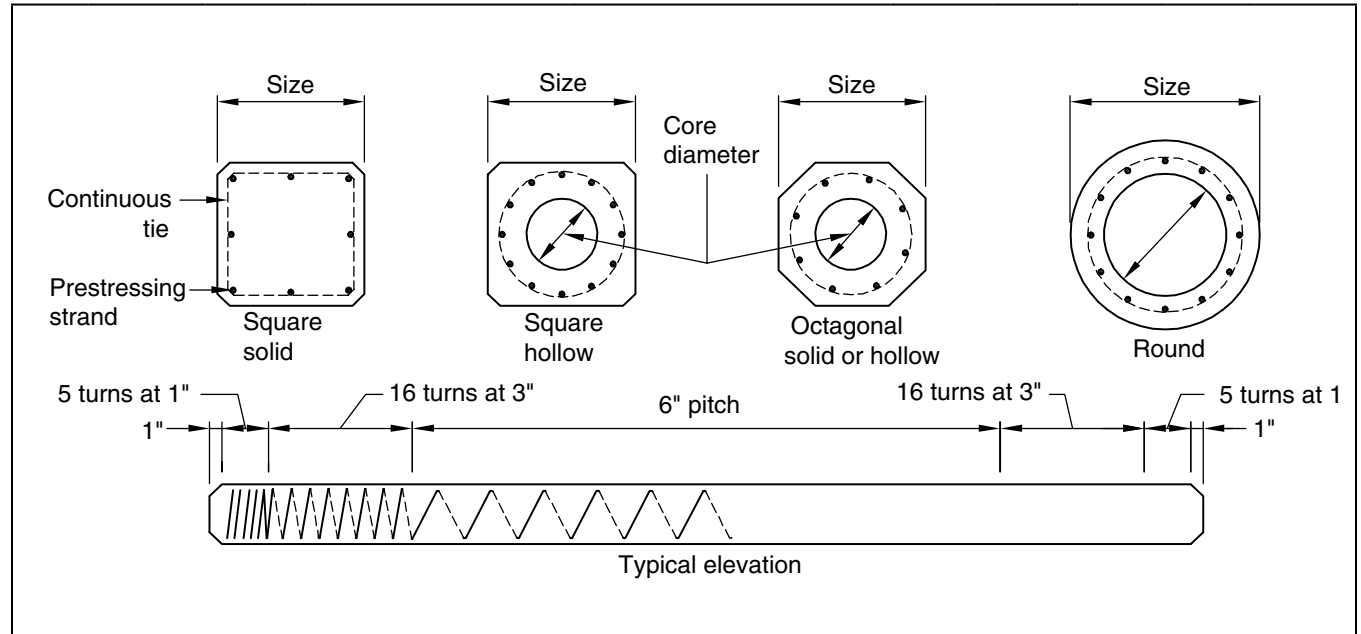


Design Aid 3.12.8 Section Properties^a and Allowable Service Loads for Prestressed Concrete Piles

3



Size, in.	Core diameter in.	Section properties						Allowable concentric service load, tons ^b			
		Area, in. ²	Weight, lb/ft	Moment of inertia, in. ⁴	Section modulus, in. ³	Radius of gyration, in.	Perimeter, in.	f'_c , psi			
								5000	6000	8000	10,000
SQUARE PILES											
12	Solid	144	150	1728	288	3.46	4.00	105	129	176	224
14	Solid	196	204	3201	457	4.04	4.67	143	175	240	305
16	Solid	256	267	5461	683	4.62	5.33	187	229	314	398
18	Solid	324	338	8748	972	5.20	6.00	236	290	397	504
20	Solid	400	417	13,333	1333	5.77	6.67	292	358	490	622
20	11	305	318	12,615	1262	6.43	6.67	222	273	373	474
24	Solid	576	600	27,648	2304	6.93	8.00	420	515	705	896
24	12	463	482	26,630	2219	7.58	8.00	338	414	567	720
24	14	422	439	25,762	2147	7.81	8.00	308	377	517	656
24	15	399	415	25,163	2097	7.94	8.00	291	357	488	621
30	18	646	672	62,347	4157	9.82	10.00	471	578	791	1005
36	18	1042	1085	134,815	7490	11.38	12.00	761	933	1276	1621
OCTAGONAL PILES											
12	Solid	119	125	1134	189	3.09	3.31	86	106	145	185
14	Solid	162	169	2105	301	3.60	3.87	118	145	198	252
16	Solid	212	220	3592	449	4.12	4.42	154	189	259	330
18	Solid	268	280	5705	639	4.61	4.97	195	240	328	417
20	Solid	331	345	8770	877	5.15	5.52	241	296	405	515
20	11	236	245	8050	805	5.84	5.52	172	211	289	367
22	Solid	401	420	12,837	1167	5.66	6.08	292	359	491	624
22	13	268	280	11,440	1040	6.53	6.08	195	240	328	417
24	Solid	477	495	18,180	1515	6.17	6.63	348	427	584	742
24	15	300	315	15,696	1308	7.23	6.63	219	268	368	467
ROUND PILES											
36	26	487	507	60,007	3334	11.10	9.43	355	436	596	758
42	32	581	605	101,273	4823	13.20	11.00	424	520	712	904
48	38	675	703	158,222	6592	15.31	12.57	493	604	827	1050
54	44	770	802	233,373	8643	17.41	14.14	562	689	943	1198
66	54	1131	1178	514,027	15,577	21.32	17.28	826	1013	1386	1759

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