
50	2.190	1.335	0.458	0.366	0.316	0.294	0.291	0.291	0.291	0.291	0.291	0.291	0.291
55	2.342	1.468	0.491	0.385	0.334	0.310	0.291	0.291	0.291	0.291	0.291	0.291	0.291
60	2.494	1.564	0.525	0.405	0.351	0.327	0.291	0.291	0.291	0.291	0.291	0.291	0.291
65	2.646	1.604	0.558	0.424	0.368	0.344	0.302	0.291	0.291	0.291	0.291	0.291	0.291
70	2.798	1.643	0.592	0.444	0.386	0.360	0.318	0.291	0.291	0.291	0.291	0.291	0.291
75	2.950	1.683	0.625	0.463	0.403	0.377	0.334	0.293	0.291	0.291	0.291	0.291	0.291
80	-	1.722	0.659	0.483	0.420	0.394	0.350	0.308	0.291	0.291	0.291	0.291	0.291
85	-	1.762	0.692	0.502	0.437	0.410	0.366	0.323	0.291	0.291	0.291	0.291	0.291
90	-	1.801	0.726	0.521	0.455	0.427	0.382	0.339	0.295	0.291	0.291	0.291	0.291
95	-	1.841	0.759	0.541	0.472	0.443	0.398	0.354	0.310	0.291	0.291	0.291	0.291
100	-	1.880	0.793	0.560	0.489	0.460	0.413	0.369	0.325	0.291	0.291	0.291	0.291
105	-	1.920	0.826	0.580	0.507	0.477	0.429	0.385	0.340	0.298	0.291	0.291	0.291
110	-	1.959	0.860	0.599	0.524	0.493	0.445	0.400	0.355	0.313	0.291	0.291	0.291
115	-	1.999	0.893	0.618	0.541	0.510	0.461	0.416	0.370	0.328	0.291	0.291	0.291
120	-	2.038	0.927	0.638	0.559	0.527	0.477	0.431	0.385	0.342	0.291	0.291	0.291
125	-	2.078	0.960	0.657	0.576	0.543	0.493	0.446	0.400	0.357	0.291	0.291	0.291
130	-	2.117	0.994	0.677	0.593	0.560	0.509	0.462	0.415	0.372	0.291	0.291	0.291
135	-	2.157	1.027	0.696	0.611	0.577	0.524	0.477	0.430	0.386	0.304	0.291	0.291
140	-	2.196	1.061	0.716	0.628	0.593	0.540	0.492	0.445	0.401	0.318	0.291	0.291
145	-	2.236	1.094	0.735	0.645	0.610	0.556	0.508	0.460	0.416	0.333	0.291	0.291
150	-	2.275	1.127	0.754	0.663	0.627	0.572	0.523	0.475	0.431	0.347	0.291	0.291
155	-	2.315	1.161	0.774	0.680	0.643	0.588	0.538	0.490	0.445	0.362	0.291	0.291
160	-	2.354	1.194	0.793	0.697	0.660	0.604	0.554	0.505	0.460	0.376	0.291	0.291
165	-	2.394	1.228	0.813	0.715	0.677	0.620	0.569	0.520	0.475	0.391	0.291	0.291
170	-	2.433	1.261	0.832	0.732	0.693	0.635	0.584	0.534	0.490	0.406	0.291	0.291
175	-	2.473	1.295	0.851	0.749	0.710	0.651	0.600	0.549	0.504	0.420	0.291	0.291
180	-	2.512	1.328	0.871	0.767	0.727	0.667	0.615	0.564	0.519	0.435	0.291	0.291
185	-	2.552	1.362	0.890	0.784	0.743	0.683	0.630	0.579	0.534	0.449	0.291	0.291
190	-	2.591	1.395	0.910	0.801	0.760	0.699	0.646	0.594	0.548	0.464	0.291	0.291
195	-	2.631	1.429	0.929	0.819	0.776	0.715	0.661	0.609	0.563	0.478	0.291	0.291
200	-	2.670	1.462	0.948	0.836	0.793	0.731	0.677	0.624	0.578	0.493	0.300	0.291
205	-	2.710	1.496	0.968	0.853	0.810	0.746	0.692	0.639	0.593	0.507	0.314	0.291
210	-	2.749	1.529	0.987	0.870	0.826	0.762	0.707	0.654	0.607	0.522	0.328	0.291
215	-	2.789	1.571	1.007	0.888	0.843	0.778	0.723	0.669	0.622	0.536	0.343	0.291
220	-	2.828	1.626	1.026	0.905	0.860	0.794	0.738	0.684	0.637	0.551	0.357	0.291
225	-	2.868	1.680	1.046	0.922	0.876	0.810	0.753	0.699	0.651	0.565	0.371	0.291
230	-	2.907	1.735	1.065	0.940	0.893	0.826	0.769	0.714	0.666	0.580	0.386	0.291
235	-	2.947	1.789	1.084	0.957	0.910	0.842	0.784	0.729	0.681	0.594	0.400	0.291
240	-	2.986	1.844	1.104	0.974	0.926	0.858	0.799	0.744	0.696	0.609	0.414	0.291
245	-	3.026	1.899	1.123	0.992	0.943	0.873	0.815	0.759	0.710	0.623	0.428	0.291
250	-	3.065	1.953	1.143	1.009	0.960	0.889	0.830	0.774	0.725	0.638	0.443	0.291
255	-	-	2.008	1.162	1.026	0.976	0.905	0.845	0.789	0.740	0.652	0.457	0.291
260	-	-	2.062	1.181	1.044	0.993	0.921	0.861	0.804	0.755	0.667	0.471	0.291
265	-	-	2.117	1.201	1.061	1.010	0.937	0.876	0.819	0.769	0.681	0.486	0.291
270	-	-	2.171	1.220	1.078	1.026	0.953	0.891	0.833	0.784	0.696	0.500	0.291
275	-	-	2.226	1.240	1.096	1.043	0.969	0.907	0.848	0.799	0.710	0.514	0.291
280	-	-	2.280	1.259	1.113	1.060	0.984	0.922	0.863	0.813	0.725	0.529	0.291
285	-	-	2.335	1.278	1.130	1.076	1.000	0.938	0.878	0.828	0.739	0.543	0.291
290	-	-	2.389	1.298	1.148	1.093	1.016	0.953	0.893	0.843	0.754	0.557	0.291
295	-	-	2.444	1.317	1.165	1.109	1.032	0.968	0.908	0.858	0.769	0.572	0.291
300	-	-	2.499	1.337	1.182	1.126	1.048	0.984	0.923	0.872	0.783	0.586	0.291
305	-	-	2.553	1.356	1.200	1.143	1.064	0.999	0.938	0.887	0.798	0.600	0.291
310	-	-	2.608	1.376	1.217	1.159	1.080	1.014	0.953	0.902	0.812	0.615	0.291
315	-	-	2.662	1.395	1.234	1.176	1.095	1.030	0.968	0.917	0.827	0.629	0.291
320	-	-	2.717	1.414	1.252	1.193	1.111	1.045	0.983	0.931	0.841	0.643	0.291
325	-	-	2.771	1.434	1.269	1.209	1.127	1.060	0.998	0.946	0.856	0.658	0.291
330	-	-	2.826	1.453	1.286	1.226	1.143	1.076	1.013	0.961	0.870	0.672	0.297
335	-	-	2.880	1.473	1.304	1.243	1.159	1.091	1.028	0.975	0.885	0.686	0.313
340	-	-	2.935	1.492	1.321	1.259	1.175	1.106	1.043	0.990	0.899	0.701	0.329
345	-	-	2.990	1.511	1.338	1.276	1.191	1.122	1.058	1.005	0.914	0.715	0.345
350	-	-	3.044	1.531	1.355	1.293	1.206	1.137	1.073	1.020	0.928	0.729	0.360
355	-	-	3.099	1.558	1.373	1.309	1.222	1.153	1.088	1.034	0.943	0.744	0.376
360	-	-	3.153	1.696	1.390	1.326	1.238	1.168	1.103	1.049	0.957	0.758	0.392
365	-	-	-	1.834	1.407	1.343	1.254	1.183	1.118	1.064	0.972	0.772	0.408
370	-	-	-	1.972	1.425	1.359	1.270	1.199	1.133	1.078	0.986	0.787	0.423
375	-	-	-	2.110	1.442	1.376	1.286	1.214	1.147	1.093	1.001	0.801	0.439

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.

Paul Rigg

SteelMaster 120SB

Table 13 I/H Columns: 75 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	2.463	1.419	0.848	0.353	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
35	2.731	1.570	0.941	0.393	0.336	0.321	0.300	0.291	0.291	0.291	0.291	0.291	0.291
40	2.999	1.617	1.035	0.432	0.362	0.343	0.319	0.300	0.291	0.291	0.291	0.291	0.291
45	-	1.665	1.129	0.472	0.388	0.364	0.339	0.318	0.298	0.291	0.291	0.291	0.291
50	-	1.712	1.222	0.512	0.414	0.386	0.358	0.336	0.316	0.298	0.291	0.291	0.291
55	-	1.760	1.316	0.551	0.440	0.408	0.377	0.355	0.334	0.316	0.291	0.291	0.291
60	-	1.807	1.410	0.591	0.466	0.430	0.396	0.373	0.352	0.333	0.301	0.291	0.291
65	-	1.854	1.504	0.631	0.492	0.451	0.415	0.391	0.369	0.350	0.318	0.291	0.291
70	-	1.902	1.570	0.670	0.518	0.473	0.434	0.410	0.387	0.367	0.335	0.291	0.291
75	-	1.949	1.610	0.710	0.544	0.495	0.454	0.428	0.405	0.385	0.351	0.291	0.291
80	-	1.997	1.651	0.750	0.570	0.516	0.473	0.446	0.422	0.402	0.368	0.291	0.291
85	-	2.044	1.691	0.790	0.596	0.538	0.492	0.465	0.440	0.419	0.384	0.307	0.291
90	-	2.091	1.732	0.829	0.622	0.560	0.511	0.483	0.458	0.436	0.401	0.322	0.291
95	-	2.139	1.772	0.869	0.648	0.582	0.530	0.501	0.475	0.453	0.417	0.338	0.291
100	-	2.186	1.813	0.909	0.674	0.603	0.549	0.520	0.493	0.471	0.434	0.353	0.291
105	-	2.234	1.853	0.948	0.700	0.625	0.568	0.538	0.511	0.488	0.450	0.369	0.291
110	-	2.281	1.894	0.988	0.726	0.647	0.588	0.557	0.528	0.505	0.467	0.384	0.291
115	-	2.329	1.934	1.028	0.752	0.668	0.607	0.575	0.546	0.522	0.483	0.400	0.291
120	-	2.376	1.975	1.067	0.778	0.690	0.626	0.593	0.564	0.539	0.500	0.415	0.291
125	-	2.423	2.016	1.107	0.804	0.712	0.645	0.612	0.581	0.557	0.516	0.431	0.291
130	-	2.471	2.056	1.147	0.830	0.734	0.664	0.630	0.599	0.574	0.533	0.446	0.291
135	-	2.518	2.097	1.186	0.856	0.755	0.683	0.648	0.617	0.591	0.550	0.462	0.305
140	-	2.566	2.137	1.226	0.882	0.777	0.703	0.667	0.634	0.608	0.566	0.477	0.321
145	-	2.613	2.178	1.266	0.907	0.799	0.722	0.685	0.652	0.625	0.583	0.493	0.336
150	-	2.660	2.218	1.306	0.933	0.820	0.741	0.703	0.670	0.643	0.599	0.508	0.351
155	-	2.708	2.259	1.345	0.959	0.842	0.760	0.722	0.687	0.660	0.616	0.524	0.366
160	-	2.755	2.299	1.385	0.985	0.864	0.779	0.740	0.705	0.677	0.632	0.539	0.382
165	-	2.803	2.340	1.425	1.011	0.886	0.798	0.758	0.723	0.694	0.649	0.555	0.397
170	-	2.850	2.380	1.464	1.037	0.907	0.817	0.777	0.740	0.711	0.665	0.570	0.412
175	-	2.897	2.421	1.504	1.063	0.929	0.837	0.795	0.758	0.729	0.682	0.586	0.427
180	-	2.945	2.461	1.544	1.089	0.951	0.856	0.813	0.776	0.746	0.698	0.601	0.443
185	-	2.992	2.502	1.579	1.115	0.972	0.875	0.832	0.793	0.763	0.715	0.617	0.458
190	-	3.040	2.542	1.651	1.141	0.994	0.894	0.850	0.811	0.780	0.732	0.632	0.473
195	-	3.087	2.583	1.706	1.167	1.016	0.913	0.868	0.829	0.797	0.748	0.648	0.489
200	-	-	2.623	1.761	1.193	1.038	0.932	0.887	0.846	0.815	0.765	0.663	0.504
205	-	-	2.664	1.816	1.219	1.059	0.951	0.905	0.864	0.832	0.781	0.679	0.519
210	-	-	2.704	1.871	1.245	1.081	0.971	0.923	0.882	0.849	0.798	0.694	0.534
215	-	-	2.745	1.926	1.271	1.103	0.990	0.942	0.899	0.866	0.814	0.710	0.550
220	-	-	2.785	1.981	1.297	1.125	1.009	0.960	0.917	0.884	0.831	0.725	0.565
225	-	-	2.826	2.035	1.323	1.146	1.028	0.979	0.935	0.901	0.847	0.741	0.580
230	-	-	2.866	2.090	1.349	1.168	1.047	0.997	0.952	0.918	0.864	0.756	0.595
235	-	-	2.907	2.145	1.375	1.190	1.066	1.015	0.970	0.935	0.880	0.772	0.611
240	-	-	2.947	2.200	1.401	1.211	1.086	1.034	0.988	0.952	0.897	0.787	0.626
245	-	-	2.988	2.255	1.427	1.233	1.105	1.052	1.005	0.970	0.913	0.803	0.641
250	-	-	3.028	2.310	1.453	1.255	1.124	1.070	1.023	0.987	0.930	0.818	0.657
255	-	-	3.069	2.365	1.479	1.277	1.143	1.089	1.041	1.004	0.947	0.834	0.672
260	-	-	-	2.419	1.505	1.298	1.162	1.107	1.058	1.021	0.963	0.849	0.687
265	-	-	-	2.474	1.531	1.320	1.181	1.125	1.076	1.038	0.980	0.865	0.702
270	-	-	-	2.529	1.570	1.342	1.200	1.144	1.094	1.056	0.996	0.880	0.718
275	-	-	-	2.584	1.643	1.363	1.220	1.162	1.111	1.073	1.013	0.896	0.733
280	-	-	-	2.639	1.716	1.385	1.239	1.180	1.129	1.090	1.029	0.911	0.748
285	-	-	-	2.694	1.789	1.407	1.258	1.199	1.147	1.107	1.046	0.927	0.763
290	-	-	-	2.749	1.862	1.429	1.277	1.217	1.165	1.124	1.062	0.942	0.779
295	-	-	-	2.804	1.935	1.450	1.296	1.235	1.182	1.142	1.079	0.958	0.794
300	-	-	-	2.858	2.008	1.472	1.315	1.254	1.200	1.159	1.095	0.973	0.809
305	-	-	-	2.913	2.081	1.494	1.335	1.272	1.218	1.176	1.112	0.989	0.825
310	-	-	-	2.968	2.154	1.515	1.354	1.290	1.235	1.193	1.129	1.004	0.840
315	-	-	-	3.023	2.227	1.537	1.373	1.309	1.253	1.210	1.145	1.020	0.855
320	-	-	-	3.078	2.301	1.602	1.392	1.327	1.271	1.228	1.162	1.035	0.870
325	-	-	-	3.133	2.374	1.718	1.411	1.346	1.288	1.245	1.178	1.051	0.886
330	-	-	-	-	2.447	1.834	1.430	1.364	1.306	1.262	1.195	1.066	0.901
335	-	-	-	-	2.520	1.950	1.449	1.382	1.324	1.279	1.211	1.082	0.916
340	-	-	-	-	2.593	2.067	1.469	1.401	1.341	1.296	1.228	1.097	0.932
345	-	-	-	-	2.666	2.183	1.488	1.419	1.359	1.314	1.244	1.113	0.947
350	-	-	-	-	2.739	2.299	1.507	1.437	1.377	1.331	1.261	1.128	0.962
355	-	-	-	-	2.812	2.415	1.526	1.456	1.394	1.348	1.277	1.144	0.977
360	-	-	-	-	2.885	2.531	1.545	1.474	1.412	1.365	1.294	1.159	0.993
365	-	-	-	-	2.958	2.648	1.699	1.492	1.430	1.383	1.310	1.175	1.008
370	-	-	-	-	3.031	2.764	1.885	1.511	1.447	1.400	1.327	1.190	1.023
375	-	-	-	-	3.104	2.880	2.071	1.529	1.465	1.417	1.344	1.206	1.038

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.



SteelMaster 120SB

Table 14 I/H Columns: 90 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	-	2.130	1.317	0.923	0.642	0.542	0.331	0.291	0.291	0.291	0.291	0.291	0.291
35	-	2.277	1.488	1.018	0.686	0.575	0.364	0.340	0.322	0.309	0.291	0.291	0.291
40	-	2.424	1.580	1.113	0.730	0.609	0.397	0.368	0.346	0.331	0.310	0.291	0.291
45	-	2.570	1.627	1.209	0.775	0.642	0.429	0.396	0.371	0.353	0.329	0.291	0.291
50	-	2.717	1.674	1.304	0.819	0.676	0.462	0.424	0.395	0.374	0.349	0.302	0.291
55	-	2.864	1.722	1.400	0.864	0.709	0.495	0.452	0.419	0.396	0.368	0.320	0.291
60	-	3.010	1.769	1.495	0.908	0.743	0.528	0.481	0.443	0.417	0.388	0.339	0.291
65	-	-	1.816	1.567	0.952	0.776	0.561	0.509	0.468	0.439	0.408	0.357	0.291
70	-	-	1.864	1.610	0.997	0.809	0.594	0.537	0.492	0.460	0.427	0.375	0.292
75	-	-	1.911	1.652	1.041	0.843	0.627	0.565	0.516	0.482	0.447	0.393	0.309
80	-	-	1.958	1.694	1.085	0.876	0.660	0.593	0.541	0.503	0.466	0.411	0.327
85	-	-	2.006	1.736	1.130	0.910	0.692	0.621	0.565	0.525	0.486	0.430	0.344
90	-	-	2.053	1.779	1.174	0.943	0.725	0.649	0.589	0.546	0.505	0.448	0.361
95	-	-	2.100	1.821	1.219	0.977	0.758	0.678	0.614	0.568	0.525	0.466	0.379
100	-	-	2.148	1.863	1.263	1.010	0.791	0.706	0.638	0.589	0.544	0.484	0.396
105	-	-	2.195	1.905	1.307	1.044	0.824	0.734	0.662	0.611	0.564	0.502	0.413
110	-	-	2.242	1.948	1.352	1.077	0.857	0.762	0.686	0.632	0.584	0.520	0.431
115	-	-	2.290	1.990	1.396	1.110	0.890	0.790	0.711	0.654	0.603	0.539	0.448
120	-	-	2.337	2.032	1.440	1.144	0.923	0.818	0.735	0.675	0.623	0.557	0.465
125	-	-	2.384	2.074	1.485	1.177	0.956	0.846	0.759	0.697	0.642	0.575	0.483
130	-	-	2.432	2.117	1.529	1.211	0.988	0.875	0.784	0.718	0.662	0.593	0.500
135	-	-	2.479	2.159	1.576	1.244	1.021	0.903	0.808	0.740	0.681	0.611	0.518
140	-	-	2.526	2.201	1.625	1.278	1.054	0.931	0.832	0.761	0.701	0.630	0.535
145	-	-	2.574	2.243	1.674	1.311	1.087	0.959	0.856	0.783	0.720	0.648	0.552
150	-	-	2.621	2.286	1.723	1.345	1.120	0.987	0.881	0.804	0.740	0.666	0.570
155	-	-	2.668	2.328	1.772	1.378	1.153	1.015	0.905	0.826	0.759	0.684	0.587
160	-	-	2.716	2.370	1.821	1.412	1.186	1.043	0.929	0.847	0.779	0.702	0.604
165	-	-	2.763	2.412	1.870	1.445	1.219	1.071	0.954	0.869	0.799	0.721	0.622
170	-	-	2.810	2.455	1.919	1.478	1.251	1.100	0.978	0.890	0.818	0.739	0.639
175	-	-	2.858	2.497	1.968	1.512	1.284	1.128	1.002	0.912	0.838	0.757	0.657
180	-	-	2.905	2.539	2.017	1.545	1.317	1.156	1.027	0.933	0.857	0.775	0.674
185	-	-	2.953	2.581	2.066	1.604	1.350	1.184	1.051	0.955	0.877	0.793	0.691
190	-	-	3.000	2.624	2.115	1.667	1.383	1.212	1.075	0.976	0.896	0.811	0.709
195	-	-	3.047	2.666	2.164	1.729	1.416	1.240	1.099	0.998	0.916	0.830	0.726
200	-	-	-	2.708	2.213	1.791	1.449	1.268	1.124	1.020	0.935	0.848	0.743
205	-	-	-	2.750	2.262	1.853	1.482	1.297	1.148	1.041	0.955	0.866	0.761
210	-	-	-	2.793	2.311	1.916	1.515	1.325	1.172	1.063	0.975	0.884	0.778
215	-	-	-	2.835	2.360	1.978	1.547	1.353	1.197	1.084	0.994	0.902	0.795
220	-	-	-	2.877	2.409	2.040	1.612	1.381	1.221	1.106	1.014	0.921	0.813
225	-	-	-	2.919	2.458	2.102	1.678	1.409	1.245	1.127	1.033	0.939	0.830
230	-	-	-	2.962	2.507	2.164	1.744	1.437	1.269	1.149	1.053	0.957	0.848
235	-	-	-	3.004	2.556	2.227	1.810	1.465	1.294	1.170	1.072	0.975	0.865
240	-	-	-	3.046	2.605	2.289	1.877	1.494	1.318	1.192	1.092	0.993	0.882
245	-	-	-	3.088	2.654	2.351	1.943	1.522	1.342	1.213	1.111	1.012	0.900
250	-	-	-	-	2.703	2.413	2.009	1.551	1.367	1.235	1.131	1.030	0.917
255	-	-	-	-	2.752	2.476	2.075	1.624	1.391	1.256	1.151	1.048	0.934
260	-	-	-	-	2.801	2.538	2.141	1.696	1.415	1.278	1.170	1.066	0.952
265	-	-	-	-	2.850	2.600	2.207	1.769	1.440	1.299	1.190	1.084	0.969
270	-	-	-	-	2.899	2.662	2.273	1.841	1.464	1.321	1.209	1.102	0.987
275	-	-	-	-	2.948	2.725	2.339	1.914	1.488	1.342	1.229	1.121	1.004
280	-	-	-	-	2.997	2.787	2.406	1.986	1.512	1.364	1.248	1.139	1.021
285	-	-	-	-	3.046	2.849	2.472	2.058	1.537	1.385	1.268	1.157	1.039
290	-	-	-	-	3.095	2.911	2.538	2.131	1.598	1.407	1.287	1.175	1.056
295	-	-	-	-	3.144	2.973	2.604	2.203	1.696	1.428	1.307	1.193	1.073
300	-	-	-	-	-	3.036	2.670	2.276	1.795	1.450	1.327	1.212	1.091
305	-	-	-	-	-	3.098	2.736	2.348	1.893	1.471	1.346	1.230	1.108
310	-	-	-	-	-	-	2.802	2.421	1.991	1.493	1.366	1.248	1.125
315	-	-	-	-	-	-	2.868	2.493	2.090	1.514	1.385	1.266	1.143
320	-	-	-	-	-	-	2.935	2.566	2.188	1.536	1.405	1.284	1.160
325	-	-	-	-	-	-	3.001	2.638	2.287	1.609	1.424	1.302	1.178
330	-	-	-	-	-	-	3.067	2.711	2.385	1.762	1.444	1.321	1.195
335	-	-	-	-	-	-	3.133	2.783	2.483	1.915	1.463	1.339	1.212
340	-	-	-	-	-	-	-	2.855	2.582	2.067	1.483	1.357	1.230
345	-	-	-	-	-	-	-	2.928	2.680	2.220	1.502	1.375	1.247
350	-	-	-	-	-	-	-	3.000	2.779	2.373	1.522	1.393	1.264
355	-	-	-	-	-	-	-	3.073	2.877	2.526	1.542	1.412	1.282
360	-	-	-	-	-	-	-	-	2.975	2.679	1.696	1.430	1.299
365	-	-	-	-	-	-	-	-	3.074	2.832	1.931	1.448	1.316
370	-	-	-	-	-	-	-	-	-	2.984	2.167	1.466	1.334
375	-	-	-	-	-	-	-	-	-	-	2.403	1.484	1.351

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.



SteelMaster 120SB

Table 15 I/H Columns: 105 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	-	2.767	1.700	1.321	0.994	0.880	0.723	0.600	0.349	0.332	0.291	0.291	0.291
35	-	-	1.861	1.482	1.096	0.964	0.783	0.643	0.389	0.368	0.340	0.298	0.291
40	-	-	2.021	1.577	1.198	1.048	0.843	0.686	0.429	0.405	0.371	0.321	0.291
45	-	-	2.182	1.626	1.301	1.132	0.903	0.729	0.468	0.441	0.403	0.345	0.291
50	-	-	2.342	1.675	1.403	1.216	0.963	0.772	0.508	0.478	0.435	0.369	0.304
55	-	-	2.502	1.723	1.505	1.300	1.023	0.815	0.548	0.514	0.466	0.393	0.324
60	-	-	2.663	1.772	1.574	1.384	1.083	0.858	0.588	0.551	0.498	0.417	0.344
65	-	-	2.823	1.821	1.618	1.468	1.143	0.901	0.627	0.587	0.530	0.440	0.364
70	-	-	2.983	1.870	1.663	1.550	1.203	0.944	0.667	0.624	0.561	0.464	0.384
75	-	-	-	1.918	1.707	1.594	1.263	0.986	0.707	0.660	0.593	0.488	0.404
80	-	-	-	1.967	1.751	1.638	1.323	1.029	0.747	0.697	0.625	0.512	0.425
85	-	-	-	2.016	1.795	1.682	1.383	1.072	0.786	0.733	0.656	0.535	0.445
90	-	-	-	2.064	1.839	1.726	1.443	1.115	0.826	0.770	0.688	0.559	0.465
95	-	-	-	2.113	1.883	1.770	1.503	1.158	0.866	0.806	0.720	0.583	0.485
100	-	-	-	2.162	1.927	1.814	1.560	1.201	0.906	0.843	0.751	0.607	0.505
105	-	-	-	2.210	1.972	1.857	1.607	1.244	0.945	0.879	0.783	0.631	0.525
110	-	-	-	2.259	2.016	1.901	1.653	1.287	0.985	0.916	0.815	0.654	0.545
115	-	-	-	2.308	2.060	1.945	1.700	1.330	1.025	0.952	0.846	0.678	0.566
120	-	-	-	2.357	2.104	1.989	1.746	1.373	1.065	0.989	0.878	0.702	0.586
125	-	-	-	2.405	2.148	2.033	1.792	1.416	1.104	1.025	0.910	0.726	0.606
130	-	-	-	2.454	2.192	2.077	1.839	1.459	1.144	1.062	0.941	0.750	0.626
135	-	-	-	2.503	2.237	2.121	1.885	1.502	1.184	1.098	0.973	0.773	0.646
140	-	-	-	2.551	2.281	2.164	1.932	1.545	1.224	1.135	1.005	0.797	0.666
145	-	-	-	2.600	2.325	2.208	1.978	1.599	1.263	1.171	1.036	0.821	0.686
150	-	-	-	2.649	2.369	2.252	2.025	1.655	1.303	1.208	1.068	0.845	0.707
155	-	-	-	2.698	2.413	2.296	2.071	1.710	1.343	1.244	1.100	0.869	0.727
160	-	-	-	2.746	2.457	2.340	2.118	1.766	1.383	1.281	1.131	0.892	0.747
165	-	-	-	2.795	2.501	2.384	2.164	1.821	1.422	1.317	1.163	0.916	0.767
170	-	-	-	2.844	2.546	2.428	2.210	1.877	1.462	1.354	1.194	0.940	0.787
175	-	-	-	2.892	2.590	2.471	2.257	1.932	1.502	1.391	1.226	0.964	0.807
180	-	-	-	2.941	2.634	2.515	2.303	1.988	1.542	1.427	1.258	0.987	0.828
185	-	-	-	2.990	2.678	2.559	2.350	2.043	1.606	1.464	1.289	1.011	0.848
190	-	-	-	3.039	2.722	2.603	2.396	2.099	1.675	1.500	1.321	1.035	0.868
195	-	-	-	3.087	2.766	2.647	2.443	2.154	1.745	1.537	1.353	1.059	0.888
200	-	-	-	-	2.810	2.691	2.489	2.210	1.814	1.596	1.384	1.083	0.908
205	-	-	-	-	2.855	2.735	2.535	2.265	1.884	1.667	1.416	1.106	0.928
210	-	-	-	-	2.899	2.778	2.582	2.321	1.953	1.738	1.448	1.130	0.948
215	-	-	-	-	2.943	2.822	2.628	2.376	2.023	1.810	1.479	1.154	0.969
220	-	-	-	-	2.987	2.866	2.675	2.432	2.093	1.881	1.511	1.178	0.989
225	-	-	-	-	3.031	2.910	2.721	2.487	2.162	1.952	1.543	1.202	1.009
230	-	-	-	-	3.075	2.954	2.768	2.543	2.232	2.023	1.611	1.225	1.029
235	-	-	-	-	3.120	2.998	2.814	2.598	2.301	2.094	1.688	1.249	1.049
240	-	-	-	-	-	3.042	2.861	2.654	2.371	2.166	1.766	1.273	1.069
245	-	-	-	-	-	3.085	2.907	2.709	2.440	2.237	1.843	1.297	1.090
250	-	-	-	-	-	-	2.953	2.765	2.510	2.308	1.920	1.321	1.110
255	-	-	-	-	-	-	3.000	2.820	2.580	2.379	1.998	1.344	1.130
260	-	-	-	-	-	-	3.046	2.876	2.649	2.451	2.075	1.368	1.150
265	-	-	-	-	-	-	3.093	2.931	2.719	2.522	2.152	1.392	1.170
270	-	-	-	-	-	-	-	2.987	2.788	2.593	2.230	1.416	1.190
275	-	-	-	-	-	-	-	3.042	2.858	2.664	2.307	1.439	1.210
280	-	-	-	-	-	-	-	3.098	2.927	2.736	2.384	1.463	1.231
285	-	-	-	-	-	-	-	3.153	2.997	2.807	2.462	1.487	1.251
290	-	-	-	-	-	-	-	-	3.067	2.878	2.539	1.511	1.271
295	-	-	-	-	-	-	-	-	3.136	2.949	2.616	1.535	1.291
300	-	-	-	-	-	-	-	-	-	3.020	2.694	1.597	1.311
305	-	-	-	-	-	-	-	-	-	-	3.092	1.717	1.331
310	-	-	-	-	-	-	-	-	-	-	3.163	2.848	1.837
315	-	-	-	-	-	-	-	-	-	-	-	2.926	1.957
320	-	-	-	-	-	-	-	-	-	-	-	3.003	2.077
325	-	-	-	-	-	-	-	-	-	-	-	3.080	2.198
330	-	-	-	-	-	-	-	-	-	-	-	-	2.318
335	-	-	-	-	-	-	-	-	-	-	-	-	2.438
340	-	-	-	-	-	-	-	-	-	-	-	-	2.558
345	-	-	-	-	-	-	-	-	-	-	-	-	2.679
350	-	-	-	-	-	-	-	-	-	-	-	-	2.799
355	-	-	-	-	-	-	-	-	-	-	-	-	2.919
360	-	-	-	-	-	-	-	-	-	-	-	3.039	1.592
365	-	-	-	-	-	-	-	-	-	-	-	-	1.801
370	-	-	-	-	-	-	-	-	-	-	-	-	2.011
375	-	-	-	-	-	-	-	-	-	-	-	-	2.220

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.



SteelMaster 120SB

Table 16 I/H Columns: 120 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m ⁻¹)	300	350	400	450	500	520	550	575	600	620	650	700	750
30	-	-	2.496	1.664	1.343	1.215	1.037	0.899	0.783	0.689	0.547	0.291	0.291
35	-	-	2.726	1.819	1.503	1.354	1.149	0.992	0.860	0.755	0.596	0.347	0.291
40	-	-	2.955	1.975	1.585	1.493	1.261	1.084	0.937	0.821	0.646	0.383	0.311
45	-	-	-	2.131	1.637	1.578	1.372	1.176	1.014	0.887	0.696	0.420	0.340
50	-	-	-	2.286	1.688	1.626	1.484	1.268	1.091	0.953	0.746	0.456	0.368
55	-	-	-	2.442	1.739	1.674	1.568	1.361	1.169	1.020	0.795	0.493	0.397
60	-	-	-	2.598	1.790	1.722	1.615	1.453	1.246	1.086	0.845	0.529	0.426
65	-	-	-	2.754	1.841	1.770	1.661	1.545	1.323	1.152	0.895	0.566	0.455
70	-	-	-	2.909	1.892	1.818	1.708	1.593	1.400	1.218	0.944	0.602	0.483
75	-	-	-	-	1.943	1.866	1.754	1.639	1.477	1.285	0.994	0.639	0.512
80	-	-	-	-	1.994	1.914	1.800	1.685	1.552	1.351	1.044	0.675	0.541
85	-	-	-	-	2.046	1.962	1.847	1.731	1.599	1.417	1.094	0.712	0.569
90	-	-	-	-	2.097	2.010	1.893	1.777	1.646	1.483	1.143	0.748	0.598
95	-	-	-	-	2.148	2.058	1.940	1.823	1.693	1.549	1.193	0.785	0.627
100	-	-	-	-	2.199	2.106	1.986	1.869	1.740	1.598	1.243	0.821	0.656
105	-	-	-	-	2.250	2.154	2.032	1.915	1.787	1.647	1.293	0.857	0.684
110	-	-	-	-	2.301	2.202	2.079	1.961	1.834	1.696	1.342	0.894	0.713
115	-	-	-	-	2.352	2.250	2.125	2.007	1.880	1.744	1.392	0.930	0.742
120	-	-	-	-	2.403	2.298	2.172	2.053	1.927	1.793	1.442	0.967	0.770
125	-	-	-	-	2.455	2.346	2.218	2.099	1.974	1.842	1.492	1.003	0.799
130	-	-	-	-	2.506	2.394	2.264	2.145	2.021	1.891	1.541	1.040	0.828
135	-	-	-	-	2.557	2.442	2.311	2.191	2.068	1.939	1.598	1.076	0.857
140	-	-	-	-	2.608	2.490	2.357	2.237	2.115	1.988	1.657	1.113	0.885
145	-	-	-	-	2.659	2.538	2.404	2.283	2.162	2.037	1.715	1.149	0.914
150	-	-	-	-	2.710	2.586	2.450	2.329	2.208	2.086	1.773	1.186	0.943
155	-	-	-	-	2.761	2.635	2.496	2.375	2.255	2.134	1.832	1.222	0.971
160	-	-	-	-	2.813	2.683	2.543	2.421	2.302	2.183	1.890	1.259	1.000
165	-	-	-	-	2.864	2.731	2.589	2.467	2.349	2.232	1.948	1.295	1.029
170	-	-	-	-	2.915	2.779	2.636	2.513	2.396	2.281	2.007	1.331	1.058
175	-	-	-	-	2.966	2.827	2.682	2.559	2.443	2.329	2.065	1.368	1.086
180	-	-	-	-	3.017	2.875	2.728	2.605	2.490	2.378	2.123	1.404	1.115
185	-	-	-	-	3.068	2.923	2.775	2.651	2.536	2.427	2.182	1.441	1.144
190	-	-	-	-	-	2.971	2.821	2.697	2.583	2.476	2.240	1.477	1.172
195	-	-	-	-	-	3.019	2.868	2.743	2.630	2.524	2.298	1.514	1.201
200	-	-	-	-	-	3.067	2.914	2.789	2.677	2.573	2.356	1.552	1.230
205	-	-	-	-	-	-	2.960	2.835	2.724	2.622	2.415	1.641	1.259
210	-	-	-	-	-	-	3.007	2.881	2.771	2.671	2.473	1.730	1.287
215	-	-	-	-	-	-	3.053	2.927	2.818	2.719	2.531	1.818	1.316
220	-	-	-	-	-	-	3.100	2.973	2.865	2.768	2.590	1.907	1.345
225	-	-	-	-	-	-	-	3.019	2.911	2.817	2.648	1.996	1.373
230	-	-	-	-	-	-	-	3.065	2.958	2.865	2.706	2.085	1.402
235	-	-	-	-	-	-	-	3.111	3.005	2.914	2.765	2.174	1.431
240	-	-	-	-	-	-	-	-	3.052	2.963	2.823	2.262	1.460
245	-	-	-	-	-	-	-	-	3.099	3.012	2.881	2.351	1.488
250	-	-	-	-	-	-	-	-	-	3.060	2.940	2.440	1.517
255	-	-	-	-	-	-	-	-	-	3.109	2.998	2.529	1.546
260	-	-	-	-	-	-	-	-	-	-	3.056	2.617	1.633
265	-	-	-	-	-	-	-	-	-	-	3.114	2.706	1.729
270	-	-	-	-	-	-	-	-	-	-	-	2.795	1.824
275	-	-	-	-	-	-	-	-	-	-	-	2.884	1.919
280	-	-	-	-	-	-	-	-	-	-	-	2.973	2.015
285	-	-	-	-	-	-	-	-	-	-	-	3.061	2.110
290	-	-	-	-	-	-	-	-	-	-	-	3.150	2.205
295	-	-	-	-	-	-	-	-	-	-	-	-	2.301
300	-	-	-	-	-	-	-	-	-	-	-	-	2.396
305	-	-	-	-	-	-	-	-	-	-	-	-	2.491
310	-	-	-	-	-	-	-	-	-	-	-	-	2.587
315	-	-	-	-	-	-	-	-	-	-	-	-	2.682
320	-	-	-	-	-	-	-	-	-	-	-	-	2.777
325	-	-	-	-	-	-	-	-	-	-	-	-	2.873
330	-	-	-	-	-	-	-	-	-	-	-	-	2.968
335	-	-	-	-	-	-	-	-	-	-	-	-	3.063
340	-	-	-	-	-	-	-	-	-	-	-	-	3.159
345	-	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results also apply to I/H beams with 4 sided fire exposure.





SteelMaster 120SB

Table 17 Hollow Columns: 15 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
50	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
55	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
60	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
65	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
70	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
75	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
80	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
85	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
90	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
95	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
100	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
105	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
110	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
115	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
120	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
125	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
130	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
135	0.486	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
140	0.517	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
145	0.549	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
150	0.580	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
155	0.612	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
160	0.644	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
165	0.675	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
170	0.707	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
175	0.738	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
180	0.770	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
185	0.802	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
190	0.833	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
195	0.865	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
200	0.896	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
205	0.928	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
210	0.959	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
215	0.991	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
220	1.023	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
225	1.054	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460

Thickness is intumescent only.



SteelMaster 120SB

Table 18 Hollow Columns: 30 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
50	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
55	0.523	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
60	0.692	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
65	0.860	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
70	1.029	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
75	1.197	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
80	1.366	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
85	1.535	0.484	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
90	1.703	0.520	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
95	1.857	0.557	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
100	1.926	0.593	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
105	1.996	0.630	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
110	2.066	0.666	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
115	2.135	0.703	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
120	2.205	0.739	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
125	2.275	0.775	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
130	2.345	0.812	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
135	2.414	0.848	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
140	2.484	0.885	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
145	2.554	0.921	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
150	2.624	0.958	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
155	2.693	0.994	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
160	2.763	1.031	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
165	2.833	1.067	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
170	2.902	1.103	0.496	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
175	2.972	1.140	0.541	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
180	3.042	1.176	0.586	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
185	3.112	1.213	0.631	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
190	3.181	1.249	0.676	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
195	3.251	1.286	0.721	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
200	3.321	1.322	0.766	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
205	3.390	1.359	0.811	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
210	3.460	1.395	0.856	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
215	3.530	1.432	0.901	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
220	3.600	1.468	0.946	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
225	3.676	1.504	0.991	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460

Thickness is intumescent only.



SteelMaster 120SB

Table 19 Hollow Columns: 45 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	1.831	0.471	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
50	1.965	0.511	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
55	2.099	0.697	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
60	2.234	0.883	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
65	2.368	1.070	0.465	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
70	2.502	1.256	0.513	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
75	2.637	1.443	0.560	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
80	2.771	1.629	0.608	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
85	2.905	1.816	0.656	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
90	3.040	1.895	0.703	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
95	3.174	1.953	0.751	0.489	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
100	3.308	2.011	0.799	0.536	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
105	3.443	2.069	0.847	0.583	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
110	3.577	2.126	0.894	0.631	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
115	3.680	2.184	0.942	0.678	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
120	3.760	2.242	0.990	0.725	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
125	3.840	2.300	1.037	0.773	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
130	3.919	2.358	1.085	0.820	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
135	3.999	2.416	1.133	0.867	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
140	4.079	2.474	1.181	0.914	0.500	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
145	4.159	2.532	1.228	0.962	0.553	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
150	4.238	2.590	1.276	1.009	0.606	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
155	4.318	2.648	1.324	1.056	0.659	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
160	4.398	2.706	1.371	1.104	0.713	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
165	4.477	2.764	1.419	1.151	0.766	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
170	4.557	2.822	1.467	1.198	0.819	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
175	4.637	2.880	1.514	1.245	0.873	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
180	4.717	2.938	1.562	1.293	0.926	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
185	4.796	2.996	1.610	1.340	0.979	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
190	4.876	3.054	1.658	1.387	1.032	0.523	0.460	0.460	0.460	0.460	0.460	0.460	0.460
195	4.956	3.112	1.705	1.434	1.086	0.598	0.460	0.460	0.460	0.460	0.460	0.460	0.460
200	5.036	3.170	1.753	1.482	1.139	0.673	0.460	0.460	0.460	0.460	0.460	0.460	0.460
205	5.115	3.228	1.801	1.529	1.192	0.748	0.481	0.460	0.460	0.460	0.460	0.460	0.460
210	5.195	3.286	1.853	1.576	1.245	0.823	0.554	0.460	0.460	0.460	0.460	0.460	0.460
215	5.275	3.344	1.987	1.624	1.299	0.899	0.628	0.460	0.460	0.460	0.460	0.460	0.460
220	5.354	3.402	2.122	1.671	1.352	0.974	0.701	0.502	0.460	0.460	0.460	0.460	0.460
225	5.434	3.460	2.256	1.718	1.405	1.049	0.775	0.572	0.460	0.460	0.460	0.460	0.460

Thickness is intumescent only.



SteelMaster 120SB

Table 20 Hollow Columns: 60 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	2.901	2.047	0.471	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
50	2.999	2.221	0.966	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
55	3.213	2.290	1.607	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
60	3.426	2.358	1.884	0.533	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
65	3.637	2.426	1.945	0.717	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
70	3.739	2.495	2.005	0.902	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
75	3.840	2.563	2.066	1.087	0.524	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
80	3.941	2.631	2.126	1.272	0.596	0.500	0.460	0.460	0.460	0.460	0.460	0.460	0.460
85	4.043	2.700	2.187	1.457	0.668	0.557	0.460	0.460	0.460	0.460	0.460	0.460	0.460
90	4.144	2.768	2.248	1.642	0.740	0.615	0.481	0.460	0.460	0.460	0.460	0.460	0.460
95	4.245	2.836	2.308	1.826	0.812	0.673	0.534	0.460	0.460	0.460	0.460	0.460	0.460
100	4.347	2.905	2.369	1.906	0.884	0.731	0.588	0.467	0.460	0.460	0.460	0.460	0.460
105	4.448	2.973	2.430	1.973	0.956	0.789	0.641	0.520	0.460	0.460	0.460	0.460	0.460
110	4.549	3.041	2.490	2.040	1.028	0.847	0.694	0.573	0.460	0.460	0.460	0.460	0.460
115	4.651	3.110	2.551	2.107	1.100	0.904	0.748	0.626	0.489	0.460	0.460	0.460	0.460
120	4.752	3.178	2.612	2.174	1.172	0.962	0.801	0.679	0.542	0.460	0.460	0.460	0.460
125	4.854	3.246	2.672	2.241	1.244	1.020	0.855	0.732	0.595	0.463	0.460	0.460	0.460
130	4.955	3.314	2.733	2.308	1.316	1.078	0.908	0.785	0.647	0.515	0.460	0.460	0.460
135	5.056	3.383	2.793	2.375	1.388	1.136	0.962	0.838	0.700	0.568	0.460	0.460	0.460
140	5.158	3.451	2.854	2.442	1.460	1.194	1.015	0.891	0.753	0.621	0.460	0.460	0.460
145	5.259	3.519	2.915	2.508	1.532	1.251	1.068	0.943	0.805	0.674	0.460	0.460	0.460
150	5.360	3.588	2.975	2.575	1.604	1.309	1.122	0.996	0.858	0.727	0.460	0.460	0.460
155	-	3.661	3.036	2.642	1.676	1.367	1.175	1.049	0.910	0.779	0.460	0.460	0.460
160	-	3.746	3.097	2.709	1.748	1.425	1.229	1.102	0.963	0.832	0.460	0.460	0.460
165	-	3.832	3.157	2.776	1.820	1.483	1.282	1.155	1.016	0.885	0.460	0.460	0.460
170	-	3.917	3.218	2.843	1.914	1.540	1.335	1.208	1.068	0.938	0.460	0.460	0.460
175	-	4.002	3.279	2.910	2.021	1.598	1.389	1.261	1.121	0.991	0.460	0.460	0.460
180	-	4.087	3.339	2.977	2.128	1.656	1.442	1.314	1.173	1.043	0.522	0.460	0.460
185	-	4.172	3.400	3.044	2.235	1.714	1.496	1.367	1.226	1.096	0.591	0.460	0.460
190	-	4.258	3.460	3.111	2.341	1.772	1.549	1.420	1.279	1.149	0.660	0.460	0.460
195	-	4.343	3.521	3.178	2.448	1.830	1.603	1.473	1.331	1.202	0.729	0.460	0.460
200	-	4.428	3.582	3.245	2.555	1.947	1.656	1.526	1.384	1.255	0.798	0.460	0.460
205	-	4.513	3.650	3.312	2.662	2.089	1.709	1.579	1.436	1.307	0.867	0.460	0.460
210	-	4.598	3.778	3.379	2.768	2.230	1.763	1.632	1.489	1.360	0.935	0.460	0.460
215	-	4.683	3.905	3.446	2.875	2.372	1.816	1.685	1.542	1.413	1.004	0.522	0.460
220	-	4.769	4.032	3.513	2.982	2.513	1.916	1.738	1.594	1.466	1.073	0.586	0.460
225	-	4.854	4.159	3.580	3.089	2.654	2.073	1.791	1.647	1.519	1.142	0.651	0.460

Thickness is intumescent only.



SteelMaster 120SB

Table 21 Hollow Columns: 75 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	3.843	2.866	2.387	1.877	0.471	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
50	4.104	3.062	2.603	1.948	0.471	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
55	4.262	3.180	2.659	2.018	0.928	0.482	0.460	0.460	0.460	0.460	0.460	0.460	0.460
60	4.420	3.297	2.715	2.088	1.539	0.827	0.460	0.460	0.460	0.460	0.460	0.460	0.460
65	4.578	3.415	2.771	2.158	1.880	1.172	0.620	0.462	0.460	0.460	0.460	0.460	0.460
70	4.735	3.532	2.827	2.228	1.947	1.517	0.785	0.560	0.460	0.460	0.460	0.460	0.460
75	4.893	3.644	2.883	2.298	2.014	1.849	0.951	0.657	0.526	0.460	0.460	0.460	0.460
80	5.051	3.718	2.939	2.368	2.082	1.918	1.117	0.755	0.604	0.512	0.460	0.460	0.460
85	5.209	3.792	2.995	2.438	2.149	1.987	1.282	0.853	0.682	0.577	0.460	0.460	0.460
90	5.367	3.865	3.051	2.509	2.217	2.056	1.448	0.950	0.760	0.641	0.511	0.460	0.460
95	-	3.939	3.107	2.579	2.284	2.125	1.613	1.048	0.839	0.706	0.565	0.460	0.460
100	-	4.012	3.163	2.649	2.351	2.193	1.779	1.145	0.917	0.770	0.619	0.460	0.460
105	-	4.086	3.219	2.719	2.419	2.262	1.893	1.243	0.995	0.835	0.672	0.460	0.460
110	-	4.160	3.275	2.789	2.486	2.331	1.971	1.341	1.073	0.899	0.726	0.479	0.460
115	-	4.233	3.331	2.859	2.554	2.400	2.049	1.438	1.151	0.964	0.780	0.531	0.460
120	-	4.307	3.387	2.929	2.621	2.469	2.127	1.536	1.229	1.028	0.834	0.583	0.460
125	-	4.380	3.442	2.999	2.688	2.538	2.205	1.634	1.308	1.093	0.888	0.634	0.460
130	-	4.454	3.498	3.070	2.756	2.607	2.283	1.731	1.386	1.157	0.941	0.686	0.460
135	-	4.527	3.554	3.140	2.823	2.675	2.361	1.829	1.464	1.222	0.995	0.737	0.460
140	-	4.601	3.610	3.210	2.891	2.744	2.440	1.927	1.542	1.286	1.049	0.789	0.460
145	-	4.675	3.697	3.280	2.958	2.813	2.518	2.025	1.620	1.351	1.103	0.840	0.460
150	-	4.748	3.807	3.350	3.025	2.882	2.596	2.123	1.698	1.415	1.157	0.892	0.460
155	-	4.822	3.917	3.420	3.093	2.951	2.674	2.221	1.776	1.480	1.211	0.944	0.460
160	-	4.895	4.027	3.490	3.160	3.020	2.752	2.319	1.859	1.544	1.264	0.995	0.460
165	-	4.969	4.138	3.560	3.228	3.089	2.830	2.418	1.972	1.609	1.318	1.047	0.460
170	-	5.043	4.248	3.631	3.295	3.157	2.908	2.516	2.085	1.673	1.372	1.098	0.460
175	-	5.116	4.358	3.765	3.362	3.226	2.987	2.614	2.198	1.738	1.426	1.150	0.476
180	-	5.190	4.468	3.904	3.430	3.295	3.065	2.712	2.312	1.802	1.480	1.202	0.539
185	-	5.263	4.579	4.043	3.497	3.364	3.143	2.810	2.425	1.890	1.534	1.253	0.603
190	-	5.337	4.689	4.182	3.565	3.433	3.221	2.908	2.538	2.028	1.587	1.305	0.667
195	-	-	4.799	4.321	3.632	3.502	3.299	3.007	2.652	2.166	1.641	1.356	0.730
200	-	-	4.910	4.460	3.803	3.571	3.377	3.105	2.765	2.303	1.695	1.408	0.794
205	-	-	5.020	4.599	3.979	3.648	3.455	3.203	2.878	2.441	1.749	1.459	0.858
210	-	-	5.130	4.738	4.154	3.842	3.534	3.301	2.992	2.579	1.803	1.511	0.921
215	-	-	5.240	4.877	4.330	4.037	3.612	3.399	3.105	2.716	1.880	1.563	0.985
220	-	-	5.351	5.016	4.506	4.231	3.784	3.497	3.218	2.854	2.057	1.614	1.049
225	-	-	5.461	5.154	4.681	4.426	3.995	3.596	3.332	2.992	2.233	1.666	1.112

Thickness is intumescent only.



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Table 22 Hollow Columns: 90 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	-	3.644	3.183	2.704	2.229	1.905	1.773	0.471	0.460	0.460	0.460	0.460	0.460
50	-	3.756	3.183	2.963	2.427	1.980	1.846	0.476	0.460	0.460	0.460	0.460	0.460
55	-	3.867	3.521	3.005	2.487	2.055	1.920	1.178	0.543	0.460	0.460	0.460	0.460
60	-	3.979	3.624	3.047	2.546	2.130	1.993	1.850	0.908	0.588	0.460	0.460	0.460
65	-	4.090	3.708	3.089	2.605	2.206	2.066	1.923	1.273	0.820	0.520	0.460	0.460
70	-	4.201	3.790	3.131	2.664	2.281	2.140	1.996	1.638	1.052	0.641	0.460	0.460
75	-	4.313	3.873	3.173	2.723	2.356	2.213	2.069	1.878	1.283	0.763	0.463	0.460
80	-	4.424	3.955	3.215	2.783	2.431	2.286	2.142	1.952	1.515	0.884	0.534	0.460
85	-	4.536	4.037	3.256	2.842	2.506	2.360	2.215	2.026	1.747	1.006	0.605	0.460
90	-	4.647	4.119	3.298	2.901	2.581	2.433	2.288	2.101	1.890	1.127	0.675	0.460
95	-	4.759	4.202	3.340	2.960	2.657	2.506	2.361	2.175	1.968	1.249	0.746	0.460
100	-	4.870	4.284	3.382	3.019	2.732	2.580	2.434	2.249	2.045	1.370	0.817	0.508
105	-	4.982	4.366	3.424	3.079	2.807	2.653	2.507	2.324	2.122	1.492	0.887	0.561
110	-	5.093	4.449	3.466	3.138	2.882	2.727	2.580	2.398	2.200	1.613	0.958	0.615
115	-	5.205	4.531	3.508	3.197	2.957	2.800	2.653	2.472	2.277	1.735	1.028	0.668
120	-	5.316	4.613	3.550	3.256	3.033	2.873	2.726	2.547	2.354	1.854	1.099	0.721
125	-	-	4.695	3.592	3.315	3.108	2.947	2.799	2.621	2.432	1.946	1.170	0.775
130	-	-	4.778	3.634	3.375	3.183	3.020	2.872	2.695	2.509	2.039	1.240	0.828
135	-	-	4.860	3.817	3.434	3.258	3.093	2.945	2.770	2.586	2.131	1.311	0.882
140	-	-	4.942	4.005	3.493	3.333	3.167	3.018	2.844	2.664	2.224	1.382	0.935
145	-	-	5.025	4.192	3.552	3.409	3.240	3.091	2.918	2.741	2.317	1.452	0.989
150	-	-	5.107	4.379	3.611	3.484	3.313	3.164	2.993	2.818	2.409	1.523	1.042
155	-	-	5.189	4.567	3.755	3.559	3.387	3.237	3.067	2.896	2.502	1.593	1.096
160	-	-	5.271	4.754	3.954	3.634	3.460	3.310	3.141	2.973	2.595	1.664	1.149
165	-	-	5.354	4.941	4.154	3.836	3.534	3.383	3.216	3.050	2.687	1.735	1.203
170	-	-	-	5.129	4.353	4.040	3.607	3.456	3.290	3.128	2.780	1.805	1.256
175	-	-	-	5.316	4.553	4.244	3.765	3.529	3.364	3.205	2.873	1.902	1.309
180	-	-	-	-	4.752	4.448	3.975	3.602	3.438	3.282	2.965	2.036	1.363
185	-	-	-	-	4.952	4.652	4.186	3.763	3.513	3.360	3.058	2.169	1.416
190	-	-	-	-	5.152	4.856	4.396	3.998	3.587	3.437	3.150	2.303	1.470
195	-	-	-	-	5.351	5.059	4.607	4.233	3.732	3.514	3.243	2.436	1.523
200	-	-	-	-	-	5.263	4.817	4.469	4.006	3.592	3.336	2.570	1.577
205	-	-	-	-	-	5.467	5.028	4.704	4.279	3.777	3.428	2.703	1.630
210	-	-	-	-	-	-	5.238	4.939	4.553	4.098	3.521	2.837	1.684
215	-	-	-	-	-	-	5.449	5.175	4.826	4.420	3.614	2.970	1.737
220	-	-	-	-	-	-	-	5.410	5.100	4.742	3.925	3.104	1.791
225	-	-	-	-	-	-	-	-	-	5.064	4.301	3.237	1.844

Thickness is intumescent only.



SteelMaster 120SB

Table 23 Hollow Columns: 105 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	-	4.988	3.988	3.610	2.977	2.770	2.458	2.201	1.865	1.776	0.471	0.460	0.460
50	-	-	3.988	3.694	3.247	3.042	2.684	2.395	1.943	1.853	0.471	0.460	0.460
55	-	-	4.403	3.778	3.303	3.078	2.736	2.457	2.022	1.930	1.087	0.460	0.460
60	-	-	4.592	3.863	3.360	3.114	2.788	2.519	2.100	2.007	1.737	0.496	0.460
65	-	-	4.780	3.947	3.417	3.151	2.840	2.581	2.178	2.084	1.910	0.710	0.460
70	-	-	4.969	4.031	3.473	3.187	2.892	2.643	2.256	2.161	1.986	0.923	0.460
75	-	-	5.157	4.116	3.530	3.224	2.944	2.706	2.334	2.238	2.063	1.137	0.504
80	-	-	5.346	4.200	3.586	3.260	2.996	2.768	2.412	2.315	2.139	1.350	0.602
85	-	-	-	4.284	3.651	3.297	3.048	2.830	2.490	2.392	2.216	1.564	0.699
90	-	-	-	4.369	3.764	3.333	3.100	2.892	2.568	2.469	2.292	1.778	0.796
95	-	-	-	4.453	3.877	3.370	3.152	2.954	2.646	2.546	2.369	1.902	0.894
100	-	-	-	4.537	3.990	3.406	3.204	3.017	2.724	2.623	2.446	1.984	0.991
105	-	-	-	4.622	4.103	3.442	3.256	3.079	2.802	2.700	2.522	2.067	1.088
110	-	-	-	4.706	4.216	3.479	3.308	3.141	2.880	2.777	2.599	2.149	1.186
115	-	-	-	4.790	4.329	3.515	3.361	3.203	2.959	2.854	2.675	2.231	1.283
120	-	-	-	4.875	4.442	3.552	3.413	3.265	3.037	2.931	2.752	2.314	1.380
125	-	-	-	4.959	4.556	3.588	3.465	3.328	3.115	3.008	2.828	2.396	1.477
130	-	-	-	5.043	4.669	3.625	3.517	3.390	3.193	3.085	2.905	2.478	1.575
135	-	-	-	5.128	4.782	3.861	3.569	3.452	3.271	3.162	2.981	2.561	1.672
140	-	-	-	5.212	4.895	4.175	3.621	3.514	3.349	3.239	3.058	2.643	1.769
145	-	-	-	5.296	5.008	4.490	3.864	3.576	3.427	3.316	3.134	2.725	1.869
150	-	-	-	-	5.121	4.805	4.179	3.653	3.505	3.392	3.211	2.808	1.979
155	-	-	-	-	5.234	5.120	4.494	3.971	3.583	3.469	3.287	2.890	2.088
160	-	-	-	-	-	-	4.809	4.289	3.744	3.546	3.364	2.972	2.198
165	-	-	-	-	-	-	5.125	4.607	4.068	3.623	3.441	3.055	2.307
170	-	-	-	-	-	-	-	4.925	4.392	3.922	3.517	3.137	2.417
175	-	-	-	-	-	-	-	5.243	4.716	4.261	3.594	3.219	2.526
180	-	-	-	-	-	-	-	-	5.039	4.599	3.804	3.302	2.636
185	-	-	-	-	-	-	-	-	5.363	4.938	4.173	3.384	2.746
190	-	-	-	-	-	-	-	-	-	5.276	4.541	3.466	2.855
195	-	-	-	-	-	-	-	-	-	-	4.910	3.549	2.965
200	-	-	-	-	-	-	-	-	-	-	5.278	3.631	3.074
205	-	-	-	-	-	-	-	-	-	-	-	4.105	3.184
210	-	-	-	-	-	-	-	-	-	-	-	4.599	3.293
215	-	-	-	-	-	-	-	-	-	-	-	-	3.403
220	-	-	-	-	-	-	-	-	-	-	-	-	3.512
225	-	-	-	-	-	-	-	-	-	-	-	-	3.622

Thickness is intumescent only.



SteelMaster 120SB

Table 24 Hollow Columns: 120 minutes													
Required Thickness (mm) for a Design Temperature (°C)													
Section Factor (m-1)	300	350	400	450	500	520	550	575	600	620	650	700	750
45	-	-	-	-	3.829	3.656	3.169	2.886	2.613	2.402	1.915	0.471	0.460
50	-	-	-	-	3.947	3.741	3.169	3.153	2.860	2.619	1.997	0.700	0.460
55	-	-	-	-	4.065	3.827	3.510	3.204	2.906	2.676	2.079	1.693	0.460
60	-	-	-	-	4.183	3.912	3.585	3.256	2.952	2.732	2.161	1.914	0.481
65	-	-	-	-	4.300	3.998	3.666	3.307	2.998	2.788	2.243	1.993	0.779
70	-	-	-	-	4.418	4.083	3.764	3.359	3.044	2.845	2.325	2.073	1.077
75	-	-	-	-	4.536	4.169	3.862	3.410	3.090	2.901	2.407	2.153	1.376
80	-	-	-	-	4.654	4.254	3.960	3.461	3.136	2.957	2.490	2.233	1.674
85	-	-	-	-	4.772	4.340	4.058	3.513	3.182	3.014	2.572	2.312	1.881
90	-	-	-	-	4.890	4.426	4.156	3.564	3.228	3.070	2.654	2.392	1.964
95	-	-	-	-	5.008	4.511	4.254	3.616	3.275	3.126	2.736	2.472	2.047
100	-	-	-	-	5.126	4.597	4.352	3.730	3.321	3.183	2.818	2.552	2.129
105	-	-	-	-	5.244	4.682	4.450	3.883	3.367	3.239	2.900	2.632	2.212
110	-	-	-	-	5.362	4.768	4.548	4.035	3.413	3.295	2.982	2.711	2.295
115	-	-	-	-	-	4.853	4.646	4.187	3.459	3.352	3.064	2.791	2.378
120	-	-	-	-	-	4.939	4.745	4.339	3.505	3.408	3.146	2.871	2.461
125	-	-	-	-	-	5.024	4.843	4.492	3.551	3.464	3.228	2.951	2.543
130	-	-	-	-	-	5.110	4.941	4.644	3.597	3.521	3.310	3.031	2.626
135	-	-	-	-	-	5.196	5.039	4.796	3.710	3.577	3.392	3.110	2.709
140	-	-	-	-	-	5.281	5.137	4.949	4.123	3.633	3.474	3.190	2.792
145	-	-	-	-	-	-	5.235	5.101	4.535	4.033	3.556	3.270	2.875
150	-	-	-	-	-	-	5.333	5.253	4.948	4.445	3.653	3.350	2.957
155	-	-	-	-	-	-	-	5.405	5.361	4.856	4.071	3.429	3.040
160	-	-	-	-	-	-	-	-	-	5.267	4.490	3.509	3.123
165	-	-	-	-	-	-	-	-	-	-	4.909	3.589	3.206
170	-	-	-	-	-	-	-	-	-	-	5.327	3.833	3.289
175	-	-	-	-	-	-	-	-	-	-	-	4.301	3.371
180	-	-	-	-	-	-	-	-	-	-	-	4.769	3.454
185	-	-	-	-	-	-	-	-	-	-	-	5.237	3.537
190	-	-	-	-	-	-	-	-	-	-	-	-	3.620
195	-	-	-	-	-	-	-	-	-	-	-	-	4.073
200	-	-	-	-	-	-	-	-	-	-	-	-	4.611
205	-	-	-	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only.