SC902 Loading Tables

EN13381-6: Concrete Filled Hollow Columns

Nullifire Smart Protection

Table 1
Fire Resistance Period: 30 Minutes

Thickness (mm) Required for a Design Temperature of

Wall Thickness (mm)	350°C DFT (mm)	400°C DFT (mm)	450°C DFT (mm)	500°C DFT (mm)	512°C DFT (mm)	520°C DFT (mm)	521°C DFT (mm)	547°C DFT (mm)	550°C DFT (mm)	600°C DFT (mm)	620°C DFT (mm)	650°C DFT (mm)	700°C DFT (mm)	750°C DFT (mm)
3.2	2.545	1.713	1.029	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
3.5	2.362	1.597	0.980	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
4.0	2.056	1.404	0.897	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
4.5	1.750	1.211	0.815	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
5.0	1.444	1.019	0.732	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
5.5	1.138	0.826	0.649	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
6.0	0.832	0.633	0.567	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
6.3	0.648	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
6.3	0.706	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
6.5	0.705	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
7.0	0.703	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
7.5	0.700	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
8.0	0.698	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
8.5	0.695	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
9.0	0.692	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
9.5	0.690	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
10.0	0.687	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
10.5	0.685	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
11.0	0.682	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
11.5	0.679	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
12.0	0.677	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
12.5	0.674	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
13.0	0.672	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
13.5	0.669	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
14.0	0.666	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
14.5	0.664	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
15.0	0.661	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
15.5	0.659	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
16.0	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656

- 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.

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.

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Table 2
Fire Resistance Period: 45 Minutes

Thickness (mm) Required for a Design Temperature of

Wall Thickness (mm)	350°C DFT (mm)	400°C DFT (mm)	450°C DFT (mm)	500°C DFT (mm)	512°C DFT (mm)	520°C DFT (mm)	521°C DFT (mm)	547°C DFT (mm)	550°C DFT (mm)	600°C DFT (mm)	620°C DFT (mm)	650°C DFT (mm)	700°C DFT (mm)	750°C DFT (mm)
3.2	3.893	3.463	3.172	2.883	2.813	2.591	2.541	1.889	1.840	0.989	0.611	0.517	0.517	0.517
3.5	3.732	3.269	2.948	2.654	2.591	2.390	2.345	1.756	1.712	0.943	0.602	0.517	0.517	0.517
4.0	3.463	2.946	2.575	2.272	2.221	2.056	2.019	1.535	1.499	0.867	0.586	0.517	0.517	0.517
4.5	3.194	2.623	2.203	1.891	1.850	1.721	1.692	1.314	1.285	0.791	0.571	0.517	0.517	0.517
5.0	2.925	2.300	1.830	1.509	1.480	1.387	1.366	1.092	1.072	0.715	0.556	0.517	0.517	0.517
5.5	2.656	1.978	1.457	1.128	1.110	1.052	1.039	0.871	0.858	0.639	0.541	0.517	0.517	0.517
6.0	2.387	1.655	1.084	0.746	0.739	0.718	0.713	0.650	0.645	0.563	0.526	0.517	0.517	0.517
6.3	2.225	1.461	0.861	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517	0.517
6.3	1.315	0.977	0.740	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
6.5	1.308	0.968	0.738	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
7.0	1.289	0.948	0.734	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
7.5	1.270	0.928	0.730	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
8.0	1.252	0.907	0.725	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
8.5	1.233	0.887	0.721	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
9.0	1.215	0.867	0.717	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
9.5	1.196	0.846	0.712	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
10.0	1.177	0.826	0.708	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
10.5	1.159	0.806	0.704	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
11.0	1.140	0.785	0.699	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
11.5	1.121	0.765	0.695	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
12.0	1.103	0.745	0.691	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
12.5	1.084	0.724	0.686	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
13.0	1.066	0.704	0.682	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
13.5	1.047	0.684	0.678	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
14.0	1.028	0.663	0.673	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
14.5	1.010	0.643	0.669	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
15.0	0.991	0.623	0.665	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
15.5	0.972	0.602	0.660	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656
16.0	0.954	0.582	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656

- Tables are applicable to equally to circular and square concrete filled hollow columns
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Table 3
Fire Resistance Period: 60 Minutes

Thickness (mm) Required for a Design Temperature of

Wall Thickness (mm)	350°C DFT (mm)	400°C DFT (mm)	450°C DFT (mm)	500°C DFT (mm)	512°C DFT (mm)	520°C DFT (mm)	521°C DFT (mm)	547°C DFT (mm)	550°C DFT (mm)	600°C DFT (mm)	620°C DFT (mm)	650°C DFT (mm)	700°C DFT (mm)	750°C DFT (mm)
3.2	5.099	4.598	4.200	3.826	3.742	3.658	3.641	3.360	3.338	2.965	2.794	2.140	1.238	0.517
3.5	4.973	4.441	4.013	3.619	3.531	3.447	3.431	3.153	3.131	2.749	2.576	1.983	1.168	0.517
4.0	4.764	4.179	3.701	3.272	3.178	3.096	3.080	2.808	2.785	2.389	2.212	1.721	1.052	0.517
4.5	4.555	3.917	3.390	2.926	2.826	2.744	2.730	2.464	2.440	2.030	1.848	1.460	0.936	0.517
5.0	4.346	3.656	3.078	2.580	2.473	2.392	2.379	2.119	2.094	1.671	1.484	1.198	0.819	0.517
5.5	4.137	3.394	2.767	2.234	2.121	2.040	2.029	1.774	1.749	1.311	1.121	0.936	0.703	0.517
6.0	3.928	3.133	2.455	1.888	1.768	1.689	1.678	1.429	1.403	0.952	0.757	0.674	0.587	0.517
6.3	3.802	2.976	2.268	1.680	1.557	1.478	1.468	1.222	1.196	0.736	0.539	0.517	0.517	0.517
6.3	1.924	1.522	1.228	1.000	0.946	0.885	0.878	0.741	0.727	0.656	0.656	0.656	0.656	0.656
6.5	1.917	1.515	1.220	0.993	0.940	0.881	0.874	0.739	0.726	0.656	0.656	0.656	0.656	0.656
7.0	1.900	1.497	1.200	0.975	0.925	0.869	0.862	0.735	0.722	0.656	0.656	0.656	0.656	0.656
7.5	1.882	1.478	1.180	0.957	0.910	0.857	0.851	0.731	0.718	0.656	0.656	0.656	0.656	0.656
8.0	1.865	1.460	1.160	0.939	0.895	0.845	0.839	0.726	0.715	0.656	0.656	0.656	0.656	0.656
8.5	1.848	1.442	1.140	0.922	0.880	0.833	0.828	0.722	0.711	0.656	0.656	0.656	0.656	0.656
9.0	1.831	1.424	1.120	0.904	0.865	0.822	0.817	0.717	0.707	0.656	0.656	0.656	0.656	0.656
9.5	1.813	1.406	1.100	0.886	0.851	0.810	0.805	0.713	0.704	0.656	0.656	0.656	0.656	0.656
10.0	1.796	1.387	1.080	0.869	0.836	0.798	0.794	0.709	0.700	0.656	0.656	0.656	0.656	0.656
10.5	1.779	1.369	1.060	0.851	0.821	0.786	0.782	0.704	0.696	0.656	0.656	0.656	0.656	0.656
11.0	1.761	1.351	1.040	0.833	0.806	0.774	0.771	0.700	0.693	0.656	0.656	0.656	0.656	0.656
11.5	1.744	1.333	1.020	0.815	0.791	0.762	0.759	0.696	0.689	0.656	0.656	0.656	0.656	0.656
12.0	1.727	1.315	1.000	0.798	0.776	0.751	0.748	0.691	0.685	0.656	0.656	0.656	0.656	0.656
12.5	1.710	1.296	0.980	0.780	0.761	0.739	0.736	0.687	0.682	0.656	0.656	0.656	0.656	0.656
13.0	1.692	1.278	0.960	0.762	0.746	0.727	0.725	0.682	0.678	0.656	0.656	0.656	0.656	0.656
13.5	1.675	1.260	0.940	0.745	0.731	0.715	0.713	0.678	0.674	0.656	0.656	0.656	0.656	0.656
14.0	1.658	1.242	0.920	0.727	0.716	0.703	0.702	0.674	0.671	0.656	0.656	0.656	0.656	0.656
14.5	1.640	1.224	0.900	0.709	0.701	0.691	0.690	0.669	0.667	0.656	0.656	0.656	0.656	0.656
15.0	1.623	1.205	0.880	0.691	0.686	0.680	0.679	0.665	0.663	0.656	0.656	0.656	0.656	0.656
15.5	1.606	1.187	0.860	0.674	0.671	0.668	0.667	0.660	0.660	0.656	0.656	0.656	0.656	0.656
16.0	1.588	1.169	0.840	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656	0.656

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Table 4
Fire Resistance Period: 75 Minutes

Thickness (mm) Required for a Design Temperature of

Wall Thickness (mm)	350°C DFT (mm)	400°C DFT (mm)	450°C DFT (mm)	500°C DFT (mm)	512°C DFT (mm)	520°C DFT (mm)	521°C DFT (mm)	547°C DFT (mm)	550°C DFT (mm)	600°C DFT (mm)	620°C DFT (mm)	650°C DFT (mm)	700°C DFT (mm)	750°C DFT (mm)
3.2	6.305	5.732	5.228	4.770	4.672	4.586	4.570	4.285	4.261	3.857	3.681	3.386	2.959	2.215
3.5	6.215	5.612	5.078	4.596	4.493	4.407	4.391	4.107	4.082	3.668	3.487	3.188	2.750	2.051
4.0	6.066	5.412	4.828	4.306	4.196	4.109	4.094	3.809	3.784	3.352	3.164	2.859	2.401	1.777
4.5	5.917	5.211	4.577	4.016	3.898	3.811	3.796	3.512	3.485	3.036	2.841	2.531	2.052	1.503
5.0	5.767	5.011	4.327	3.726	3.601	3.512	3.499	3.214	3.187	2.720	2.518	2.202	1.703	1.229
5.5	5.618	4.811	4.076	3.436	3.304	3.214	3.201	2.917	2.888	2.405	2.195	1.873	1.354	0.955
6.0	5.469	4.610	3.826	3.146	3.006	2.916	2.904	2.620	2.590	2.089	1.873	1.544	1.005	0.681
6.3	5.379	4.490	3.676	2.972	2.828	2.737	2.725	2.441	2.411	1.900	1.679	1.347	0.796	0.517
6.3	2.533	2.068	1.716	1.454	1.395	1.322	1.310	1.134	1.117	0.885	0.796	0.672	0.656	0.656
6.5	2.526	2.061	1.710	1.446	1.387	1.313	1.302	1.125	1.109	0.880	0.793	0.671	0.656	0.656
7.0	2.510	2.045	1.694	1.426	1.365	1.292	1.281	1.105	1.088	0.868	0.786	0.671	0.656	0.656
7.5	2.494	2.029	1.677	1.406	1.344	1.271	1.260	1.084	1.068	0.857	0.779	0.670	0.656	0.656
8.0	2.478	2.013	1.661	1.385	1.323	1.250	1.239	1.063	1.047	0.845	0.772	0.669	0.656	0.656
8.5	2.463	1.997	1.645	1.365	1.302	1.228	1.218	1.043	1.026	0.833	0.764	0.668	0.656	0.656
9.0	2.447	1.981	1.629	1.345	1.281	1.207	1.197	1.022	1.006	0.821	0.757	0.667	0.656	0.656
9.5	2.431	1.965	1.612	1.325	1.260	1.186	1.175	1.001	0.985	0.809	0.750	0.666	0.656	0.656
10.0	2.415	1.949	1.596	1.304	1.239	1.165	1.154	0.980	0.964	0.798	0.743	0.666	0.656	0.656
10.5	2.399	1.933	1.580	1.284	1.218	1.143	1.133	0.960	0.944	0.786	0.735	0.665	0.656	0.656
11.0	2.383	1.917	1.564	1.264	1.197	1.122	1.112	0.939	0.923	0.774	0.728	0.664	0.656	0.656
11.5	2.367	1.901	1.548	1.244	1.176	1.101	1.091	0.918	0.902	0.762	0.721	0.663	0.656	0.656
12.0	2.351	1.885	1.531	1.224	1.155	1.080	1.070	0.898	0.882	0.750	0.714	0.662	0.656	0.656
12.5	2.335	1.868	1.515	1.203	1.133	1.059	1.049	0.877	0.861	0.739	0.707	0.662	0.656	0.656
13.0	2.319	1.852	1.499	1.183	1.112	1.037	1.028	0.856	0.840	0.727	0.699	0.661	0.656	0.656
13.5	2.303	1.836	1.483	1.163	1.091	1.016	1.007	0.835	0.820	0.715	0.692	0.660	0.656	0.656
14.0	2.287	1.820	1.467	1.143	1.070	0.995	0.986	0.815	0.799	0.703	0.685	0.659	0.656	0.656
14.5	2.271	1.804	1.450	1.123	1.049	0.974	0.965	0.794	0.778	0.691	0.678	0.658	0.656	0.656
15.0	2.255	1.788	1.434	1.102	1.028	0.953	0.943	0.773	0.758	0.680	0.670	0.658	0.656	0.656
15.5	2.239	1.772	1.418	1.082	1.007	0.931	0.922	0.753	0.737	0.668	0.663	0.657	0.656	0.656
16.0	2.223	1.756	1.402	1.062	0.986	0.910	0.901	0.732	0.716	0.656	0.656	0.656	0.656	0.656

- 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.

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.

Table 5
Fire Resistance Period: 90 Minutes

Thickness (mm) Required for a Design Temperature of

Wall Thickness (mm)	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)
3.2	7.511	6.867	6.257	5.713	5.601	5.514	5.499	5.210	5.184	4.750	4.561	4.245	3.788	3.348
3.5	7.457	6.784	6.143	5.573	5.455	5.367	5.352	5.060	5.033	4.586	4.393	4.070	3.600	3.131
4.0	7.368	6.645	5.954	5.339	5.213	5.122	5.108	4.810	4.782	4.314	4.112	3.780	3.287	2.769
4.5	7.278	6.505	5.764	5.105	4.971	4.877	4.863	4.560	4.531	4.042	3.831	3.490	2.974	2.408
5.0	7.189	6.366	5.575	4.871	4.729	4.632	4.619	4.310	4.280	3.770	3.550	3.199	2.661	2.046
5.5	7.099	6.227	5.386	4.638	4.487	4.388	4.374	4.060	4.028	3.498	3.269	2.909	2.348	1.685
6.0	7.010	6.088	5.196	4.404	4.244	4.143	4.130	3.810	3.777	3.226	2.987	2.619	2.035	1.323
6.3	6.956	6.005	5.083	4.263	4.099	3.996	3.983	3.660	3.626	3.063	2.819	2.444	1.847	1.106
6.3	-	2.613	2.204	1.908	1.844	1.758	1.742	1.526	1.507	1.232	1.131	0.992	0.743	0.656
6.5	-	2.608	2.199	1.902	1.837	1.751	1.735	1.519	1.500	1.224	1.123	0.985	0.742	0.656
7.0	-	2.594	2.187	1.885	1.819	1.733	1.717	1.501	1.482	1.205	1.103	0.968	0.737	0.656
7.5	-	2.580	2.175	1.868	1.801	1.714	1.699	1.483	1.464	1.186	1.083	0.950	0.733	0.656
8.0	-	2.566	2.162	1.852	1.783	1.696	1.681	1.464	1.446	1.166	1.063	0.933	0.728	0.656
8.5	-	2.552	2.150	1.835	1.765	1.678	1.663	1.446	1.428	1.147	1.044	0.916	0.724	0.656
9.0	-	2.538	2.137	1.818	1.747	1.660	1.645	1.428	1.410	1.128	1.024	0.898	0.719	0.656
9.5	-	2.524	2.125	1.801	1.730	1.642	1.627	1.410	1.392	1.109	1.004	0.881	0.715	0.656
10.0	-	2.510	2.112	1.785	1.712	1.624	1.609	1.392	1.374	1.090	0.984	0.864	0.710	0.656
10.5	-	2.496	2.100	1.768	1.694	1.606	1.591	1.373	1.356	1.071	0.965	0.846	0.706	0.656
11.0	-	2.482	2.088	1.751	1.676	1.588	1.573	1.355	1.338	1.051	0.945	0.829	0.701	0.656
11.5	-	2.468	2.075	1.734	1.658	1.569	1.555	1.337	1.320	1.032	0.925	0.812	0.697	0.656
12.0	-	2.454	2.063	1.718	1.640	1.551	1.537	1.319	1.302	1.013	0.905	0.794	0.692	0.656
12.5	-	2.440	2.050	1.701	1.623	1.533	1.519	1.301	1.283	0.994	0.885	0.777	0.688	0.656
13.0	-	2.427	2.038	1.684	1.605	1.515	1.501	1.283	1.265	0.975	0.866	0.760	0.683	0.656
13.5	-	2.413	2.025	1.667	1.587	1.497	1.483	1.264	1.247	0.955	0.846	0.743	0.679	0.656
14.0	-	2.399	2.013	1.651	1.569	1.479	1.465	1.246	1.229	0.936	0.826	0.725	0.674	0.656
14.5	-	2.385	2.000	1.634	1.551	1.461	1.446	1.228	1.211	0.917	0.806	0.708	0.670	0.656
15.0	-	2.371	1.988	1.617	1.533	1.443	1.428	1.210	1.193	0.898	0.787	0.691	0.665	0.656
15.5	-	2.357	1.976	1.600	1.516	1.425	1.410	1.192	1.175	0.879	0.767	0.673	0.661	0.656
16.0	-	2.343	1.963	1.584	1.498	1.406	1.392	1.173	1.157	0.860	0.747	0.656	0.656	0.656

- 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.

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.

Table 6
Fire Resistance Period: 105 Minutes

Thickness (mm) Required for a Design Temperature of

Wall Thickness (mm)	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)
3.2	-	-	7.285	6.657	6.530	6.441	6.428	6.136	6.107	5.642	5.442	5.104	4.616	4.149
3.5	-	-	7.208	6.550	6.418	6.326	6.313	6.014	5.985	5.505	5.298	4.953	4.450	3.956
4.0	-	-	7.080	6.372	6.231	6.135	6.121	5.811	5.781	5.277	5.059	4.701	4.173	3.634
4.5	-	-	6.952	6.195	6.044	5.944	5.930	5.608	5.576	5.048	4.820	4.449	3.896	3.312
5.0	-	-	6.823	6.017	5.857	5.753	5.738	5.406	5.372	4.820	4.581	4.197	3.619	2.990
5.5	-	-	6.695	5.839	5.670	5.561	5.547	5.203	5.168	4.592	4.342	3.945	3.342	2.668
6.0	-	-	6.567	5.662	5.483	5.370	5.356	5.000	4.964	4.364	4.102	3.693	3.065	2.346
6.3	-	7.519	6.490	5.555	5.370	5.255	5.241	4.878	4.841	4.227	3.959	3.542	2.899	2.153
6.3	-	-	2.693	2.363	2.292	2.194	2.174	1.919	1.898	1.578	1.465	1.312	1.035	0.784
6.5	-	-	2.689	2.358	2.287	2.188	2.168	1.912	1.892	1.572	1.459	1.304	1.027	0.782
7.0	-	-	2.680	2.344	2.272	2.173	2.153	1.897	1.876	1.556	1.442	1.285	1.008	0.775
7.5	-	-	2.672	2.331	2.257	2.158	2.138	1.881	1.861	1.540	1.425	1.266	0.988	0.768
8.0	-	-	2.663	2.318	2.243	2.143	2.123	1.866	1.845	1.524	1.408	1.248	0.969	0.762
8.5	-	-	2.654	2.304	2.228	2.128	2.108	1.850	1.830	1.508	1.391	1.229	0.949	0.755
9.0	-	-	2.646	2.291	2.214	2.113	2.093	1.834	1.814	1.491	1.374	1.210	0.930	0.749
9.5	-	-	2.637	2.278	2.199	2.098	2.078	1.819	1.799	1.475	1.358	1.191	0.910	0.742
10.0	-	-	2.628	2.265	2.185	2.083	2.063	1.803	1.783	1.459	1.341	1.172	0.891	0.735
10.5	-	-	2.620	2.251	2.170	2.068	2.048	1.787	1.768	1.443	1.324	1.153	0.871	0.729
11.0	-	-	2.611	2.238	2.155	2.053	2.033	1.772	1.752	1.427	1.307	1.134	0.851	0.722
11.5	-	-	2.603	2.225	2.141	2.038	2.018	1.756	1.737	1.411	1.290	1.115	0.832	0.715
12.0	-	-	2.594	2.211	2.126	2.023	2.003	1.740	1.721	1.395	1.273	1.096	0.812	0.709
12.5	-	-	2.585	2.198	2.112	2.008	1.988	1.725	1.706	1.379	1.256	1.077	0.793	0.702
13.0	-	-	2.577	2.185	2.097	1.993	1.973	1.709	1.690	1.363	1.240	1.058	0.773	0.696
13.5	-	-	2.568	2.172	2.082	1.978	1.958	1.693	1.675	1.347	1.223	1.039	0.754	0.689
14.0	-	-	2.559	2.158	2.068	1.963	1.943	1.678	1.659	1.331	1.206	1.020	0.734	0.682
14.5	-	-	2.551	2.145	2.053	1.948	1.928	1.662	1.644	1.314	1.189	1.001	0.715	0.676
15.0	-	-	2.542	2.132	2.039	1.933	1.913	1.646	1.629	1.298	1.172	0.982	0.695	0.669
15.5	-	-	2.533	2.118	2.024	1.918	1.898	1.631	1.613	1.282	1.155	0.963	0.676	0.663
16.0	-	-	2.525	2.105	2.009	1.903	1.883	1.615	1.598	1.266	1.139	0.945	0.656	0.656

- 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.

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Table 7
Fire Resistance Period: 120 Minutes

Thickness (mm) Required for a Design Temperature of

Wall Thickness (mm)	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)
3.2	-	-	-	7.600	7.459	7.369	7.357	7.061	7.030	6.534	6.322	5.963	5.444	4.951
3.5	-	-	-	7.527	7.380	7.286	7.274	6.967	6.936	6.424	6.204	5.835	5.299	4.781
4.0	-	-	-	7.406	7.248	7.148	7.135	6.812	6.779	6.239	6.007	5.621	5.058	4.499
4.5	-	-	-	7.284	7.116	7.011	6.997	6.657	6.622	6.055	5.809	5.408	4.818	4.216
5.0	-	-	-	7.163	6.984	6.873	6.858	6.501	6.465	5.870	5.612	5.195	4.577	3.934
5.5	-	-	-	7.041	6.852	6.735	6.720	6.346	6.308	5.685	5.415	4.981	4.336	3.651
6.0	-	-	-	6.920	6.721	6.597	6.581	6.190	6.151	5.501	5.217	4.768	4.095	3.369
6.3	-	-	7.897	6.847	6.641	6.514	6.498	6.097	6.056	5.390	5.099	4.640	3.950	3.199
6.3	-	-	-	-	2.741	2.630	2.606	2.311	2.288	1.925	1.800	1.632	1.327	1.069
6.5	-	-	-	-	2.737	2.626	2.601	2.306	2.283	1.920	1.794	1.626	1.320	1.061
7.0	-	-	-	-	2.725	2.614	2.590	2.293	2.270	1.907	1.780	1.610	1.302	1.039
7.5	-	-	-	-	2.714	2.602	2.578	2.280	2.257	1.894	1.767	1.594	1.285	1.018
8.0	-	-	-	-	2.703	2.590	2.566	2.267	2.244	1.881	1.753	1.578	1.267	0.997
8.5	-	-	-	-	2.691	2.578	2.554	2.254	2.231	1.868	1.739	1.562	1.250	0.976
9.0	-	-	-	-	2.680	2.566	2.542	2.240	2.218	1.855	1.725	1.546	1.232	0.954
9.5	-	-	-	-	2.669	2.554	2.530	2.227	2.206	1.842	1.711	1.530	1.214	0.933
10.0	-	-	-	-	2.657	2.542	2.518	2.214	2.193	1.829	1.697	1.514	1.197	0.912
10.5	-	-	-	-	2.646	2.530	2.506	2.201	2.180	1.816	1.683	1.498	1.179	0.890
11.0	-	-	-	-	2.635	2.518	2.494	2.188	2.167	1.803	1.669	1.482	1.162	0.869
11.5	-	-	-	-	2.623	2.506	2.482	2.175	2.154	1.790	1.655	1.466	1.144	0.848
12.0	-	-	-	-	2.612	2.495	2.470	2.162	2.141	1.777	1.641	1.450	1.127	0.826
12.5	-	-	-	-	2.601	2.483	2.458	2.149	2.128	1.764	1.627	1.434	1.109	0.805
13.0	-	-	-	-	2.589	2.471	2.446	2.136	2.115	1.751	1.613	1.418	1.091	0.784
13.5	-	-	-	-	2.578	2.459	2.434	2.122	2.103	1.738	1.600	1.401	1.074	0.763
14.0	-	-	-	-	2.567	2.447	2.422	2.109	2.090	1.725	1.586	1.385	1.056	0.741
14.5	-	-	-	-	2.555	2.435	2.410	2.096	2.077	1.712	1.572	1.369	1.039	0.720
15.0	-	-	-	-	2.544	2.423	2.398	2.083	2.064	1.699	1.558	1.353	1.021	0.699
15.5	-	-	-		2.533	2.411	2.387	2.070	2.051	1.686	1.544	1.337	1.004	0.677
16.0	-	-	-	2.627	2.521	2.399	2.375	2.057	2.038	1.673	1.530	1.321	0.986	0.656

- 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.

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