

PILES

Table 2.7.1 Section properties and allowable loads of prestressed concrete piles

*Wire spiral varies with pile size.
 †Strand pattern may be circular or square.

Size in.	Core Dia. in.	Section Properties ⁽¹⁾						Allowable Concentric Service Load, Tons ⁽²⁾			
		Area in. ²	Weight plf	Moment of Inertia in. ⁴	Section Modulus in. ³	Radius of Gyra- tion in.	Peri- meter (ft.)	f'_c			
								5000	6000	7000	8000
Square Piles											
10	Solid	100	104	833	167	2.89	3.33	73	89	106	122
12	Solid	144	150	1728	288	3.46	4.00	105	129	152	176
14	Solid	196	204	3201	457	4.04	4.67	143	175	208	240
16	Solid	256	267	5461	683	4.62	5.33	187	229	271	314
18	Solid	324	338	8748	972	5.20	6.00	236	290	344	397
20	Solid	400	417	13,333	1333	5.77	6.67	292	358	424	490
20	11"	305	318	12,615	1262	6.43	6.67	222	273	323	373
24	Solid	576	600	27,648	2304	6.93	8.00	420	515	610	705
24	12"	463	482	26,630	2219	7.58	8.00	338	414	491	567
24	14"	422	439	25,762	2147	7.81	8.00	308	377	447	517
24	15"	399	415	25,163	2097	7.94	8.00	291	357	423	488
Octagonal Piles											
10	Solid	83	85	555	111	2.59	2.76	60	74	88	101
12	Solid	119	125	1134	189	3.09	3.31	86	106	126	145
14	Solid	162	169	2105	301	3.60	3.87	118	145	172	198
16	Solid	212	220	3592	449	4.12	4.42	154	189	224	259
18	Solid	268	280	5705	639	4.61	4.97	195	240	284	328
20	Solid	331	345	8770	877	5.15	5.52	241	296	351	405
20	11"	236	245	8050	805	5.84	5.52	172	211	250	289
22	Solid	401	420	12,837	1167	5.66	6.08	292	359	425	491
22	13"	268	280	11,440	1040	6.53	6.08	195	240	283	328
24	Solid	477	495	18,180	1515	6.17	6.63	348	427	506	584
24	15"	300	315	15,696	1308	7.23	6.63	219	268	318	368
Round Piles											
36	26"	487	507	60,007	3334	11.10	9.43	355	436	516	596
48	38"	675	703	158,199	6592	15.31	12.57	493	604	715	827
54	44"	770	802	233,373	8643	17.41	14.14	562	689	816	943

(1) Form dimensions may vary with producers, with corresponding variations in section properties.
 (2) Allowable loads based on $N = A_c (0.33 f'_c - 0.27 f_{pc})$; $f_{pc} = 700$ psi; Check local producer for available concrete strengths.