

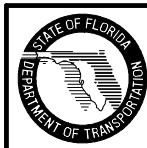
Sign Identification Number	SIGN			TYPE OF SIGN BRACKET				Sign Identification Number	SIGN			TYPE OF SIGN BRACKET				Sign Identification Number	SIGN			TYPE OF SIGN BRACKET			
	PROFILE	SIZE	SQ. FT.	WIND ZONE					PROFILE	SIZE	SQ. FT.	WIND ZONE					PROFILE	SIZE	SQ. FT.	WIND ZONE			
				60	70	80	90					60	70	80	90					60	70	80	90
1		24 x 24	1.7	2-I	2-I	2-I	2-I	30		15 x 30 24 x 30	8.1	1-I	1-I	1-I	1-I	55		30 x 24	5.0	2-I	2-I	2-I	2-I
2		30 x 30	2.7	2-I	2-I	2-I	2-I	31		15 x 21 36 x 30	9.7	1-I	1-I	1-I	1-I	56		36 x 48	5.6	2-II	2-II	2-II	2-II
3		36 x 36	3.9	2-I	2-I	2-I	2-I	32		15 x 30 36 x 30	10.6	1-I	1-I	1-I	1-I	57		24 x 36	6.0	2-I	2-I	2-I	2-I
4		48 x 48	6.9	1-II & 1-I	1-II & 1-I	1-II & 1-I	1-II & 1-I	33		12 x 24 24 x 24 15 x 21	8.2	1-I	1-I	1-I	1-I	58		36 x 24	6.0	2-I	2-I	2-I	2-I
5		60 x 60	10.8	DO NOT USE SINGLE COLUMN				34		15 x 30 24 x 24 15 x 21	9.3	1-I	1-I	1-I	1-I	59		30 x 30	6.3	2-I	2-I	2-I	2-I
6		36 Ø	7.1	2-I	2-I	2-I	2-I	35		12 x 24 24 x 30 15 x 21	9.2	1-I	1-I	1-I	1-I	60		30 x 30	6.3	2-I	2-I	2-I	3-I
7		48 Ø	12.6	2-II	2-II	2-II	2-II	36		15 x 30 24 x 30 15 x 21	10.3	1-I	1-I	1-I	1-I	61		36 x 36	6.75	2-I	2-I	2-I	2-I
8		18 x 18	1.9	2-I	2-I	2-I	2-I	37		12 x 24, 12 x 24 24 x 24, 24 x 24 15 x 21	13.6	1-II	1-II	1-II	1-II	62		30 x 36	7.5	2-I	2-I	2-I	2-I
9		24 x 24	3.3	2-I	2-I	2-I	2-I	38		12 x 24, 12 x 24 24 x 24, 24 x 24 15 x 21, 15 x 21	15.2	1-II	1-II	1-II	1-II	63		36 x 30	7.5	2-I	2-I	2-I	2-I
10		30 x 30	5.2	2-I	2-I	2-I	2-I	39		12 x 24, 12 x 24 24 x 24, 24 x 24 15 x 21, 15 x 21	16.4	1-II	1-II	1-II	1-II	64		24 x 48	8.0	2-II	2-II	2-II	2-II
11		36 x 36	7.5	2-I	2-I	2-I	2-I	40		15 x 30, 15 x 30 24 x 30, 24 x 30 15 x 21, 15 x 21	19.2	DO NOT USE SINGLE COLUMN				65		12 x 36 30 x 30	8.2	1-I	1-I	1-I	1-I
12		48 x 48	13.3	2-II	2-II	2-II	2-II	41		12 x 24, 12 x 24 12 x 24, 12 x 24 24 x 24, 24 x 24 15 x 21, 15 x 21	20.4	1-II	1-II	1-II	1-II	66		30 x 42	8.8	2-I	2-I	2-II	2-II
13		12 x 24 24 x 24	5.4	1-I	1-I	1-I	1-I	42		15 x 21 24 x 24 12 x 24, 12 x 24 24 x 24, 24 x 24 15 x 21, 15 x 21	22.6	1-I	1-I	1-I	1-I	67		36 x 36	9.0	2-I	2-I	2-I	2-I
14		15 x 30 24 x 24	6.5	1-I	1-I	1-I	1-I	43		12 x 24 24 x 30 15 x 21 12 x 24, 12 x 24 24 x 24, 24 x 24 15 x 21, 15 x 21	25.6	DO NOT USE SINGLE COLUMN				68		36 x 36	9.0	2-I & 1-II	2-I & 1-II	2-I & 1-II	2-I & 1-II
15		12 x 24 24 x 30	6.3	1-I	1-I	1-I	1-I	44		18 x 12	1.5	1-I	1-I	1-I	1-I	69		12 x 36 30 x 30	9.3	1-I	1-I	1-I	1-I
16		15 x 30 24 x 30	7.4	1-I	1-I	1-I	1-I	45		12 x 36	3.0	1-I	1-I	1-I	1-I	70		30 x 30 18 x 24	9.3	2-I	2-I	2-I	3-I
17		15 x 30 36 x 36	10.8	1-I	1-I	1-I	1-I	46		18 x 24	3.0	2-I	2-I	2-I	2-I	71		48 x 64	9.9	DO NOT USE SINGLE COLUMN			
18		15 x 30 36 x 45	12.6	1-I	1-I	1-I	1-I	47		24 x 18	3.0	2-I	2-I	2-I	2-I	72		30 x 48	10.0	2-II	2-II	2-II	2-II
19		15 x 30 48 x 48	16.7	1-I	1-I	1-I	1-I	48		18 x 18 9 x 12	3.0	2-I	2-I	2-I	2-I	73		12 x 36 36 x 36	10.5	1-I	1-I	1-I	1-I
20		15 x 30 48 x 60	20.1	DO NOT USE SINGLE COLUMN				49		18 x 30	3.8	2-I	2-I	2-I	2-I	74		30 x 54	11.3	DO NOT USE SINGLE COLUMN			
21		12 x 24 24 x 24 15 x 21	7.6	1-I	1-I	1-I	1-I	50		30 x 40	3.9	2-I	2-I	2-I	2-I	75		36 x 48	12.0	2-II	2-II	2-II	2-II
22		15 x 30 24 x 24 15 x 21	8.7	1-I	1-I	1-I	1-I	51		24 x 24	4.0	2-I	2-I	2-I	2-I	76		48 x 36	12.0	2-I	2-I	2-I	2-I
23		12 x 24 24 x 30 15 x 21	8.5	1-I	1-I	1-I	1-I	52		24 x 24	4.0	2-I	2-I	2-I	2-I	77		36 x 36 18 x 24	12.0	2-I & 1-II	2-I & 1-II	2-I & 1-II	2-I & 1-II
24		15 x 30 24 x 30 15 x 21	9.6	1-I	1-I	1-I	1-I	53		18 x 36	4.5	2-I	2-I	2-I	2-I	78		48 x 48	12.0	1-I & 1-II	1-I & 1-II	1-I & 1-II	1-I & 1-II
25		12 x 24 24 x 24	6.0	1-I	1-I	1-I	1-I	54		30 x 30	4.7	2-I	2-I	2-I	2-I	79		30 x 60	12.5	DO NOT USE SINGLE COLUMN			
26		24 x 24 15 x 21	6.2	2-I	2-I	2-I	2-I							80		48 x 48	16.0	2-II	2-II	2-II	2-II		
27		15 x 30 24 x 24	7.1	1-I	1-I	1-I	1-I							81		48 x 48	16.0	2-I & 1-II	2-I & 1-II	2-I & 1-II	2-I & 1-II		
28		12 x 24 24 x 30	7.0	1-I	1-I	1-I	1-I							82		30 x 78	16.3	DO NOT USE SINGLE COLUMN					
29		24 x 30 15 x 21	7.2	2-I	2-I	2-I	2-I							83		30 x 84	17.5	DO NOT USE SINGLE COLUMN					

NOTE:

The Gore Exit Panel (E5-1a) detailed in the Standard Highway Signs Manual 2002 edition, Sign Identification Number 88, can be installed on a single column with the following stipulations:

1. Maximum height to bottom of sign is 14'.
2. Column size is 6" aluminum round tube with 1/4" wall.
3. 3 Type II Brackets required for attachment.
4. For Type II Bracket details, Attachment and General Notes see sheet 3 of 4.
5. Footing shall be 2'-0" Ø x 5'-0" deep.
6. For Slip Base Details, see sheet 4 of 4.

Sign size is in inches unless otherwise specified.



GENERAL NOTES

DESIGN SPECIFICATIONS : Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, AASHTO 1994.

ALUMINUM : Except as noted below, Aluminum Materials shall meet the requirements of Aluminum Association Alloy 6061-T6 (ASTM B209, B221, or B308).

1. Permitted Alternate for Sheets and Plates--- Alloy 5154-H38 (ASTM-B209)

CONCRETE : All concrete shall be Class I (Special), the specified compressive strength at 28 days (f'c) shall be 3 ksi min.

SIGN PANELS : Sign Panels shall be 0.08 inches min. thick Aluminum Plate with all corners rounded. See sign layout sheet. Panels are to be degreased, etched, neutralized and treated with Alodine I200, Irdine I4-2, Bonderite 721 or equal. No stenciling permitted on panels.

ALUMINUM BOLTS, NUTS & LOCKWASHERS : Aluminum bolts shall meet the requirements of ASTM F468, Alloy 2024-T4.

The Bolts shall have an Anodic Coating of at least 0.0002 inches thick and be chromate sealed. Lockwashers shall meet the requirements of Aluminum Association Alloy 7075-T6 (ASTM B221). Nuts shall meet the requirements of ASTM F-467, Alloy 6061-T6 or 6262-T9.

STAINLESS STEEL BOLTS, NUTS AND LOCKWASHERS : Stainless Steel Bolts, Nuts and Lockwashers conforming to ASTM F593 Alloy Group 2 Condition A, CW2, or SH4 may be provided in lieu of Aluminum Bolts, Nuts and Washers.

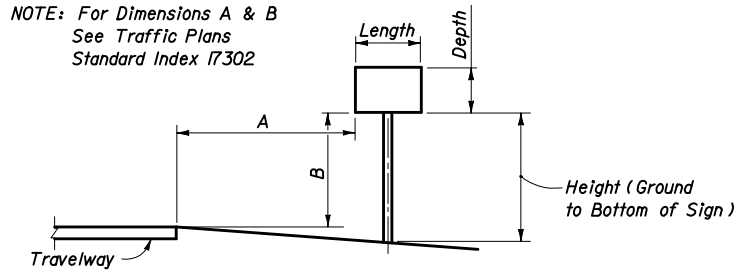
U-BOLTS, NUTS & LOCKWASHERS : U-Bolts, Nuts and Lockwashers shall meet the requirements of ASTM A307, Grade A and shall be galvanized in accordance with ASTM A153.

INSTALLING FRANGIBLE COLUMN SUPPORTS : Columns (Posts) may be installed by driving the columns in accordance with Index Nos. 11861 thru 11865, or as an alternate method the contractor may set the columns (Posts) to the depth indicated in preformed holes backfilled with suitable material tamped in layers not thicker than 6" to provide adequate compaction.

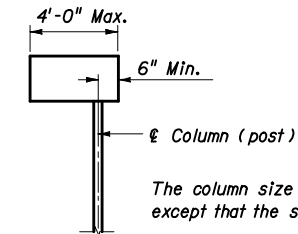
SHOP DRAWINGS : When Type C ground sign supports are furnished and fabricated in accordance with these plans, shop drawings will NOT be required for approval by the Engineer.

HOW TO USE THIS TABLE : Select the appropriate Sign Profile and Size to determine the Sign Identification Number. If the exact Sign Size of all Components are not listed, select the appropriate profile and larger Component Sizes. This table also gives the Quantity and Type of Sign Brackets required for each Sign for each Wind Zone. Where the Sign Size is given as a Vertical and Horizontal Dimension, the Vertical Dimension (Depth) is given first and the Horizontal Dimension (Length) is given last. For Column Sizes, Heights and Footings see appropriate (Wind Zone or Height =14' Max.) sheets titled "Column Sizes, Column Heights and Footings " Index Numbers 11861 thru 11865. No Shop or Field Splice is allowed in Sign Panels. All Panels shall be furnished in one piece.

NOTE: For Dimensions A & B
See Traffic Plans
Standard Index 17302



TYPICAL SECTION



Note: All cantilever sign installations shall comply with standard Index 17302. The sign shall be supported by an aluminum round column with concrete footing and breakaway support. All sign brackets shall be Type II.

CANTILEVER SIGN

WIND SPEEDS BY COUNTY

ZONE NO. 1 (60 mph)

Alachua, Baker, Bradford, Calhoun, Clay, Columbia, Gadsden, Gilchrist, Hamilton, Holmes, Jackson, Jefferson, Lafayette, Lake, Leon, Liberty, Madison, Marion, Putnam, Sumter, Suwannee, Union and Washington Counties.

ZONE NO. 2 (70 mph)

Bay, Citrus, DeSoto, Dixie, Duval, Escambia, Flagler, Franklin, Glades, Gulf, Hardee, Hendry, Hernando, Highlands, Hillsborough, Levy, Nassau, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Polk, Santa Rosa, Seminole, St. Johns, Taylor, Wakulla, and Walton Counties.

ZONE NO. 3 (80 mph)

Brevard, Charlotte, Collier, Indian River, Lee, Manatee, Martin, Palm Beach, Sarasota, St. Lucie, and Volusia Counties.

ZONE NO. 4 (90 mph)

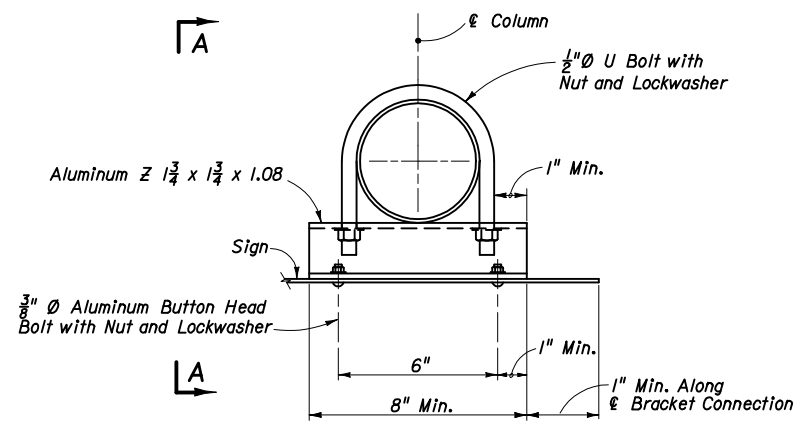
Broward, Dade, and Monroe Counties



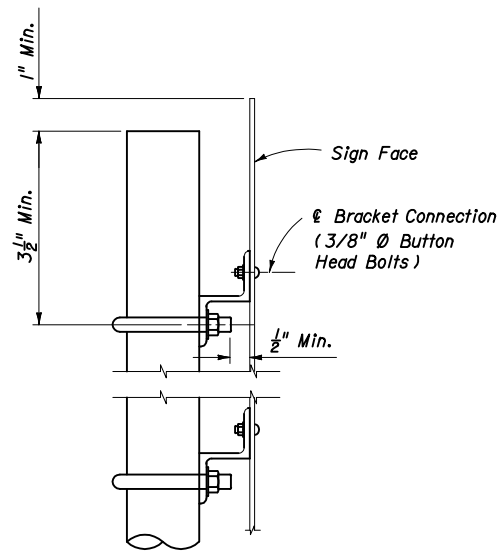
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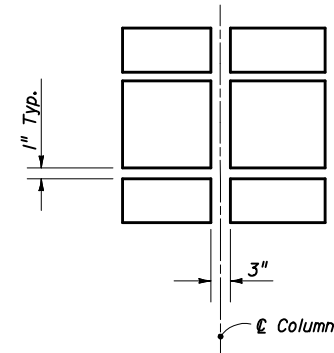


TYPE I BRACKET

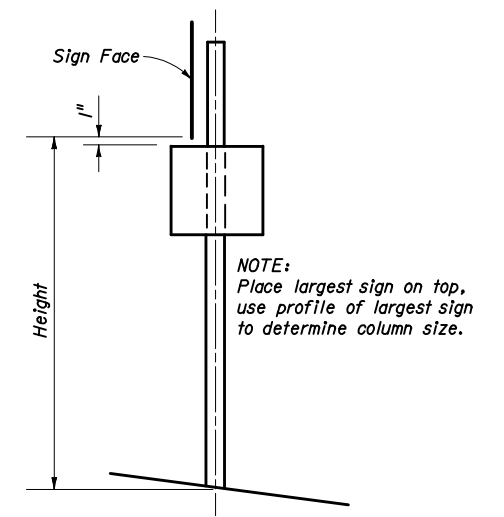


VIEW AA

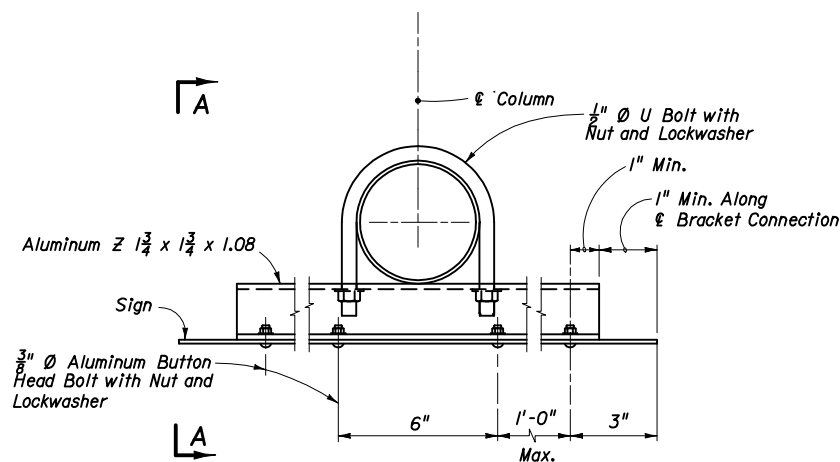
NOTE: Use profile of largest sign and height to bottom of largest sign to determine column size.



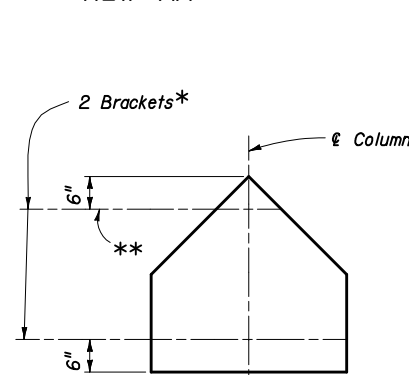
SIGN CLEARANCE



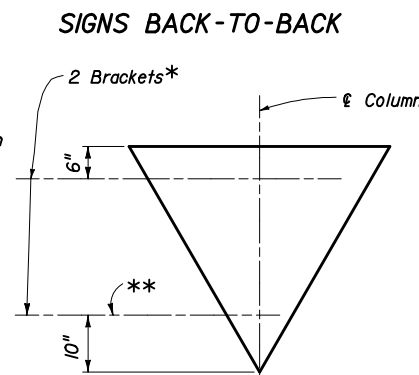
SIGNS AT 90°



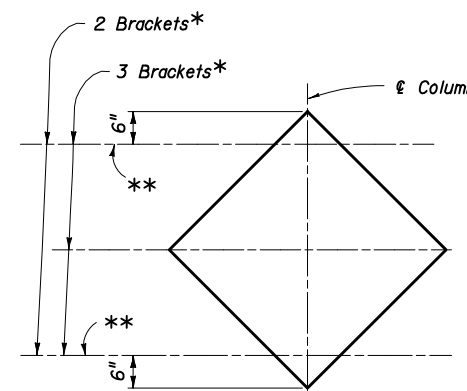
TYPE II BRACKET (SINGLE SIGN)



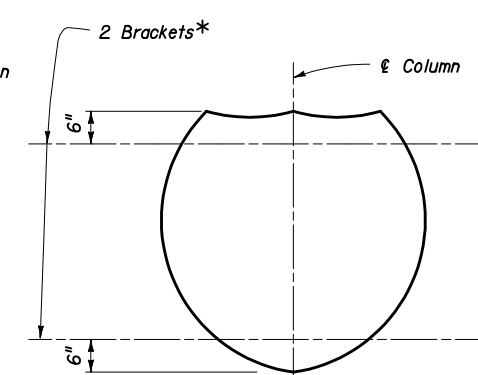
SCHOOL



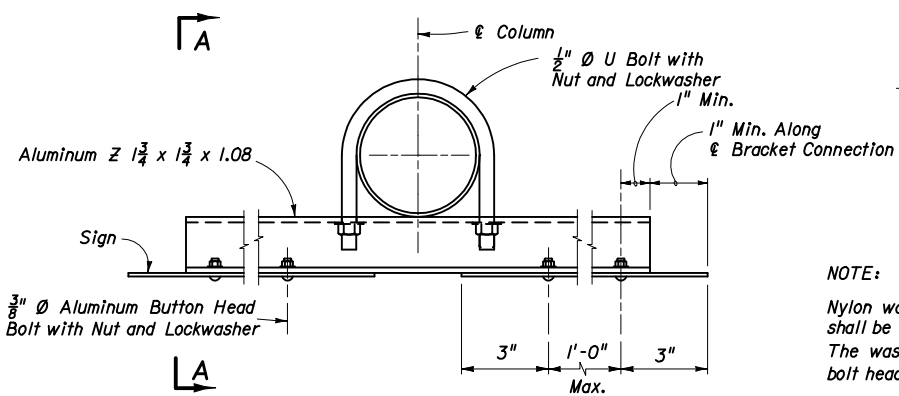
YIELD



DIAMOND



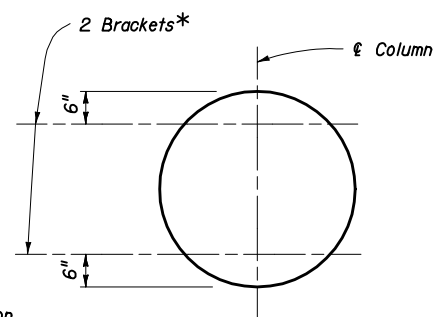
SHIELD



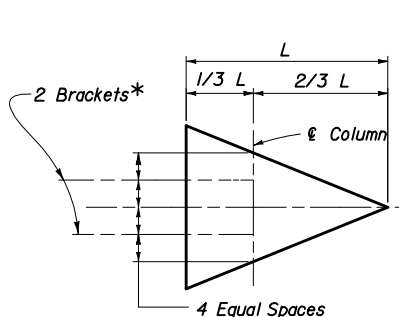
TYPE II BRACKET (DOUBLE SIGNS)

NOTE: $\frac{5}{16}$ " \varnothing Stainless Steel Hex Head Bolts with Flat Washer under Head and Lockwasher under Nut may be used in lieu of $\frac{3}{8}$ " \varnothing Aluminum Button Head Bolts.

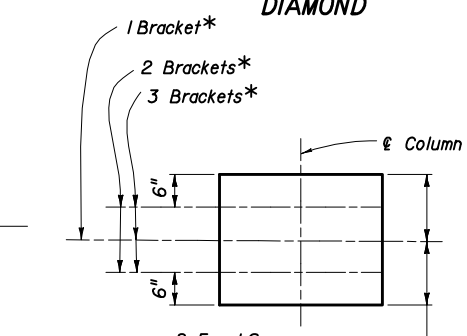
NOTE: Nylon washers provided by the sheeting supplier shall be used on all ground mounted signs. The washers shall be installed under the sign bolt head to protect the sheeting.



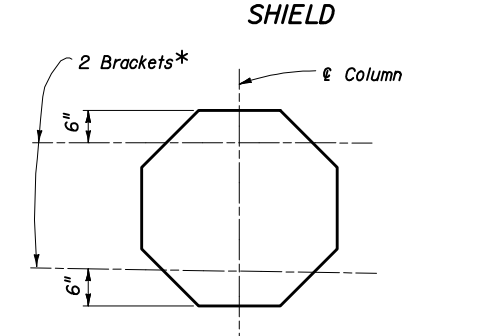
RAILROAD



PENNANT



RECTANGLE



STOP

BRACKET LOCATIONS (SEE VIEW AA)

* NOTE: The above Bracket locations apply at the \varnothing of Bracket-Sign Connection (3/8" \varnothing Button Head Bolts). See View AA. The locations also apply at Double Signs configurations. When installing back-to-back signs the topmost bracket location of one of the signs will require adjustment as shown on the above detail.

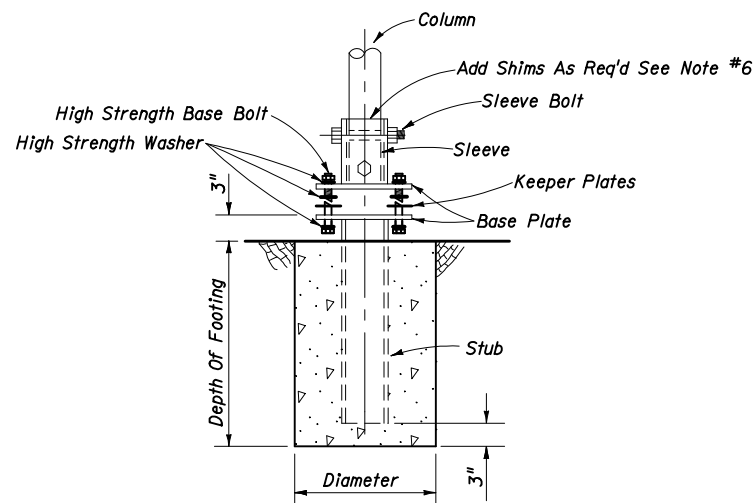
** NOTE: Use Type I Bracket at the apex location (always).



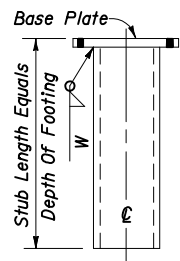
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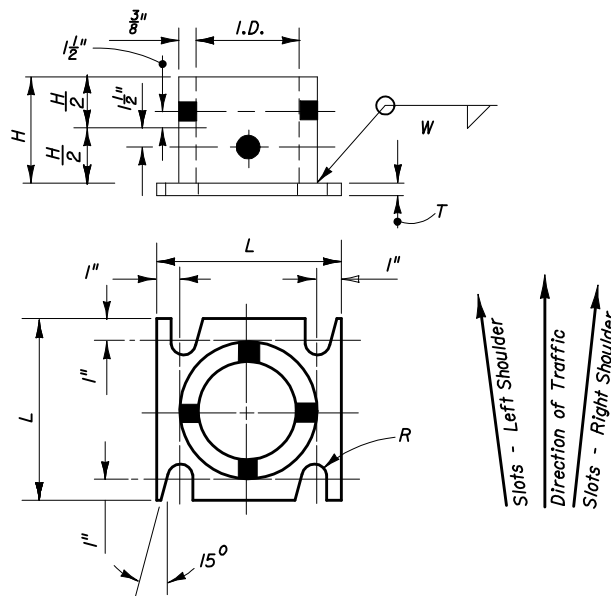
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SLIP BASE AND FOOTING DETAIL

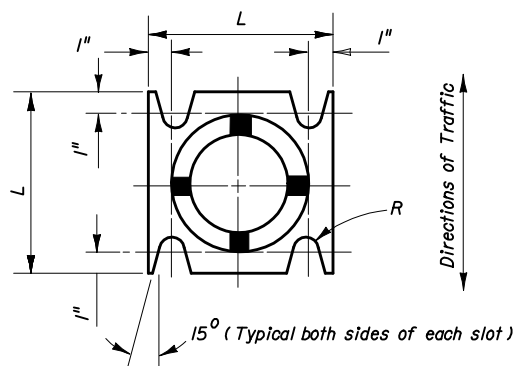


Stub Size Equals Min. Sleeve Size Or Longer
STUB DETAIL



SLEEVE & BASE PLATE DETAILS (SINGLE BEVELED SLOT)

(Right Shoulder Shown)
For Left Shoulder, Plate Slot Bevels are opposite hand from that shown.



SLEEVE & BASE PLATE DETAILS (DOUBLE BEVELED SLOTS)

(Right Shoulder Shown)
For Left Shoulder, Plate Slot Bevels are opposite hand from that shown.

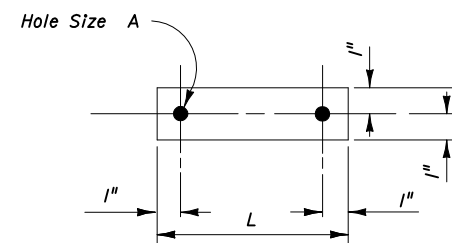
SLIP BASE NOTES :

1. The Inside Diameter (I.D.) of the sleeve shall be no more than $\frac{1}{16}$ " larger than the Outside Diameter (O.D.) of the Column.
2. The sleeve bolts shall be $\frac{1}{2}$ " \emptyset with locknuts. The bolts shall be galvanized steel (ASTM A-307) or Aluminum Association Alloy 2024-T4 or 6061-T6 (ASTM B-211).
3. The base bolts, nuts and washers shall be high strength ASTM A-325 and shall have an electroplated zinc coating SC3, Type II applied in accordance with ASTM B633.
4. An alternate cast base of aluminum alloy 356 and T6 temper in lieu of the fabricated base may be submitted for approval by the Engineer. If a cast base is used the stub will be the same as the column and will be bolted to the casting.
5. Assemble the slip base connection in the following manner :
Connect column to sleeve using two (2) $\frac{1}{2}$ " \emptyset machine bolts.
Assemble top base plate to stub base plate using high strength bolts with three (3) hardened washers per bolt. One (1) washer per bolt and two (2) bolt keeper plates go between the base plates.
Use shim stock as required to plumb the column.
Tighten all bolts the maximum possible with a 12" to 15" wrench to bed the washers and shims and to clear the bolt threads. Loosen each bolt one (1) turn and retighten to the prescribed torque (see table). Bolts shall be tightened with properly calibrated wrenches under the supervision of the project engineer.
Burr threads at junction with nut using a center punch to prevent nut loosening.
6. Use galvanized steel shims to obtain a tight fit between the column face and the sleeve. Place shims in all quadrants between the $\frac{1}{2}$ " \emptyset sleeve bolts. The shim length shall be 1" shorter than the height of the sleeve.
7. Base plates may be either fabrications or castings and may have either single or double beveled slots.
8. Both fabricated and cast base assemblies were impact tested by the Texas Transportation Institute, College Station, TX on February 10, 2003, and both alternate assemblies were determined to be compliant with the performance recommendations of the National Cooperative Highway Research Program (NCHRP) Report 350.

SLIP BASE DETAILS

Note: Unless noted otherwise, all dimensions are in inches

Column Size	Sleeve I.D. (Max)	Sleeve Height H	Weld W	Base Plate		Radius R	Base Bolt		Base Bolt Torque		Hole Size A
				L	T		Size	Length	Ft-lbs	In-lbs	
4 x $\frac{1}{4}$	4 $\frac{1}{16}$	6	$\frac{5}{8}$	8	$\frac{3}{4}$	$\frac{11}{32}$	$\frac{5}{8}$	3	29	345	$\frac{11}{16}$
4 $\frac{1}{2}$ x $\frac{1}{4}$	4 $\frac{9}{16}$	6	$\frac{5}{8}$	8	$\frac{7}{8}$	$\frac{11}{32}$	$\frac{5}{8}$	3 $\frac{1}{4}$	29	345	$\frac{11}{16}$
5 x $\frac{1}{4}$	5 $\frac{1}{16}$	7	$\frac{5}{8}$	8	$\frac{7}{8}$	$\frac{11}{32}$	$\frac{5}{8}$	3 $\frac{1}{4}$	29	345	$\frac{11}{16}$
6 x $\frac{1}{4}$	6 $\frac{1}{16}$	8	$\frac{11}{16}$	9	1	$\frac{13}{32}$	$\frac{3}{4}$	3 $\frac{1}{2}$	46	554	$\frac{13}{16}$
8 x $\frac{5}{16}$	8 $\frac{1}{16}$	10	$\frac{3}{4}$	11	1	$\frac{15}{32}$	$\frac{7}{8}$	3 $\frac{3}{4}$	53	640	$\frac{15}{16}$



0.0149" Thick Alum. Strip-2 Req'd Per Base

BOLT KEEPER DETAIL



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