

PILES

Table 2.7.1 Section properties and allowable service loads of prestressed concrete piles

* 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 Gyration (in.)	Peri- meter (ft)	f'_c			
								5,000	6,000	7,000	8,000
Square Piles											
10	Solid	100	104	833	167	2.89	3.33	73	89	106	122
12	Solid	144	150	1,728	288	3.46	4.00	105	129	152	176
14	Solid	196	204	3,201	457	4.04	4.67	143	175	208	240
16	Solid	256	267	5,461	683	4.62	5.33	187	229	271	314
18	Solid	324	338	8,748	972	5.20	6.00	236	290	344	397
20	Solid	400	417	13,333	1,333	5.77	6.67	292	358	424	490
20	11	305	318	12,615	1,262	6.43	6.67	222	273	323	373
24	Solid	576	600	27,648	2,304	6.93	8.00	420	515	610	705
24	12	463	482	26,630	2,219	7.58	8.00	338	414	491	567
24	14	422	439	25,762	2,147	7.81	8.00	308	377	447	517
24	15	399	415	25,163	2,097	7.94	8.00	291	357	423	488
30	18	646	672	62,347	4,157	9.82	10.00	471	578	685	791
36	18	1,042	1,085	134,815	7,490	11.38	12.00	761	933	1,105	1,276
Octagonal Piles											
10	Solid	83	85	555	111	2.59	2.76	60	74	88	101
12	Solid	119	125	1,134	189	3.09	3.31	86	106	126	145
14	Solid	162	169	2,105	301	3.60	3.87	118	145	172	198
16	Solid	212	220	3,592	449	4.12	4.42	154	189	224	259
18	Solid	268	280	5,705	639	4.61	4.97	195	240	284	328
20	Solid	331	345	8,770	877	5.15	5.52	241	296	351	405
20	11	236	245	8,050	805	5.84	5.52	172	211	250	289
22	Solid	401	420	12,837	1,167	5.66	6.08	292	359	425	491
22	13	268	280	11,440	1,040	6.53	6.08	195	240	283	328
24	Solid	477	495	18,180	1,515	6.17	6.63	348	427	506	584
24	15	300	315	15,696	1,308	7.23	6.63	219	268	318	368
Round Piles											
36	26	487	507	60,007	3,334	11.10	9.43	355	436	516	596
42	32	581	605	101,273	4,823	13.20	11.00	424	520	616	712
54	44	770	802	233,373	8,643	17.41	14.14	562	689	816	943
66	54	1,131	1,178	514,027	15,577	21.32	17.28	826	1,013	1,199	1,386

(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.