PLP
COMPOSITE TECHNOLOGIES INC.
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Computerized Composite FLAGPOLE Engineering and Design with Load Calculations Based on Standards Established by The National Association of Architectural Metal Manufacturers (NAAMM) and The American Association of State Highway and Transportation Officials (AASHTO) Year 2001 and Interims, using Appendix C-Alternate Method for Wind Pressures.

TABLE 1

GIVEN INFORMATION

Flagpole name	40C
Height of pole	39 feet
Depth of bury in ground	4 feet
Base diameter	7.242 inches
Tip diameter	3.106 inches
Flag size, hoist x fly	0 feet x 0 feet (polyester fabric)
Wind speed	125 MPH, gust factor 1.3
Material	PLP16, 50 inches wide
Breaking Stress	24000 psi
Modulus of Elasticity	2000000 psi
Wall Th./Inside Dia. ratio	.018

TABLE 2

40C
FLAGPOLE

BENDING MOMENT, STRESS, & DEFLECTION

POLE HEIGHT feet	OUTSIDE DIAMETER inches	INERTIA MOMENT inch^4	SECTION MODULUS inch^3	BENDING MOMENT ft-lbs	STRESS psi	DEFLECTION feet
39.000	3.106	1.420	0.914	0.000	0.000	7.240
38.000	3.126	1.449	0.927	10.471	135.561	6.937
37.000	3.426	3.194	1.865	41.729	268.556	6.635
36.000	3.610	3.504	1.941	93.399	577.373	6.333
35.000	3.810	4.161	2.184	165.104	906.997	6.032
34.000	3.964	4.324	2.182	256.544	1411.160	5.732
33.000	4.118	4.409	2.141	367.471	2059.346	5.435
32.000	4.308	5.078	2.358	497.648	2533.090	5.141
31.000	4.488	5.771	2.572	646.833	3017.921	4.850
30.000	4.602	5.545	2.410	814.812	4057.473	4.563
29.000	4.772	6.206	2.601	1000.563	4616.308	4.282
28.000	4.942	6.917	2.799	1203.068	5157.141	4.006
27.000	5.102	7.635	2.993	1422.156	5702.255	3.737
26.000	5.176	6.935	2.680	1657.685	7423.477	3.474
25.000	5.326	7.573	2.844	1909.547	8058.157	3.220
24.000	5.446	8.110	2.978	2177.627	8773.771	2.975
23.000	5.596	8.817	3.151	2461.804	9374.848	2.740
22.000	5.696	9.310	3.269	2761.963	10138.549	2.515
21.000	5.796	9.822	3.389	3078.010	10898.396	2.300
20.000	5.896	10.352	3.511	3409.861	11653.088	2.097
19.000	6.068	14.734	4.856	3757.423	9284.652	1.904
18.000	6.118	15.113	4.940	4120.596	10008.800	1.722
17.000	6.188	15.653	5.059	4499.353	10671.932	1.550
16.000	6.248	16.127	5.162	4893.790	11375.790	1.387
15.000	6.456	23.752	7.358	5304.160	8650.132	1.235
14.000	6.506	24.331	7.480	5729.152	9191.758	1.092
13.000	6.530	22.615	6.926	6167.326	10684.949	0.958
12.000	6.580	23.157	7.039	6618.755	11284.288	0.833
11.000	6.738	31.414	9.324	7083.584	9116.172	0.718
10.000	6.778	32.002	9.443	7562.017	9609.714	0.611
9.000	6.910	38.440	11.126	8054.243	8687.046	0.513
8.000	6.940	38.968	11.230	8560.431	9147.345	0.422
7.000	6.970	39.502	11.335	9080.692	9613.668	0.340
6.000	6.990	39.860	11.405	9615.085	10116.900	0.265
5.000	7.148	49.833	13.943	10163.723	8747.210	0.199
4.000	7.168	50.277	14.028	10726.787	9175.838	0.141
3.000	7.188	50.724	14.114	11304.389	9611.483	0.091
2.000	7.172	48.035	13.395	11896.545	10657.417	0.048
1.000	7.182	48.248	13.436	12503.263	11167.188	0.015
0.000	7.182	48.248	13.436	13124.540	11722.077	0.000
-1.000	7.182	48.248	13.436	9843.405	8791.558	0.000
-2.000	7.202	48.674	13.517	6562.270	5825.849	0.000
-3.000	7.222	49.103	13.598	3281.135	2895.488	0.000
-4.000	7.242	49.535	13.680	0.000	0.000	0.000

Maximum stress is 11722.08 PSI, located at 0 FT above ground.