

N823
All-Fluted Deck
Normal Weight Concrete
CAFCO BLAZE-SHIELD II, HP

Restrained Beam

ASTM												
Desig.	W/D	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	2-1/2 Hour	3-Hour	3-1/2 Hour	4-Hour	
W44 x 335	2.52	W1120 x 498	148.7	52.4	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
290	2.2	432	129.8	60.0	3/8	3/8	3/8	7/16	9/16	11/16	3/4	
262	2	390	118.0	66.0	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
230	1.77	342	104.4	74.6	3/8	3/8	3/8	1/2	5/8	3/4	7/8	
W40 x 593	4.56	W1000 x 883	269.0	28.9	3/8	3/8	3/8	3/8	3/8	3/8	7/16	
503	3.93	748	231.9	33.6	3/8	3/8	3/8	3/8	3/8	7/16	1/2	
431	3.42	641	201.8	38.6	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
397	3.15	591	185.9	41.9	3/8	3/8	3/8	3/8	7/16	1/2	9/16	
392	3.38	583	199.4	39.1	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
372	2.98	554	175.8	44.3	3/8	3/8	3/8	3/8	7/16	1/2	5/8	
362	2.9	539	171.1	45.5	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
331	2.9	493	171.1	45.5	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
327	2.89	487	170.5	45.7	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
324	2.61	482	154.0	50.6	3/8	3/8	3/8	3/8	1/2	9/16	11/16	
297	2.41	442	142.2	54.8	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
278	2.48	414	146.3	53.2	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
277	2.25	412	132.8	58.7	3/8	3/8	3/8	3/8	1/2	5/8	3/4	
264	2.36	393	139.2	55.9	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
249	2.02	371	119.2	65.3	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
235	2.1	350	123.9	62.9	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
215	1.76	321	103.8	75.0	3/8	3/8	3/8	1/2	5/8	3/4	7/8	
211	1.9	314	112.1	69.5	3/8	3/8	3/8	7/16	5/8	3/4	13/16	
199	1.64	296	96.8	80.5	3/8	3/8	3/8	1/2	11/16	13/16	15/16	
183	1.66	272	97.9	79.5	3/8	3/8	3/8	1/2	5/8	13/16	15/16	
167	1.53	249	90.3	86.3	3/8	3/8	3/8	1/2	11/16	7/8	1	
149	1.37	222	80.8	96.4	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
W36 x 798	6.09	W920 x 1188	359.3	21.7	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
650	5.08	967	299.7	26.0	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
527	4.22	784	249.0	31.3	3/8	3/8	3/8	3/8	3/8	3/8	7/16	
439	3.57	653	210.6	37.0	3/8	3/8	3/8	3/8	3/8	7/16	1/2	
393	3.25	585	191.8	40.6	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
359	2.97	534	175.2	44.4	3/8	3/8	3/8	3/8	7/16	1/2	5/8	
328	2.73	488	161.1	48.4	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
300	2.5	446	147.5	52.8	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
280	2.35	417	138.7	56.2	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
260	2.18	387	128.6	60.6	3/8	3/8	3/8	7/16	9/16	11/16	3/4	
256	2.37	381	139.8	55.7	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
245	2.08	365	122.7	63.5	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
232	2.15	345	126.9	61.4	3/8	3/8	3/8	7/16	9/16	11/16	3/4	
230	1.95	342	115.1	67.7	3/8	3/8	3/8	7/16	9/16	3/4	13/16	

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Desig.	W/D	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	2-1/2 Hour	3-Hour	3-1/2 Hour	4-Hour	
W36 x 210	1.96	W920 x 313	115.6	67.3	3/8	3/8	3/8	7/16	9/16	3/4	13/16	
194	1.81	289	106.8	72.9	3/8	3/8	3/8	1/2	5/8	3/4	7/8	
182	1.72	271	101.5	76.7	3/8	3/8	3/8	1/2	5/8	13/16	7/8	
170	1.6	253	94.4	82.5	3/8	3/8	3/8	1/2	11/16	13/16	15/16	
160	1.51	238	89.1	87.4	3/8	3/8	3/8	9/16	11/16	7/8	1	
150	1.43	223	84.4	92.3	3/8	3/8	3/8	9/16	3/4	7/8	1	
135	1.29	201	76.1	102.3	3/8	3/8	3/8	9/16	3/4	15/16	1-1/8	
W33 x 387	3.31	W840 x 576	195.3	39.9	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
354	3.05	527	180.0	43.3	3/8	3/8	3/8	3/8	7/16	1/2	9/16	
318	2.77	473	163.4	47.7	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
291	2.55	433	150.5	51.8	3/8	3/8	3/8	3/8	1/2	9/16	11/16	
263	2.33	392	137.5	56.7	3/8	3/8	3/8	3/8	1/2	5/8	3/4	
241	2.13	359	125.7	62.0	3/8	3/8	3/8	7/16	9/16	11/16	3/4	
221	1.97	329	116.2	67.0	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
201	1.79	299	105.6	73.7	3/8	3/8	3/8	1/2	5/8	3/4	7/8	
169	1.7	251	100.3	77.6	3/8	3/8	3/8	1/2	5/8	13/16	15/16	
152	1.53	226	90.3	86.3	3/8	3/8	3/8	1/2	11/16	7/8	1	
141	1.43	210	84.4	92.3	3/8	3/8	3/8	9/16	3/4	7/8	1	
130	1.32	193	77.9	100.0	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
118	1.21	176	71.4	109.1	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
W30 x 391	3.59	W760 x 582	211.8	36.8	3/8	3/8	3/8	3/8	3/8	7/16	1/2	
357	3.31	531	195.3	39.9	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
326	3.05	484	180.0	43.3	3/8	3/8	3/8	3/8	7/16	1/2	9/16	
292	2.73	434	161.1	48.4	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
261	2.46	389	145.1	53.7	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
235	2.24	350	132.2	58.9	3/8	3/8	3/8	3/8	1/2	5/8	3/4	
211	2.01	314	118.6	65.7	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
191	1.85	284	109.2	71.4	3/8	3/8	3/8	7/16	5/8	3/4	7/8	
173	1.66	257	97.9	79.5	3/8	3/8	3/8	1/2	5/8	13/16	15/16	
148	1.64	220	96.8	80.5	3/8	3/8	3/8	1/2	11/16	13/16	15/16	
132	1.47	196	86.7	89.8	3/8	3/8	3/8	9/16	11/16	7/8	1	
124	1.39	185	82.0	95.0	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
116	1.3	173	76.7	101.5	3/8	3/8	3/8	9/16	3/4	15/16	1-1/8	
108	1.21	161	71.4	109.1	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
99	1.12	147	66.1	117.9	3/8	3/8	7/16	5/8	7/8	1-1/16	1-3/16	
90	1.02	134	60.2	129.4	3/8	3/8	7/16	11/16	7/8	1-1/8	1-5/16	
									2-3/8		3-7/16	
									2-3/8		3-7/16	
W27 x 539	5.08	W690 x 802	299.7	26.0	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
368	3.64	548	214.8	36.3	3/8	3/8	3/8	3/8	3/8	7/16	1/2	

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Desig.	W/D	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	2-1/2 Hour	3-Hour	3-1/2 Hour	4-Hour	
W27 x 336	3.36	W690 x 500	198.2	39.3	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
307	3.11	457	183.5	42.4	3/8	3/8	3/8	3/8	7/16	1/2	9/16	
281	2.86	418	168.7	46.2	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
258	2.64	384	155.8	50.0	3/8	3/8	3/8	3/8	7/16	9/16	11/16	
235	2.43	350	143.4	54.3	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
217	2.26	323	133.3	58.4	3/8	3/8	3/8	3/8	1/2	5/8	3/4	
194	2.03	289	119.8	65.0	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
178	1.87	265	110.3	70.6	3/8	3/8	3/8	7/16	5/8	3/4	7/8	
161	1.7	240	100.3	77.6	3/8	3/8	3/8	1/2	5/8	13/16	15/16	
146	1.55	217	91.5	85.2	3/8	3/8	3/8	1/2	11/16	7/8	1	
129	1.56	192	92.0	84.6	3/8	3/8	3/8	1/2	11/16	7/8	1	
114	1.39	170	82.0	95.0	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
102	1.24	152	73.2	106.5	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
94	1.15	140	67.9	114.8	3/8	3/8	7/16	5/8	13/16	1-1/16	1-3/16	
84	1.03	125	60.8	128.2	3/8	3/8	7/16	11/16	7/8	1-1/8	1-1/4	
W24 x 370	3.98	W610 x 551	234.8	33.2	3/8	3/8	3/8	3/8	3/8	7/16	1/2	
335	3.66	498	215.9	36.1	3/8	3/8	3/8	3/8	3/8	7/16	1/2	
306	3.37	455	198.8	39.2	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
279	3.11	415	183.5	42.4	3/8	3/8	3/8	3/8	7/16	1/2	9/16	
250	2.81	372	165.8	47.0	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
229	2.6	341	153.4	50.8	3/8	3/8	3/8	3/8	1/2	9/16	11/16	
207	2.36	307	139.2	55.9	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
192	2.2	285	129.8	60.0	3/8	3/8	3/8	7/16	9/16	11/16	3/4	
176	2.03	262	119.8	65.0	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
162	1.88	241	110.9	70.2	3/8	3/8	3/8	7/16	5/8	3/4	7/8	
146	1.7	217	100.3	77.6	3/8	3/8	3/8	1/2	5/8	13/16	15/16	
131	1.54	195	90.9	85.7	3/8	3/8	3/8	1/2	11/16	7/8	1	
117	1.38	174	81.4	95.7	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
104	1.24	155	73.2	106.5	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
103	1.4	153	82.6	94.3	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
94	1.28	140	75.5	103.1	3/8	3/8	3/8	9/16	3/4	15/16	1-1/8	
84	1.15	125	67.9	114.8	3/8	3/8	7/16	5/8	13/16	1-1/16	1-3/16	
76	1.05	113	62.0	125.7	3/8	3/8	7/16	11/16	7/8	1-1/8	1-1/4	
68	0.94	101	55.5	140.4	3/8	3/8	1/2	11/16	15/16	1-3/16	1-3/8	
62	0.93	92	54.9	141.9	3/8	3/8	1/2	3/4	15/16	1-3/16	1-3/8	
55	0.82	82	48.4	161.0	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	
W21 x 201	2.5	W530 x 300	147.5	52.8	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
182	2.28	272	134.5	57.9	3/8	3/8	3/8	3/8	1/2	5/8	3/4	

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Desig.	W/D	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	2-1/2 Hour	3-Hour	3-1/2 Hour	4-Hour	
W21 x 166	2.09	W530 x 248	123.3	63.2	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
147	1.87	219	110.3	70.6	3/8	3/8	3/8	7/16	5/8	3/4	7/8	
132	1.68	196	99.1	78.6	3/8	3/8	3/8	1/2	5/8	13/16	15/16	
122	1.57	182	92.6	84.1	3/8	3/8	3/8	1/2	11/16	13/16	15/16	
111	1.43	165	84.4	92.3	3/8	3/8	3/8	9/16	3/4	7/8	1	
101	1.3	150	76.7	101.5	3/8	3/8	3/8	9/16	3/4	15/16	1-1/8	
93	1.4	138	82.6	94.3	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
83	1.26	123	74.3	104.8	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
73	1.11	109	65.5	118.9	3/8	3/8	7/16	5/8	7/8	1-1/16	1-3/16	
68	1.04	101	61.4	126.9	3/8	3/8	7/16	11/16	7/8	1-1/8	1-1/4	
62	0.95	92	56.1	138.9	3/8	3/8	1/2	11/16	15/16	1-3/16	1-5/16	
57	0.95	85	56.1	138.9	3/8	3/8	1/2	11/16	15/16	1-3/16	1-5/16	
55	0.85	82	50.2	155.3	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	
50	0.83	74	49.0	159.0	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	
48	0.75	72	44.3	176.0	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-9/16	
44	0.74	66	43.7	178.4	7/16	7/16	9/16	13/16	1-1/16	1-3/8	1-9/16	
W18 x 175	2.46	W460 x 260	145.1	53.7	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
158	2.24	235	132.2	58.9	3/8	3/8	3/8	3/8	1/2	5/8	3/4	
143	2.05	213	121.0	64.4	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
130	1.88	193	110.9	70.2	3/8	3/8	3/8	7/16	5/8	3/4	7/8	
119	1.72	177	101.5	76.7	3/8	3/8	3/8	1/2	5/8	13/16	7/8	
106	1.55	158	91.5	85.2	3/8	3/8	3/8	1/2	11/16	7/8	1	
97	1.42	144	83.8	93.0	3/8	3/8	3/8	9/16	3/4	7/8	1-1/16	
86	1.27	128	74.9	103.9	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
76	1.13	113	66.7	116.8	3/8	3/8	7/16	5/8	7/8	1-1/16	1-3/16	
71	1.22	106	72.0	108.2	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
65	1.13	97	66.7	116.8	3/8	3/8	7/16	5/8	7/8	1-1/16	1-3/16	
60	1.04	89	61.4	126.9	3/8	3/8	7/16	11/16	7/8	1-1/8	1-1/4	
55	0.96	82	56.6	137.5	3/8	3/8	1/2	11/16	15/16	1-3/16	1-5/16	
50	0.88	74	51.9	150.0	3/8	3/8	1/2	3/4	1	1-1/4	1-3/8	
46	0.87	68	51.3	151.7	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	
40	0.76	60	44.8	173.7	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-1/2	
35	0.67	52	39.5	197.0	7/16	7/16	9/16	7/8	1-1/8	1-7/16	1-5/8	
W16 x 100	1.59	W410 x 149	93.8	83.0	3/8	3/8	3/8	1/2	11/16	13/16	15/16	
89	1.43	132	84.4	92.3	3/8	3/8	3/8	9/16	3/4	7/8	1	
77	1.25	114	73.8	105.6	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
67	1.09	100	64.3	121.1	3/8	3/8	7/16	11/16	7/8	1-1/16	1-1/4	
57	1.09	85	64.3	121.1	3/8	3/8	7/16	11/16	7/8	1-1/16	1-1/4	
50	0.96	74	56.6	137.5	3/8	3/8	1/2	11/16	15/16	1-3/16	1-5/16	
45	0.87	67	51.3	151.7	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	

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Restrained Beam

ASTM												
Desig.	W/D	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	2-1/2 Hour	3-Hour	3-1/2 Hour	4-Hour	
W16 x 40	0.78	W410 x 60	46.0	169.2	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-1/2	
36	0.7	53	41.3	188.6	7/16	7/16	9/16	7/8	1-1/8	1-3/8	1-9/16	
31	0.66	46	38.9	200.0	7/16	7/16	9/16	7/8	1-1/8	1-7/16	1-5/8	
26	0.55	39	32.5	240.0	1/2	1/2	5/8	15/16	1-1/4	1-9/16	1-13/16	
W14 x 808	8.75	W360 x 1202	516.3	15.1	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
730	8.08	1086	476.7	16.3	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
665	7.49	990	441.9	17.6	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
605	6.96	900	410.6	19.0	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
550	6.43	818	379.4	20.5	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
500	5.95	744	351.1	22.2	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
455	5.53	677	326.3	23.9	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
426	5.21	634	307.4	25.3	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
398	4.93	592	290.9	26.8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	
370	4.63	551	273.2	28.5	3/8	3/8	3/8	3/8	3/8	3/8	7/16	
342	4.32	509	254.9	30.6	3/8	3/8	3/8	3/8	3/8	3/8	7/16	
311	3.98	463	234.8	33.2	3/8	3/8	3/8	3/8	3/8	7/16	1/2	
283	3.66	421	215.9	36.1	3/8	3/8	3/8	3/8	3/8	7/16	1/2	
257	3.36	382	198.2	39.3	3/8	3/8	3/8	3/8	3/8	1/2	9/16	
233	3.08	347	181.7	42.9	3/8	3/8	3/8	3/8	7/16	1/2	9/16	
211	2.81	314	165.8	47.0	3/8	3/8	3/8	3/8	7/16	9/16	5/8	
193	2.6	287	153.4	50.8	3/8	3/8	3/8	3/8	1/2	9/16	11/16	
176	2.38	262	140.4	55.5	3/8	3/8	3/8	3/8	1/2	5/8	11/16	
159	2.16	237	127.4	61.1	3/8	3/8	3/8	7/16	9/16	11/16	3/4	
145	1.99	216	117.4	66.3	3/8	3/8	3/8	7/16	9/16	11/16	13/16	
132	1.89	196	111.5	69.8	3/8	3/8	3/8	7/16	5/8	3/4	7/8	
120	1.71	179	100.9	77.2	3/8	3/8	3/8	1/2	5/8	13/16	15/16	
109	1.57	162	92.6	84.1	3/8	3/8	3/8	1/2	11/16	13/16	15/16	
99	1.43	147	84.4	92.3	3/8	3/8	3/8	9/16	3/4	7/8	1	
90	1.31	134	77.3	100.8	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
82	1.45	122	85.6	91.0	3/8	3/8	3/8	9/16	3/4	7/8	1	
74	1.32	110	77.9	100.0	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	
68	1.22	101	72.0	108.2	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
61	1.1	91	64.9	120.0	3/8	3/8	7/16	5/8	7/8	1-1/16	1-1/4	
53	1.06	79	62.5	124.5	3/8	3/8	7/16	11/16	7/8	1-1/16	1-1/4	
48	0.97	72	57.2	136.1	3/8	3/8	1/2	11/16	15/16	1-1/8	1-5/16	
43	0.87	64	51.3	151.7	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	
38	0.8	57	47.2	165.0	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-1/2	
34	0.72	51	42.5	183.3	7/16	7/16	9/16	13/16	1-1/8	1-3/8	1-9/16	
30	0.64	45	37.8	206.3	7/16	7/16	5/8	7/8	1-3/16	1-7/16	1-11/16	
26	0.62	39	36.6	212.9	7/16	7/16	5/8	7/8	1-3/16	1-1/2	1-11/16	
22	0.53	33	31.3	249.1	1/2	1/2	5/8	15/16	1-1/4	1-9/16	1-13/16	

N823

Restrained Beam

All-Fluted Deck
 Normal Weight Concrete
 CAFCO BLAZE-SHIELD II, HP

ASTM												
Desig.	W/D	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	2-1/2 Hour	3-Hour	3-1/2 Hour	4-Hour	
W12 x 336	4.85	W310 x 500	286.2	27.2	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
305	4.49	454	264.9	29.4	3/8	3/8	3/8	3/8	3/8	3/8	3/8	7/16
279	4.19	415	247.2	31.5	3/8	3/8	3/8	3/8	3/8	3/8	3/8	7/16
252	3.84	375	226.6	34.4	3/8	3/8	3/8	3/8	3/8	3/8	7/16	1/2
230	3.55	342	209.5	37.2	3/8	3/8	3/8	3/8	3/8	3/8	7/16	1/2
210	3.27	313	192.9	40.4	3/8	3/8	3/8	3/8	3/8	3/8	1/2	9/16
190	3	283	177.0	44.0	3/8	3/8	3/8	3/8	3/8	7/16	1/2	5/8
170	2.72	253	160.5	48.5	3/8	3/8	3/8	3/8	3/8	7/16	9/16	5/8
152	2.45	225	144.6	53.9	3/8	3/8	3/8	3/8	3/8	1/2	5/8	11/16
136	2.23	202	131.6	59.2	3/8	3/8	3/8	3/8	3/8	1/2	5/8	3/4
120	1.99	179	117.4	66.3	3/8	3/8	3/8	3/8	7/16	9/16	11/16	13/16
106	1.77	158	104.4	74.6	3/8	3/8	3/8	3/8	1/2	5/8	3/4	7/8
96	1.61	143	95.0	82.0	3/8	3/8	3/8	3/8	1/2	11/16	13/16	15/16
87	1.47	129	86.7	89.8	3/8	3/8	3/8	3/8	9/16	11/16	7/8	1
79	1.34	117	79.1	98.5	3/8	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16
72	1.23	107	72.6	107.3	3/8	3/8	7/16	5/8	13/16	1	1	1-1/8
65	1.11	97	65.5	118.9	3/8	3/8	7/16	5/8	7/8	1-1/16	1-3/16	1-3/16
58	1.1	86	64.9	120.0	3/8	3/8	7/16	5/8	7/8	1-1/16	1-1/4	1-1/4
53	1.02	79	60.2	129.4	3/8	3/8	7/16	11/16	7/8	1-1/8	1-5/16	1-5/16
50	1.06	74	62.5	124.5	3/8	3/8	7/16	11/16	7/8	1-1/16	1-1/4	1-1/4
45	0.97	67	57.2	136.1	3/8	3/8	1/2	11/16	15/16	1-1/8	1-5/16	1-5/16
40	0.86	60	50.7	153.5	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	1-7/16
35	0.81	52	47.8	163.0	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	1-7/16
30	0.69	45	40.7	191.3	7/16	7/16	9/16	7/8	1-1/8	1-3/8	1-5/8	1-5/8
26	0.61	39	36.0	216.4	7/16	7/16	5/8	7/8	1-3/16	1-1/2	1-11/16	1-11/16
22	0.62	33	36.6	212.9	7/16	7/16	5/8	7/8	1-3/16	1-1/2	1-11/16	1-11/16
19	0.54	28	31.9	244.4	1/2	1/2	5/8	15/16	1-1/4	1-9/16	1-13/16	1-13/16
16	0.45	24	26.6	293.3	9/16	9/16	11/16	1-1/16	1-3/8	1-11/16	1-15/16	1-15/16
14	0.4	21	23.6	330.0	9/16	9/16	3/4	1-1/16	1-7/16	1-13/16	2-1/16	2-1/16
W10 x 112	2.17	W250 x 167	128.0	60.8	3/8	3/8	3/8	7/16	9/16	11/16	3/4	3/4
100	1.97	149	116.2	67.0	3/8	3/8	3/8	7/16	9/16	11/16	13/16	13/16
88	1.74	131	102.7	75.9	3/8	3/8	3/8	1/2	5/8	13/16	7/8	7/8
77	1.54	115	90.9	85.7	3/8	3/8	3/8	1/2	11/16	7/8	1	1
68	1.38	101	81.4	95.7	3/8	3/8	3/8	9/16	3/4	15/16	1-1/16	1-1/16
60	1.22	89	72.0	108.2	3/8	3/8	7/16	5/8	13/16	1	1-1/8	1-1/8
54	1.11	80	65.5	118.9	3/8	3/8	7/16	5/8	7/8	1-1/16	1-3/16	1-3/16
49	1.01	73	59.6	130.7	3/8	3/8	1/2	11/16	15/16	1-1/8	1-5/16	1-5/16
45	1.06	67	62.5	124.5	3/8	3/8	7/16	11/16	7/8	1-1/16	1-1/4	1-1/4
39	0.92	58	54.3	143.5	3/8	3/8	1/2	3/4	15/16	1-3/16	1-3/8	1-3/8
33	0.78	49	46.0	169.2	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-1/2	1-1/2
30	0.8	45	47.2	165.0	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-1/2	1-1/2

N823
All-Fluted Deck
Normal Weight Concrete
CAFCO BLAZE-SHIELD II, HP

Restrained Beam

ASTM												
Desig.	W/D	Metric Desig.	M/D	Hp/A	1-Hour	1-1/2 Hour	2-Hour	2-1/2 Hour	3-Hour	3-1/2 Hour	4-Hour	
W10 x 26	0.7	W10 x 39	41.3	188.6	7/16	7/16	9/16	7/8	1-1/8	1-3/8	1-9/16	
22	0.6	33	35.4	220.0	1/2	1/2	5/8	15/16	1-3/16	1-1/2	1-3/4	
19	0.6	28	35.4	220.0	1/2	1/2	5/8	15/16	1-3/16	1-1/2	1-3/4	
17	0.54	25	31.9	244.4	1/2	1/2	5/8	15/16	1-1/4	1-9/16	1-13/16	
15	0.48	22	28.3	275.0	1/2	1/2	11/16	1	1-5/16	1-11/16	1-15/16	
12	0.39	18	23.0	338.5	9/16	9/16	3/4	1-1/8	1-7/16	1-13/16	2-1/16	
W8 x 67	1.65	W200 x 100	97.4	80.0	3/8	3/8	3/8	1/2	11/16	13/16	15/16	
58	1.44	86	85.0	91.7	3/8	3/8	3/8	9/16	3/4	7/8	1	
48	1.21	71	71.4	109.1	3/8	3/8	7/16	5/8	13/16	1	1-1/8	
40	1.03	59	60.8	128.2	3/8	3/8	7/16	11/16	7/8	1-1/8	1-1/4	
35	0.9	52	53.1	146.7	3/8	3/8	1/2	3/4	1	1-3/16	1-3/8	
31	0.8	46	47.2	165.0	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-1/2	
28	0.81	42	47.8	163.0	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	
24	0.7	36	41.3	188.6	7/16	7/16	9/16	7/8	1-1/8	1-3/8	1-9/16	
21	0.67	31	39.5	197.0	7/16	7/16	9/16	7/8	1-1/8	1-7/16	1-5/8	
18	0.58	27	34.2	227.6	1/2	1/2	5/8	15/16	1-1/4	1-1/2	1-3/4	
15	0.55	22	32.5	240.0	1/2	1/2	5/8	15/16	1-1/4	1-9/16	1-13/16	
13	0.48	19	28.3	275.0	1/2	1/2	11/16	1	1-5/16	1-11/16	1-15/16	
10	0.37	15	21.8	356.8	9/16	9/16	3/4	1-1/8	1-1/2	1-7/8	2-1/8	
W6 x 25	0.83	W150 x 37	49.0	159.0	3/8	3/8	1/2	3/4	1	1-1/4	1-7/16	
20	0.67	30	39.5	197.0	7/16	7/16	9/16	7/8	1-1/8	1-7/16	1-5/8	
16	0.68	24	40.1	194.1	7/16	7/16	9/16	7/8	1-1/8	1-7/16	1-5/8	
15	0.52	22	30.7	253.8	1/2	1/2	11/16	1	1-5/16	1-5/8	1-13/16	
12	0.52	18	30.7	253.8	1/2	1/2	11/16	1	1-5/16	1-5/8	1-13/16	
9	0.39	14	23.0	338.5	9/16	9/16	3/4	1-1/8	1-7/16	1-13/16	2-1/16	
8.5	0.37	13	21.8	356.8	9/16	9/16	3/4	1-1/8	1-1/2	1-7/8	2-1/8	
W5 x 19	0.77	W130 x 28	45.4	171.4	7/16	7/16	9/16	13/16	1-1/16	1-5/16	1-1/2	
16	0.66	24	38.9	200.0	7/16	7/16	9/16	7/8	1-1/8	1-7/16	1-5/8	
W4 x 13	0.67	W100 x 19	39.5	197.0	7/16	7/16	9/16	7/8	1-1/8	1-7/16	1-5/8	