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	14 ARCH
Height of pole	14 feet
Depth of bury in ground	1 feet
Base diameter	4.88725 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

14 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
14.000	3.152	2.602	1.651	0.000	0.000	0.338
13.000	3.318	3.077	1.855	7.530	48.726	0.305
12.000	3.438	3.232	1.880	30.024	191.664	0.271
11.000	3.559	3.347	1.881	67.306	429.340	0.238
10.000	3.725	3.873	2.079	119.211	687.996	0.205
9.000	3.845	3.927	2.043	185.567	1090.094	0.174
8.000	3.964	4.324	2.182	266.224	1464.404	0.144
7.000	4.267	7.376	3.457	361.004	1252.957	0.117
6.000	4.385	8.056	3.674	469.691	1534.184	0.091
5.000	4.458	7.963	3.572	592.136	1989.070	0.067
4.000	4.577	8.659	3.784	728.251	2309.670	0.046
3.000	4.648	9.095	3.913	877.947	2692.136	0.028
2.000	4.674	8.610	3.685	1041.163	3390.754	0.014
1.000	4.745	9.032	3.807	1217.856	3838.457	0.004
0.000	4.816	9.468	3.932	1407.974	4297.012	0.000
-1.000	4.887	9.918	4.059	0.000	0.000	0.000

Maximum stress is 4297.012 PSI, located at 0 FT above ground.