

PLP  
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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.....	SW35
Height of pole.....	35 feet
Depth of bury in ground.....	4 feet
Base diameter.....	7.09 inches
Tip diameter.....	3.126 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

SW35  
FLAGPOLE

## BENDING MOMENT, STRESS, &amp; DEFLECTION

POLE HEIGHT feet	OUTSIDE DIAMETER inches	INERTIA MOMENT inch <sup>4</sup>	SECTION MODULUS inch <sup>3</sup>	BENDING MOMENT ft-lbs	STRESS psi	DEFLECTION feet
35.000	3.126	1.449	0.927	0.000	0.000	5.277
34.000	3.426	3.194	1.865	14.334	92.248	5.037
33.000	3.610	3.504	1.941	57.032	352.559	4.797
32.000	3.810	4.161	2.184	127.570	700.804	4.557
31.000	3.964	4.324	2.182	225.790	1241.988	4.319
30.000	4.118	4.409	2.141	352.307	1974.366	4.083
29.000	4.308	5.078	2.358	506.918	2580.275	3.849
28.000	4.672	9.244	3.957	689.768	2091.730	3.619
27.000	4.786	9.283	3.879	902.533	2791.885	3.391
26.000	4.956	10.365	4.183	1146.447	3289.086	3.167
25.000	5.080	10.327	4.066	1422.449	4198.191	2.948
24.000	5.240	11.382	4.344	1731.477	4782.808	2.733
23.000	5.360	12.218	4.559	2074.446	5460.157	2.523
22.000	5.464	11.828	4.329	2452.172	6796.648	2.320
21.000	5.584	12.656	4.533	2865.384	7585.513	2.124
20.000	5.734	13.744	4.794	3314.882	8297.907	1.937
19.000	5.834	14.503	4.972	3801.511	9175.390	1.758
18.000	5.934	15.289	5.153	4326.000	10074.081	1.588
17.000	6.126	20.164	6.583	4889.147	8912.402	1.428
16.000	6.206	20.998	6.767	5491.868	9738.909	1.278
15.000	6.394	28.388	8.880	6135.040	8291.050	1.136
14.000	6.464	29.379	9.090	6815.340	8997.087	1.002
13.000	6.524	30.247	9.273	7529.189	9743.886	0.877
12.000	6.686	36.569	10.939	8277.039	9079.756	0.761
11.000	6.736	37.443	11.117	9059.457	9778.892	0.653
10.000	6.806	38.688	11.369	9876.870	10425.194	0.553
9.000	6.948	45.534	13.107	10729.712	9823.368	0.463
8.000	6.968	45.953	13.190	11618.466	10570.563	0.381
7.000	7.238	63.122	17.442	12543.722	8630.075	0.308
6.000	7.416	75.000	20.227	13506.435	8013.097	0.242
5.000	7.538	83.586	22.177	14507.578	7849.976	0.183
4.000	7.568	84.676	22.377	15547.737	8337.594	0.131
3.000	7.588	85.407	22.511	16627.170	8863.424	0.085
2.000	7.608	86.143	22.645	17746.002	9403.749	0.046
1.000	7.628	86.883	22.780	18904.330	9958.332	0.014
0.000	7.648	87.628	22.915	20102.258	10526.948	0.000
-1.000	7.632	84.701	22.196	15076.693	8150.970	0.000
-2.000	7.412	65.799	17.755	10051.129	6793.367	0.000
-3.000	7.182	48.248	13.436	5025.564	4488.542	0.000
-4.000	7.090	41.683	11.758	0.000	0.000	0.000

Maximum stress is 10570.56 PSI, located at 8 FT above ground.