

PLP
COMPOSITE TECHNOLOGIES INC.
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DATE: 02-04-2014

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.....	12 ARCH
Height of pole.....	12 feet
Depth of bury in ground.....	1 feet
Base diameter.....	4.74475 inches
Tip diameter.....	3.152 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

12 ARCH
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
12.000	3.152	2.602	1.651	0.000	0.000	0.196
11.000	3.318	3.077	1.855	7.530	48.726	0.173
10.000	3.438	3.232	1.880	30.024	191.664	0.151
9.000	3.559	3.347	1.881	67.306	429.340	0.128
8.000	3.725	3.873	2.079	119.211	687.996	0.107
7.000	3.845	3.927	2.043	185.567	1090.094	0.087
6.000	4.148	6.736	3.248	266.174	983.485	0.068
5.000	4.267	7.376	3.457	360.809	1252.281	0.050
4.000	4.385	8.056	3.674	469.305	1532.921	0.035
3.000	4.458	7.963	3.572	591.558	1987.127	0.022
2.000	4.577	8.659	3.784	727.480	2307.227	0.011
1.000	4.648	9.095	3.913	876.985	2689.187	0.003
0.000	4.674	8.610	3.685	1040.009	3386.997	0.000
-1.000	4.745	9.032	3.807	0.000	0.000	0.000

Maximum stress is 3386.997 PSI, located at 0 FT above ground.