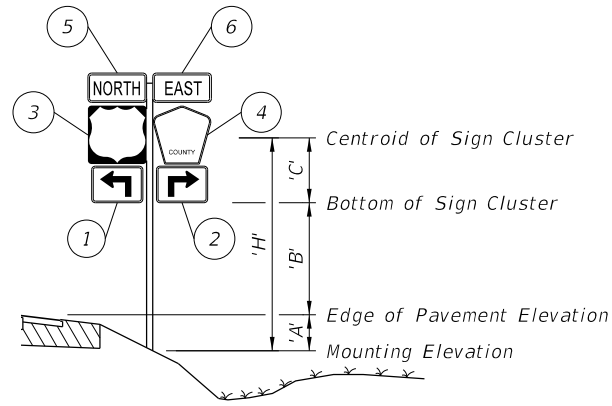


STEP 1: Calculate the area and the centroid for an individual sign or a sign cluster. Note that the centroid and areas have been calculated for frequently used sign clusters. These are shown on Sheet No. 6, 7 & 8 of 9.



Size H x V	Centroid			'A' _n	'X' _n x 'A' _n	'Y' _n x 'A' _n
	Local 'Y' _n	Global 'X' _n	Global 'Y' _n			
(in. x in.)	(in.)	(in.)	(in.)	(in. ²)	(in. ³)	(in. ³)
① 21 x 15	7.5	-10.5-1.5-1.5 = -13.5	7.5	315	-4,252.5	2,362.5
② 21 x 15	7.5	10.5+1.5+1.5 = 13.5	7.5	315	+4,252.5	2,362.5
③ 24 x 24	12	-12-1.5 = -13.5	15+1+12= 28	576	-7,776	16,128
④ 24 x 24	12	12+1.5 = 13.5	15+1+12= 28	436	5,886	12,208
⑤ 24 x 12	6	-12-1.5 = -13.5	15+1+24+ 1+6=47	288	-3,888	13,536
⑥ 24 x 12	6	12+1.5 = 13.5	15+1+24+ 1+6=47	288	3,888	13,536
TOTALS				2,218	-1,890	60,133

$$\Sigma ('A'_n) = 2,218 \text{ in.}^2 = 15.4 \text{ ft.}^2 \quad \Sigma ('X'_n \times 'A'_n) = -1,890 \text{ in.}^3 = -1.09 \text{ ft.}^3 \quad \Sigma ('Y'_n \times 'A'_n) = 60,133 \text{ in.}^3 = 34.8 \text{ ft.}^3$$

$$'X'_c = \frac{\Sigma ('X'_n \times 'A'_n)}{\Sigma 'A'_n} = -0.1 \text{ ft.} \quad 'Y'_c = \frac{\Sigma ('Y'_n \times 'A'_n)}{\Sigma 'A'_n} = 2.26 \text{ ft.}$$

STEP 2: Determine the height 'H' from groundline for the individual sign or the cluster.

Assume: Bay County, Wind Speed = 130 mph, 'A' = 1 ft., 'B' = 7 ft.

Calculated: X_c = -0.1 ft., Y_c = 'C' 2.26 ft.

Since X_c = -0.1 < 6", it is not a cantilever sign, only dark-bold lines in the table will be referenced to.

'H' = 'A' + 'B' + 'C' = 10.26 ft. ==> **USE 11 ft.** Σ ('A'_n) = 15.4 ft.² ==> **USE 16 ft.²**

STEP 3: Select the appropriate Aluminum Column (Post) Selection Tables by Wind Speed and find the intersection point. See Sheet 3.

TOTAL PANEL AREA (SF)	'H' (ft.)												
	8	9	10	11	12	13	14	15	16	17	18	19	20
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													

For WIND SPEED = 130 MPH,
'H' = 11 ft., Area = 16 ft.²

- Refer to the 130 mph Aluminum Column (Post) Selection Table, as copied from Sheet 3 and shown here.

- Using the 16 ft.² area on the left hand side of the table, go across to the 11 ft. height and find the cell marked with X.

- find the symbol ④ which the dark-bold line under the X cell leads to.

- In the Column (Post) and Foundation Table, the symbol ④ concludes that the design requires a 4.0" diameter and 0.25" thick Aluminum Column (Post) and a 2.0' diameter and 4.0' deep Concrete Foundation.

▨ = If CANTILEVER SIGN configuration (see Cantilever Sign Details) falls in this region, use next larger Column (Post) size than that indicated.

Note #10 Missing

STEP 4: Design the Column (Post) and the foundation according to the dark-bold lines or shaded area (if cantilever sign) in the Aluminum Column (Post) Selection Tables and Column (Post) and Foundation Table. For sign assemblies with signs oriented in two directions, only the sign with the largest area should be analyzed to determine the Column (Post) requirements.

SHEET NO.	CONTENTS
1	General Notes and Example
2	Centroid and Height
3	Column and Foundation Tables
4	Slip Base and Foundation Details
5	Driven Post and Soil Plate Details
6	Connection and Wind Beam
7, 8 & 9	Frequently Used Sign Clusters

GENERAL NOTES:

- Design Wind Speed is determined by County (see WIND SPEEDS BY COUNTY)
- Maximum sign area (single or cluster) is 30 sf.
- Maximum sign width (X) single or cluster (including rotated sign panels) is 60 inches.
- Shop drawings: Not required.
- Aluminum Sign, Wind Beams and Column (Post) Materials:
 - Aluminum Plates: ASTM B209, Alloy 6061-T6
 - Aluminum Bars and Extruded Shapes: ASTM B221, Alloy 6061-T6
 - Aluminum Structural Shapes: ASTM B308 Alloy 6061-T6
 - Cast Aluminum: Alloy 356-T6
 - Aluminum Weld Material: ER 5556
- Sign Mounting Bolts (Screws), Nuts and Washers:
 - Aluminum Button Head and Flat Head Bolts (Screws): ASTM F 468 Alloy 2024-T4
 - Aluminum Hex Nuts: ASTM F467 Alloy 6061-T6 or 6262-T9
 - Aluminum Washers: ASTM B221, Alloy 7075-T6
 - Galvanized Steel U-Bolts: ASTM A 307 Grade A
 - Galvanized Hex Nuts: ASTM A 563
- Stainless Steel Bolts, Nuts and Washers may be used in lieu of the Aluminum button head and flat head Bolts (Screws) as follows:
 - Stainless Steel Bolts (Screws): ASTM F 593 Alloy Group 2, Condition A, CW1 or SH1
 - Stainless Steel Nuts: ASTM F594
- Sign Column (Post) Bolts, Nuts and Washers:
 - Galvanized Bolts (Sleeve): ASTM A307 with Galvanized Hex Nuts and Washers
 - Aluminum Bolts (Sleeve): ASTM B221, Alloy 6061-T6 or 2024-T4 with Hex Nuts and Washers.
 - Galvanized High Strength Hex Head Bolts (BaseBolts): ASTM A325 Type 1
 - Galvanized Hex Nuts: ASTM A563 Grade DH
 - Galvanized Washers: ASTM F436
- Coatings:
 - Aluminum Fasteners: Anodic coating (0.0002 inches min.) and chromate sealed
 - High Strength Steel Bolts Nuts and Washers: ASTM F2329
 - All other steel items (excluding stainless steel): Hot-dip Galvanize - ASTM A123
 - Repair damaged galvanizing in accordance with Specification Section 562

GUIDE TO USE THIS STANDARD

NOTES AND EXAMPLE

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LAST REVISION 07/01/15	DESCRIPTION:	FY 2016-17 DESIGN STANDARDS	SINGLE COLUMN GROUND SIGNS	INDEX NO. 11860	SHEET NO. 1 of 9
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