

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.....	V25
Height of pole.....	25 feet
Depth of bury in ground.....	1 feet
Base diameter.....	5.606 inches
Tip diameter.....	3.076 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

V25
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
25.000	3.076	1.377	0.896	0.000	0.000	3.574
24.000	3.126	1.449	0.927	9.533	123.416	3.348
23.000	3.180	1.302	0.819	38.085	558.051	3.122
22.000	3.380	1.574	0.931	85.497	1101.723	2.898
21.000	3.630	1.963	1.082	151.472	1680.318	2.675
20.000	3.814	1.864	0.977	235.662	2893.197	2.456
19.000	3.964	2.098	1.059	337.784	3828.456	2.241
18.000	4.134	2.387	1.155	457.613	4755.079	2.031
17.000	4.304	2.701	1.255	594.934	5688.153	1.829
16.000	4.404	2.898	1.316	749.557	6834.722	1.635
15.000	4.484	3.062	1.366	921.349	8094.961	1.450
14.000	4.604	3.320	1.442	1108.499	9223.277	1.275
13.000	4.724	3.592	1.521	1309.197	10330.955	1.113
12.000	4.972	7.048	2.835	1523.312	6447.515	0.962
11.000	5.042	7.360	2.920	1750.703	7195.834	0.821
10.000	5.082	7.542	2.968	1991.283	8050.213	0.688
9.000	5.142	7.821	3.042	2245.011	8855.477	0.565
8.000	5.182	8.011	3.092	2511.851	9748.519	0.452
7.000	5.206	7.059	2.712	2791.767	12352.729	0.350
6.000	5.276	7.356	2.788	3084.733	13275.109	0.263
5.000	5.444	11.694	4.296	3390.686	9471.088	0.189
4.000	5.494	12.032	4.380	3709.544	10163.330	0.127
3.000	5.534	12.307	4.448	4041.251	10903.643	0.076
2.000	5.584	12.656	4.533	4385.777	11610.438	0.037
1.000	5.644	13.084	4.636	4743.088	12276.120	0.010
0.000	5.684	13.375	4.706	5113.147	13038.098	0.000
-1.000	5.606	8.865	3.163	0.000	0.000	0.000

Maximum stress is 13275.11 PSI, located at 6 FT above ground.