

Maximum Allowable Wind Force at Mid-height, F_a (lbs) & Maximum Axial Force, P_a (lbs) - Square Steel Posts - $F_y = 45$ ksi

Post Size	D_p lbs / ft	Fence Height, h (ft)																		
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1-1/2" x 1-1/2" x 14 Ga	1.3	F_a	258	194	155	129	110	97	86	-	-	-	-	-	-	-	-	-	-	-
		P_a	3,211	1,806	1,156*	802*	589*	451*	356*	-	-	-	-	-	-	-	-	-	-	-
1-1/2" x 1-1/2" x 11 Ga	2.1	F_a	365	273	219	182	156	136	-	-	-	-	-	-	-	-	-	-	-	-
		P_a	4,540	2,553	1,634*	1,135*	833*	638*	-	-	-	-	-	-	-	-	-	-	-	-
2" x 2" x 16 Ga	1.5	F_a	398	298	238	199	170	149	132	119	108	99	-	-	-	-	-	-	-	-
		P_a	5,912	3,719	2,380	1,652	1,214*	929*	734*	595*	491*	413*	-	-	-	-	-	-	-	-
2" x 2" x 14 Ga	1.8	F_a	485	363	291	242	207	181	161	145	132	121	-	-	-	-	-	-	-	-
		P_a	7,256	4,527	2,897	2,012	1,478*	1,131*	894*	724*	598*	503*	-	-	-	-	-	-	-	-
2" x 2" x 11 Ga	2.8	F_a	721	541	432	360	309	270	240	216	196	180	-	-	-	-	-	-	-	-
		P_a	10,984	6,726	4,305	2,989	2,196*	1,681*	1,328*	1,076*	889*	747*	-	-	-	-	-	-	-	-
2" x 2" x 1/4"	5.4	F_a	1,443	1,082	865	721	618	541	481	432	393	-	-	-	-	-	-	-	-	-
		P_a	19,050	11,070	7,085	4,920*	3,614*	2,767*	2,186*	1,771*	1,463*	-	-	-	-	-	-	-	-	-
2-1/2" x 2-1/2" x 14 Ga	2.3	F_a	788	591	473	394	338	295	262	236	215	197	182	169	157	-	-	-	-	-
		P_a	11,527	8,570	5,851	4,063	2,985	2,285*	1,806*	1,462*	1,209*	1,015*	865*	746*	650*	-	-	-	-	-
2-1/2" x 2-1/2" x 11 Ga	3.7	F_a	1,215	911	729	607	520	455	405	364	331	303	280	260	243	-	-	-	-	-
		P_a	18,410	13,484	9,068	6,297	4,626	3,542*	2,799*	2,267*	1,873*	1,574*	1,341*	1,156*	1,007*	-	-	-	-	-
2-1/2" x 2-1/2" x 1/4"	7.1	F_a	2,440	1,830	1,464	1,220	1,045	915	813	732	665	610	563	522	-	-	-	-	-	-
		P_a	33,639	23,591	15,377	10,678	7,845	6,006*	4,746*	3,844*	3,177*	2,669*	2,274*	1,961*	-	-	-	-	-	-
3" x 3" x 12 Ga	3.9	F_a	1,571	1,178	943	785	673	589	523	471	428	392	362	336	314	294	277	261	-	-
		P_a	21,774	17,661	13,493	9,716	7,138	5,465	4,318	3,497*	2,890*	2,429*	2,069*	1,784*	1,554*	1,366*	1,210*	1,079*	-	-
3" x 3" x 11 Ga	4.6	F_a	1,829	1,372	1,097	914	784	686	609	548	498	457	422	392	365	343	322	304	-	-
		P_a	25,630	20,751	15,818	11,366	8,350	6,393	5,051	4,091*	3,381*	2,841*	2,421*	2,087*	1,818*	1,598*	1,415*	1,262*	-	-
3" x 3" x 1/4"	8.8	F_a	3,712	2,784	2,227	1,856	1,591	1,392	1,237	1,113	1,012	928	856	795	742	696	655	-	-	-
		P_a	48,452	38,212	28,160	19,765	14,521	11,118	8,784*	7,115*	5,880*	4,941*	4,210*	3,630*	3,162*	2,779*	2,462*	-	-	-
4" x 4" x 11 Ga	6.2	F_a	3,392	2,544	2,035	1,696	1,453	1,272	1,130	1,017	925	848	782	726	678	636	598	565	535	508
		P_a	39,314	35,016	30,173	25,154	20,287	15,821	12,500	10,125	8,368	7,031	5,991*	5,166*	4,500*	3,955*	3,503*	3,125*	2,804*	2,531*
4" x 4" x 1/4"	12.2	F_a	7,020	5,265	4,212	3,510	3,008	2,632	2,340	2,106	1,914	1,755	1,620	1,504	1,404	1,316	1,238	1,170	1,108	1,053
		P_a	77,166	67,989	57,775	47,351	37,429	28,794	22,751	18,428	15,230	12,797	10,904*	9,402*	8,190*	7,198*	6,376*	5,687*	5,104*	4,607*
6" x 6" x 1/4"	19.0	F_a	16,766	12,574	10,059	8,383	7,185	6,287	5,588	5,029	4,572	4,191	3,869	3,592	3,353	3,143	2,958	2,794	2,647	2,514
		P_a	131,824	124,967	116,671	107,276	97,144	86,636	76,094	65,823	56,075	47,160	40,184	34,648	30,182	26,527	23,498	20,960	18,812*	16,977*
Post Size	D_p lbs / ft	Fence Height, h (ft)																		
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

Notes: (*) Keep $p_a / P_a \leq 0.2$ as KH / r exceeds 200 (-) KH / r exceeds 400 $K = 2.1$ for cantilevers