

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)
6th Edition 2013, using Appendix C-Alternate Method for Wind Pressures.

TABLE 1

GIVEN INFORMATION

Flagpole name.....	V15
Height of pole.....	15 feet
Depth of bury in ground.....	1 feet
Base diameter.....	3.974 inches
Tip diameter.....	2.994 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

V15
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
15.000	2.994	2.447	1.635	0.000	0.000	0.946
14.000	3.018	2.389	1.583	7.451	56.480	0.861
13.000	3.078	2.549	1.656	29.908	216.673	0.777
12.000	3.202	2.739	1.711	67.517	473.530	0.694
11.000	2.924	2.262	1.547	120.317	933.291	0.611
10.000	3.416	3.164	1.853	188.285	1219.655	0.530
9.000	3.600	3.473	1.929	271.180	1686.608	0.452
8.000	3.620	3.535	1.953	368.710	2265.491	0.376
7.000	3.710	3.823	2.061	480.781	2799.322	0.304
6.000	3.780	4.058	2.147	607.312	3394.391	0.237
5.000	3.804	3.796	1.996	748.230	4499.230	0.175
4.000	3.864	3.988	2.064	903.484	5251.860	0.120
3.000	3.884	4.054	2.088	1073.028	6168.150	0.073
2.000	3.904	4.120	2.111	1256.828	7144.931	0.036
1.000	3.924	4.187	2.134	1454.864	8179.918	0.010
0.000	3.954	4.289	2.170	1667.111	9220.333	0.000
-1.000	3.974	4.358	2.193	0.000	0.000	0.000

Maximum stress is 9220.333 PSI, located at 0 FT above ground.