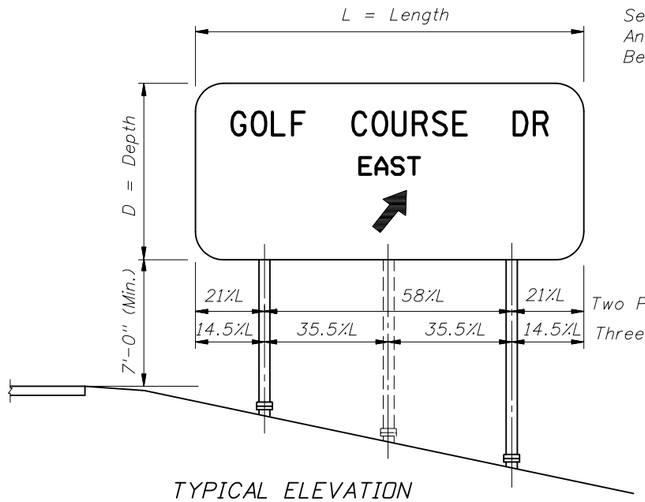
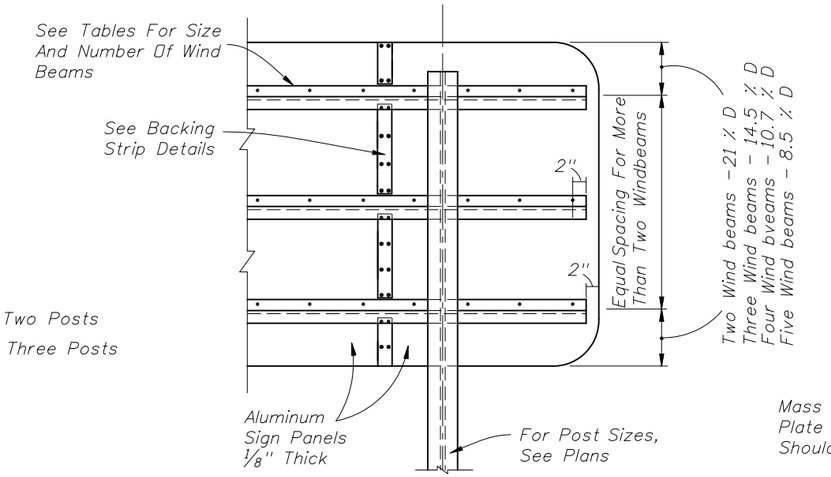
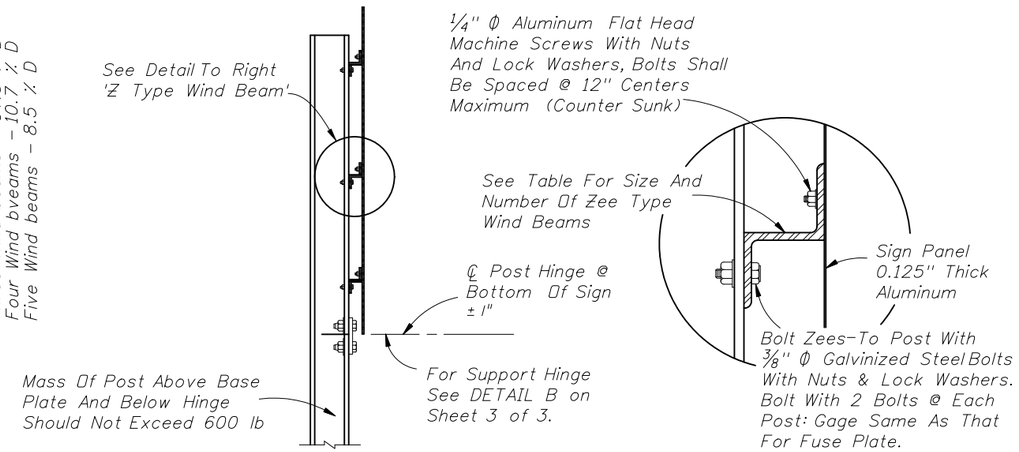


TYPICAL ELEVATION

(For Notes And Dimensions Not Shown, See Plans)



PARTIAL REAR ELEVATION

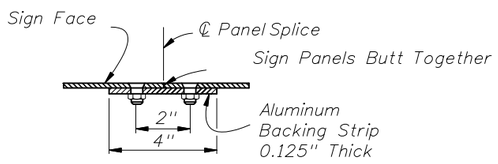


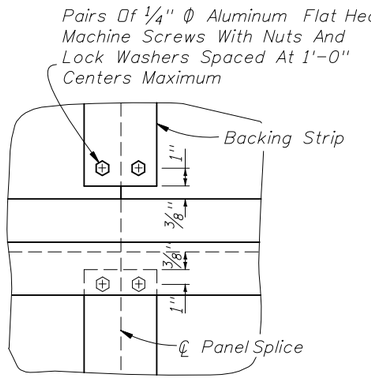
SIDE VIEW

Z TYPE WIND BEAM

Note: It shall be the contractors responsibility to determine the length of the column supports in the field prior to fabrication.

Note: If the sign panels are deeper than 12', a Horizontal Panel Splice is allowed at an interior Z bar support, shop drawings shall be required. Minimum panel section width =2'-6".





BACKING STRIP DETAIL

NUMBER OF WIND BEAMS FOR GIVEN DEPTH & WIND

Wind	No. Beams	Max. Depth	Wind	No. Beams	Max. Depth
110	2	7'-0"	150	2	6'-0"
110	3	12'-0"	150	3	10'-4"
110	4	16'-4"	150	4	14'-0"
110	5	20'-8"	150	5	17'-8"
130	2	6'-8"			
130	3	11'-4"			
130	4	15'-4"			
130	5	19'-0"			

SIZE OF WIND BEAMS

Size Of Zee*	Length Of Sign (Feet)	
	2 Posts	3 Posts
Z 1.75 x 1.75 x 1.08	0 - 11'-0"	0 - 17'-4"
Z 3 x 2.69 x 2.33	11'-1"-19'-0"	17'-5"-29'-6"
Z 3 x 2.69 x 3.38	19'-1"- 20'-8"	29'-7"-31'-6"

*Note: Zees Are Aluminum - No Steel Equivalent Available Designation Gives (Member Depth) x (Width) x (lb/ft)

DESIGN WIND SPEEDS BY COUNTY

110 mph

Alachua, Baker, Bradford, Clay, Columbia, Gadsden, Gilchrist, Hamilton, Hardee, Jackson, Jefferson, Lafayette, Lake, Leon, Madison, Marion, Polk, Putnam, Sumter, Suwannee, and Union Counties.

130 mph

Bay, Brevard, Calhoun, Charlotte, Citrus, DeSoto, Dixie, Duval, Flagler, Franklin, Glades, Gulf, Hendry, Hernando, Highlands, Hillsborough, Holmes, Lee, Levy, Liberty, Manatee, Nassau, Okaloosa, Okeechobee, Orange, Osceola, Pasco, Pinellas, Sarasota, Seminole, St. Johns, Taylor, Volusia, Wakulla, Walton, and Washington Counties.

150 mph

Broward, Collier, Escambia, Indian River, Martin, Miami-Dade, Monroe, Palm Beach, Santa Rosa, and St.Lucie Counties.

HIGH STRENGTH BOLTS (A-325)
MINIMUM RESIDUAL TENSION

BOLT SIZE	TENSION (lb)
5/8"	19,200
3/4"	28,400
7/8"	39,250
1"	51,500
1 1/8"	56,450
1 1/4"	71,700

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
12/20/06	LW	AASHTO 2001 LTS-4 Specifications update. Aluminum post option has been eliminated.			

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

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MULTI-COLUMN GROUND SIGNS

Interim Date 01/01/07

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GENERAL NOTES

DESIGN SPECIFICATION

Design according to FDOT Structures Manual (current edition).
Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals, AASHTO 2001.
For welding refer to the latest editions of the AWS Structural Welding Codes for Steel and Aluminum, the AASHTO Standard SpecificatIons for Welding Structural Steel Highway Bridges.

ALUMINUM MATERIALS

All aluminum materials shall meet the requirements of the Aluminum Association's Alloy 6061-T6 and also the following ASTM specifications: Sheets and plates, B209; extruded tube, bars, rods & shapes, B221; and standard structural shapes, B308. Sheets are to be degreased, etched, neutralized and treated with Alodine 1200, Iridite I4-2, Bonderite 721, or equal. No stenciling permitted on sheets. Aluminum welding rods shall meet the requirements of Aluminum Association Alloy No. 5556 filler wire.

STRUCTURAL STEEL

All structural steel shall meet the requirements of ASTM A36.

ALUMINUM BOLTS, NUTS, & LOCKWASHERS

Aluminum bolts shall meet the requirements of Aluminum Association Alloy 2024-T4 (ASTM F468). The bolts shall have an anodic coating at least 0.0002" thick and be Chromate sealed. Lock washers shall meet the requirements of Aluminum Association Alloy 7075-T6 (ASTM B221). Nuts shall meet the requirements of Aluminum Association Alloy 6061-T6 or 6262-T9 (ASTM F467).

STEEL BOLTS, NUTS, & WASHERS

All steel bolts, nuts and washers shall meet the requirements of ASTM A325.

ALTERNATE MATERIAL

Material meeting the requirements of ASTM B209 or Aluminum Association Alloys 5154-H38 or 5052-H38 may be used for sheet and plate. Material meeting the requirements of Aluminum Association Alloy 6351-T5 and ASTM B221 may be used for extruded bars, rods, shapes and tubes.

TOLERANCES

All above materials shall be in accordance with the governing ASTM specifications.

GALVANIZING

All steel shapes, angles, tees, plates, bolts, nuts and washers shall be galvanized in accordance with Standard Specifications 962-7.

BASE CONNECTION

High strength bolts L_2 in the base connection shall be tightened only to the torque shown in the table on sheets 3 of 3. Overtightened base connections will not be accepted.

FUSE PLATES

All holes in fuse plates shall be drilled. All plate cuts shall, preferably, be saw cuts; however, flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

SIGN FACE

All sign face corners shall be rounded. See Sign Layout Sheet.

SHOP DRAWINGS

When ground sign supports are fabricated in accordance with these plans no shop drawings are required. Shop drawings will be required for approval when the column length exceeds the length shown in the plans by more than 2'-0". However, shop drawings for sign panels, messages, lettering and quantities shall be submitted to traffic plans for approval.

FABRICATOR NOTE

All bolted connections, except L_2 bolts and Zee to Post bolts, shall be high strength bolts. Bolts shall be tightened in the shop following a method approved by the engineer. Tightening shall be to such a degree so as to attain in each bolt the residual tension specified in the tabulation on sheet 1 of 3.

FOUNDATION

Contractor may use precast foundations in pre-drilled holes a minimum of 12" larger than the foundation indicated on the plans in either wet or dry conditions. The holes shall be clean and without loose material. Temporary casing shall be required if the soil is unstable. The holes shall be filled with flowable fill after the precast foundation is in place. The cost of flowable fill, installing and removal of casing shall be included in the unit price of Sign Multi-Post.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
12/20/06	LW	AASHTO 2001 LTS-4 Specifications update. Aluminum post option has been eliminated.			

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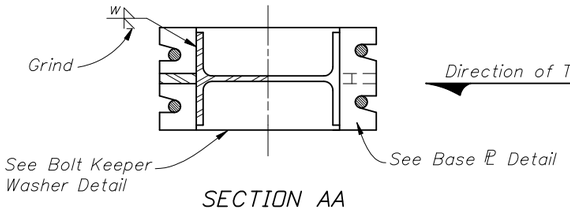
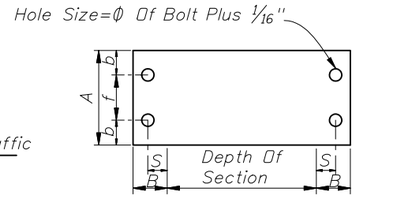
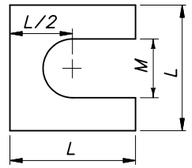


SECTION AA



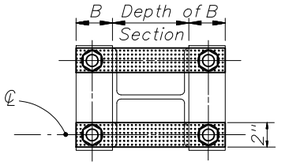
(0.0149" Thick Aluminum 6061-T6)

BOLT KEEPER WASHER



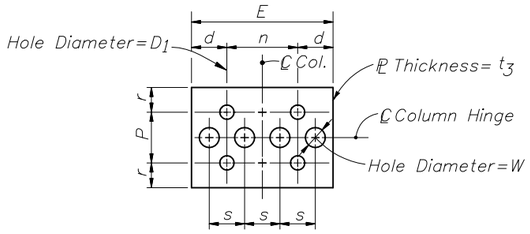
Provide 2 - 0.0149" Thick and 2 - 0.0329" Thick Shims Per Post

SHIM DETAIL

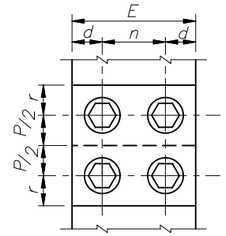


0.0149" Thick Aluminum (6061 -T6) Strips

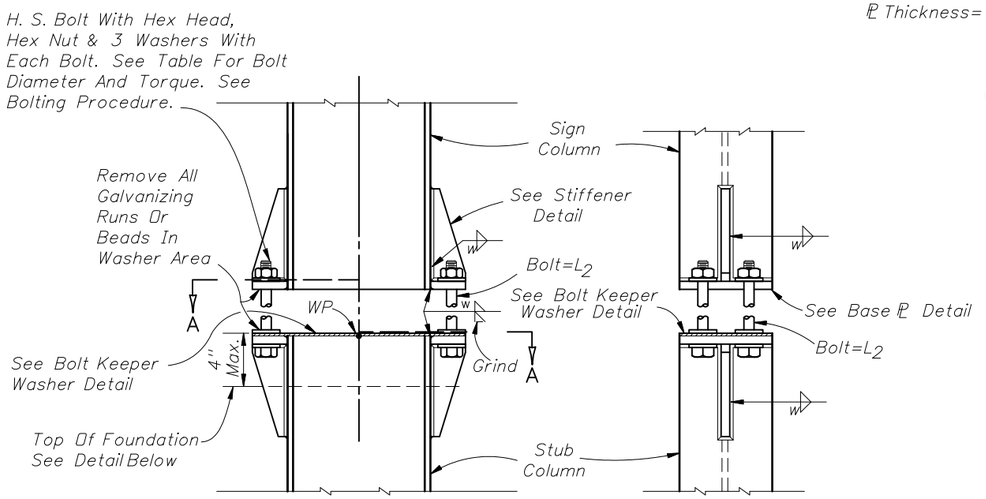
ALTERNATE BOLT KEEPER WASHER



FUSE PLATE

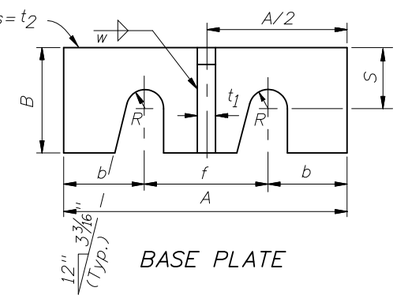


HINGE PLATE
(Match Post Flange Thickness)

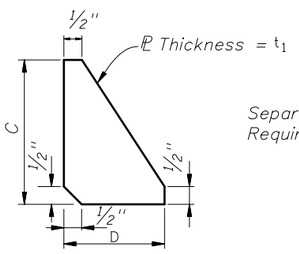


SIGN COLUMN & STUB COLUMN ELEVATION

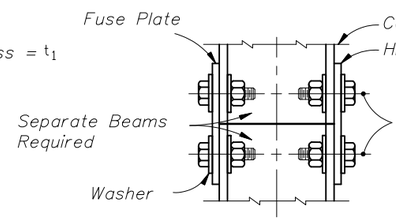
BASE CONNECTION



BASE PLATE



STIFFENER PLATE



SIDE VIEW
OPTIONAL HINGE

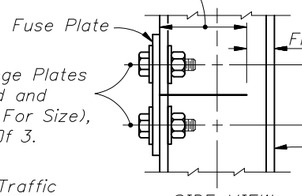
Cut Flange And Web, Post Shall Be Saw Cut After Galvanizing And The Cut Surface Treated With A Galvanizing Compound Code G-C

Flange Holes For Fuse And Hinge Plates Shall Be Drilled Or Sub-Punched and Reamed. H.S. Bolts (See Table For Size), For Bolt Tension See Sheet 1 Of 3. Flat Washers (Typ.)

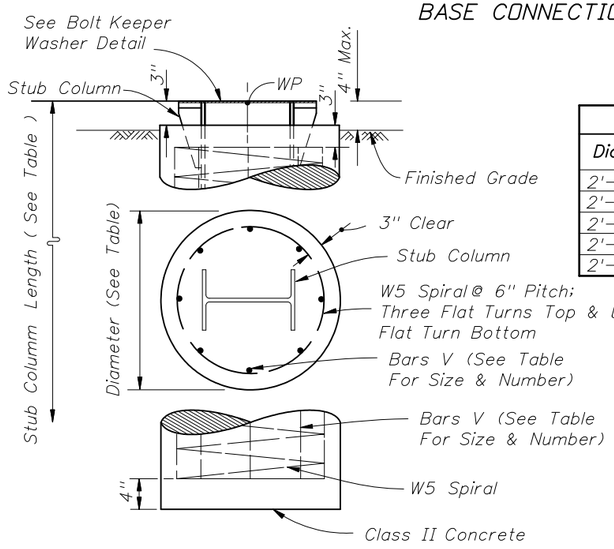
Direction of Traffic

(See Fabricator Note On Sheet 1 of 3)

FUSE & HINGE PLATES
DETAIL B



SIDE VIEW
TYPICAL HINGE



FOUNDATION DETAIL

NOTE; All Reinforcing To Be Grade 60.

FOUNDATION DATA				SHIM	
Dia.	Depth	Stub Length	Reinf. Bars V	L	M
2'-0"	5'-6"	2'-4"	10-#6	1 3/8"	11/16"
2'-0"	7'-6"	2'-10"	10-#6	1 3/4"	13/16"
2'-4"	8'-6"	3'-4"	8-#8	2"	15/16"
2'-4"	10'-3"	4'-0"	8-#8	2 3/8"	1 3/16"
2'-8"	11'-3"	4'-8"	10-#8	2 3/8"	1 3/16"

BASE CONNECTION DATA													FUSE (HINGE) PLATE DATA								
Section *	A	B	C	D	Bolt Size(L_2) & Torque(in-lb)	R	b	f	S	t_1	t_2	w	Bolt Size	E	P	D_1	d	n	r	s	t_3	W
W 6x12	4 3/4"	2"	5 1/8"	2"	5/8" Ø 345	3/8"	1 1/8"	2 1/2"	1 3/16"	1/2"	1/2"	1/4"	5/8"	4 1/4"	3"	11/16"	1 1/8"	2"	1 3/16"	1"	1/4"	13/16"
W 8x18	5 3/4"	2 3/16"	6 1/4"	2 3/16"	3/4" Ø 550	7/16"	1 1/2"	2 3/4"	1 3/8"	1/2"	5/8"	1/4"	7/8"	5 1/2"	3 3/4"	15/16"	1 1/2"	2 1/2"	1 3/8"	1 5/16"	3/8"	1 1/16"
W 10x22	6 1/8"	2 3/8"	8"	2 3/8"	7/8" Ø 640	1/2"	1 9/16"	3"	1 3/8"	1/2"	3/4"	5/16"	1"	6 3/8"	4 5/16"	1 1/16"	1 3/4"	2 7/8"	1 3/4"	1 1/2"	3/8"	1 3/16"
W 10x33	8"	2 3/4"	8"	2 3/4"	1 1/8" Ø 780	5/8"	2"	4"	1 9/16"	1/2"	3/4"	5/16"	1 1/8"	7 7/8"	5 5/16"	1 3/16"	2 1/4"	3 3/8"	2"	1 7/8"	1/2"	1 9/16"
W 12x40	8"	3"	8"	3"	1 1/8" Ø 780	5/8"	2"	4"	1 9/16"	1/2"	3/4"	5/16"	1 1/4"	8 3/8"	5 3/4"	1 5/16"	2 1/4"	3 7/8"	2 3/16"	2"	1/2"	1 11/16"

* Designations Give (Nominal Depth) x (lb/ft)

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION

1. Assemble post to stub with bolts and with one flat washer on each end bolt between plates.
2. Shim as required to plumb post (see shim detail).
3. Tighten all bolts the maximum possible with 1'-0" to 1'-3" wrench to bed washers and shims and to clean bolt threads then loosen each bolt in turn and retighten in a systematic order to the prescribed torque (see table).
4. Burr threads at junction with nut using a center punch to prevent nut loosening.
5. Sections shown are for installation on right shoulder. For left shoulder plate slot bevels are opposite hand from that shown.

STEEL POST, BASE,
FOUNDATION & FUSE PLATE DETAILS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
12/20/06	LW	AASHTO 2001 LTS-4 Specifications update. Aluminum post option has been eliminated.			

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