

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.....	10 ARCH
Height of pole.....	10 feet
Depth of bury in ground.....	1 feet
Base diameter.....	4.64825 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

10 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
10.000	3.152	2.602	1.651	0.000	0.000	0.103
9.000	3.318	3.077	1.855	7.530	48.726	0.088
8.000	3.438	3.232	1.880	30.024	191.664	0.074
7.000	3.559	3.347	1.881	67.306	429.340	0.061
6.000	3.725	3.873	2.079	119.211	687.996	0.048
5.000	4.075	6.735	3.305	185.503	673.491	0.036
4.000	4.148	6.736	3.248	265.922	982.552	0.025
3.000	4.267	7.376	3.457	360.308	1250.543	0.015
2.000	4.385	8.056	3.674	468.556	1530.474	0.008
1.000	4.458	7.963	3.572	590.561	1983.778	0.002
0.000	4.577	8.659	3.784	726.235	2303.278	0.000
-1.000	4.648	9.095	3.913	0.000	0.000	0.000

Maximum stress is 2303.278 PSI, located at 0 FT above ground.