

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.....	30C
Height of pole.....	30 feet
Depth of bury in ground.....	3 feet
Base diameter.....	6.668 inches
Tip diameter.....	3.156 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

30C
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
30.000	3.156	1.493	0.946	0.000	0.000	3.794
29.000	3.126	1.449	0.927	9.497	122.942	3.586
28.000	3.150	1.264	0.803	37.989	567.888	3.379
27.000	3.380	1.574	0.931	85.368	1100.057	3.173
26.000	3.580	1.881	1.051	151.343	1728.417	2.969
25.000	3.734	1.746	0.935	235.599	3022.413	2.768
24.000	3.934	2.050	1.042	337.874	3890.190	2.572
23.000	4.124	2.369	1.149	457.908	4782.019	2.382
22.000	4.488	5.771	2.572	595.393	2777.917	2.197
21.000	4.602	5.545	2.410	750.018	3734.821	2.018
20.000	4.772	6.206	2.601	921.565	4251.833	1.843
19.000	4.942	6.917	2.799	1109.866	4757.616	1.673
18.000	5.102	7.635	2.993	1314.750	5271.602	1.509
17.000	5.176	6.935	2.680	1536.075	6878.881	1.352
16.000	5.326	7.573	2.844	1773.734	7485.032	1.202
15.000	5.446	8.110	2.978	2027.610	8169.342	1.061
14.000	5.596	8.817	3.151	2295.979	8743.365	0.929
13.000	5.696	9.310	3.269	2577.134	9460.081	0.806
12.000	5.796	9.822	3.389	2870.999	10165.426	0.693
11.000	5.988	14.142	4.723	3177.493	8072.729	0.590
10.000	6.068	14.734	4.856	3496.526	8639.973	0.496
9.000	6.118	15.113	4.940	3828.034	9298.177	0.410
8.000	6.188	15.653	5.059	4172.008	9895.510	0.334
7.000	6.386	22.958	7.190	4528.597	7557.968	0.266
6.000	6.456	23.752	7.358	4898.072	7987.875	0.206
5.000	6.598	29.412	8.915	5280.677	7107.695	0.153
4.000	6.668	30.402	9.119	5676.625	7470.248	0.107
3.000	6.718	31.123	9.265	6086.086	7882.315	0.068
2.000	6.738	31.414	9.324	6509.156	8376.914	0.035
1.000	6.778	32.002	9.443	6945.900	8826.761	0.011
0.000	6.818	32.598	9.562	7396.391	9281.976	0.000
-1.000	6.848	33.049	9.652	4930.927	6130.306	0.000
-2.000	6.740	24.950	7.404	2465.464	3996.099	0.000
-3.000	6.668	19.713	5.913	0.000	0.000	0.000

Maximum stress is 10165.42 PSI, located at 12 FT above ground.