

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.....	SW25
Height of pole.....	25 feet
Depth of bury in ground.....	3 feet
Base diameter.....	6.056 inches
Tip diameter.....	3.18 inches
Flag size, hoist x fly.....	0 feet x 0 feet (polyester fabric)
Wind speed.....	200 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

SW25
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	3.180	1.302	0.819	0.000	0.000	2.831
24.000	3.380	1.574	0.931	13.026	167.854	2.659
23.000	3.630	1.963	1.082	51.847	575.153	2.487
22.000	3.814	1.864	0.977	115.979	1423.860	2.316
21.000	4.148	4.510	2.175	205.569	1134.316	2.147
20.000	4.318	5.115	2.369	321.812	1629.999	1.980
19.000	4.488	5.771	2.572	466.078	2174.573	1.815
18.000	4.588	6.183	2.695	639.355	2846.679	1.654
17.000	4.622	5.620	2.432	842.299	4156.221	1.496
16.000	4.742	6.086	2.567	1075.378	5027.707	1.343
15.000	4.862	6.576	2.705	1339.230	5940.934	1.197
14.000	4.972	7.048	2.835	1631.428	6905.119	1.058
13.000	5.042	7.360	2.920	1949.386	8012.473	0.927
12.000	5.220	11.246	4.309	2293.662	6387.619	0.806
11.000	5.280	11.656	4.415	2664.884	7242.703	0.692
10.000	5.320	11.935	4.487	3063.494	8193.169	0.586
9.000	5.528	16.842	6.094	3489.940	6872.766	0.489
8.000	5.598	17.526	6.262	3944.907	7560.083	0.400
7.000	5.628	17.825	6.334	4428.885	8390.066	0.320
6.000	5.816	23.475	8.072	4942.288	7346.941	0.247
5.000	5.856	23.994	8.195	5485.692	8033.121	0.183
4.000	5.860	22.815	7.787	6059.453	9338.335	0.127
3.000	6.058	29.387	9.702	6663.888	8242.434	0.080
2.000	6.098	30.014	9.844	7299.570	8898.454	0.042
1.000	6.158	30.971	10.059	7966.936	9504.460	0.013
0.000	6.198	31.620	10.203	8666.247	10192.213	0.000
-1.000	6.248	32.445	10.386	5777.498	6675.595	0.000
-2.000	6.144	25.030	8.148	2888.749	4254.539	0.000
-3.000	6.056	19.452	6.424	0.000	0.000	0.000

Maximum stress is 10192.21 PSI, located at 0 FT above ground.