



ALUMINUM STUDS, SET AND SEALED IN HOLES WITH SILICONE ADHESIVE

STUD-MOUNTING DETAIL

HALF-SCALE

Wind Load Calculations on Letters with 5:1 ht/depth ratio			
Size	Wind Face Load lbs. Force	Wind Side Load lbs. Force	Screw Shear Strength lbs. Force
6	13	5	720
10	35	15	960
12	50	20	960
14	68	25	960
18	112	40	960
24	199	70	1440
36	447	150	1920

Assumptions and Facts

The point of failure will be the aluminum screws in shear at the minor thread diameter.

144 mph wind speed is equal to 82.7 lbs./sq. ft. (0.574 lbs./sq.in.)

Tensile trength at break for 3003 Aluminum is 16,000 psi.

Minor thread area in shear of a 10-24 aluminum screw is .015 sq. in. at 2 threads depth.

Therefore, each screw has a holding force in shear of 240 lbs..

Average face area of a sign letter is 0.6 x height squared.

Maximum depth of letters is 1.0" at 6", 1.5" at 12". 2.0" at 18", 2.5" at 24" and 3.0" at 36".

Letter Data					
Height	Face Area	Side Area	Screws	Screw Area	Total Screw
in.	sq.in.	sq.in.	each	psi	sq. in.
6	21.6	7.2	3	0.015	0.045
10	60	20	4	0.015	0.06
12	86.4	28.8	4	0.015	0.06
14	117.6	39.2	4	0.015	0.06
18	194.4	64.8	4	0.015	0.06
24	345.6	115.2	6	0.015	0.09
36	777.6	259.2	8	0.015	0.12

NEOKRAFT

SIGNS

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Custom Sign Fabrication

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PRESENTATION

SACO & BIDDEFORD SAVINGS INSTITUTION 1582.X

LOCATION: COMMERCIAL STREET

PORTLAND, MAINE

DRAWING NO.: 4 OF 5

DRAWN BY: PFAT REP.:MM

DATE: 12.28.2016

QUOTE: @1582

GEN REF.: '09|10564