

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.....	25 ADM
Nautical yardarm.....	8 feet long, 15 feet above ground
Gaff.....	6.5 feet long, 15 feet above ground
Height of pole.....	25 feet
Depth of bury in ground.....	4 feet
Base diameter.....	6.41 inches
Tip diameter.....	3.156 inches
Flag size, hoist x fly.....	0 feet x 0 feet (polyester fabric)
Flags, nautical yardarm (2)...	0 feet x 0 feet (polyester fabric)
Flag, gaff.....	0 feet x 0 feet (polyester fabric)
wind speed.....	150 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

25 ADM
FLAGPOLE
with 8 foot nautical yardarm and 6.5 foot gaff

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	3.156	1.493	0.946	0.000	0.000	3.729
24.000	3.126	1.449	0.927	10.789	139.678	3.496
23.000	3.150	1.264	0.803	43.160	645.193	3.264
22.000	3.380	1.574	0.931	96.989	1249.805	3.033
21.000	3.580	1.881	1.051	171.944	1963.701	2.804
20.000	3.734	1.746	0.935	267.671	3433.845	2.579
19.000	3.934	2.050	1.042	383.868	4419.750	2.359
18.000	4.124	2.369	1.149	520.241	5432.981	2.146
17.000	4.304	2.701	1.255	676.506	6468.061	1.940
16.000	4.464	3.021	1.353	852.412	7558.634	1.744
15.000	4.634	3.387	1.462	1047.735	8601.821	1.558
14.000	4.942	6.917	2.799	1502.635	6441.281	1.382
13.000	5.102	7.635	2.993	1972.639	7909.462	1.214
12.000	5.176	6.935	2.680	2457.645	11005.869	1.057
11.000	5.464	11.828	4.329	2957.922	8198.429	0.911
10.000	5.584	12.656	4.533	3474.034	9196.787	0.775
9.000	5.734	13.744	4.794	4006.474	10029.120	0.648
8.000	5.834	14.503	4.972	4555.623	10995.528	0.532
7.000	5.934	15.289	5.153	5121.809	11927.305	0.428
6.000	6.126	20.164	6.583	5705.392	10400.329	0.335
5.000	6.206	20.998	6.767	6306.783	11184.024	0.252
4.000	6.394	28.388	8.880	6926.376	9360.482	0.180
3.000	6.464	29.379	9.090	7564.555	9986.142	0.117
2.000	6.524	30.247	9.273	8221.604	10639.973	0.064
1.000	6.686	36.569	10.939	8897.780	9760.697	0.020
0.000	6.736	37.443	11.117	9593.399	10355.236	0.000
-1.000	6.668	30.402	9.119	7195.050	9468.445	0.000
-2.000	6.488	18.117	5.585	4796.700	10306.410	0.000
-3.000	6.370	11.056	3.471	2398.350	8291.169	0.000
-4.000	6.410	11.269	3.516	0.000	0.000	0.000

Maximum stress is 11927.3 PSI, located at 7 FT above ground.