



CERTIFICATE OF APPROVAL

No CF 10166

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

JAZEERA FACTORY FOR PAINTS CO.
PO BOX 1900
OLD INDUSTRIAL CITY
KHAMIS MUSHAYT, KINGDOM OF SAUDI ARABIA, 61961
Tel No: +966172211111

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
FIRE DAMP W3

TECHNICAL SCHEDULE
TS15

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

Paul Duggan
Certification Manager

Issued: 18th September 2024
Audit Test Frequency: Annually
Valid to: 17th September 2029





CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

FIREDAMP W3

1. This approval relates to the use of FIREDAMP W3 for the fire protection of I/H-shaped and hollow steel sections. The precise scope is given in the Tables which show the total dry film thickness of FIREDAMP W3 (excluding primer and top sealer) required to provide fire resistance periods in accordance with BS476: Parts 20/21: 1987 up to 150 minutes for I/H beams, up to 240 minutes for I/H columns and up to 90 minutes for Rectangular/Square and Circular hollow columns.
2. 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.
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 Sa 2.5 or equivalent and primed with a suitable and compatible primer. Specifications of suitably tested and evaluated surface preparations, primers and topcoats are available from JAZEERA FACTORY FOR PAINTS CO., whose responsibility is to ensure that the FIREDAMP W3 system is compatible for use in respect of both ambient and fire conditions. The nominal dry film thickness of primer and topcoat should be applied at a nominal thickness tested unless stated otherwise in this certificate.
6. The data shown is applicable to FIREDAMP W3 applied by spray to horizontal, vertical, flexural and compression steel members supporting loads up to the maximum design loads specified in BS449: Part 2.
7. Results from the analysis of I/H sections are directly applicable to angles, channels and T-sections for the same section factor.
8. The approval relates to ongoing production. The product and/or its immediate packaging shall be identified with the manufacturer's name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.

Signed
E013751-1

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FIREDAMP W3

9. The data shown in the tables is based on an assessment that complies with the criteria for acceptability incorporated within the CERTIFIRE scheme.
10. For section factors below the extended minimum given in the Tables of Results, the same coating thickness as that applied to the extended minimum section factor shall be applied.

Signed
E013751-1

A handwritten signature in black ink, appearing to read "Paul Hoggan".

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JAZEERA FACTORY FOR PAINTS CO.

I/H Beams 30 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
35	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
40	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
45	0.221	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
50	0.236	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
55	0.251	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
60	0.266	0.219	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
65	0.281	0.231	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
70	0.296	0.243	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
75	0.311	0.255	0.212	0.207	0.207	0.207	0.207	0.207	0.207	0.207
80	0.326	0.267	0.222	0.207	0.207	0.207	0.207	0.207	0.207	0.207
85	0.342	0.279	0.232	0.207	0.207	0.207	0.207	0.207	0.207	0.207
90	0.357	0.291	0.242	0.207	0.207	0.207	0.207	0.207	0.207	0.207
95	0.372	0.303	0.252	0.207	0.207	0.207	0.207	0.207	0.207	0.207
100	0.387	0.315	0.263	0.207	0.207	0.207	0.207	0.207	0.207	0.207
105	0.402	0.327	0.273	0.207	0.207	0.207	0.207	0.207	0.207	0.207
110	0.417	0.339	0.283	0.215	0.207	0.207	0.207	0.207	0.207	0.207
115	0.432	0.351	0.293	0.224	0.207	0.207	0.207	0.207	0.207	0.207
120	0.447	0.363	0.303	0.233	0.207	0.207	0.207	0.207	0.207	0.207
125	0.462	0.375	0.314	0.242	0.207	0.207	0.207	0.207	0.207	0.207
130	0.477	0.387	0.324	0.251	0.207	0.207	0.207	0.207	0.207	0.207
135	0.492	0.399	0.334	0.261	0.207	0.207	0.207	0.207	0.207	0.207
140	0.507	0.411	0.344	0.270	0.207	0.207	0.207	0.207	0.207	0.207
145	0.522	0.423	0.354	0.279	0.207	0.207	0.207	0.207	0.207	0.207
150	0.537	0.435	0.365	0.288	0.207	0.207	0.207	0.207	0.207	0.207
155	0.552	0.447	0.375	0.297	0.207	0.207	0.207	0.207	0.207	0.207
160	0.567	0.459	0.385	0.307	0.207	0.207	0.207	0.207	0.207	0.207
165	0.582	0.471	0.395	0.316	0.207	0.207	0.207	0.207	0.207	0.207
170	0.597	0.483	0.405	0.325	0.207	0.207	0.207	0.207	0.207	0.207
175	0.612	0.495	0.416	0.334	0.207	0.207	0.207	0.207	0.207	0.207
180	0.627	0.507	0.426	0.343	0.207	0.207	0.207	0.207	0.207	0.207
185	0.642	0.519	0.436	0.353	0.207	0.207	0.207	0.207	0.207	0.207
190	0.657	0.531	0.446	0.362	0.207	0.207	0.207	0.207	0.207	0.207
195	0.672	0.544	0.457	0.371	0.207	0.207	0.207	0.207	0.207	0.207
200	0.687	0.556	0.467	0.380	0.207	0.207	0.207	0.207	0.207	0.207
205	0.702	0.568	0.477	0.389	0.207	0.207	0.207	0.207	0.207	0.207
210	0.717	0.580	0.487	0.399	0.207	0.207	0.207	0.207	0.207	0.207
215	0.732	0.592	0.497	0.408	0.207	0.207	0.207	0.207	0.207	0.207
220	0.747	0.604	0.508	0.417	0.207	0.207	0.207	0.207	0.207	0.207
225	0.795	0.616	0.518	0.426	0.207	0.207	0.207	0.207	0.207	0.207
230	0.845	0.628	0.528	0.435	0.207	0.207	0.207	0.207	0.207	0.207
235	0.895	0.640	0.538	0.445	0.207	0.207	0.207	0.207	0.207	0.207
240	0.944	0.652	0.548	0.454	0.209	0.207	0.207	0.207	0.207	0.207
245	0.994	0.664	0.559	0.463	0.221	0.207	0.207	0.207	0.207	0.207
250	1.044	0.676	0.569	0.472	0.233	0.207	0.207	0.207	0.207	0.207
255	1.094	0.688	0.579	0.481	0.245	0.207	0.207	0.207	0.207	0.207
260	1.143	0.700	0.589	0.491	0.256	0.207	0.207	0.207	0.207	0.207
265	1.193	0.712	0.599	0.500	0.268	0.207	0.207	0.207	0.207	0.207
270	1.243	0.724	0.610	0.509	0.280	0.207	0.207	0.207	0.207	0.207
275	1.292	0.736	0.620	0.518	0.292	0.207	0.207	0.207	0.207	0.207
280	1.342	0.748	0.630	0.527	0.304	0.207	0.207	0.207	0.207	0.207
285	1.392	0.785	0.640	0.537	0.316	0.207	0.207	0.207	0.207	0.207
290	1.441	0.821	0.651	0.546	0.328	0.207	0.207	0.207	0.207	0.207
295	1.491	0.858	0.661	0.555	0.340	0.207	0.207	0.207	0.207	0.207
300	1.541	0.895	0.671	0.564	0.351	0.207	0.207	0.207	0.207	0.207
305	1.591	0.931	0.681	0.574	0.363	0.207	0.207	0.207	0.207	0.207
310	1.640	0.968	0.691	0.583	0.375	0.207	0.207	0.207	0.207	0.207
315	1.690	1.005	0.702	0.592	0.387	0.207	0.207	0.207	0.207	0.207
320	1.740	1.041	0.712	0.601	0.399	0.207	0.207	0.207	0.207	0.207
325	1.789	1.078	0.722	0.610	0.411	0.207	0.207	0.207	0.207	0.207
330	1.839	1.115	0.732	0.620	0.423	0.207	0.207	0.207	0.207	0.207
335	1.889	1.151	0.742	0.629	0.434	0.207	0.207	0.207	0.207	0.207
340	1.938	1.188	0.762	0.638	0.446	0.207	0.207	0.207	0.207	0.207
345	1.988	1.225	0.794	0.647	0.458	0.207	0.207	0.207	0.207	0.207
350	2.038	1.261	0.826	0.656	0.470	0.207	0.207	0.207	0.207	0.207
355	2.087	1.298	0.858	0.666	0.482	0.207	0.207	0.207	0.207	0.207
360	2.137	1.335	0.890	0.675	0.494	0.207	0.207	0.207	0.207	0.207
365	2.187	1.371	0.922	0.684	0.506	0.210	0.207	0.207	0.207	0.207
370	2.237	1.408	0.954	0.693	0.518	0.225	0.207	0.207	0.207	0.207
375	2.286	1.445	0.986	0.702	0.529	0.240	0.207	0.207	0.207	0.207
380	2.336	1.481	1.018	0.712	0.541	0.255	0.207	0.207	0.207	0.207
385	2.386	1.518	1.050	0.721	0.553	0.270	0.208	0.207	0.207	0.207
390	2.435	1.555	1.082	0.730	0.565	0.285	0.222	0.207	0.207	0.207

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3 sided fire exposure.

Signed
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JAZEERA FACTORY FOR PAINTS CO.

I/H Beams 45 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	0.310	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207	0.207
35	0.349	0.237	0.212	0.207	0.207	0.207	0.207	0.207	0.207	0.207
40	0.388	0.254	0.225	0.207	0.207	0.207	0.207	0.207	0.207	0.207
45	0.427	0.272	0.239	0.214	0.207	0.207	0.207	0.207	0.207	0.207
50	0.466	0.289	0.253	0.226	0.207	0.207	0.207	0.207	0.207	0.207
55	0.505	0.307	0.267	0.238	0.215	0.207	0.207	0.207	0.207	0.207
60	0.544	0.324	0.281	0.250	0.226	0.207	0.207	0.207	0.207	0.207
65	0.583	0.342	0.295	0.262	0.236	0.208	0.207	0.207	0.207	0.207
70	0.622	0.359	0.308	0.274	0.247	0.218	0.207	0.207	0.207	0.207
75	0.661	0.377	0.322	0.286	0.258	0.228	0.214	0.207	0.207	0.207
80	0.700	0.394	0.336	0.298	0.268	0.238	0.224	0.207	0.207	0.207
85	0.739	0.412	0.350	0.310	0.279	0.248	0.233	0.209	0.207	0.207
90	0.778	0.429	0.364	0.322	0.290	0.257	0.243	0.218	0.207	0.207
95	0.817	0.447	0.378	0.334	0.300	0.267	0.252	0.227	0.207	0.207
100	0.856	0.464	0.391	0.346	0.311	0.277	0.262	0.236	0.207	0.207
105	0.895	0.482	0.405	0.358	0.322	0.287	0.272	0.245	0.207	0.207
110	0.934	0.499	0.419	0.370	0.333	0.297	0.281	0.254	0.207	0.207
115	0.973	0.517	0.433	0.382	0.343	0.306	0.291	0.263	0.207	0.207
120	1.011	0.534	0.447	0.394	0.354	0.316	0.300	0.273	0.207	0.207
125	1.050	0.552	0.460	0.406	0.365	0.326	0.310	0.282	0.207	0.207
130	1.089	0.569	0.474	0.418	0.375	0.336	0.320	0.291	0.207	0.207
135	1.128	0.587	0.488	0.430	0.386	0.346	0.329	0.300	0.207	0.207
140	1.167	0.604	0.502	0.442	0.397	0.355	0.339	0.309	0.207	0.207
145	1.206	0.622	0.516	0.454	0.407	0.365	0.348	0.318	0.207	0.207
150	1.244	0.639	0.530	0.466	0.418	0.375	0.358	0.328	0.207	0.207
155	1.283	0.657	0.543	0.478	0.429	0.385	0.367	0.337	0.207	0.207
160	1.322	0.674	0.557	0.490	0.439	0.395	0.377	0.346	0.207	0.207
165	1.361	0.692	0.571	0.502	0.450	0.405	0.387	0.355	0.207	0.207
170	1.400	0.709	0.585	0.514	0.461	0.414	0.396	0.364	0.207	0.207
175	1.439	0.727	0.599	0.526	0.471	0.424	0.406	0.373	0.207	0.207
180	1.478	0.744	0.613	0.538	0.482	0.434	0.415	0.382	0.207	0.207
185	1.516	0.788	0.626	0.550	0.493	0.444	0.425	0.392	0.207	0.207
190	1.555	0.839	0.640	0.562	0.504	0.454	0.435	0.401	0.207	0.207
195	1.594	0.889	0.654	0.574	0.514	0.463	0.444	0.410	0.207	0.207
200	1.633	0.940	0.668	0.586	0.525	0.473	0.454	0.419	0.207	0.207
205	1.672	0.991	0.682	0.598	0.536	0.483	0.463	0.428	0.208	0.207
210	1.711	1.042	0.696	0.610	0.546	0.493	0.473	0.437	0.220	0.207
215	1.749	1.093	0.709	0.622	0.557	0.503	0.482	0.447	0.232	0.207
220	1.788	1.143	0.723	0.634	0.568	0.512	0.492	0.456	0.243	0.207
225	1.827	1.194	0.737	0.646	0.578	0.522	0.502	0.465	0.255	0.207
230	1.866	1.245	0.759	0.659	0.589	0.532	0.511	0.474	0.267	0.207
235	1.905	1.296	0.812	0.671	0.600	0.542	0.521	0.483	0.278	0.207
240	1.944	1.347	0.864	0.683	0.610	0.552	0.530	0.492	0.290	0.207
245	1.983	1.398	0.917	0.695	0.621	0.561	0.540	0.501	0.302	0.207
250	2.021	1.448	0.969	0.707	0.632	0.571	0.550	0.511	0.313	0.207
255	2.060	1.499	1.022	0.719	0.642	0.581	0.559	0.520	0.325	0.207
260	2.099	1.550	1.074	0.731	0.653	0.591	0.569	0.529	0.337	0.207
265	2.138	1.601	1.127	0.743	0.664	0.601	0.578	0.538	0.348	0.207
270	2.177	1.652	1.179	0.774	0.675	0.610	0.588	0.547	0.360	0.207
275	2.216	1.703	1.232	0.822	0.685	0.620	0.597	0.556	0.372	0.207
280	2.254	1.753	1.284	0.870	0.696	0.630	0.607	0.566	0.383	0.207
285	2.293	1.804	1.336	0.917	0.707	0.640	0.617	0.575	0.395	0.207
290	2.332	1.855	1.389	0.965	0.717	0.650	0.626	0.584	0.407	0.207
295	2.371	1.906	1.441	1.013	0.728	0.659	0.636	0.593	0.419	0.207
300	2.410	1.957	1.494	1.061	0.739	0.669	0.645	0.602	0.430	0.207
305	2.449	2.008	1.546	1.108	0.753	0.679	0.655	0.611	0.442	0.207
310	-	2.058	1.599	1.156	0.796	0.689	0.665	0.620	0.454	0.207
315	-	2.109	1.651	1.204	0.839	0.699	0.674	0.630	0.465	0.207
320	-	2.160	1.704	1.252	0.881	0.709	0.684	0.639	0.477	0.207
325	-	2.211	1.756	1.299	0.924	0.718	0.693	0.648	0.489	0.207
330	-	2.262	1.809	1.347	0.966	0.728	0.703	0.657	0.500	0.207
335	-	2.313	1.861	1.395	1.009	0.738	0.712	0.666	0.512	0.207
340	-	2.363	1.914	1.443	1.052	0.748	0.722	0.675	0.524	0.207
345	-	2.414	1.966	1.490	1.094	0.758	0.732	0.685	0.535	0.209
350	-	2.465	2.018	1.538	1.137	0.821	0.741	0.694	0.547	0.223
355	-	-	2.071	1.586	1.179	0.857	0.758	0.703	0.559	0.237
360	-	-	2.123	1.634	1.222	0.894	0.792	0.712	0.570	0.251
365	-	-	2.176	1.681	1.264	0.931	0.826	0.721	0.582	0.265
370	-	-	2.228	1.729	1.307	0.968	0.861	0.730	0.594	0.279
375	-	-	2.281	1.777	1.350	1.004	0.895	0.739	0.605	0.293
380	-	-	2.333	1.825	1.392	1.041	0.929	0.750	0.617	0.307
385	-	-	2.386	1.872	1.435	1.078	0.964	0.781	0.629	0.321
390	-	-	2.438	1.920	1.477	1.115	0.998	0.813	0.640	0.335

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3 sided fire exposure.

Signed
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Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Beams 60 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	0.544	0.402	0.302	0.207	0.207	0.207	0.207	0.207	0.207	0.207
35	0.602	0.438	0.326	0.239	0.223	0.207	0.207	0.207	0.207	0.207
40	0.660	0.473	0.349	0.255	0.236	0.216	0.208	0.207	0.207	0.207
45	0.718	0.509	0.372	0.270	0.250	0.228	0.219	0.207	0.207	0.207
50	0.768	0.544	0.395	0.285	0.263	0.240	0.231	0.218	0.207	0.207
55	0.811	0.580	0.418	0.300	0.276	0.252	0.242	0.229	0.207	0.207
60	0.854	0.615	0.441	0.315	0.290	0.264	0.254	0.240	0.212	0.207
65	0.897	0.651	0.465	0.330	0.303	0.276	0.266	0.251	0.222	0.207
70	0.940	0.687	0.488	0.346	0.316	0.288	0.277	0.262	0.232	0.207
75	0.982	0.722	0.511	0.361	0.330	0.300	0.289	0.273	0.243	0.207
80	1.025	0.759	0.534	0.376	0.343	0.312	0.301	0.284	0.253	0.210
85	1.068	0.800	0.557	0.391	0.357	0.324	0.312	0.295	0.263	0.220
90	1.111	0.841	0.581	0.406	0.370	0.336	0.324	0.306	0.274	0.229
95	1.154	0.881	0.604	0.422	0.383	0.348	0.335	0.317	0.284	0.239
100	1.196	0.922	0.627	0.437	0.397	0.360	0.347	0.328	0.295	0.249
105	1.239	0.963	0.650	0.452	0.410	0.372	0.359	0.339	0.305	0.259
110	1.282	1.004	0.673	0.467	0.423	0.384	0.370	0.350	0.315	0.268
115	1.325	1.044	0.696	0.482	0.437	0.396	0.382	0.362	0.326	0.278
120	1.368	1.085	0.720	0.498	0.450	0.409	0.393	0.373	0.336	0.288
125	1.411	1.126	0.743	0.513	0.463	0.421	0.405	0.384	0.347	0.298
130	1.453	1.167	0.782	0.528	0.477	0.433	0.417	0.395	0.357	0.308
135	1.496	1.207	0.825	0.543	0.490	0.445	0.428	0.406	0.367	0.317
140	1.539	1.248	0.869	0.558	0.503	0.457	0.440	0.417	0.378	0.327
145	1.582	1.289	0.913	0.574	0.517	0.469	0.451	0.428	0.388	0.337
150	1.625	1.330	0.957	0.589	0.530	0.481	0.463	0.439	0.399	0.347
155	1.667	1.370	1.000	0.604	0.543	0.493	0.475	0.450	0.409	0.357
160	1.710	1.411	1.044	0.619	0.557	0.505	0.486	0.461	0.419	0.366
165	1.753	1.452	1.088	0.634	0.570	0.517	0.498	0.472	0.430	0.376
170	1.796	1.493	1.132	0.649	0.583	0.529	0.509	0.483	0.440	0.386
175	1.839	1.533	1.175	0.665	0.597	0.541	0.521	0.494	0.450	0.396
180	1.881	1.574	1.219	0.680	0.610	0.553	0.533	0.505	0.461	0.406
185	1.924	1.615	1.263	0.695	0.623	0.565	0.544	0.516	0.471	0.415
190	1.967	1.656	1.306	0.710	0.637	0.577	0.556	0.527	0.482	0.425
195	2.010	1.696	1.350	0.725	0.650	0.589	0.568	0.538	0.492	0.435
200	2.053	1.737	1.394	0.741	0.663	0.601	0.579	0.549	0.502	0.445
205	2.095	1.778	1.438	0.757	0.677	0.613	0.591	0.560	0.513	0.455
210	2.138	1.819	1.481	0.840	0.690	0.625	0.602	0.571	0.523	0.464
215	2.181	1.859	1.525	0.901	0.703	0.637	0.614	0.582	0.534	0.474
220	2.224	1.900	1.569	0.961	0.717	0.649	0.626	0.593	0.544	0.484
225	2.267	1.941	1.612	1.022	0.730	0.661	0.637	0.605	0.554	0.494
230	2.309	1.982	1.656	1.083	0.744	0.673	0.649	0.616	0.565	0.504
235	2.352	2.022	1.700	1.143	0.788	0.685	0.660	0.627	0.575	0.513
240	2.395	2.063	1.744	1.204	0.849	0.697	0.672	0.638	0.586	0.523
245	2.438	2.104	1.787	1.265	0.910	0.709	0.684	0.649	0.596	0.533
250	2.481	2.145	1.831	1.326	0.970	0.721	0.695	0.660	0.606	0.543
255	-	2.185	1.875	1.386	1.031	0.734	0.707	0.671	0.617	0.552
260	-	2.226	1.918	1.447	1.091	0.746	0.718	0.682	0.627	0.562
265	-	2.267	1.962	1.508	1.152	0.793	0.730	0.693	0.637	0.572
270	-	2.308	2.006	1.568	1.213	0.851	0.742	0.704	0.648	0.582
275	-	2.348	2.050	1.629	1.273	0.908	0.773	0.715	0.658	0.592
280	-	2.389	2.093	1.690	1.334	0.965	0.828	0.726	0.669	0.601
285	-	2.430	2.137	1.750	1.394	1.022	0.882	0.737	0.679	0.611
290	-	2.471	2.181	1.811	1.455	1.079	0.937	0.748	0.689	0.621
295	-	-	2.224	1.872	1.516	1.136	0.992	0.799	0.700	0.631
300	-	-	2.268	1.933	1.576	1.194	1.047	0.850	0.710	0.641
305	-	-	2.312	1.993	1.637	1.251	1.101	0.901	0.721	0.650
310	-	-	2.356	2.054	1.697	1.308	1.156	0.951	0.731	0.660
315	-	-	2.399	2.115	1.758	1.365	1.211	1.002	0.741	0.670
320	-	-	2.443	2.175	1.819	1.422	1.266	1.053	0.763	0.680
325	-	-	-	2.236	1.879	1.479	1.320	1.104	0.805	0.690
330	-	-	-	2.297	1.940	1.537	1.375	1.155	0.848	0.699
335	-	-	-	2.358	2.001	1.594	1.430	1.205	0.890	0.709
340	-	-	-	2.418	2.061	1.651	1.484	1.256	0.932	0.719
345	-	-	-	2.479	2.122	1.708	1.539	1.307	0.974	0.729
350	-	-	-	-	2.182	1.765	1.594	1.358	1.017	0.739
355	-	-	-	-	2.243	1.822	1.649	1.408	1.059	0.749
360	-	-	-	-	2.304	1.880	1.703	1.459	1.101	0.783
365	-	-	-	-	2.364	1.937	1.758	1.510	1.143	0.817
370	-	-	-	-	2.425	1.994	1.813	1.561	1.185	0.851
375	-	-	-	-	2.485	2.051	1.868	1.612	1.228	0.885
380	-	-	-	-	-	2.108	1.922	1.662	1.270	0.919
385	-	-	-	-	-	2.165	1.977	1.713	1.312	0.953
390	-	-	-	-	-	2.223	2.032	1.764	1.354	0.988

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3 sided fire exposure.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Beams 75 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	0.780	0.601	0.471	0.372	0.301	0.225	0.207	0.207	0.207	0.207
35	0.899	0.638	0.504	0.398	0.318	0.239	0.231	0.220	0.207	0.207
40	1.018	0.674	0.538	0.423	0.335	0.254	0.245	0.233	0.214	0.207
45	1.137	0.710	0.571	0.449	0.352	0.268	0.259	0.246	0.226	0.207
50	1.257	0.746	0.604	0.475	0.369	0.282	0.273	0.259	0.238	0.213
55	1.376	0.791	0.638	0.500	0.386	0.297	0.287	0.272	0.250	0.224
60	1.495	0.836	0.671	0.526	0.403	0.311	0.300	0.285	0.262	0.236
65	1.614	0.881	0.704	0.552	0.420	0.325	0.314	0.298	0.274	0.247
70	1.734	0.926	0.738	0.577	0.437	0.340	0.328	0.311	0.286	0.258
75	1.853	0.971	0.777	0.603	0.454	0.354	0.342	0.325	0.298	0.269
80	1.972	1.015	0.819	0.628	0.471	0.369	0.356	0.338	0.310	0.280
85	2.091	1.060	0.862	0.654	0.488	0.383	0.370	0.351	0.322	0.291
90	2.210	1.105	0.904	0.680	0.505	0.397	0.383	0.364	0.334	0.302
95	2.330	1.150	0.946	0.705	0.522	0.412	0.397	0.377	0.346	0.314
100	2.449	1.195	0.989	0.731	0.539	0.426	0.411	0.390	0.358	0.325
105	-	1.240	1.031	0.762	0.556	0.441	0.425	0.403	0.370	0.336
110	-	1.285	1.073	0.806	0.573	0.455	0.439	0.416	0.382	0.347
115	-	1.330	1.116	0.849	0.590	0.469	0.452	0.429	0.394	0.358
120	-	1.375	1.158	0.892	0.607	0.484	0.466	0.442	0.406	0.369
125	-	1.420	1.200	0.935	0.624	0.498	0.480	0.455	0.418	0.380
130	-	1.465	1.243	0.979	0.641	0.513	0.494	0.468	0.431	0.392
135	-	1.509	1.285	1.022	0.658	0.527	0.508	0.481	0.443	0.403
140	-	1.554	1.327	1.065	0.675	0.541	0.521	0.494	0.455	0.414
145	-	1.599	1.369	1.109	0.692	0.556	0.535	0.507	0.467	0.425
150	-	1.644	1.412	1.152	0.709	0.570	0.549	0.520	0.479	0.436
155	-	1.689	1.454	1.195	0.726	0.585	0.563	0.533	0.491	0.447
160	-	1.734	1.496	1.239	0.743	0.599	0.577	0.546	0.503	0.459
165	-	1.779	1.539	1.282	0.760	0.613	0.591	0.559	0.515	0.470
170	-	1.824	1.581	1.325	0.777	0.628	0.604	0.572	0.527	0.481
175	-	1.869	1.623	1.368	0.793	0.642	0.618	0.585	0.539	0.492
180	-	1.914	1.666	1.412	0.809	0.657	0.632	0.598	0.551	0.503
185	-	1.958	1.708	1.455	0.825	0.671	0.646	0.612	0.563	0.514
190	-	2.003	1.750	1.498	0.841	0.685	0.660	0.625	0.575	0.525
195	-	2.048	1.793	1.542	0.857	0.699	0.673	0.638	0.587	0.537
200	-	2.093	1.835	1.585	0.873	0.714	0.687	0.651	0.599	0.548
205	-	2.138	1.877	1.628	0.889	0.729	0.701	0.664	0.611	0.559
210	-	2.183	1.919	1.671	0.905	0.743	0.715	0.677	0.623	0.570
215	-	2.228	1.962	1.715	0.921	0.758	0.729	0.690	0.635	0.581
220	-	2.273	2.004	1.758	0.937	0.773	0.743	0.703	0.647	0.592
225	-	2.318	2.046	1.801	0.953	0.788	0.757	0.716	0.659	0.604
230	-	2.363	2.089	1.845	0.969	0.803	0.771	0.729	0.671	0.615
235	-	2.408	2.131	1.888	0.985	0.818	0.785	0.742	0.683	0.626
240	-	2.452	2.173	1.931	1.001	0.833	0.800	0.757	0.695	0.637
245	-	-	2.216	1.974	1.017	0.848	0.814	0.771	0.707	0.648
250	-	-	2.258	2.018	1.033	0.863	0.829	0.785	0.719	0.659
255	-	-	2.300	2.061	1.049	0.878	0.843	0.799	0.731	0.670
260	-	-	2.343	2.104	1.065	0.893	0.858	0.813	0.743	0.682
265	-	-	2.385	2.148	1.081	0.908	0.873	0.827	0.755	0.693
270	-	-	2.427	2.191	1.097	0.923	0.887	0.841	0.769	0.704
275	-	-	2.469	2.234	1.113	0.938	0.902	0.855	0.781	0.715
280	-	-	-	2.278	1.129	0.953	0.917	0.869	0.795	0.726
285	-	-	-	2.321	1.145	0.968	0.932	0.883	0.807	0.737
290	-	-	-	2.364	1.161	0.983	0.947	0.899	0.821	0.750
295	-	-	-	2.407	1.177	1.000	0.962	0.913	0.833	0.761
300	-	-	-	2.451	1.193	1.015	0.977	0.927	0.846	0.772
305	-	-	-	-	1.209	1.031	0.992	0.941	0.859	0.783
310	-	-	-	-	1.225	1.046	1.007	0.955	0.872	0.795
315	-	-	-	-	1.241	1.061	1.022	0.969	0.885	0.809
320	-	-	-	-	1.257	1.076	1.037	0.984	0.899	0.824
325	-	-	-	-	1.273	1.091	1.052	1.000	0.913	0.839
330	-	-	-	-	1.289	1.106	1.067	1.015	0.927	0.854
335	-	-	-	-	1.305	1.121	1.082	1.030	0.941	0.869
340	-	-	-	-	1.321	1.136	1.097	1.045	0.955	0.884
345	-	-	-	-	1.337	1.151	1.112	1.060	0.970	0.900
350	-	-	-	-	1.353	1.166	1.127	1.075	0.985	0.915
355	-	-	-	-	1.369	1.181	1.142	1.090	1.000	0.930
360	-	-	-	-	1.385	1.196	1.157	1.105	1.015	0.945
365	-	-	-	-	1.401	1.211	1.172	1.120	1.030	0.960
370	-	-	-	-	1.417	1.226	1.187	1.135	1.045	0.975
375	-	-	-	-	1.433	1.241	1.202	1.150	1.060	0.990
380	-	-	-	-	1.449	1.256	1.217	1.165	1.075	1.005
385	-	-	-	-	1.465	1.271	1.232	1.180	1.090	1.020
390	-	-	-	-	1.481	1.286	1.247	1.195	1.105	1.035

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3 sided fire exposure.

Signed
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Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Beams 90 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	1.245	0.810	0.645	0.523	0.432	0.345	0.309	0.231	0.207	0.207
35	1.489	0.902	0.671	0.554	0.458	0.365	0.326	0.246	0.228	0.212
40	1.733	0.993	0.697	0.585	0.485	0.385	0.343	0.261	0.242	0.225
45	1.978	1.085	0.722	0.616	0.511	0.404	0.360	0.276	0.256	0.238
50	2.222	1.176	0.749	0.646	0.537	0.424	0.377	0.291	0.270	0.251
55	2.466	1.268	0.794	0.677	0.563	0.444	0.394	0.306	0.283	0.263
60	-	1.359	0.840	0.708	0.590	0.464	0.411	0.321	0.297	0.276
65	-	1.451	0.886	0.739	0.616	0.484	0.428	0.337	0.311	0.289
70	-	1.542	0.932	0.779	0.642	0.504	0.445	0.352	0.325	0.302
75	-	1.634	0.978	0.822	0.668	0.524	0.462	0.367	0.339	0.314
80	-	1.725	1.024	0.866	0.695	0.543	0.478	0.382	0.353	0.327
85	-	1.817	1.070	0.910	0.721	0.563	0.495	0.397	0.366	0.340
90	-	1.908	1.116	0.953	0.747	0.583	0.512	0.412	0.380	0.353
95	-	2.000	1.162	0.997	0.790	0.603	0.529	0.427	0.394	0.365
100	-	2.091	1.208	1.040	0.834	0.623	0.546	0.443	0.408	0.378
105	-	2.183	1.254	1.084	0.877	0.643	0.563	0.458	0.422	0.391
110	-	2.274	1.300	1.127	0.921	0.663	0.580	0.473	0.436	0.404
115	-	2.366	1.346	1.171	0.964	0.682	0.597	0.488	0.449	0.417
120	-	2.457	1.392	1.214	1.008	0.702	0.614	0.503	0.463	0.429
125	-	-	1.438	1.258	1.052	0.722	0.631	0.518	0.477	0.442
130	-	-	1.484	1.301	1.095	0.742	0.648	0.533	0.491	0.455
135	-	-	1.530	1.345	1.139	0.782	0.665	0.549	0.505	0.468
140	-	-	1.576	1.388	1.182	0.832	0.682	0.564	0.519	0.480
145	-	-	1.622	1.432	1.226	0.881	0.699	0.579	0.532	0.493
150	-	-	1.668	1.475	1.269	0.930	0.716	0.594	0.546	0.506
155	-	-	1.714	1.519	1.313	0.979	0.733	0.609	0.560	0.519
160	-	-	1.760	1.563	1.356	1.028	0.753	0.624	0.574	0.531
165	-	-	1.806	1.606	1.400	1.077	0.810	0.639	0.588	0.544
170	-	-	1.852	1.650	1.443	1.126	0.866	0.655	0.602	0.557
175	-	-	1.898	1.693	1.487	1.175	0.923	0.670	0.615	0.570
180	-	-	1.944	1.737	1.530	1.224	0.980	0.685	0.629	0.582
185	-	-	1.990	1.780	1.574	1.273	1.036	0.700	0.643	0.595
190	-	-	2.036	1.824	1.618	1.322	1.093	0.715	0.657	0.608
195	-	-	2.082	1.867	1.661	1.372	1.149	0.730	0.671	0.621
200	-	-	2.128	1.911	1.705	1.421	1.206	0.745	0.685	0.633
205	-	-	2.174	1.954	1.748	1.470	1.263	0.808	0.698	0.646
210	-	-	2.220	1.998	1.792	1.519	1.319	0.880	0.712	0.659
215	-	-	2.266	2.041	1.835	1.568	1.376	0.953	0.726	0.672
220	-	-	2.312	2.085	1.879	1.617	1.432	1.025	0.740	0.684
225	-	-	2.358	2.128	1.922	1.666	1.489	1.097	0.777	0.697
230	-	-	2.404	2.172	1.966	1.715	1.546	1.169	0.849	0.710
235	-	-	2.450	2.216	2.009	1.764	1.602	1.242	0.920	0.723
240	-	-	-	2.259	2.053	1.813	1.659	1.314	0.992	0.735
245	-	-	-	2.303	2.096	1.862	1.715	1.386	1.064	0.749
250	-	-	-	2.346	2.140	1.912	1.772	1.458	1.135	0.821
255	-	-	-	2.390	2.184	1.961	1.829	1.531	1.207	0.892
260	-	-	-	2.433	2.227	2.010	1.885	1.603	1.278	0.963
265	-	-	-	2.477	2.271	2.059	1.942	1.675	1.350	1.035
270	-	-	-	-	2.314	2.108	1.998	1.748	1.422	1.106
275	-	-	-	-	2.358	2.157	2.055	1.820	1.493	1.177
280	-	-	-	-	2.401	2.206	2.112	1.892	1.565	1.249
285	-	-	-	-	2.445	2.255	2.168	1.964	1.636	1.320
290	-	-	-	-	-	2.304	2.225	2.037	1.708	1.391
295	-	-	-	-	-	2.353	2.281	2.109	1.779	1.463
300	-	-	-	-	-	2.403	2.338	2.181	1.851	1.534
305	-	-	-	-	-	2.452	2.395	2.253	1.923	1.605
310	-	-	-	-	-	-	2.451	2.326	1.994	1.677
315	-	-	-	-	-	-	-	2.398	2.066	1.748
320	-	-	-	-	-	-	-	2.470	2.137	1.819
325	-	-	-	-	-	-	-	-	2.209	1.891
330	-	-	-	-	-	-	-	-	2.281	1.962
335	-	-	-	-	-	-	-	-	2.352	2.033
340	-	-	-	-	-	-	-	-	2.424	2.105
345	-	-	-	-	-	-	-	-	-	2.176
350	-	-	-	-	-	-	-	-	-	2.247
355	-	-	-	-	-	-	-	-	-	2.319
360	-	-	-	-	-	-	-	-	-	2.390
365	-	-	-	-	-	-	-	-	-	2.461
370	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3 sided fire exposure.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Beams 120 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	-	1.638	1.255	0.884	0.702	0.586	0.540	0.469	0.372	0.307
35	-	1.879	1.390	0.964	0.721	0.613	0.568	0.497	0.396	0.324
40	-	2.120	1.526	1.044	0.740	0.640	0.597	0.526	0.420	0.342
45	-	2.361	1.662	1.124	0.778	0.667	0.625	0.554	0.444	0.360
50	-	-	1.797	1.204	0.829	0.693	0.653	0.582	0.468	0.377
55	-	-	1.933	1.284	0.879	0.720	0.681	0.611	0.492	0.395
60	-	-	2.069	1.364	0.930	0.747	0.710	0.639	0.515	0.412
65	-	-	2.204	1.443	0.981	0.792	0.738	0.667	0.539	0.430
70	-	-	2.340	1.523	1.031	0.836	0.777	0.696	0.563	0.448
75	-	-	2.476	1.603	1.082	0.881	0.821	0.724	0.587	0.465
80	-	-	-	1.683	1.133	0.926	0.866	0.755	0.611	0.483
85	-	-	-	1.763	1.183	0.971	0.910	0.799	0.635	0.500
90	-	-	-	1.843	1.234	1.016	0.955	0.843	0.659	0.518
95	-	-	-	1.923	1.285	1.061	0.999	0.887	0.683	0.536
100	-	-	-	2.003	1.335	1.106	1.044	0.932	0.707	0.553
105	-	-	-	2.083	1.386	1.151	1.088	0.976	0.731	0.571
110	-	-	-	2.163	1.437	1.196	1.133	1.020	0.762	0.589
115	-	-	-	2.243	1.487	1.241	1.177	1.064	0.808	0.606
120	-	-	-	2.322	1.538	1.286	1.222	1.108	0.855	0.624
125	-	-	-	2.402	1.589	1.330	1.266	1.152	0.902	0.641
130	-	-	-	2.482	1.639	1.375	1.311	1.196	0.948	0.659
135	-	-	-	-	1.690	1.420	1.355	1.241	0.995	0.677
140	-	-	-	-	1.741	1.465	1.400	1.285	1.041	0.694
145	-	-	-	-	1.791	1.510	1.444	1.329	1.088	0.712
150	-	-	-	-	1.842	1.555	1.489	1.373	1.135	0.730
155	-	-	-	-	1.893	1.600	1.533	1.417	1.181	0.747
160	-	-	-	-	1.943	1.645	1.578	1.461	1.228	0.803
165	-	-	-	-	1.994	1.690	1.622	1.505	1.274	0.860
170	-	-	-	-	2.045	1.735	1.667	1.550	1.321	0.918
175	-	-	-	-	2.095	1.780	1.711	1.594	1.368	0.975
180	-	-	-	-	2.146	1.824	1.756	1.638	1.414	1.033
185	-	-	-	-	2.197	1.869	1.800	1.682	1.461	1.090
190	-	-	-	-	2.247	1.914	1.845	1.726	1.507	1.148
195	-	-	-	-	2.298	1.959	1.889	1.770	1.554	1.206
200	-	-	-	-	2.349	2.004	1.934	1.815	1.600	1.263
205	-	-	-	-	2.399	2.049	1.978	1.859	1.647	1.321
210	-	-	-	-	2.450	2.094	2.023	1.903	1.694	1.378
215	-	-	-	-	-	2.139	2.067	1.947	1.740	1.436
220	-	-	-	-	-	2.184	2.112	1.991	1.787	1.493
225	-	-	-	-	-	2.229	2.156	2.035	1.833	1.551
230	-	-	-	-	-	2.274	2.201	2.079	1.880	1.608
235	-	-	-	-	-	2.318	2.245	2.124	1.927	1.666
240	-	-	-	-	-	2.363	2.290	2.168	1.973	1.723
245	-	-	-	-	-	2.408	2.334	2.212	2.020	1.781
250	-	-	-	-	-	2.453	2.379	2.256	2.066	1.838
255	-	-	-	-	-	-	2.423	2.300	2.113	1.896
260	-	-	-	-	-	-	2.468	2.344	2.160	1.954
265	-	-	-	-	-	-	-	2.388	2.206	2.011
270	-	-	-	-	-	-	-	2.433	2.253	2.069
275	-	-	-	-	-	-	-	2.477	2.299	2.126
280	-	-	-	-	-	-	-	-	2.346	2.184
285	-	-	-	-	-	-	-	-	2.393	2.241
290	-	-	-	-	-	-	-	-	2.439	2.299
295	-	-	-	-	-	-	-	-	2.486	2.356
300	-	-	-	-	-	-	-	-	-	2.414
305	-	-	-	-	-	-	-	-	-	2.471
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3 sided fire exposure.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Beams 150 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	-	-	1.976	1.610	1.278	0.910	0.807	0.688	0.572	0.495
35	-	-	2.232	1.774	1.390	0.992	0.877	0.711	0.602	0.525
40	-	-	-	1.937	1.501	1.073	0.948	0.733	0.633	0.555
45	-	-	-	2.101	1.612	1.154	1.018	0.765	0.664	0.585
50	-	-	-	2.265	1.724	1.235	1.089	0.815	0.694	0.615
55	-	-	-	2.428	1.835	1.317	1.159	0.864	0.725	0.645
60	-	-	-	-	1.946	1.398	1.229	0.914	0.759	0.675
65	-	-	-	-	2.058	1.479	1.300	0.964	0.803	0.705
70	-	-	-	-	2.169	1.560	1.370	1.013	0.847	0.735
75	-	-	-	-	2.280	1.641	1.440	1.063	0.892	0.773
80	-	-	-	-	2.392	1.723	1.511	1.112	0.936	0.816
85	-	-	-	-	-	1.804	1.581	1.162	0.980	0.860
90	-	-	-	-	-	1.885	1.652	1.212	1.025	0.904
95	-	-	-	-	-	1.966	1.722	1.261	1.069	0.947
100	-	-	-	-	-	2.048	1.792	1.311	1.113	0.991
105	-	-	-	-	-	2.129	1.863	1.361	1.157	1.035
110	-	-	-	-	-	2.210	1.933	1.410	1.202	1.079
115	-	-	-	-	-	2.291	2.003	1.460	1.246	1.122
120	-	-	-	-	-	2.373	2.074	1.510	1.290	1.166
125	-	-	-	-	-	2.454	2.144	1.559	1.335	1.210
130	-	-	-	-	-	-	2.215	1.609	1.379	1.253
135	-	-	-	-	-	-	2.285	1.658	1.423	1.297
140	-	-	-	-	-	-	2.355	1.708	1.468	1.341
145	-	-	-	-	-	-	2.426	1.758	1.512	1.385
150	-	-	-	-	-	-	-	1.807	1.556	1.428
155	-	-	-	-	-	-	-	1.857	1.600	1.472
160	-	-	-	-	-	-	-	1.907	1.645	1.516
165	-	-	-	-	-	-	-	1.956	1.689	1.559
170	-	-	-	-	-	-	-	2.006	1.733	1.603
175	-	-	-	-	-	-	-	2.056	1.778	1.647
180	-	-	-	-	-	-	-	2.105	1.822	1.691
185	-	-	-	-	-	-	-	2.155	1.866	1.734
190	-	-	-	-	-	-	-	2.204	1.910	1.778
195	-	-	-	-	-	-	-	2.254	1.955	1.822
200	-	-	-	-	-	-	-	2.304	1.999	1.865
205	-	-	-	-	-	-	-	2.353	2.043	1.909
210	-	-	-	-	-	-	-	2.403	2.088	1.953
215	-	-	-	-	-	-	-	2.453	2.132	1.997
220	-	-	-	-	-	-	-	-	2.176	2.040
225	-	-	-	-	-	-	-	-	2.221	2.084
230	-	-	-	-	-	-	-	-	2.265	2.128
235	-	-	-	-	-	-	-	-	2.309	2.172
240	-	-	-	-	-	-	-	-	2.353	2.215
245	-	-	-	-	-	-	-	-	2.398	2.259
250	-	-	-	-	-	-	-	-	2.442	2.303
255	-	-	-	-	-	-	-	-	-	2.346
260	-	-	-	-	-	-	-	-	-	2.390
265	-	-	-	-	-	-	-	-	-	2.434
270	-	-	-	-	-	-	-	-	-	2.478
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3 sided fire exposure.

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Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 30 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	350	400	450	500	550	600	620	650	700	750
30	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
35	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
40	0.195	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
45	0.214	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
50	0.233	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
55	0.252	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
60	0.270	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
65	0.289	0.202	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
70	0.308	0.214	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
75	0.327	0.226	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
80	0.346	0.238	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
85	0.364	0.250	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
90	0.383	0.262	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
95	0.402	0.274	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
100	0.421	0.287	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
105	0.439	0.299	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
110	0.458	0.311	0.204	0.194	0.194	0.194	0.194	0.194	0.194	0.194
115	0.477	0.323	0.214	0.194	0.194	0.194	0.194	0.194	0.194	0.194
120	0.496	0.335	0.224	0.194	0.194	0.194	0.194	0.194	0.194	0.194
125	0.515	0.347	0.235	0.194	0.194	0.194	0.194	0.194	0.194	0.194
130	0.533	0.359	0.245	0.194	0.194	0.194	0.194	0.194	0.194	0.194
135	0.552	0.371	0.255	0.194	0.194	0.194	0.194	0.194	0.194	0.194
140	0.571	0.383	0.265	0.194	0.194	0.194	0.194	0.194	0.194	0.194
145	0.590	0.395	0.275	0.194	0.194	0.194	0.194	0.194	0.194	0.194
150	0.608	0.407	0.285	0.194	0.194	0.194	0.194	0.194	0.194	0.194
155	0.627	0.419	0.296	0.194	0.194	0.194	0.194	0.194	0.194	0.194
160	0.646	0.431	0.306	0.194	0.194	0.194	0.194	0.194	0.194	0.194
165	0.665	0.443	0.316	0.194	0.194	0.194	0.194	0.194	0.194	0.194
170	0.684	0.455	0.326	0.194	0.194	0.194	0.194	0.194	0.194	0.194
175	0.702	0.467	0.336	0.194	0.194	0.194	0.194	0.194	0.194	0.194
180	0.721	0.479	0.346	0.194	0.194	0.194	0.194	0.194	0.194	0.194
185	0.740	0.491	0.357	0.194	0.194	0.194	0.194	0.194	0.194	0.194
190	0.760	0.503	0.367	0.196	0.194	0.194	0.194	0.194	0.194	0.194
195	0.789	0.515	0.377	0.206	0.194	0.194	0.194	0.194	0.194	0.194
200	0.818	0.527	0.387	0.216	0.194	0.194	0.194	0.194	0.194	0.194
205	0.847	0.539	0.397	0.227	0.194	0.194	0.194	0.194	0.194	0.194
210	0.875	0.551	0.407	0.237	0.194	0.194	0.194	0.194	0.194	0.194
215	0.904	0.563	0.417	0.248	0.194	0.194	0.194	0.194	0.194	0.194
220	0.933	0.575	0.428	0.258	0.194	0.194	0.194	0.194	0.194	0.194
225	0.962	0.587	0.438	0.269	0.194	0.194	0.194	0.194	0.194	0.194
230	0.991	0.599	0.448	0.279	0.198	0.194	0.194	0.194	0.194	0.194
235	1.019	0.611	0.458	0.289	0.207	0.194	0.194	0.194	0.194	0.194
240	1.048	0.623	0.468	0.300	0.216	0.194	0.194	0.194	0.194	0.194
245	1.077	0.635	0.478	0.310	0.225	0.194	0.194	0.194	0.194	0.194
250	1.106	0.647	0.489	0.321	0.234	0.194	0.194	0.194	0.194	0.194
255	1.135	0.659	0.499	0.331	0.242	0.194	0.194	0.194	0.194	0.194
260	1.163	0.671	0.509	0.342	0.251	0.194	0.194	0.194	0.194	0.194
265	1.192	0.683	0.519	0.352	0.260	0.194	0.194	0.194	0.194	0.194
270	1.221	0.695	0.529	0.362	0.269	0.194	0.194	0.194	0.194	0.194
275	1.250	0.707	0.539	0.373	0.278	0.194	0.194	0.194	0.194	0.194
280	1.279	0.719	0.550	0.383	0.287	0.198	0.194	0.194	0.194	0.194
285	1.307	0.731	0.560	0.394	0.296	0.206	0.194	0.194	0.194	0.194
290	1.336	0.744	0.570	0.404	0.305	0.213	0.194	0.194	0.194	0.194
295	1.365	0.756	0.580	0.415	0.313	0.221	0.194	0.194	0.194	0.194
300	1.394	0.780	0.590	0.425	0.322	0.228	0.196	0.194	0.194	0.194
305	1.423	0.804	0.600	0.436	0.331	0.236	0.203	0.194	0.194	0.194
310	1.451	0.829	0.611	0.446	0.340	0.243	0.210	0.194	0.194	0.194
315	1.480	0.854	0.621	0.456	0.349	0.251	0.217	0.194	0.194	0.194
320	1.509	0.878	0.631	0.467	0.358	0.258	0.224	0.194	0.194	0.194
325	1.538	0.903	0.641	0.477	0.367	0.266	0.231	0.194	0.194	0.194
330	1.567	0.928	0.651	0.488	0.375	0.273	0.238	0.194	0.194	0.194
335	1.595	0.952	0.661	0.498	0.384	0.281	0.244	0.195	0.194	0.194
340	1.624	0.977	0.672	0.509	0.393	0.288	0.251	0.201	0.194	0.194
345	1.653	1.002	0.682	0.519	0.402	0.296	0.258	0.207	0.194	0.194
350	1.682	1.026	0.692	0.529	0.411	0.303	0.265	0.214	0.194	0.194
355	1.711	1.051	0.702	0.540	0.420	0.311	0.272	0.220	0.194	0.194
360	1.739	1.076	0.712	0.550	0.429	0.318	0.279	0.226	0.194	0.194
365	1.768	1.100	0.722	0.561	0.437	0.326	0.286	0.232	0.194	0.194

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure. Results also apply to I/H beams exposed on all 4 sides up to a maximum protection thickness of 2.486mm.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 45 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	350	400	450	500	550	600	620	650	700	750
30	0.310	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194	0.194
35	0.339	0.234	0.202	0.194	0.194	0.194	0.194	0.194	0.194	0.194
40	0.367	0.257	0.219	0.194	0.194	0.194	0.194	0.194	0.194	0.194
45	0.396	0.279	0.236	0.203	0.194	0.194	0.194	0.194	0.194	0.194
50	0.425	0.301	0.252	0.215	0.194	0.194	0.194	0.194	0.194	0.194
55	0.454	0.324	0.269	0.228	0.194	0.194	0.194	0.194	0.194	0.194
60	0.482	0.346	0.286	0.240	0.194	0.194	0.194	0.194	0.194	0.194
65	0.511	0.368	0.303	0.253	0.201	0.194	0.194	0.194	0.194	0.194
70	0.540	0.391	0.320	0.265	0.211	0.194	0.194	0.194	0.194	0.194
75	0.569	0.413	0.336	0.278	0.221	0.194	0.194	0.194	0.194	0.194
80	0.597	0.435	0.353	0.290	0.231	0.194	0.194	0.194	0.194	0.194
85	0.626	0.458	0.370	0.303	0.241	0.194	0.194	0.194	0.194	0.194
90	0.655	0.480	0.387	0.315	0.251	0.194	0.194	0.194	0.194	0.194
95	0.684	0.502	0.403	0.328	0.261	0.194	0.194	0.194	0.194	0.194
100	0.713	0.525	0.420	0.340	0.271	0.194	0.194	0.194	0.194	0.194
105	0.741	0.547	0.437	0.353	0.280	0.195	0.194	0.194	0.194	0.194
110	0.797	0.569	0.454	0.365	0.290	0.205	0.194	0.194	0.194	0.194
115	0.882	0.592	0.470	0.378	0.300	0.214	0.194	0.194	0.194	0.194
120	0.966	0.614	0.487	0.390	0.310	0.224	0.194	0.194	0.194	0.194
125	1.050	0.636	0.504	0.403	0.320	0.233	0.194	0.194	0.194	0.194
130	1.135	0.659	0.521	0.415	0.330	0.243	0.194	0.194	0.194	0.194
135	1.219	0.681	0.537	0.428	0.340	0.252	0.194	0.194	0.194	0.194
140	1.303	0.703	0.554	0.440	0.350	0.262	0.199	0.194	0.194	0.194
145	1.388	0.726	0.571	0.453	0.360	0.271	0.208	0.194	0.194	0.194
150	1.472	0.748	0.588	0.465	0.370	0.280	0.218	0.194	0.194	0.194
155	1.556	0.776	0.605	0.478	0.380	0.290	0.228	0.194	0.194	0.194
160	1.641	0.806	0.621	0.490	0.390	0.299	0.237	0.194	0.194	0.194
165	1.725	0.837	0.638	0.503	0.400	0.309	0.247	0.194	0.194	0.194
170	1.809	0.867	0.655	0.515	0.409	0.318	0.257	0.194	0.194	0.194
175	1.894	0.898	0.672	0.528	0.419	0.328	0.267	0.194	0.194	0.194
180	1.978	0.929	0.688	0.540	0.429	0.337	0.276	0.194	0.194	0.194
185	2.062	0.959	0.705	0.552	0.439	0.347	0.286	0.194	0.194	0.194
190	2.147	0.990	0.722	0.565	0.449	0.356	0.296	0.194	0.194	0.194
195	2.231	1.020	0.739	0.577	0.459	0.365	0.305	0.201	0.194	0.194
200	2.315	1.051	0.755	0.590	0.469	0.375	0.315	0.211	0.194	0.194
205	2.400	1.081	0.783	0.602	0.479	0.384	0.325	0.221	0.194	0.194
210	2.484	1.112	0.811	0.615	0.489	0.394	0.335	0.231	0.194	0.194
215	2.568	1.143	0.839	0.627	0.499	0.403	0.344	0.241	0.194	0.194
220	2.653	1.173	0.867	0.640	0.509	0.413	0.354	0.251	0.194	0.194
225	2.737	1.204	0.894	0.652	0.519	0.422	0.364	0.261	0.194	0.194
230	2.821	1.234	0.922	0.665	0.529	0.431	0.373	0.271	0.194	0.194
235	2.906	1.265	0.950	0.677	0.538	0.441	0.383	0.281	0.201	0.194
240	2.990	1.296	0.978	0.690	0.548	0.450	0.393	0.291	0.209	0.194
245	3.075	1.326	1.006	0.702	0.558	0.460	0.402	0.302	0.217	0.194
250	3.159	1.357	1.034	0.715	0.568	0.469	0.412	0.312	0.226	0.194
255	3.243	1.387	1.062	0.727	0.578	0.479	0.422	0.322	0.234	0.194
260	3.328	1.418	1.089	0.740	0.588	0.488	0.432	0.332	0.243	0.194
265	3.412	1.448	1.117	0.752	0.598	0.498	0.441	0.342	0.251	0.194
270	3.496	1.479	1.145	0.775	0.608	0.507	0.451	0.352	0.259	0.194
275	3.581	1.510	1.173	0.803	0.618	0.516	0.461	0.362	0.268	0.194
280	3.665	1.540	1.201	0.831	0.628	0.526	0.470	0.372	0.276	0.194
285	3.749	1.571	1.229	0.858	0.638	0.535	0.480	0.382	0.285	0.200
290	-	1.601	1.257	0.886	0.648	0.545	0.490	0.392	0.293	0.206
295	-	1.632	1.284	0.913	0.658	0.554	0.499	0.402	0.301	0.213
300	-	1.663	1.312	0.941	0.667	0.564	0.509	0.412	0.310	0.219
305	-	1.693	1.340	0.969	0.677	0.573	0.519	0.422	0.318	0.226
310	-	1.724	1.368	0.996	0.687	0.583	0.529	0.433	0.326	0.232
315	-	1.754	1.396	1.024	0.697	0.592	0.538	0.443	0.335	0.239
320	-	1.785	1.424	1.051	0.707	0.601	0.548	0.453	0.343	0.245
325	-	1.815	1.452	1.079	0.717	0.611	0.558	0.463	0.352	0.252
330	-	1.846	1.479	1.107	0.727	0.620	0.567	0.473	0.360	0.258
335	-	1.877	1.507	1.134	0.737	0.630	0.577	0.483	0.368	0.265
340	-	1.907	1.535	1.162	0.747	0.639	0.587	0.493	0.377	0.271
345	-	1.938	1.563	1.189	0.758	0.649	0.596	0.503	0.385	0.278
350	-	1.968	1.591	1.217	0.786	0.658	0.606	0.513	0.394	0.284
355	-	1.999	1.619	1.245	0.813	0.668	0.616	0.523	0.402	0.291
360	-	2.029	1.647	1.272	0.841	0.677	0.626	0.533	0.410	0.297
365	-	2.060	1.674	1.300	0.868	0.686	0.635	0.543	0.419	0.304

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides up to a maximum protection thickness of 2.486mm.

Signed
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Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 60 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	350	400	450	500	550	600	620	650	700	750
30	0.551	0.405	0.300	0.194	0.194	0.194	0.194	0.194	0.194	0.194
35	0.574	0.430	0.323	0.235	0.212	0.194	0.194	0.194	0.194	0.194
40	0.597	0.454	0.346	0.257	0.228	0.204	0.195	0.194	0.194	0.194
45	0.619	0.478	0.370	0.278	0.245	0.217	0.206	0.194	0.194	0.194
50	0.642	0.502	0.393	0.299	0.261	0.230	0.218	0.197	0.194	0.194
55	0.665	0.527	0.416	0.320	0.278	0.242	0.229	0.207	0.194	0.194
60	0.687	0.551	0.439	0.341	0.295	0.255	0.240	0.216	0.194	0.194
65	0.710	0.575	0.463	0.362	0.311	0.268	0.252	0.226	0.194	0.194
70	0.733	0.600	0.486	0.383	0.328	0.281	0.263	0.236	0.194	0.194
75	0.755	0.624	0.509	0.404	0.345	0.293	0.275	0.246	0.194	0.194
80	1.090	0.648	0.533	0.425	0.361	0.306	0.286	0.256	0.194	0.194
85	1.432	0.673	0.556	0.446	0.378	0.319	0.297	0.266	0.194	0.194
90	1.774	0.697	0.579	0.467	0.394	0.332	0.309	0.275	0.200	0.194
95	2.116	0.721	0.602	0.488	0.411	0.345	0.320	0.285	0.209	0.194
100	2.148	0.746	0.626	0.509	0.428	0.357	0.332	0.295	0.218	0.194
105	2.177	0.788	0.649	0.530	0.444	0.370	0.343	0.305	0.228	0.194
110	2.206	0.844	0.672	0.551	0.461	0.383	0.354	0.315	0.237	0.194
115	2.236	0.901	0.695	0.572	0.477	0.396	0.366	0.325	0.246	0.194
120	2.265	0.957	0.719	0.593	0.494	0.408	0.377	0.334	0.255	0.194
125	2.294	1.013	0.742	0.614	0.511	0.421	0.389	0.344	0.265	0.194
130	2.323	1.070	0.769	0.635	0.527	0.434	0.400	0.354	0.274	0.194
135	2.352	1.126	0.803	0.656	0.544	0.447	0.411	0.364	0.283	0.194
140	2.382	1.182	0.837	0.677	0.561	0.459	0.423	0.374	0.292	0.194
145	2.411	1.239	0.871	0.698	0.577	0.472	0.434	0.384	0.302	0.194
150	2.440	1.295	0.905	0.719	0.594	0.485	0.446	0.394	0.311	0.194
155	2.469	1.351	0.938	0.740	0.610	0.498	0.457	0.403	0.320	0.194
160	2.498	1.407	0.972	0.764	0.627	0.510	0.468	0.413	0.329	0.194
165	2.528	1.464	1.006	0.795	0.644	0.523	0.480	0.423	0.339	0.194
170	2.557	1.520	1.040	0.826	0.660	0.536	0.491	0.433	0.348	0.194
175	2.586	1.576	1.074	0.857	0.677	0.549	0.502	0.443	0.357	0.194
180	2.615	1.633	1.108	0.888	0.694	0.561	0.514	0.453	0.366	0.194
185	2.645	1.689	1.141	0.919	0.710	0.574	0.525	0.462	0.376	0.194
190	2.674	1.745	1.175	0.950	0.727	0.587	0.537	0.472	0.385	0.194
195	2.703	1.802	1.209	0.981	0.743	0.600	0.548	0.482	0.394	0.201
200	2.732	1.858	1.243	1.012	0.763	0.612	0.559	0.492	0.403	0.211
205	2.761	1.914	1.277	1.043	0.792	0.625	0.571	0.502	0.413	0.222
210	2.791	1.971	1.310	1.074	0.821	0.638	0.582	0.512	0.422	0.232
215	2.820	2.027	1.344	1.105	0.850	0.651	0.594	0.521	0.431	0.242
220	2.849	2.083	1.378	1.136	0.879	0.663	0.605	0.531	0.440	0.252
225	2.878	2.139	1.412	1.167	0.909	0.676	0.616	0.541	0.449	0.262
230	2.907	2.196	1.446	1.198	0.938	0.689	0.628	0.551	0.459	0.272
235	2.937	2.252	1.479	1.229	0.967	0.702	0.639	0.561	0.468	0.282
240	2.990	2.308	1.513	1.260	0.996	0.715	0.651	0.571	0.477	0.292
245	3.075	2.365	1.547	1.291	1.025	0.727	0.662	0.581	0.486	0.302
250	3.159	2.421	1.581	1.322	1.054	0.740	0.673	0.590	0.496	0.313
255	3.243	2.477	1.615	1.353	1.083	0.753	0.685	0.600	0.505	0.323
260	3.328	2.534	1.648	1.384	1.112	0.778	0.696	0.610	0.514	0.333
265	3.412	2.590	1.682	1.415	1.141	0.807	0.708	0.620	0.523	0.343
270	3.496	2.646	1.716	1.446	1.171	0.836	0.719	0.630	0.533	0.353
275	3.581	2.703	1.750	1.477	1.200	0.865	0.730	0.640	0.542	0.363
280	3.665	2.759	1.784	1.508	1.229	0.894	0.742	0.649	0.551	0.373
285	3.749	2.815	1.818	1.539	1.258	0.923	0.753	0.659	0.560	0.383
290	-	2.872	1.851	1.570	1.287	0.952	0.778	0.669	0.570	0.393
295	-	2.928	1.885	1.601	1.316	0.981	0.808	0.679	0.579	0.404
300	-	2.984	1.919	1.632	1.345	1.010	0.837	0.689	0.588	0.414
305	-	3.040	1.953	1.663	1.374	1.039	0.867	0.699	0.597	0.424
310	-	3.097	1.987	1.694	1.403	1.068	0.897	0.708	0.607	0.434
315	-	3.153	2.020	1.725	1.433	1.097	0.926	0.718	0.616	0.444
320	-	3.209	2.054	1.756	1.462	1.126	0.956	0.728	0.625	0.454
325	-	3.266	2.088	1.787	1.491	1.155	0.986	0.738	0.634	0.464
330	-	3.322	2.122	1.818	1.520	1.185	1.015	0.748	0.644	0.474
335	-	3.378	2.156	1.849	1.549	1.214	1.045	0.761	0.653	0.484
340	-	3.435	2.189	1.880	1.578	1.243	1.075	0.792	0.662	0.495
345	-	3.491	2.223	1.911	1.607	1.272	1.104	0.822	0.671	0.505
350	-	3.547	2.257	1.942	1.636	1.301	1.134	0.853	0.681	0.515
355	-	3.604	2.291	1.973	1.665	1.330	1.164	0.883	0.690	0.525
360	-	3.660	2.325	2.004	1.695	1.359	1.193	0.913	0.699	0.535
365	-	3.716	2.358	2.036	1.724	1.388	1.223	0.944	0.708	0.545

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides up to a maximum protection thickness of 2.486mm.

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CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 75 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	350	400	450	500	550	600	620	650	700	750
30	0.876	0.605	0.472	0.367	0.287	0.194	0.194	0.194	0.194	0.194
35	1.061	0.621	0.494	0.390	0.309	0.232	0.221	0.208	0.194	0.194
40	1.246	0.637	0.516	0.413	0.331	0.252	0.239	0.223	0.204	0.194
45	1.431	0.653	0.538	0.437	0.353	0.272	0.258	0.239	0.216	0.194
50	1.617	0.669	0.560	0.460	0.375	0.292	0.276	0.255	0.228	0.194
55	1.802	0.685	0.583	0.484	0.398	0.312	0.294	0.271	0.240	0.198
60	1.987	0.701	0.605	0.507	0.420	0.332	0.312	0.286	0.252	0.208
65	2.140	0.718	0.627	0.531	0.442	0.352	0.331	0.302	0.264	0.217
70	2.214	0.734	0.649	0.554	0.464	0.372	0.349	0.318	0.276	0.227
75	2.287	0.750	0.671	0.578	0.486	0.391	0.367	0.333	0.287	0.236
80	2.360	0.883	0.693	0.601	0.508	0.411	0.385	0.349	0.299	0.245
85	2.434	1.093	0.716	0.624	0.530	0.431	0.404	0.365	0.311	0.255
90	2.507	1.303	0.738	0.648	0.552	0.451	0.422	0.381	0.323	0.264
95	2.581	1.513	0.769	0.671	0.574	0.471	0.440	0.396	0.335	0.274
100	2.654	1.723	0.838	0.695	0.596	0.491	0.459	0.412	0.347	0.283
105	2.728	1.933	0.907	0.718	0.618	0.511	0.477	0.428	0.359	0.293
110	2.801	2.125	0.976	0.742	0.641	0.531	0.495	0.443	0.371	0.302
115	2.875	2.174	1.045	0.771	0.663	0.551	0.513	0.459	0.383	0.312
120	2.948	2.224	1.115	0.809	0.685	0.571	0.532	0.475	0.395	0.321
125	3.021	2.274	1.184	0.848	0.707	0.591	0.550	0.491	0.407	0.331
130	3.095	2.324	1.253	0.886	0.729	0.611	0.568	0.506	0.419	0.340
135	3.168	2.374	1.322	0.924	0.751	0.631	0.586	0.522	0.430	0.350
140	3.242	2.423	1.391	0.963	0.782	0.651	0.605	0.538	0.442	0.359
145	3.315	2.473	1.461	1.001	0.815	0.671	0.623	0.554	0.454	0.369
150	3.389	2.523	1.530	1.040	0.848	0.691	0.641	0.569	0.466	0.378
155	3.462	2.573	1.599	1.078	0.881	0.710	0.659	0.585	0.478	0.387
160	3.536	2.623	1.668	1.117	0.915	0.730	0.678	0.601	0.490	0.397
165	3.609	2.672	1.737	1.155	0.948	0.750	0.696	0.616	0.502	0.406
170	3.682	2.722	1.807	1.194	0.981	0.778	0.714	0.632	0.514	0.416
175	3.756	2.772	1.876	1.232	1.014	0.810	0.732	0.648	0.526	0.425
180	-	2.822	1.945	1.270	1.048	0.841	0.751	0.664	0.538	0.435
185	-	2.872	2.014	1.309	1.081	0.872	0.778	0.679	0.550	0.444
190	-	2.921	2.084	1.347	1.114	0.903	0.809	0.695	0.562	0.454
195	-	2.971	2.150	1.386	1.147	0.935	0.839	0.711	0.573	0.463
200	-	3.021	2.214	1.424	1.181	0.966	0.870	0.727	0.585	0.473
205	-	3.071	2.278	1.463	1.214	0.997	0.901	0.742	0.597	0.482
210	-	3.121	2.342	1.501	1.247	1.029	0.932	0.760	0.609	0.492
215	-	3.170	2.406	1.539	1.280	1.060	0.963	0.790	0.621	0.501
220	-	3.220	2.469	1.578	1.313	1.091	0.993	0.821	0.633	0.511
225	-	3.270	2.533	1.616	1.347	1.122	1.024	0.851	0.645	0.520
230	-	3.320	2.597	1.655	1.380	1.154	1.055	0.882	0.657	0.530
235	-	3.370	2.661	1.693	1.413	1.185	1.086	0.913	0.669	0.539
240	-	3.419	2.725	1.732	1.446	1.216	1.117	0.943	0.681	0.548
245	-	3.469	2.789	1.770	1.480	1.248	1.147	0.974	0.693	0.558
250	-	3.519	2.853	1.809	1.513	1.279	1.178	1.004	0.705	0.567
255	-	3.569	2.917	1.847	1.546	1.310	1.209	1.035	0.716	0.577
260	-	3.619	2.980	1.885	1.579	1.341	1.240	1.065	0.728	0.586
265	-	3.668	3.044	1.924	1.612	1.373	1.271	1.096	0.740	0.596
270	-	3.718	3.108	1.962	1.646	1.404	1.302	1.126	0.752	0.605
275	-	3.768	3.172	2.001	1.679	1.435	1.332	1.157	0.777	0.615
280	-	-	3.236	2.039	1.712	1.466	1.363	1.187	0.808	0.624
285	-	-	3.300	2.078	1.745	1.498	1.394	1.218	0.839	0.634
290	-	-	3.364	2.116	1.779	1.529	1.425	1.248	0.870	0.643
295	-	-	3.428	2.154	1.812	1.560	1.456	1.279	0.901	0.653
300	-	-	3.491	2.193	1.845	1.592	1.486	1.309	0.932	0.662
305	-	-	3.555	2.231	1.878	1.623	1.517	1.340	0.963	0.672
310	-	-	3.619	2.270	1.912	1.654	1.548	1.370	0.993	0.681
315	-	-	3.683	2.308	1.945	1.685	1.579	1.401	1.024	0.691
320	-	-	3.747	2.347	1.978	1.717	1.610	1.431	1.055	0.700
325	-	-	-	2.385	2.011	1.748	1.640	1.462	1.086	0.709
330	-	-	-	2.424	2.044	1.779	1.671	1.492	1.117	0.719
335	-	-	-	2.462	2.078	1.811	1.702	1.523	1.148	0.728
340	-	-	-	2.500	2.111	1.842	1.733	1.554	1.179	0.738
345	-	-	-	2.539	2.144	1.873	1.764	1.584	1.210	0.747
350	-	-	-	2.577	2.177	1.904	1.795	1.615	1.241	0.759
355	-	-	-	2.616	2.211	1.936	1.825	1.645	1.272	0.789
360	-	-	-	2.654	2.244	1.967	1.856	1.676	1.302	0.820
365	-	-	-	2.693	2.277	1.998	1.887	1.706	1.333	0.850

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides up to a maximum protection thickness of 2.486mm.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 90 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	350	400	450	500	550	600	620	650	700	750
30	1.240	1.188	0.646	0.521	0.423	0.330	0.292	0.221	0.194	0.194
35	1.492	1.301	0.658	0.541	0.446	0.352	0.314	0.243	0.217	0.200
40	1.743	1.414	0.671	0.562	0.469	0.375	0.337	0.265	0.235	0.214
45	1.995	1.528	0.683	0.582	0.491	0.398	0.360	0.287	0.253	0.228
50	2.171	1.641	0.695	0.602	0.514	0.421	0.382	0.309	0.271	0.242
55	2.273	1.754	0.708	0.623	0.537	0.444	0.405	0.332	0.289	0.256
60	2.376	1.867	0.720	0.643	0.559	0.467	0.427	0.354	0.307	0.270
65	2.478	1.981	0.733	0.663	0.582	0.490	0.450	0.376	0.324	0.283
70	2.581	2.094	0.745	0.684	0.604	0.513	0.472	0.398	0.342	0.297
75	2.683	2.180	0.783	0.704	0.627	0.535	0.495	0.420	0.360	0.311
80	2.786	2.259	1.001	0.724	0.650	0.558	0.518	0.443	0.378	0.325
85	2.888	2.338	1.220	0.745	0.672	0.581	0.540	0.465	0.396	0.339
90	2.991	2.417	1.438	0.793	0.695	0.604	0.563	0.487	0.414	0.353
95	3.093	2.496	1.656	0.877	0.718	0.627	0.585	0.509	0.432	0.367
100	3.196	2.574	1.875	0.961	0.740	0.650	0.608	0.531	0.449	0.381
105	3.298	2.653	2.093	1.046	0.771	0.673	0.630	0.553	0.467	0.394
110	3.401	2.732	2.194	1.130	0.821	0.695	0.653	0.576	0.485	0.408
115	3.503	2.811	2.280	1.214	0.871	0.718	0.675	0.598	0.503	0.422
120	3.605	2.890	2.365	1.298	0.920	0.741	0.698	0.620	0.521	0.436
125	3.708	2.969	2.451	1.382	0.970	0.769	0.721	0.642	0.539	0.450
130	-	3.047	2.536	1.467	1.020	0.804	0.743	0.664	0.557	0.464
135	-	3.126	2.622	1.551	1.069	0.839	0.771	0.687	0.574	0.478
140	-	3.205	2.707	1.635	1.119	0.875	0.805	0.709	0.592	0.492
145	-	3.284	2.792	1.719	1.169	0.910	0.840	0.731	0.610	0.506
150	-	3.363	2.878	1.803	1.219	0.945	0.875	0.753	0.628	0.519
155	-	3.441	2.963	1.888	1.268	0.981	0.909	0.785	0.646	0.533
160	-	3.520	3.049	1.972	1.318	1.016	0.944	0.819	0.664	0.547
165	-	3.599	3.134	2.056	1.368	1.052	0.978	0.853	0.682	0.561
170	-	3.678	3.220	2.162	1.418	1.087	1.013	0.886	0.699	0.575
175	-	3.757	3.305	2.332	1.467	1.122	1.047	0.920	0.717	0.589
180	-	-	3.391	2.501	1.517	1.158	1.082	0.954	0.735	0.603
185	-	-	3.476	2.671	1.567	1.193	1.116	0.987	0.753	0.617
190	-	-	3.561	2.841	1.617	1.229	1.151	1.021	0.783	0.631
195	-	-	3.647	3.011	1.666	1.264	1.185	1.055	0.815	0.644
200	-	-	3.732	3.181	1.716	1.299	1.220	1.088	0.847	0.658
205	-	-	-	3.351	1.766	1.335	1.255	1.122	0.879	0.672
210	-	-	-	3.520	1.816	1.370	1.289	1.155	0.911	0.686
215	-	-	-	3.690	1.865	1.406	1.324	1.189	0.943	0.700
220	-	-	-	-	1.915	1.441	1.358	1.223	0.976	0.714
225	-	-	-	-	1.965	1.476	1.393	1.256	1.008	0.728
230	-	-	-	-	2.015	1.512	1.427	1.290	1.040	0.742
235	-	-	-	-	2.064	1.547	1.462	1.324	1.072	0.755
240	-	-	-	-	2.114	1.583	1.496	1.357	1.104	0.786
245	-	-	-	-	-	1.618	1.531	1.391	1.136	0.816
250	-	-	-	-	-	1.653	1.565	1.425	1.168	0.847
255	-	-	-	-	-	1.689	1.600	1.458	1.200	0.878
260	-	-	-	-	-	1.724	1.635	1.492	1.233	0.909
265	-	-	-	-	-	1.759	1.669	1.525	1.265	0.939
270	-	-	-	-	-	1.795	1.704	1.559	1.297	0.970
275	-	-	-	-	-	1.830	1.738	1.593	1.329	1.001
280	-	-	-	-	-	1.866	1.773	1.626	1.361	1.032
285	-	-	-	-	-	1.901	1.807	1.660	1.393	1.063
290	-	-	-	-	-	1.936	1.842	1.694	1.425	1.093
295	-	-	-	-	-	1.972	1.876	1.727	1.457	1.124
300	-	-	-	-	-	2.007	1.911	1.761	1.490	1.155
305	-	-	-	-	-	2.043	1.945	1.794	1.522	1.186
310	-	-	-	-	-	2.078	1.980	1.828	1.554	1.216
315	-	-	-	-	-	2.113	2.015	1.862	1.586	1.247
320	-	-	-	-	-	2.149	2.049	1.895	1.618	1.278
325	-	-	-	-	-	2.184	2.084	1.929	1.650	1.309
330	-	-	-	-	-	2.220	2.118	1.963	1.682	1.340
335	-	-	-	-	-	2.255	2.153	1.996	1.714	1.370
340	-	-	-	-	-	2.290	2.187	2.030	1.746	1.401
345	-	-	-	-	-	-	2.222	2.064	1.779	1.432
350	-	-	-	-	-	-	2.256	2.097	1.811	1.463
355	-	-	-	-	-	-	2.291	2.131	1.843	1.493
360	-	-	-	-	-	-	2.325	2.164	1.875	1.524
365	-	-	-	-	-	-	-	2.198	1.907	1.555

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure. Results also apply to I/H beams exposed on all 4 sides up to a maximum protection thickness of 2.486mm.

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Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 120 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	350	400	450	500	550	600	620	650	700	750
30	2.129	1.642	1.241	0.899	0.701	0.581	0.533	0.459	0.357	0.235
35	2.283	1.892	1.414	1.040	0.708	0.598	0.553	0.482	0.381	0.260
40	2.436	2.130	1.587	1.181	0.715	0.615	0.573	0.504	0.405	0.286
45	2.589	2.256	1.761	1.323	0.722	0.632	0.593	0.526	0.429	0.311
50	2.743	2.382	1.934	1.464	0.728	0.649	0.612	0.549	0.452	0.336
55	2.896	2.508	2.108	1.606	0.735	0.667	0.632	0.571	0.476	0.362
60	3.050	2.633	2.235	1.747	0.742	0.684	0.652	0.593	0.500	0.387
65	3.203	2.759	2.359	1.888	0.749	0.701	0.671	0.616	0.524	0.413
70	3.356	2.885	2.484	2.030	0.758	0.718	0.691	0.638	0.547	0.438
75	3.510	3.011	2.608	2.168	0.994	0.735	0.711	0.660	0.571	0.463
80	3.663	3.137	2.732	2.302	1.229	0.752	0.730	0.682	0.595	0.489
85	-	3.263	2.856	2.435	1.465	0.848	0.750	0.705	0.619	0.514
90	-	3.388	2.981	2.569	1.700	0.967	0.883	0.727	0.643	0.539
95	-	3.514	3.105	2.702	1.936	1.086	1.065	0.749	0.666	0.565
100	-	3.640	3.229	2.836	2.158	1.246	1.246	0.883	0.690	0.590
105	-	3.766	3.353	2.969	2.331	1.427	1.427	1.063	0.714	0.616
110	-	-	3.478	3.102	2.504	1.609	1.609	1.243	0.738	0.641
115	-	-	3.602	3.236	2.678	1.790	1.790	1.424	0.776	0.666
120	-	-	3.726	3.369	2.851	1.971	1.971	1.604	0.865	0.692
125	-	-	-	3.503	3.025	2.153	2.153	1.784	0.954	0.717
130	-	-	-	3.636	3.198	2.334	2.334	1.964	1.043	0.742
135	-	-	-	3.770	3.371	2.515	2.515	2.144	1.132	0.778
140	-	-	-	-	2.697	2.697	2.697	2.325	1.221	0.826
145	-	-	-	-	-	2.878	2.878	2.505	1.310	0.874
150	-	-	-	-	-	3.251	3.059	2.685	1.398	0.921
155	-	-	-	-	-	-	3.241	2.865	1.487	0.969
160	-	-	-	-	-	-	3.422	3.045	1.576	1.017
165	-	-	-	-	-	-	-	3.226	1.665	1.065
170	-	-	-	-	-	-	-	3.406	1.754	1.112
175	-	-	-	-	-	-	-	-	1.843	1.160
180	-	-	-	-	-	-	-	-	1.932	1.208
185	-	-	-	-	-	-	-	-	2.021	1.255
190	-	-	-	-	-	-	-	-	2.110	1.303
195	-	-	-	-	-	-	-	-	-	1.351
200	-	-	-	-	-	-	-	-	-	1.399
205	-	-	-	-	-	-	-	-	-	1.446
210	-	-	-	-	-	-	-	-	-	1.494
215	-	-	-	-	-	-	-	-	-	1.542
220	-	-	-	-	-	-	-	-	-	1.589
225	-	-	-	-	-	-	-	-	-	1.637
230	-	-	-	-	-	-	-	-	-	1.685
235	-	-	-	-	-	-	-	-	-	1.733
240	-	-	-	-	-	-	-	-	-	1.780
245	-	-	-	-	-	-	-	-	-	1.828
250	-	-	-	-	-	-	-	-	-	1.876
255	-	-	-	-	-	-	-	-	-	1.923
260	-	-	-	-	-	-	-	-	-	1.971
265	-	-	-	-	-	-	-	-	-	2.019
270	-	-	-	-	-	-	-	-	-	2.067
275	-	-	-	-	-	-	-	-	-	2.114
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure. Results also apply to I/H beams exposed on all 4 sides up to a maximum protection thickness of 2.486mm.

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Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 150 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	350	400	450	500	550	600	620	650	700	750
30	2.851	2.274	1.989	1.614	1.263	0.925	0.781	0.687	0.567	0.487
35	2.851	2.510	2.194	1.786	1.414	1.065	0.916	0.696	0.585	0.508
40	2.851	2.661	2.341	1.958	1.565	1.206	1.050	0.704	0.603	0.530
45	3.171	2.812	2.488	2.129	1.716	1.346	1.185	0.712	0.621	0.551
50	3.308	2.963	2.635	2.284	1.866	1.486	1.320	0.721	0.639	0.573
55	3.444	3.113	2.781	2.438	2.017	1.626	1.454	0.729	0.657	0.595
60	3.581	3.264	2.928	2.592	2.173	1.767	1.589	0.738	0.676	0.616
65	3.718	3.415	3.075	2.746	2.339	1.907	1.724	0.746	0.694	0.638
70	-	3.566	3.222	2.901	2.505	2.047	1.858	0.754	0.712	0.659
75	-	3.717	3.369	3.055	2.672	2.206	1.993	1.003	0.730	0.681
80	-	-	3.516	3.209	2.838	2.385	2.131	1.309	0.748	0.703
85	-	-	3.663	3.363	3.004	2.564	2.322	1.615	0.847	0.724
90	-	-	-	3.518	3.171	2.742	2.513	1.921	1.004	0.746
95	-	-	-	3.672	3.337	2.921	2.703	2.209	1.161	0.838
100	-	-	-	-	3.503	3.100	2.894	2.461	1.318	0.997
105	-	-	-	-	3.670	3.279	3.085	2.714	1.475	1.155
110	-	-	-	-	-	3.458	3.276	2.967	1.632	1.313
115	-	-	-	-	-	-	3.466	3.219	1.789	1.471
120	-	-	-	-	-	-	-	3.472	1.946	1.629
125	-	-	-	-	-	-	-	-	2.103	1.787
130	-	-	-	-	-	-	-	-	-	1.945
135	-	-	-	-	-	-	-	-	-	2.103
140	-	-	-	-	-	-	-	-	-	3.360
145	-	-	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-	-	-
155	-	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-	-	-	-
165	-	-	-	-	-	-	-	-	-	-
170	-	-	-	-	-	-	-	-	-	-
175	-	-	-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure. Results also apply to I/H beams exposed on all 4 sides up to a maximum protection thickness of 2.486mm.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166
JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 180 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	-	2.983	2.514	2.123	1.933	1.579	1.410	1.151	0.780	0.688
35	-	2.983	2.514	2.399	2.129	1.720	1.566	1.316	0.932	0.696
40	-	2.983	2.826	2.555	2.286	1.861	1.721	1.481	1.084	0.705
45	-	3.222	2.975	2.711	2.443	2.001	1.877	1.647	1.236	0.713
50	-	3.462	3.124	2.867	2.600	2.149	2.033	1.812	1.388	0.721
55	-	3.702	3.274	3.023	2.757	2.332	2.200	1.977	1.540	0.730
60	-	-	3.423	3.179	2.914	2.515	2.382	2.147	1.692	0.738
65	-	-	3.572	3.335	3.071	2.697	2.563	2.346	1.844	0.746
70	-	-	3.722	3.491	3.228	2.880	2.745	2.545	1.996	0.755
75	-	-	-	3.648	3.385	3.063	2.927	2.744	2.175	0.965
80	-	-	-	-	3.541	3.245	3.109	2.943	2.468	1.218
85	-	-	-	-	-	3.428	3.290	3.142	2.761	1.472
90	-	-	-	-	-	-	3.472	3.341	3.054	1.725
95	-	-	-	-	-	-	-	3.540	3.348	1.978
100	-	-	-	-	-	-	-	-	3.641	3.074
105	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-	-	-	-
130	-	-	-	-	-	-	-	-	-	-
135	-	-	-	-	-	-	-	-	-	-
140	-	-	-	-	-	-	-	-	-	-
145	-	-	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-	-	-
155	-	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-	-	-	-
165	-	-	-	-	-	-	-	-	-	-
170	-	-	-	-	-	-	-	-	-	-
175	-	-	-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166
JAZEERA FACTORY FOR PAINTS CO.

I/H Columns 240 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	550	600	620	650	700	750
30	-	-	-	-	2.865	2.499	2.362	2.261	1.945	1.674
35	-	-	-	-	2.865	2.661	2.570	2.434	2.177	1.821
40	-	-	-	-	2.865	2.818	2.729	2.607	2.385	1.967
45	-	-	-	-	3.178	2.974	2.887	2.779	2.593	2.114
50	-	-	-	-	3.324	3.130	3.046	2.952	2.802	2.429
55	-	-	-	-	3.470	3.286	3.204	3.125	3.010	2.751
60	-	-	-	-	3.616	3.443	3.363	3.297	3.218	3.073
65	-	-	-	-	-	3.599	3.521	3.470	3.427	3.394
70	-	-	-	-	-	-	-	-	-	3.716
75	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-
85	-	-	-	-	-	-	-	-	-	-
90	-	-	-	-	-	-	-	-	-	-
95	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-	-	-	-
130	-	-	-	-	-	-	-	-	-	-
135	-	-	-	-	-	-	-	-	-	-
140	-	-	-	-	-	-	-	-	-	-
145	-	-	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-	-	-
155	-	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-	-	-	-
165	-	-	-	-	-	-	-	-	-	-
170	-	-	-	-	-	-	-	-	-	-
175	-	-	-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.

Signed 
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

Hollow Columns 30 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	520	550	600	650	700	750
50	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
55	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
60	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
65	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
70	0.435	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
75	0.478	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
80	0.522	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
85	0.565	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
90	0.609	0.432	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
95	0.652	0.476	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
100	0.696	0.520	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
105	0.739	0.564	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
110	0.783	0.608	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
115	0.826	0.651	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
120	0.870	0.695	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
125	0.913	0.739	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
130	0.957	0.783	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
135	1.000	0.827	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
140	1.044	0.871	0.486	0.430	0.430	0.430	0.430	0.430	0.430	0.430
145	1.087	0.914	0.537	0.430	0.430	0.430	0.430	0.430	0.430	0.430
150	1.131	0.958	0.588	0.430	0.430	0.430	0.430	0.430	0.430	0.430
155	1.175	1.002	0.639	0.430	0.430	0.430	0.430	0.430	0.430	0.430
160	1.218	1.046	0.691	0.430	0.430	0.430	0.430	0.430	0.430	0.430
165	1.262	1.090	0.742	0.430	0.430	0.430	0.430	0.430	0.430	0.430
170	1.305	1.134	0.793	0.430	0.430	0.430	0.430	0.430	0.430	0.430
175	1.349	1.177	0.844	0.430	0.430	0.430	0.430	0.430	0.430	0.430
180	1.392	1.221	0.895	0.430	0.430	0.430	0.430	0.430	0.430	0.430
185	1.436	1.265	0.947	0.430	0.430	0.430	0.430	0.430	0.430	0.430
190	1.479	1.309	0.998	0.430	0.430	0.430	0.430	0.430	0.430	0.430
195	1.523	1.353	1.049	0.430	0.430	0.430	0.430	0.430	0.430	0.430
200	1.566	1.397	1.100	0.430	0.430	0.430	0.430	0.430	0.430	0.430
205	1.610	1.441	1.152	0.430	0.430	0.430	0.430	0.430	0.430	0.430
210	1.653	1.484	1.203	0.430	0.430	0.430	0.430	0.430	0.430	0.430
215	1.697	1.528	1.254	0.430	0.430	0.430	0.430	0.430	0.430	0.430
220	1.740	1.572	1.305	0.430	0.430	0.430	0.430	0.430	0.430	0.430
225	1.784	1.616	1.356	0.430	0.430	0.430	0.430	0.430	0.430	0.430
230	1.827	1.660	1.408	0.430	0.430	0.430	0.430	0.430	0.430	0.430
235	1.871	1.704	1.459	0.430	0.430	0.430	0.430	0.430	0.430	0.430
240	1.914	1.747	1.510	0.430	0.430	0.430	0.430	0.430	0.430	0.430
245	1.958	1.791	1.561	0.430	0.430	0.430	0.430	0.430	0.430	0.430
250	2.001	1.835	1.613	0.436	0.430	0.430	0.430	0.430	0.430	0.430
255	2.045	1.879	1.664	0.566	0.430	0.430	0.430	0.430	0.430	0.430
260	2.114	1.923	1.715	0.697	0.430	0.430	0.430	0.430	0.430	0.430
265	2.224	1.967	1.766	0.828	0.430	0.430	0.430	0.430	0.430	0.430
270	2.334	2.010	1.817	0.959	0.550	0.430	0.430	0.430	0.430	0.430
275	2.445	2.054	1.869	1.090	0.705	0.430	0.430	0.430	0.430	0.430
280	2.555	2.145	1.920	1.221	0.861	0.430	0.430	0.430	0.430	0.430
285	2.666	2.268	1.971	1.351	1.016	0.430	0.430	0.430	0.430	0.430
290	2.776	2.392	2.022	1.482	1.171	0.430	0.430	0.430	0.430	0.430
295	2.886	2.515	2.077	1.613	1.327	0.609	0.430	0.430	0.430	0.430
300	2.997	2.638	2.219	1.744	1.482	0.834	0.430	0.430	0.430	0.430
305	3.107	2.761	2.361	1.875	1.637	1.059	0.430	0.430	0.430	0.430
310	3.218	2.884	2.503	2.006	1.793	1.283	0.430	0.430	0.430	0.430
315	3.328	3.007	2.645	2.162	1.948	1.508	0.430	0.430	0.430	0.430
320	3.438	3.131	2.787	2.344	2.112	1.733	0.430	0.430	0.430	0.430
325	3.549	3.254	2.929	2.527	2.312	1.957	0.430	0.430	0.430	0.430
330	3.659	3.377	3.071	2.709	2.512	2.182	0.430	0.430	0.430	0.430
335	3.770	3.500	3.213	2.891	2.712	2.407	0.546	0.430	0.430	0.430
340	3.880	3.623	3.355	3.074	2.912	2.631	0.969	0.430	0.430	0.430
345	-	3.746	3.497	3.256	3.112	2.856	1.392	0.430	0.430	0.430
350	-	-	3.639	3.439	3.312	3.081	1.815	0.430	0.430	0.430
355	-	-	3.781	3.621	3.511	3.305	2.238	0.430	0.430	0.430
360	-	-	-	-	3.711	3.530	2.661	0.430	0.430	0.430
365	-	-	-	-	-	3.754	3.084	0.430	0.430	0.430
370	-	-	-	-	-	-	3.507	0.430	0.430	0.430
375	-	-	-	-	-	-	-	1.102	0.430	0.430
380	-	-	-	-	-	-	-	1.934	0.430	0.430
385	-	-	-	-	-	-	-	2.766	0.430	0.430
390	-	-	-	-	-	-	-	-	0.430	0.430
395	-	-	-	-	-	-	-	-	0.430	0.430
400	-	-	-	-	-	-	-	-	0.430	0.430
405	-	-	-	-	-	-	-	-	0.430	0.430
410	-	-	-	-	-	-	-	-	0.430	0.430
415	-	-	-	-	-	-	-	-	0.430	0.430
420	-	-	-	-	-	-	-	-	0.430	0.430
425	-	-	-	-	-	-	-	-	0.430	0.430
430	-	-	-	-	-	-	-	-	0.430	0.430
435	-	-	-	-	-	-	-	-	0.430	0.430
440	-	-	-	-	-	-	-	-	0.430	0.430
445	-	-	-	-	-	-	-	-	0.430	0.430
450	-	-	-	-	-	-	-	-	0.430	0.430
455	-	-	-	-	-	-	-	-	0.430	0.430
460	-	-	-	-	-	-	-	-	0.430	0.430
465	-	-	-	-	-	-	-	-	0.430	0.430

Thickness is intumescent only. Results apply to Rectangular/Square and Circular hollow columns exposed to fire on all sides.

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Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

Hollow Columns 45 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	520	550	600	650	700	750
50	0.492	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
55	0.639	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
60	0.785	0.482	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
65	0.932	0.555	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
70	1.078	0.629	0.469	0.430	0.430	0.430	0.430	0.430	0.430	0.430
75	1.225	0.703	0.543	0.430	0.430	0.430	0.430	0.430	0.430	0.430
80	1.371	0.777	0.618	0.430	0.430	0.430	0.430	0.430	0.430	0.430
85	1.518	0.851	0.692	0.577	0.452	0.430	0.430	0.430	0.430	0.430
90	1.664	0.925	0.766	0.725	0.605	0.430	0.430	0.430	0.430	0.430
95	1.811	0.999	0.874	0.874	0.758	0.512	0.430	0.430	0.430	0.430
100	1.957	1.073	1.022	1.022	0.912	0.611	0.430	0.430	0.430	0.430
105	2.104	1.170	1.170	1.170	1.065	0.711	0.430	0.430	0.430	0.430
110	2.251	1.319	1.319	1.319	1.218	0.811	0.430	0.430	0.430	0.430
115	2.397	1.467	1.467	1.467	1.372	0.910	0.451	0.430	0.430	0.430
120	2.544	1.616	1.616	1.616	1.525	1.010	0.577	0.430	0.430	0.430
125	2.690	1.764	1.764	1.764	1.678	1.110	0.703	0.430	0.430	0.430
130	2.837	1.913	1.913	1.913	1.832	1.210	0.829	0.430	0.430	0.430
135	2.983	2.061	2.061	2.061	1.985	1.309	0.955	0.430	0.430	0.430
140	3.130	2.210	2.210	2.210	2.139	1.409	1.081	0.430	0.430	0.430
145	3.276	2.358	2.358	2.358	2.292	1.509	1.207	0.430	0.430	0.430
150	3.423	2.507	2.507	2.507	2.445	1.609	1.333	0.430	0.430	0.430
155	3.569	2.655	2.655	2.655	2.599	1.708	1.459	0.430	0.430	0.430
160	3.716	2.804	2.804	2.804	2.752	1.808	1.585	0.430	0.430	0.430
165	3.862	2.952	2.952	2.952	2.905	1.908	1.711	0.430	0.430	0.430
170	-	3.395	3.101	3.101	3.059	2.008	1.837	0.430	0.430	0.430
175	-	3.837	3.249	3.249	3.212	2.253	1.963	0.694	0.430	0.430
180	-	4.279	3.398	3.398	3.366	2.766	2.177	1.203	0.430	0.430
185	-	-	3.546	3.546	3.519	3.279	2.937	1.711	0.430	0.430
190	-	-	-	-	-	-	-	2.898	0.430	0.430
195	-	-	-	-	-	-	-	-	0.430	0.430
200	-	-	-	-	-	-	-	-	-	0.430
205	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
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325	-	-	-	-	-	-	-	-	-	-
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335	-	-	-	-	-	-	-	-	-	-
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415	-	-	-	-	-	-	-	-	-	-
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425	-	-	-	-	-	-	-	-	-	-
430	-	-	-	-	-	-	-	-	-	-
435	-	-	-	-	-	-	-	-	-	-
440	-	-	-	-	-	-	-	-	-	-
445	-	-	-	-	-	-	-	-	-	-
450	-	-	-	-	-	-	-	-	-	-
455	-	-	-	-	-	-	-	-	-	-
460	-	-	-	-	-	-	-	-	-	-
465	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Rectangular/Square and Circular hollow columns exposed to fire on all sides.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

Hollow Columns 60 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	520	550	600	650	700	750
50	1.510	0.985	0.430	0.430	0.430	0.430	0.430	0.430	0.430	0.430
55	1.613	1.302	0.685	0.430	0.430	0.430	0.430	0.430	0.430	0.430
60	1.716	1.644	1.052	0.518	0.430	0.430	0.430	0.430	0.430	0.430
65	1.987	1.987	1.419	0.915	0.697	0.430	0.430	0.430	0.430	0.430
70	2.329	2.329	1.785	1.313	1.111	0.787	0.430	0.430	0.430	0.430
75	2.672	2.672	2.152	1.710	1.524	1.228	0.666	0.430	0.430	0.430
80	3.015	3.015	2.518	2.108	1.938	1.668	1.155	0.515	0.430	0.430
85	3.605	3.357	2.885	2.505	2.351	2.108	1.643	1.059	0.430	0.430
90	3.688	3.606	3.252	2.902	2.765	2.548	2.132	1.603	0.839	0.430
95	3.771	3.688	3.586	3.300	3.178	2.988	2.620	2.147	1.442	0.430
100	3.855	3.769	3.668	3.602	3.580	3.428	3.109	2.691	2.044	0.430
105	3.938	3.851	3.749	3.683	3.662	3.631	3.580	3.234	2.647	0.430
110	4.022	3.932	3.830	3.765	3.743	3.713	3.664	3.608	3.250	1.371
115	4.105	4.014	3.912	3.846	3.825	3.796	3.747	3.693	3.616	2.518
120	4.188	4.095	3.993	3.928	3.907	3.878	3.830	3.777	3.703	3.584
125	4.272	4.177	4.074	4.009	3.989	3.960	3.913	3.862	3.789	3.673
130	4.355	4.258	4.156	4.091	4.070	4.042	3.996	3.946	3.875	3.762
135	4.439	4.340	4.237	4.172	4.152	4.124	4.080	4.031	3.961	3.850
140	4.522	4.421	4.318	4.254	4.234	4.206	4.163	4.115	4.048	3.939
145	4.605	4.502	4.400	4.336	4.316	4.289	4.246	4.200	4.134	4.028
150	4.689	4.584	4.481	4.417	4.398	4.371	4.329	4.284	4.220	4.117
155	4.772	4.665	4.562	4.499	4.479	4.453	4.412	4.369	4.306	4.206
160	4.855	4.747	4.644	4.580	4.561	4.535	4.496	4.453	4.392	4.295
165	4.939	4.828	4.725	4.662	4.643	4.617	4.579	4.538	4.479	4.384
170	5.022	4.910	4.806	4.743	4.725	4.699	4.662	4.622	4.565	4.472
175	5.106	4.991	4.888	4.825	4.806	4.781	4.745	4.707	4.651	4.561
180	5.189	5.073	4.969	4.906	4.888	4.864	4.828	4.791	4.737	4.650
185	5.272	5.154	5.050	4.988	4.970	4.946	4.911	4.875	4.824	4.739
190	5.356	5.236	5.132	5.069	5.052	5.028	4.995	4.960	4.910	4.828
195	5.439	5.317	5.213	5.151	5.133	5.110	5.078	5.044	4.996	4.917
200	5.523	5.399	5.294	5.232	5.215	5.192	5.161	5.129	5.082	5.006
205	5.606	5.480	5.376	5.314	5.297	5.274	5.244	5.213	5.169	5.094
210	-	5.562	5.457	5.396	5.379	5.357	5.327	5.298	5.255	5.183
215	-	-	5.539	5.477	5.461	5.439	5.411	5.382	5.341	5.272
220	-	-	5.620	5.559	5.542	5.521	5.494	5.467	5.427	5.361
225	-	-	-	5.640	5.624	5.603	5.577	5.551	5.513	5.450
230	-	-	-	-	-	-	5.660	5.636	5.600	5.539
235	-	-	-	-	-	-	-	-	5.686	5.628
240	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-
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385	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-
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430	-	-	-	-	-	-	-	-	-	-
435	-	-	-	-	-	-	-	-	-	-
440	-	-	-	-	-	-	-	-	-	-
445	-	-	-	-	-	-	-	-	-	-
450	-	-	-	-	-	-	-	-	-	-
455	-	-	-	-	-	-	-	-	-	-
460	-	-	-	-	-	-	-	-	-	-
465	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Rectangular/Square and Circular hollow columns exposed to fire on all sides.

Signed
E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

Hollow Columns 75 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	520	550	600	650	700	750
50	2.715	2.218	1.739	0.809	0.592	0.430	0.430	0.430	0.430	0.430
55	3.065	2.647	2.037	1.311	1.087	0.777	0.430	0.430	0.430	0.430
60	3.415	3.077	2.554	1.813	1.583	1.258	0.796	0.430	0.430	0.430
65	3.628	3.507	3.101	2.480	2.085	1.739	1.265	1.182	0.430	0.430
70	3.722	3.654	3.589	3.322	3.113	2.545	2.156	2.156	1.211	0.430
75	3.817	3.746	3.680	3.640	3.627	3.607	3.360	3.130	2.374	0.678
80	3.911	3.839	3.771	3.731	3.718	3.698	3.684	3.684	3.537	2.180
85	4.006	3.931	3.880	3.880	3.880	3.880	3.880	3.880	3.776	3.592
90	4.100	4.077	4.077	4.077	4.077	4.077	4.077	4.077	3.983	3.807
95	4.274	4.274	4.274	4.274	4.274	4.274	4.274	4.274	4.189	4.022
100	4.471	4.471	4.471	4.471	4.471	4.471	4.471	4.471	4.395	4.237
105	4.668	4.668	4.668	4.668	4.668	4.668	4.668	4.668	4.602	4.452
110	4.865	4.865	4.865	4.865	4.865	4.865	4.865	4.865	4.808	4.667
115	5.062	5.062	5.062	5.062	5.062	5.062	5.062	5.062	5.014	4.882
120	5.259	5.259	5.259	5.259	5.259	5.259	5.259	5.259	5.221	5.097
125	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.456	5.427	5.312
130	5.652	5.652	5.652	5.652	5.652	5.652	5.652	5.652	5.634	5.527
135	5.849	5.849	5.849	5.849	5.849	5.849	5.849	5.849	5.840	5.742
140	6.046	6.046	6.046	6.046	6.046	6.046	6.046	6.046	6.046	5.957
145	6.253	6.253	6.253	6.253	6.253	6.253	6.253	6.253	6.253	6.172
150	6.459	6.459	6.459	6.459	6.459	6.459	6.459	6.459	6.459	6.387
155	6.665	6.665	6.665	6.665	6.665	6.665	6.665	6.665	6.665	6.602
160	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.872	6.817
165	7.078	7.078	7.078	7.078	7.078	7.078	7.078	7.078	7.078	7.032
170	7.285	7.285	7.285	7.285	7.285	7.285	7.285	7.285	7.285	7.247
175	-	-	-	-	-	-	-	-	-	7.462
180	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
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290	-	-	-	-	-	-	-	-	-	-
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380	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-
425	-	-	-	-	-	-	-	-	-	-
430	-	-	-	-	-	-	-	-	-	-
435	-	-	-	-	-	-	-	-	-	-
440	-	-	-	-	-	-	-	-	-	-
445	-	-	-	-	-	-	-	-	-	-
450	-	-	-	-	-	-	-	-	-	-
455	-	-	-	-	-	-	-	-	-	-
460	-	-	-	-	-	-	-	-	-	-
465	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Rectangular/Square and Circular hollow columns exposed to fire on all sides.

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E013751-1

Issued: 18th September 2024
Valid to: 17th September 2029



CERTIFICATE No CF 10166

JAZEERA FACTORY FOR PAINTS CO.

Hollow Columns 90 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻¹)	350	400	450	500	520	550	600	650	700	750
50	3.584	3.278	2.922	2.782	2.594	2.204	1.227	0.498	0.430	0.430
55	3.726	3.693	3.541	3.354	3.249	3.026	2.291	1.392	0.731	0.430
60	3.925	3.925	3.782	3.706	3.682	3.645	3.582	2.815	2.447	0.865
65	4.156	4.156	3.999	3.918	3.891	3.854	3.854	3.854	3.712	3.027
70	4.222	4.222	4.222	4.222	4.222	4.222	4.222	4.106	3.894	
75	4.590	4.590	4.590	4.590	4.590	4.590	4.590	4.590	4.501	4.320
80	4.957	4.957	4.957	4.957	4.957	4.957	4.957	4.957	4.896	4.746
85	5.325	5.325	5.325	5.325	5.325	5.325	5.325	5.325	5.290	5.171
90	5.692	5.692	5.692	5.692	5.692	5.692	5.692	5.692	5.685	5.597
95	6.080	6.080	6.080	6.080	6.080	6.080	6.080	6.080	6.080	6.022
100	6.474	6.474	6.474	6.474	6.474	6.474	6.474	6.474	6.474	6.448
105	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.869	6.874
110	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-
120	-	-	-	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-	-	-	-
130	-	-	-	-	-	-	-	-	-	-
135	-	-	-	-	-	-	-	-	-	-
140	-	-	-	-	-	-	-	-	-	-
145	-	-	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-	-	-
155	-	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-	-	-	-
165	-	-	-	-	-	-	-	-	-	-
170	-	-	-	-	-	-	-	-	-	-
175	-	-	-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-
425	-	-	-	-	-	-	-	-	-	-
430	-	-	-	-	-	-	-	-	-	-
435	-	-	-	-	-	-	-	-	-	-
440	-	-	-	-	-	-	-	-	-	-
445	-	-	-	-	-	-	-	-	-	-
450	-	-	-	-	-	-	-	-	-	-
455	-	-	-	-	-	-	-	-	-	-
460	-	-	-	-	-	-	-	-	-	-
465	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Rectangular/Square and Circular hollow columns exposed to fire on all sides.

Signed
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