



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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CONTENTS

Table No.	Configuration	Fire Resistance Period	PAGE N°
1	Circular Vertical and Horizontal Solid Steel Bars	15 minutes	2
2	Circular Vertical and Horizontal Solid Steel Bars	30 minutes	4
3	Circular Vertical and Horizontal Solid Steel Bars	45 minutes	6
4	Circular Vertical and Horizontal Solid Steel Bars	60 minutes	8
5	Circular Vertical and Horizontal Solid Steel Bars	75 minutes	10
6	Circular Vertical and Horizontal Solid Steel Bars	90 minutes	12
7	Rectangular Vertical and Horizontal Solid Steel Bars	15 minutes	14
8	Rectangular Vertical and Horizontal Solid Steel Bars	30 minutes	15
9	Rectangular Vertical and Horizontal Solid Steel Bars	45 minutes	16
10	Rectangular Vertical and Horizontal Solid Steel Bars	60 minutes	17
11	Rectangular Vertical and Horizontal Solid Steel Bars	75 minutes	18
12	Rectangular Vertical and Horizontal Solid Steel Bars	90 minutes	19



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table I: Circular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 15 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m ²)	Bar diameter (mm)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
		DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	135	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
31	130	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
32	125	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
33	120	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
35	115	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
36	110	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
38	105	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
40	100	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
42	95	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
44	90	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
47	85	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
50	80	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
53	75	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
57	70	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
62	65	0.251	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
67	60	0.309	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
73	55	0.377	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
80	50	0.456	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
89	45	0.550	0.310	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
100	40	0.665	0.412	0.262	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
114	35	0.807	0.538	0.378	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
133	30	0.988	0.697	0.524	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
160	25	1.225	0.905	0.716	0.327	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
200	20	1.974	1.511	1.287	0.828	0.487	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
267	15	3.929	3.203	2.768	1.730	1.303	0.939	0.865	0.817	0.811	0.666	0.650	0.415	0.325	0.238	0.238	0.238

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 2: Circular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 30 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m ²)	Bar diameter (mm)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
		DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	135	0.668	0.470	0.363	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
31	130	0.691	0.488	0.377	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
32	125	0.714	0.507	0.392	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
33	120	0.738	0.525	0.407	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
35	115	0.763	0.544	0.423	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
36	110	0.788	0.563	0.438	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
38	105	0.814	0.582	0.453	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
40	100	0.840	0.602	0.469	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
42	95	0.867	0.622	0.484	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
44	90	0.894	0.642	0.500	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
47	85	0.923	0.662	0.516	0.246	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
50	80	0.951	0.682	0.532	0.255	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
53	75	0.981	0.703	0.548	0.264	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
57	70	1.011	0.724	0.565	0.273	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
62	65	1.118	0.820	0.654	0.347	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
67	60	1.241	0.929	0.756	0.432	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
73	55	1.384	1.056	0.874	0.530	0.283	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
80	50	1.551	1.205	1.013	0.647	0.380	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
89	45	1.751	1.382	1.179	0.786	0.496	0.268	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
100	40	2.121	1.597	1.378	0.955	0.638	0.390	0.334	0.299	0.295	0.238	0.238	0.238	0.238	0.238	0.238	0.238
114	35	2.680	1.887	1.625	1.165	0.817	0.542	0.480	0.443	0.438	0.316	0.302	0.238	0.238	0.238	0.238	0.238
133	30	3.424	2.601	2.065	1.433	1.047	0.739	0.669	0.627	0.622	0.485	0.469	0.238	0.238	0.238	0.238	0.238
160	25	-	3.627	3.080	1.788	1.356	1.001	0.920	0.873	0.867	0.710	0.693	0.416	0.307	0.238	0.238	0.238
200	20	-	-	-	-	2.990	1.752	1.658	1.598	1.590	1.405	1.384	1.058	0.936	0.749	0.433	0.238
267	15	-	-	-	-	-	-	-	-	-	-	-	3.840	2.605	1.684	1.319	0.880

- Tables are applicable to equally to circular and square concrete filled hollow columns
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- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

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SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 3: Circular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 45 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m ²)	Bar diameter (mm)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
		DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	135	1.366	1.142	1.014	0.753	0.531	0.338	0.298	0.271	0.268	0.238	0.238	0.238	0.238	0.238	0.238	0.238
31	130	1.397	1.164	1.031	0.762	0.536	0.342	0.302	0.274	0.271	0.238	0.238	0.238	0.238	0.238	0.238	0.238
32	125	1.428	1.186	1.049	0.771	0.541	0.346	0.305	0.278	0.274	0.238	0.238	0.238	0.238	0.238	0.238	0.238
33	120	1.460	1.209	1.067	0.780	0.546	0.350	0.309	0.281	0.277	0.238	0.238	0.238	0.238	0.238	0.238	0.238
35	115	1.493	1.232	1.084	0.789	0.551	0.354	0.312	0.284	0.280	0.238	0.238	0.238	0.238	0.238	0.238	0.238
36	110	1.526	1.255	1.102	0.798	0.556	0.358	0.316	0.287	0.284	0.238	0.238	0.238	0.238	0.238	0.238	0.238
38	105	1.560	1.279	1.120	0.807	0.561	0.362	0.319	0.290	0.287	0.238	0.238	0.238	0.238	0.238	0.238	0.238
40	100	1.595	1.303	1.139	0.816	0.566	0.366	0.323	0.294	0.290	0.238	0.238	0.238	0.238	0.238	0.238	0.238
42	95	1.630	1.327	1.157	0.825	0.571	0.369	0.326	0.297	0.293	0.238	0.238	0.238	0.238	0.238	0.238	0.238
44	90	1.667	1.351	1.176	0.834	0.576	0.373	0.330	0.300	0.296	0.238	0.238	0.238	0.238	0.238	0.238	0.238
47	85	1.704	1.376	1.194	0.843	0.581	0.377	0.333	0.303	0.299	0.238	0.238	0.238	0.238	0.238	0.238	0.238
50	80	1.743	1.401	1.213	0.853	0.586	0.381	0.337	0.306	0.302	0.238	0.238	0.238	0.238	0.238	0.238	0.238
53	75	1.782	1.426	1.232	0.862	0.591	0.384	0.340	0.309	0.306	0.238	0.238	0.238	0.238	0.238	0.238	0.238
57	70	1.822	1.452	1.251	0.871	0.596	0.388	0.343	0.313	0.309	0.238	0.238	0.238	0.238	0.238	0.238	0.238
62	65	2.091	1.597	1.387	0.986	0.694	0.475	0.427	0.395	0.391	0.294	0.284	0.238	0.238	0.238	0.238	0.238
67	60	2.415	1.764	1.544	1.120	0.808	0.575	0.524	0.491	0.486	0.384	0.372	0.238	0.238	0.238	0.238	0.238
73	55	2.799	2.063	1.725	1.275	0.940	0.692	0.637	0.602	0.598	0.488	0.475	0.274	0.238	0.238	0.238	0.238
80	50	3.259	2.498	2.035	1.457	1.097	0.830	0.771	0.734	0.729	0.611	0.597	0.382	0.299	0.238	0.238	0.238
89	45	3.820	3.034	2.551	1.675	1.286	0.996	0.932	0.892	0.887	0.758	0.743	0.511	0.422	0.289	0.238	0.238
100	40	-	3.711	3.211	2.077	1.518	1.199	1.129	1.085	1.079	0.939	0.923	0.669	0.571	0.426	0.238	0.238
114	35	-	-	4.083	2.890	1.808	1.453	1.375	1.326	1.320	1.165	1.147	0.866	0.759	0.598	0.329	0.238
133	30	-	-	-	4.061	2.799	1.780	1.693	1.637	1.630	1.456	1.436	1.120	1.001	0.820	0.516	0.238
160	25	-	-	-	-	-	3.085	2.754	2.547	2.521	1.863	1.822	1.458	1.325	1.120	0.771	0.264
200	20	-	-	-	-	-	-	-	-	-	-	-	3.923	3.234	2.240	1.547	1.024
267	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

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SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 4: Circular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 60 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m ²)	Bar diameter (mm)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
		DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	135	2.095	1.814	1.666	1.349	1.078	0.840	0.788	0.755	0.750	0.642	0.629	0.440	0.369	0.264	0.238	0.238
31	130	2.145	1.840	1.686	1.359	1.082	0.842	0.791	0.757	0.753	0.644	0.631	0.441	0.370	0.264	0.238	0.238
32	125	2.198	1.870	1.706	1.368	1.085	0.845	0.793	0.759	0.755	0.646	0.633	0.442	0.370	0.265	0.238	0.238
33	120	2.255	1.902	1.726	1.377	1.088	0.847	0.796	0.761	0.757	0.648	0.636	0.443	0.371	0.265	0.238	0.238
35	115	2.317	1.937	1.746	1.386	1.092	0.850	0.798	0.764	0.759	0.650	0.638	0.445	0.372	0.265	0.238	0.238
36	110	2.383	1.975	1.767	1.395	1.095	0.853	0.800	0.766	0.761	0.653	0.640	0.446	0.372	0.265	0.238	0.238
38	105	2.455	2.016	1.788	1.404	1.098	0.855	0.803	0.768	0.764	0.655	0.642	0.447	0.373	0.265	0.238	0.238
40	100	2.533	2.061	1.809	1.413	1.101	0.858	0.805	0.770	0.766	0.657	0.644	0.448	0.374	0.266	0.238	0.238
42	95	2.618	2.110	1.830	1.423	1.105	0.860	0.807	0.773	0.768	0.659	0.646	0.449	0.374	0.266	0.238	0.238
44	90	2.711	2.165	1.858	1.432	1.108	0.863	0.810	0.775	0.770	0.661	0.648	0.450	0.375	0.266	0.238	0.238
47	85	2.812	2.226	1.892	1.441	1.111	0.865	0.812	0.777	0.772	0.663	0.650	0.451	0.376	0.266	0.238	0.238
50	80	2.925	2.293	1.931	1.450	1.114	0.868	0.814	0.779	0.775	0.665	0.652	0.452	0.376	0.266	0.238	0.238
53	75	3.049	2.369	1.974	1.459	1.117	0.870	0.817	0.781	0.777	0.667	0.654	0.453	0.377	0.267	0.238	0.238
57	70	3.187	2.455	2.024	1.468	1.121	0.873	0.819	0.783	0.779	0.669	0.656	0.454	0.378	0.267	0.238	0.238
62	65	3.571	2.817	2.369	1.626	1.257	0.994	0.937	0.900	0.895	0.779	0.765	0.552	0.470	0.352	0.238	0.238
67	60	4.019	3.242	2.777	1.808	1.414	1.134	1.074	1.034	1.029	0.905	0.890	0.664	0.577	0.450	0.250	0.238
73	55	-	3.747	3.264	2.218	1.598	1.298	1.233	1.191	1.185	1.053	1.037	0.795	0.702	0.566	0.349	0.238
80	50	-	-	3.858	2.762	1.815	1.492	1.421	1.376	1.370	1.228	1.210	0.951	0.850	0.703	0.467	0.238
89	45	-	-	-	3.449	2.398	1.724	1.647	1.598	1.592	1.437	1.418	1.137	1.028	0.867	0.609	0.264
100	40	-	-	-	-	3.203	2.250	2.045	1.917	1.900	1.694	1.673	1.364	1.246	1.070	0.786	0.403
114	35	-	-	-	-	-	3.196	2.944	2.789	2.769	2.283	2.226	1.648	1.519	1.325	1.009	0.578
133	30	-	-	-	-	-	-	-	-	4.101	3.486	3.416	2.312	1.927	1.655	1.301	0.804
160	25	-	-	-	-	-	-	-	-	-	-	-	3.944	3.369	2.599	1.699	1.109
200	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.743
267	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 5: Circular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 75 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m ²)	Bar diameter (mm)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
		DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	135	2.885	2.522	2.327	1.944	1.626	1.341	1.278	1.238	1.233	1.105	1.088	0.862	0.775	0.647	0.445	0.238
31	130	2.961	2.575	2.368	1.958	1.627	1.342	1.280	1.240	1.234	1.106	1.090	0.862	0.775	0.647	0.445	0.238
32	125	3.043	2.633	2.411	1.973	1.629	1.343	1.281	1.241	1.236	1.107	1.091	0.863	0.776	0.647	0.445	0.238
33	120	3.131	2.695	2.459	1.989	1.630	1.345	1.282	1.242	1.237	1.108	1.092	0.864	0.776	0.647	0.445	0.238
35	115	3.226	2.763	2.510	2.007	1.632	1.346	1.284	1.243	1.238	1.110	1.094	0.865	0.776	0.648	0.445	0.238
36	110	3.328	2.836	2.566	2.026	1.633	1.347	1.285	1.245	1.239	1.111	1.095	0.865	0.777	0.648	0.445	0.238
38	105	3.438	2.916	2.627	2.047	1.635	1.349	1.286	1.246	1.241	1.112	1.096	0.866	0.777	0.648	0.445	0.238
40	100	3.558	3.003	2.694	2.071	1.637	1.350	1.287	1.247	1.242	1.114	1.098	0.867	0.778	0.648	0.445	0.238
42	95	3.688	3.099	2.768	2.097	1.638	1.351	1.289	1.248	1.243	1.115	1.099	0.868	0.778	0.648	0.445	0.238
44	90	3.831	3.205	2.850	2.127	1.640	1.352	1.290	1.250	1.244	1.116	1.100	0.868	0.779	0.648	0.445	0.238
47	85	3.987	3.323	2.942	2.160	1.641	1.354	1.291	1.251	1.245	1.117	1.101	0.869	0.779	0.648	0.445	0.238
50	80	-	3.454	3.045	2.198	1.642	1.355	1.292	1.252	1.247	1.119	1.103	0.870	0.780	0.649	0.445	0.238
53	75	-	3.601	3.161	2.241	1.644	1.356	1.294	1.253	1.248	1.120	1.104	0.871	0.780	0.649	0.445	0.238
57	70	-	3.767	3.294	2.291	1.645	1.357	1.295	1.254	1.249	1.121	1.105	0.871	0.781	0.649	0.445	0.238
62	65	-	-	3.743	2.700	1.819	1.513	1.447	1.404	1.399	1.263	1.246	0.999	0.903	0.762	0.543	0.264
67	60	-	-	-	3.186	2.232	1.694	1.623	1.578	1.571	1.427	1.409	1.146	1.043	0.893	0.658	0.359
73	55	-	-	-	3.774	2.757	1.980	1.828	1.780	1.773	1.618	1.599	1.317	1.207	1.045	0.792	0.471
80	50	-	-	-	-	3.410	2.531	2.344	2.228	2.213	1.853	1.823	1.519	1.401	1.227	0.952	0.603
89	45	-	-	-	-	-	3.242	3.023	2.888	2.870	2.451	2.401	1.762	1.635	1.446	1.146	0.762
100	40	-	-	-	-	-	-	3.936	3.777	3.757	3.259	3.202	2.335	2.023	1.714	1.386	0.958
114	35	-	-	-	-	-	-	-	-	-	-	-	3.273	2.883	2.334	1.689	1.204
133	30	-	-	-	-	-	-	-	-	-	-	-	-	-	3.486	2.424	1.523
160	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.924	2.150
200	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
267	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 6: Circular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 90 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m ²)	Bar diameter (mm)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
		DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	135	3.675	3.231	2.993	2.529	2.164	1.842	1.768	1.722	1.716	1.567	1.548	1.283	1.180	1.030	0.796	0.511
31	130	3.778	3.310	3.059	2.567	2.179	1.842	1.769	1.722	1.716	1.568	1.548	1.284	1.180	1.030	0.796	0.511
32	125	3.889	3.396	3.130	2.607	2.194	1.842	1.769	1.723	1.716	1.568	1.549	1.284	1.181	1.030	0.796	0.511
33	120	4.007	3.489	3.206	2.651	2.211	1.843	1.769	1.723	1.717	1.569	1.549	1.284	1.181	1.030	0.796	0.511
35	115	-	3.589	3.290	2.700	2.230	1.843	1.769	1.723	1.717	1.569	1.550	1.285	1.181	1.030	0.796	0.511
36	110	-	3.698	3.380	2.753	2.250	1.843	1.769	1.723	1.717	1.569	1.550	1.285	1.182	1.030	0.796	0.511
38	105	-	3.816	3.480	2.811	2.272	1.844	1.769	1.724	1.717	1.570	1.551	1.286	1.182	1.030	0.796	0.511
40	100	-	3.946	3.589	2.875	2.297	1.844	1.770	1.724	1.718	1.570	1.551	1.286	1.182	1.030	0.796	0.511
42	95	-	4.088	3.709	2.947	2.325	1.844	1.770	1.724	1.718	1.571	1.552	1.287	1.182	1.030	0.796	0.511
44	90	-	-	3.843	3.027	2.356	1.845	1.770	1.724	1.718	1.571	1.552	1.287	1.183	1.031	0.796	0.511
47	85	-	-	3.992	3.118	2.391	1.845	1.770	1.725	1.718	1.572	1.553	1.287	1.183	1.031	0.796	0.511
50	80	-	-	-	3.221	2.431	1.846	1.770	1.725	1.719	1.572	1.553	1.288	1.183	1.031	0.796	0.511
53	75	-	-	-	3.339	2.477	1.847	1.770	1.725	1.719	1.573	1.554	1.288	1.184	1.031	0.796	0.511
57	70	-	-	-	3.475	2.530	1.847	1.770	1.725	1.719	1.573	1.554	1.289	1.184	1.031	0.796	0.511
62	65	-	-	-	3.986	2.989	2.234	2.077	1.980	1.967	1.748	1.727	1.446	1.335	1.172	0.921	0.617
67	60	-	-	-	-	3.537	2.698	2.521	2.411	2.397	2.058	2.016	1.627	1.509	1.335	1.066	0.740
73	55	-	-	-	-	-	3.267	3.066	2.942	2.925	2.541	2.495	1.840	1.712	1.525	1.236	0.883
80	50	-	-	-	-	-	3.982	3.750	3.609	3.590	3.150	3.099	2.346	2.069	1.751	1.438	1.054
89	45	-	-	-	-	-	-	-	-	-	3.942	3.885	3.004	2.683	2.223	1.683	1.259
100	40	-	-	-	-	-	-	-	-	-	-	-	3.894	3.508	2.966	2.146	1.512
114	35	-	-	-	-	-	-	-	-	-	-	-	-	-	4.012	3.000	1.830
133	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.750
160	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
267	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
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SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 7: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 15 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
35	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
40	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
45	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
50	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
55	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
60	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
65	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
70	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
75	0.273	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
80	0.327	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
85	0.386	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
90	0.450	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
95	0.518	0.263	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
100	0.592	0.327	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
105	0.621	0.353	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
110	0.652	0.380	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
115	0.686	0.410	0.263	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
120	0.722	0.442	0.293	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
125	0.761	0.475	0.325	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
130	0.803	0.512	0.359	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
135	0.849	0.551	0.396	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
140	0.899	0.594	0.435	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
145	0.953	0.640	0.478	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
150	1.013	0.690	0.524	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
155	1.079	0.744	0.573	0.250	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
160	1.152	0.804	0.628	0.296	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
165	1.207	0.849	0.665	0.321	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
170	1.266	0.896	0.705	0.348	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
175	1.329	0.947	0.748	0.376	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
180	1.395	1.001	0.794	0.408	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
185	1.467	1.059	0.843	0.441	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
190	1.543	1.121	0.897	0.478	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
195	1.625	1.189	0.955	0.518	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
200	1.713	1.262	1.019	0.562	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
205	1.808	1.341	1.088	0.610	0.247	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
210	1.922	1.427	1.164	0.663	0.281	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
215	2.071	1.521	1.247	0.723	0.317	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
220	2.234	1.625	1.340	0.789	0.359	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
225	2.412	1.738	1.443	0.863	0.406	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
230	2.606	1.865	1.558	0.947	0.459	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
235	2.821	2.059	1.688	1.043	0.521	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 7: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 15 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
240	3.059	2.282	1.836	1.154	0.592	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
245	3.323	2.530	2.060	1.283	0.677	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
250	3.619	2.808	2.330	1.435	0.777	0.251	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
255	3.953	3.122	2.634	1.618	0.900	0.317	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
260	-	3.479	2.978	1.841	1.052	0.399	0.263	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
265	-	3.888	3.370	2.191	1.246	0.505	0.349	0.251	0.239	0.238	0.238	0.238	0.238	0.238	0.238	0.238
270	-	-	3.821	2.609	1.502	0.645	0.465	0.350	0.336	0.238	0.238	0.238	0.238	0.238	0.238	0.238
275	-	-	-	3.093	1.855	0.841	0.626	0.488	0.472	0.238	0.238	0.238	0.238	0.238	0.238	0.238

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 8: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 30 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	0.634	0.427	0.301	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
35	0.685	0.475	0.349	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
40	0.739	0.526	0.398	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
45	0.796	0.579	0.449	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
50	0.856	0.634	0.502	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
55	0.921	0.692	0.558	0.275	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
60	0.989	0.753	0.616	0.327	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
65	1.061	0.818	0.676	0.380	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
70	1.138	0.886	0.739	0.434	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
75	1.221	0.957	0.805	0.490	0.241	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
80	1.309	1.033	0.875	0.547	0.294	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
85	1.404	1.113	0.947	0.606	0.348	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
90	1.506	1.198	1.023	0.666	0.402	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
95	1.617	1.289	1.103	0.728	0.456	0.250	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
100	1.736	1.385	1.187	0.791	0.511	0.302	0.258	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
105	1.804	1.444	1.242	0.839	0.551	0.336	0.290	0.260	0.257	0.238	0.238	0.238	0.238	0.238	0.238	0.238
110	1.877	1.507	1.300	0.889	0.594	0.372	0.325	0.294	0.290	0.238	0.238	0.238	0.238	0.238	0.238	0.238
115	2.005	1.575	1.362	0.942	0.640	0.411	0.362	0.330	0.326	0.238	0.238	0.238	0.238	0.238	0.238	0.238
120	2.139	1.647	1.428	0.999	0.689	0.452	0.401	0.369	0.365	0.268	0.257	0.238	0.238	0.238	0.238	0.238
125	2.279	1.724	1.499	1.060	0.741	0.496	0.444	0.410	0.406	0.306	0.294	0.238	0.238	0.238	0.238	0.238
130	2.424	1.807	1.574	1.125	0.797	0.544	0.490	0.455	0.451	0.346	0.335	0.238	0.238	0.238	0.238	0.238
135	2.575	1.908	1.655	1.194	0.857	0.595	0.539	0.503	0.499	0.390	0.378	0.238	0.238	0.238	0.238	0.238
140	2.732	2.066	1.742	1.270	0.921	0.650	0.593	0.555	0.551	0.438	0.426	0.238	0.238	0.238	0.238	0.238
145	2.896	2.231	1.836	1.351	0.991	0.710	0.651	0.612	0.607	0.490	0.477	0.282	0.238	0.238	0.238	0.238
150	3.067	2.404	1.979	1.438	1.067	0.775	0.714	0.674	0.669	0.547	0.534	0.330	0.257	0.238	0.238	0.238
155	3.245	2.584	2.163	1.534	1.150	0.847	0.783	0.742	0.737	0.609	0.596	0.383	0.306	0.238	0.238	0.238
160	3.431	2.773	2.357	1.637	1.240	0.925	0.859	0.816	0.811	0.678	0.664	0.442	0.361	0.241	0.238	0.238
165	3.581	2.918	2.502	1.710	1.299	0.972	0.904	0.860	0.854	0.716	0.701	0.471	0.387	0.263	0.238	0.238
170	3.740	3.071	2.656	1.788	1.362	1.023	0.952	0.906	0.900	0.757	0.742	0.502	0.415	0.287	0.238	0.238
175	3.909	3.234	2.820	1.872	1.430	1.077	1.004	0.956	0.950	0.802	0.785	0.536	0.445	0.313	0.238	0.238
180	4.089	3.408	2.994	2.036	1.503	1.136	1.060	1.010	1.004	0.850	0.833	0.573	0.478	0.340	0.238	0.238
185	-	3.594	3.179	2.217	1.583	1.201	1.121	1.069	1.063	0.902	0.884	0.613	0.514	0.371	0.238	0.238
190	-	3.792	3.377	2.410	1.670	1.271	1.188	1.134	1.127	0.959	0.940	0.656	0.553	0.404	0.238	0.238
195	-	4.005	3.589	2.617	1.766	1.348	1.261	1.204	1.197	1.021	1.002	0.704	0.595	0.440	0.238	0.238
200	-	-	3.817	2.839	1.870	1.432	1.341	1.281	1.274	1.090	1.069	0.756	0.642	0.480	0.238	0.238
205	-	-	4.062	3.077	2.091	1.525	1.430	1.367	1.359	1.166	1.144	0.814	0.694	0.524	0.243	0.238
210	-	-	-	3.334	2.338	1.629	1.528	1.462	1.454	1.250	1.227	0.879	0.752	0.572	0.277	0.238
215	-	-	-	3.612	2.606	1.745	1.638	1.568	1.559	1.345	1.320	0.951	0.817	0.627	0.316	0.238
220	-	-	-	3.913	2.898	1.875	1.762	1.688	1.678	1.451	1.425	1.033	0.889	0.689	0.359	0.238
225	-	-	-	-	3.217	2.168	1.925	1.823	1.813	1.571	1.544	1.126	0.972	0.758	0.409	0.238
230	-	-	-	-	3.566	2.497	2.246	2.077	2.056	1.708	1.679	1.232	1.067	0.838	0.466	0.238
235	-	-	-	-	3.950	2.863	2.603	2.427	2.405	1.867	1.836	1.355	1.176	0.931	0.532	0.238



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 8: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 30 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
240	-	-	-	-	-	3.271	3.002	2.819	2.796	2.221	2.156	1.498	1.304	1.038	0.609	0.238
245	-	-	-	-	-	3.730	3.451	3.262	3.238	2.637	2.569	1.668	1.456	1.166	0.702	0.238
250	-	-	-	-	-	-	3.962	3.766	3.741	3.111	3.040	1.874	1.638	1.319	0.813	0.238
255	-	-	-	-	-	-	-	-	-	3.658	3.583	2.347	1.862	1.507	0.952	0.238
260	-	-	-	-	-	-	-	-	-	-	-	2.910	2.382	1.742	1.127	0.238
265	-	-	-	-	-	-	-	-	-	-	-	3.580	3.028	2.196	1.357	0.238
270	-	-	-	-	-	-	-	-	-	-	-	-	3.821	2.927	1.672	0.238
275	-	-	-	-	-	-	-	-	-	-	-	-	-	3.863	2.280	0.419

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 9: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 45 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	1.358	1.157	1.037	0.767	0.503	0.240	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
35	1.429	1.222	1.099	0.822	0.555	0.294	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238	0.238
40	1.503	1.289	1.163	0.877	0.608	0.349	0.289	0.250	0.245	0.238	0.238	0.238	0.238	0.238	0.238	0.238
45	1.582	1.360	1.230	0.935	0.661	0.403	0.343	0.305	0.300	0.238	0.238	0.238	0.238	0.238	0.238	0.238
50	1.666	1.435	1.299	0.993	0.715	0.456	0.397	0.359	0.354	0.238	0.238	0.238	0.238	0.238	0.238	0.238
55	1.754	1.513	1.371	1.053	0.769	0.510	0.451	0.413	0.408	0.285	0.271	0.238	0.238	0.238	0.238	0.238
60	1.848	1.595	1.447	1.114	0.824	0.562	0.503	0.466	0.461	0.339	0.325	0.238	0.238	0.238	0.238	0.238
65	2.018	1.682	1.525	1.177	0.878	0.615	0.555	0.518	0.513	0.392	0.378	0.238	0.238	0.238	0.238	0.238
70	2.226	1.773	1.607	1.241	0.934	0.667	0.607	0.569	0.564	0.444	0.430	0.238	0.238	0.238	0.238	0.238
75	2.441	1.869	1.693	1.307	0.989	0.718	0.658	0.620	0.615	0.494	0.480	0.270	0.238	0.238	0.238	0.238
80	2.663	2.061	1.784	1.375	1.045	0.770	0.708	0.670	0.665	0.544	0.530	0.321	0.244	0.238	0.238	0.238
85	2.892	2.268	1.878	1.444	1.102	0.821	0.758	0.719	0.714	0.593	0.579	0.371	0.295	0.238	0.238	0.238
90	3.128	2.481	2.074	1.515	1.159	0.871	0.808	0.768	0.763	0.641	0.627	0.419	0.344	0.238	0.238	0.238
95	3.372	2.699	2.276	1.588	1.216	0.921	0.857	0.816	0.811	0.688	0.674	0.466	0.391	0.282	0.238	0.238
100	3.624	2.923	2.482	1.663	1.274	0.971	0.905	0.864	0.859	0.734	0.720	0.511	0.437	0.329	0.238	0.238
105	3.780	3.079	2.639	1.737	1.338	1.026	0.958	0.916	0.911	0.782	0.767	0.553	0.476	0.365	0.238	0.238
110	3.942	3.242	2.803	1.815	1.405	1.084	1.015	0.972	0.966	0.833	0.818	0.597	0.518	0.403	0.238	0.238
115	4.110	3.410	2.973	1.919	1.477	1.147	1.075	1.031	1.026	0.888	0.873	0.644	0.563	0.445	0.258	0.238
120	-	3.586	3.151	2.105	1.554	1.214	1.140	1.095	1.089	0.947	0.931	0.695	0.611	0.489	0.296	0.238
125	-	3.768	3.337	2.301	1.637	1.286	1.210	1.163	1.157	1.011	0.994	0.750	0.663	0.537	0.337	0.238
130	-	3.958	3.531	2.507	1.725	1.363	1.285	1.237	1.230	1.079	1.062	0.810	0.719	0.588	0.382	0.238
135	-	-	3.734	2.723	1.820	1.446	1.366	1.316	1.310	1.153	1.135	0.874	0.780	0.644	0.430	0.238
140	-	-	3.947	2.951	1.976	1.536	1.453	1.402	1.395	1.233	1.214	0.944	0.846	0.705	0.483	0.238
145	-	-	-	3.191	2.222	1.633	1.549	1.495	1.488	1.320	1.301	1.020	0.918	0.772	0.541	0.238
150	-	-	-	3.444	2.483	1.739	1.652	1.597	1.590	1.415	1.395	1.104	0.997	0.846	0.604	0.282
155	-	-	-	3.712	2.760	1.855	1.766	1.709	1.701	1.520	1.499	1.195	1.084	0.927	0.674	0.337
160	-	-	-	3.996	3.054	2.115	1.905	1.831	1.824	1.635	1.613	1.297	1.181	1.016	0.752	0.399
165	-	-	-	-	3.265	2.309	2.094	1.954	1.936	1.709	1.686	1.358	1.237	1.067	0.793	0.427
170	-	-	-	-	3.488	2.516	2.295	2.150	2.132	1.788	1.765	1.424	1.298	1.122	0.839	0.458
175	-	-	-	-	3.725	2.737	2.509	2.360	2.342	1.873	1.849	1.495	1.364	1.181	0.887	0.492
180	-	-	-	-	3.977	2.973	2.739	2.585	2.566	2.077	2.020	1.572	1.435	1.245	0.940	0.529
185	-	-	-	-	-	3.225	2.985	2.826	2.806	2.304	2.246	1.656	1.513	1.315	0.998	0.569
190	-	-	-	-	-	3.496	3.249	3.085	3.065	2.548	2.489	1.747	1.598	1.391	1.061	0.613
195	-	-	-	-	-	3.788	3.534	3.365	3.344	2.811	2.751	1.847	1.690	1.475	1.130	0.662
200	-	-	-	-	-	4.103	3.842	3.667	3.646	3.096	3.035	2.057	1.793	1.566	1.207	0.717
205	-	-	-	-	-	-	-	3.995	3.973	3.406	3.343	2.332	1.939	1.668	1.292	0.778
210	-	-	-	-	-	-	-	-	-	3.744	3.679	2.631	2.222	1.781	1.386	0.847
215	-	-	-	-	-	-	-	-	-	4.114	4.047	2.960	2.534	1.940	1.492	0.925
220	-	-	-	-	-	-	-	-	-	-	-	3.323	2.879	2.253	1.611	1.015
225	-	-	-	-	-	-	-	-	-	-	-	3.725	3.262	2.602	1.748	1.119
230	-	-	-	-	-	-	-	-	-	-	-	-	3.691	2.995	1.931	1.240
235	-	-	-	-	-	-	-	-	-	-	-	-	-	3.440	2.309	1.384



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table 9: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 45 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
240	-	-	-	-	-	-	-	-	-	-	-	-	-	3.948	2.741	1.558
245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.240	1.771
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.824	2.150
255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.690
260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.330
265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.100
270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table IO: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 60 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	2.332	1.896	1.773	1.501	1.227	0.944	0.877	0.834	0.828	0.681	0.663	0.381	0.267	0.238	0.238	0.238
35	2.524	2.079	1.849	1.564	1.282	0.996	0.929	0.886	0.880	0.733	0.715	0.438	0.326	0.238	0.238	0.238
40	2.722	2.265	1.988	1.628	1.338	1.048	0.980	0.937	0.931	0.785	0.767	0.493	0.383	0.238	0.238	0.238
45	2.926	2.456	2.169	1.694	1.394	1.099	1.031	0.987	0.981	0.835	0.817	0.546	0.439	0.279	0.238	0.238
50	3.135	2.651	2.353	1.761	1.450	1.150	1.081	1.037	1.031	0.884	0.867	0.598	0.492	0.336	0.238	0.238
55	3.351	2.851	2.542	1.830	1.507	1.201	1.131	1.086	1.080	0.933	0.915	0.648	0.543	0.390	0.238	0.238
60	3.573	3.056	2.734	1.929	1.564	1.251	1.179	1.134	1.128	0.980	0.962	0.696	0.593	0.442	0.238	0.238
65	3.802	3.265	2.930	2.097	1.622	1.301	1.228	1.182	1.176	1.027	1.009	0.743	0.641	0.493	0.245	0.238
70	4.037	3.479	3.130	2.265	1.680	1.350	1.276	1.229	1.223	1.072	1.054	0.788	0.688	0.541	0.299	0.238
75	-	3.699	3.334	2.436	1.738	1.399	1.323	1.275	1.269	1.117	1.099	0.832	0.733	0.588	0.352	0.238
80	-	3.924	3.543	2.608	1.797	1.448	1.370	1.321	1.315	1.161	1.142	0.875	0.776	0.633	0.402	0.238
85	-	-	3.757	2.782	1.856	1.496	1.416	1.367	1.360	1.203	1.185	0.917	0.819	0.676	0.450	0.238
90	-	-	3.975	2.958	1.970	1.544	1.462	1.412	1.405	1.246	1.227	0.957	0.860	0.718	0.496	0.238
95	-	-	-	3.135	2.116	1.592	1.507	1.456	1.449	1.287	1.268	0.996	0.899	0.759	0.541	0.262
100	-	-	-	3.314	2.262	1.640	1.552	1.500	1.493	1.328	1.308	1.034	0.938	0.798	0.584	0.307
105	-	-	-	3.520	2.469	1.716	1.626	1.572	1.565	1.395	1.375	1.093	0.994	0.850	0.629	0.344
110	-	-	-	3.734	2.685	1.797	1.705	1.649	1.642	1.467	1.447	1.156	1.054	0.906	0.678	0.383
115	-	-	-	3.959	2.913	1.889	1.789	1.732	1.725	1.544	1.523	1.224	1.118	0.965	0.730	0.425
120	-	-	-	-	3.152	2.131	1.879	1.821	1.813	1.627	1.605	1.296	1.186	1.029	0.786	0.471
125	-	-	-	-	3.403	2.383	2.134	1.976	1.955	1.716	1.693	1.374	1.261	1.098	0.846	0.520
130	-	-	-	-	3.668	2.647	2.400	2.241	2.221	1.812	1.789	1.459	1.341	1.173	0.912	0.574
135	-	-	-	-	3.947	2.924	2.678	2.518	2.498	1.974	1.911	1.550	1.428	1.254	0.983	0.632
140	-	-	-	-	-	3.214	2.968	2.807	2.786	2.264	2.202	1.649	1.522	1.342	1.061	0.696
145	-	-	-	-	-	3.519	3.272	3.108	3.088	2.564	2.503	1.758	1.625	1.439	1.145	0.766
150	-	-	-	-	-	3.840	3.590	3.423	3.403	2.876	2.816	1.877	1.738	1.545	1.239	0.844
155	-	-	-	-	-	-	3.923	3.753	3.732	3.200	3.140	2.197	1.863	1.662	1.342	0.930
160	-	-	-	-	-	-	-	4.098	4.077	3.536	3.476	2.530	2.166	1.791	1.456	1.027
165	-	-	-	-	-	-	-	-	-	3.781	3.720	2.748	2.371	1.871	1.525	1.081
170	-	-	-	-	-	-	-	-	-	4.041	3.979	2.980	2.591	2.059	1.599	1.139
175	-	-	-	-	-	-	-	-	-	-	-	3.229	2.826	2.272	1.678	1.203
180	-	-	-	-	-	-	-	-	-	-	-	3.496	3.079	2.502	1.765	1.272
185	-	-	-	-	-	-	-	-	-	-	-	3.783	3.351	2.749	1.860	1.348
190	-	-	-	-	-	-	-	-	-	-	-	4.093	3.645	3.018	2.066	1.432
195	-	-	-	-	-	-	-	-	-	-	-	-	3.964	3.310	2.317	1.525
200	-	-	-	-	-	-	-	-	-	-	-	-	-	3.628	2.592	1.628
205	-	-	-	-	-	-	-	-	-	-	-	-	-	3.976	2.893	1.744
210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.223	1.874
215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.590	2.176
220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.997	2.516
225	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.895
230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.319
235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.797



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table IO: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 60 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

Nullifire
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Table II: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 75 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	3.945	3.554	3.317	2.740	2.073	1.648	1.577	1.530	1.524	1.363	1.342	1.030	0.899	0.705	0.360	0.238
35	-	3.755	3.507	2.907	2.225	1.698	1.625	1.577	1.570	1.408	1.387	1.076	0.947	0.756	0.421	0.238
40	-	3.961	3.702	3.074	2.377	1.747	1.672	1.623	1.617	1.452	1.432	1.121	0.993	0.805	0.479	0.238
45	-	-	3.899	3.244	2.527	1.795	1.719	1.669	1.662	1.496	1.475	1.164	1.037	0.852	0.535	0.238
50	-	-	4.101	3.415	2.676	1.844	1.765	1.714	1.707	1.538	1.517	1.205	1.080	0.897	0.587	0.238
55	-	-	-	3.588	2.824	1.915	1.811	1.759	1.752	1.580	1.559	1.245	1.121	0.941	0.638	0.275
60	-	-	-	3.762	2.972	2.052	1.856	1.803	1.796	1.621	1.600	1.284	1.161	0.983	0.686	0.332
65	-	-	-	3.938	3.118	2.186	1.941	1.846	1.839	1.661	1.639	1.322	1.200	1.023	0.732	0.385
70	-	-	-	4.116	3.263	2.318	2.069	1.907	1.886	1.701	1.678	1.359	1.237	1.062	0.777	0.435
75	-	-	-	-	3.407	2.446	2.195	2.032	2.010	1.739	1.717	1.394	1.274	1.099	0.819	0.482
80	-	-	-	-	3.550	2.572	2.318	2.153	2.132	1.777	1.754	1.429	1.309	1.135	0.860	0.525
85	-	-	-	-	3.692	2.695	2.438	2.272	2.250	1.814	1.791	1.462	1.343	1.170	0.899	0.566
90	-	-	-	-	3.833	2.815	2.555	2.387	2.365	1.850	1.827	1.495	1.376	1.203	0.937	0.605
95	-	-	-	-	3.973	2.933	2.670	2.499	2.477	1.900	1.862	1.527	1.408	1.236	0.973	0.642
100	-	-	-	-	4.112	3.048	2.782	2.609	2.587	2.006	1.933	1.557	1.439	1.267	1.008	0.676
105	-	-	-	-	-	3.298	3.035	2.862	2.839	2.263	2.192	1.634	1.511	1.335	1.068	0.726
110	-	-	-	-	-	3.560	3.298	3.124	3.102	2.528	2.460	1.715	1.589	1.408	1.132	0.779
115	-	-	-	-	-	3.832	3.572	3.396	3.374	2.802	2.736	1.803	1.672	1.485	1.201	0.837
120	-	-	-	-	-	4.117	3.856	3.680	3.658	3.086	3.021	1.934	1.762	1.569	1.275	0.898
125	-	-	-	-	-	-	-	3.974	3.952	3.380	3.316	2.237	1.858	1.659	1.355	0.966
130	-	-	-	-	-	-	-	-	-	3.684	3.621	2.548	2.125	1.757	1.442	1.038
135	-	-	-	-	-	-	-	-	-	3.999	3.937	2.865	2.440	1.863	1.536	1.118
140	-	-	-	-	-	-	-	-	-	-	-	3.190	2.762	2.156	1.638	1.205
145	-	-	-	-	-	-	-	-	-	-	-	3.523	3.090	2.482	1.750	1.301
150	-	-	-	-	-	-	-	-	-	-	-	3.863	3.425	2.811	1.874	1.406
155	-	-	-	-	-	-	-	-	-	-	-	-	3.766	3.143	2.198	1.524
160	-	-	-	-	-	-	-	-	-	-	-	-	4.113	3.478	2.523	1.655
165	-	-	-	-	-	-	-	-	-	-	-	-	-	3.725	2.738	1.734
170	-	-	-	-	-	-	-	-	-	-	-	-	-	3.990	2.968	1.820
175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.215	1.957
180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.482	2.188
185	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.770	2.437
190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.082	2.706
195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.997
200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.314
205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.660
210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.040
215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table II: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 75 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table I2: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 90 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
30	-	-	-	-	4.017	3.310	3.105	2.969	2.952	2.437	2.364	1.679	1.531	1.315	0.932	0.511
35	-	-	-	-	-	3.439	3.230	3.092	3.075	2.560	2.487	1.714	1.567	1.353	0.979	0.571
40	-	-	-	-	-	3.565	3.353	3.212	3.195	2.678	2.606	1.748	1.602	1.390	1.024	0.625
45	-	-	-	-	-	3.688	3.472	3.329	3.312	2.791	2.720	1.781	1.635	1.425	1.067	0.675
50	-	-	-	-	-	3.808	3.588	3.443	3.425	2.900	2.830	1.812	1.668	1.459	1.108	0.722
55	-	-	-	-	-	3.925	3.701	3.553	3.535	3.005	2.936	1.843	1.699	1.491	1.147	0.765
60	-	-	-	-	-	4.040	3.812	3.660	3.642	3.107	3.038	1.873	1.729	1.523	1.184	0.805
65	-	-	-	-	-	-	3.920	3.765	3.746	3.205	3.136	1.960	1.759	1.553	1.220	0.842
70	-	-	-	-	-	-	4.025	3.867	3.847	3.299	3.231	2.060	1.787	1.582	1.254	0.877
75	-	-	-	-	-	-	-	3.966	3.945	3.390	3.323	2.155	1.814	1.610	1.287	0.909
80	-	-	-	-	-	-	-	4.062	4.041	3.478	3.412	2.245	1.841	1.637	1.318	0.940
85	-	-	-	-	-	-	-	-	-	3.564	3.498	2.330	1.867	1.663	1.349	0.969
90	-	-	-	-	-	-	-	-	-	3.646	3.580	2.412	1.923	1.688	1.378	0.996
95	-	-	-	-	-	-	-	-	-	3.726	3.661	2.489	2.008	1.713	1.406	1.021
100	-	-	-	-	-	-	-	-	-	3.803	3.739	2.563	2.087	1.736	1.433	1.045
105	-	-	-	-	-	-	-	-	-	4.089	4.026	2.860	2.386	1.820	1.507	1.108
110	-	-	-	-	-	-	-	-	-	-	-	3.164	2.690	1.983	1.587	1.175
115	-	-	-	-	-	-	-	-	-	-	-	3.474	3.000	2.301	1.672	1.248
120	-	-	-	-	-	-	-	-	-	-	-	3.792	3.315	2.621	1.764	1.326
125	-	-	-	-	-	-	-	-	-	-	-	4.116	3.636	2.944	1.864	1.411
130	-	-	-	-	-	-	-	-	-	-	-	-	3.963	3.270	2.182	1.503
135	-	-	-	-	-	-	-	-	-	-	-	-	-	3.598	2.530	1.604
140	-	-	-	-	-	-	-	-	-	-	-	-	-	3.929	2.868	1.714
145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.197	1.835
150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.518	2.157
155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.830	2.519
160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.821
165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.058
170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.311
175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.583
180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.874
185	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



SC804 Loading Tables

EN13381-10: Solid Steel Bars

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Table I2: Rectangular Vertical and Horizontal Solid Steel Bars
Fire Resistance Period: 90 Minutes

Thickness (mm) Required for a Design Temperature of

Section Factor (m²)	300°C	330°C	350°C	400°C	450°C	500°C	512°C	520°C	521°C	547°C	550°C	600°C	620°C	650°C	700°C	750°C
	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)	DFT (mm)
240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Tables are applicable to equally to circular and square concrete filled hollow columns
- Tables are applicable to columns of 88.9 mm diameter/width and higher.
- DFT for 20 mm wall thickness columns can be applied to thicker columns, with no maximum limit.

PLEASE NOTE: The critical temperatures in this loading table are as defined for offices in accordance with BS5950-8:2003 as per Table 18 of the ASFP 5th Edition Yellow Book. The Yellow book also gives new critical temperatures to comply with several different building uses either to the Eurocodes for steel design or BS5950-8:2003. Alternative loadings tables to other critical temperatures are available from the Nullifire Technical Desk on request.