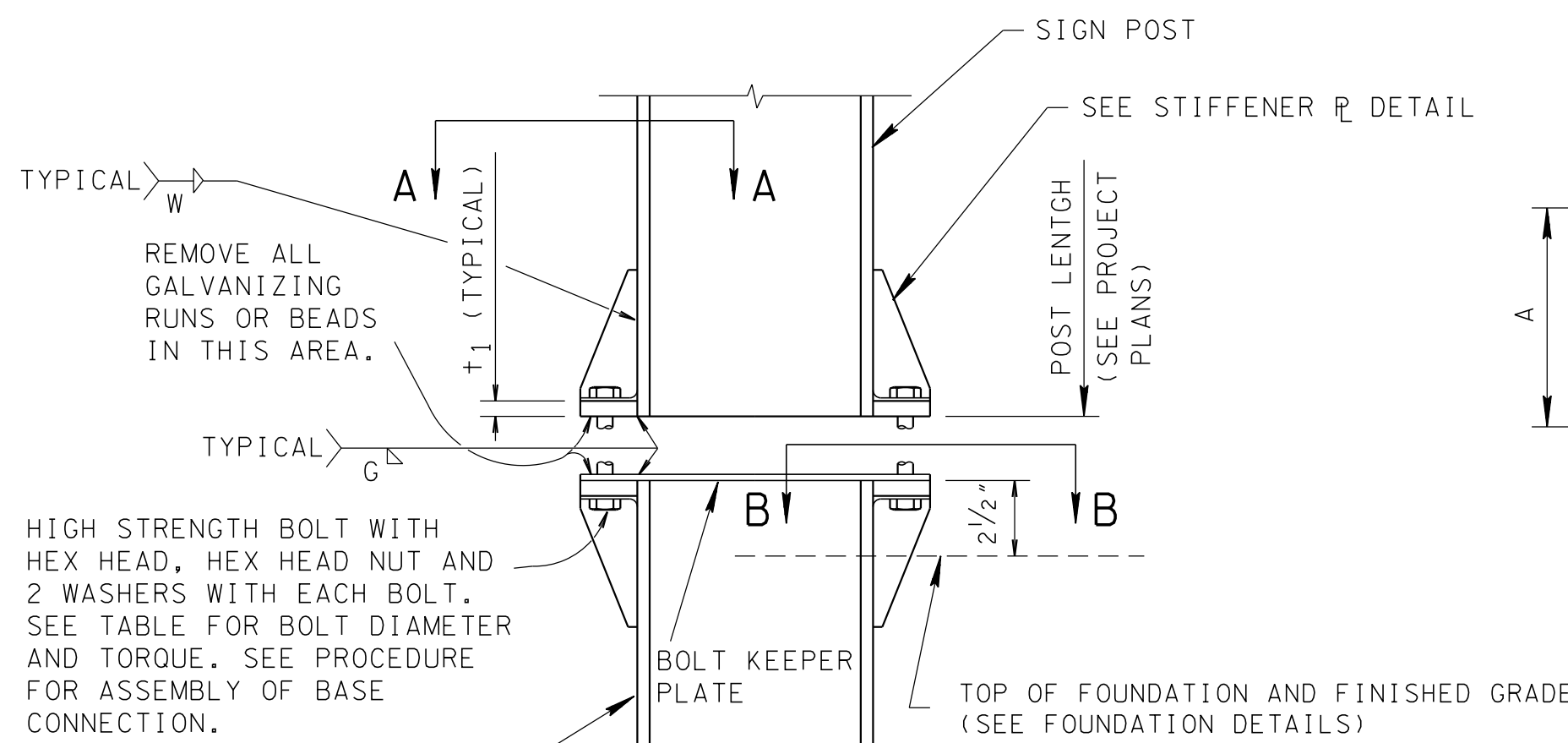
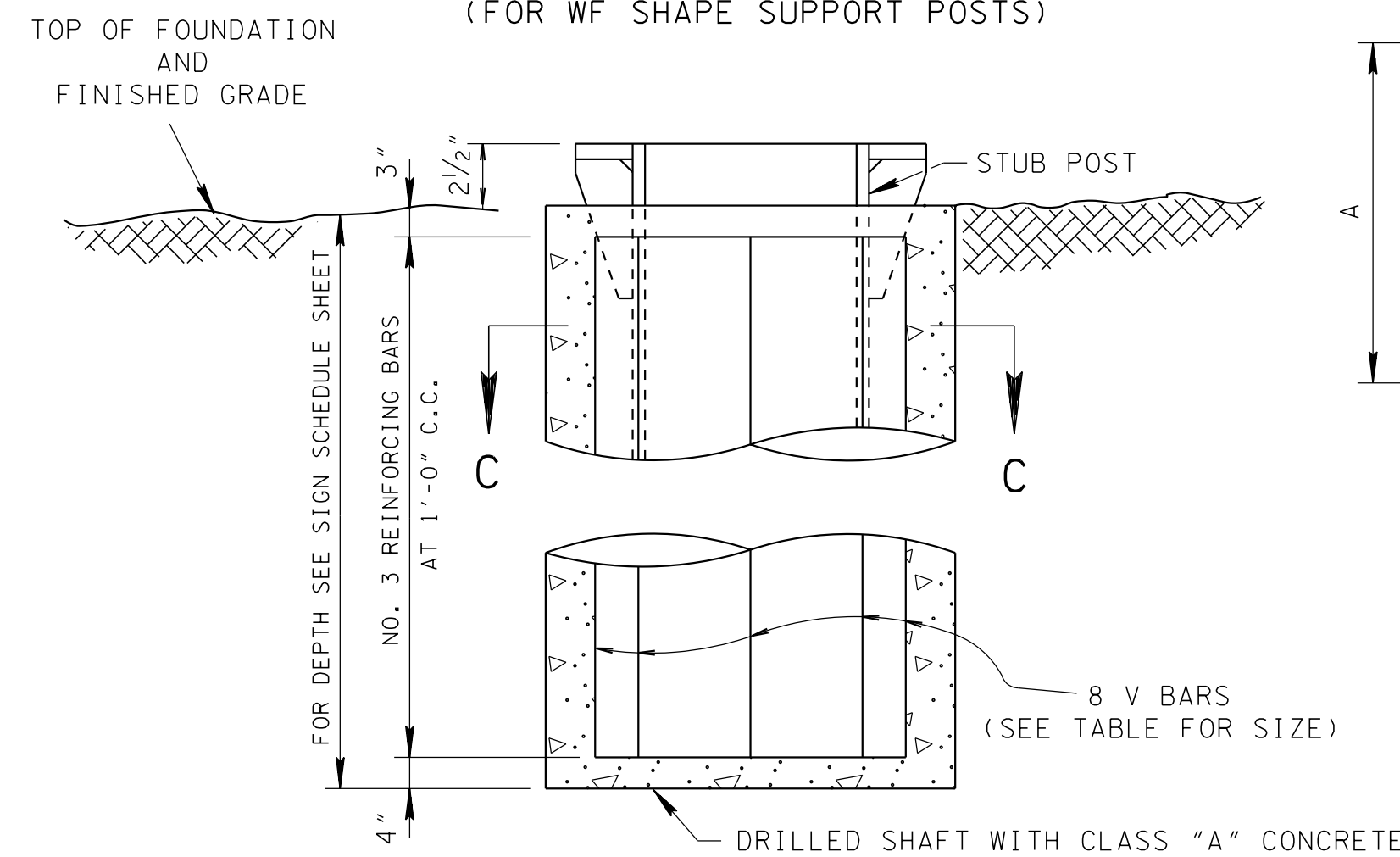


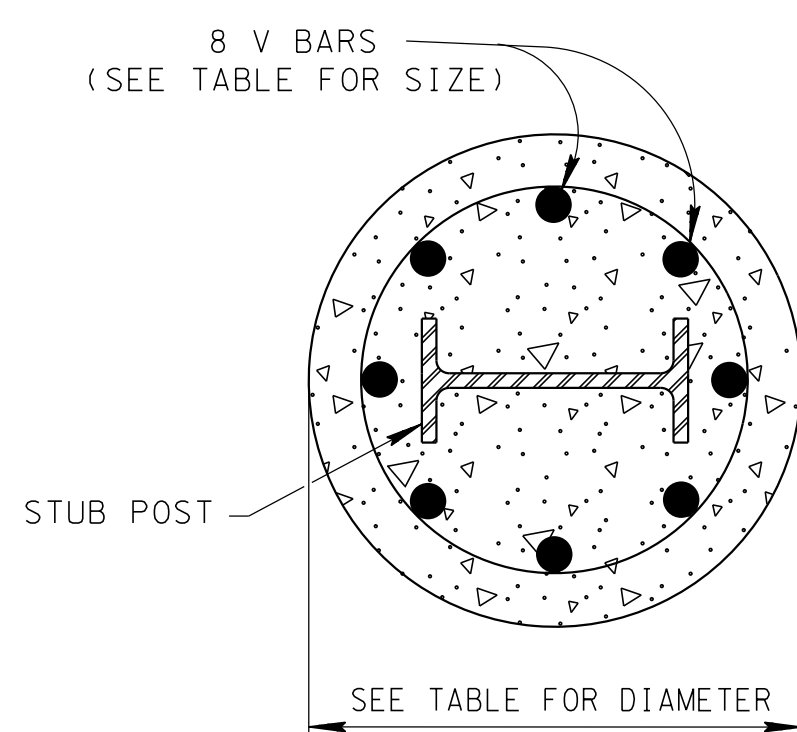
POST SIZE	BASE CONNECTION DIMENSIONS										FUSE PLATE DIMENSIONS										HINGE PLATE DIMENSIONS										FOUNDATION			BOLT KEEPER PLATE		
	BOLT SIZE & TORQUE	A	B	C	D	E	t <sub>1</sub>	t <sub>2</sub>	W	R	F	G	H	J	K	L	N	d <sub>1</sub>	t <sub>3</sub>	BOLT DIA.	S	U	V	X	Y	Z	d <sub>2</sub>	t <sub>5</sub>	BOLT DIA.	DIAMETER OF TYPE 6	STUB LENGTH	V BAR SIZE	M	P	Q	
W6 X 15	3/8" x 2 3/4" TORQUE=226 in. lbs. TO 345 in. lbs.	6 1/2"	2"	1 1/4"	4 1/4"	1 1/8"	3/4"	1/2"	1/4"	1 1/32"	4 1/2"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	3/4"	1 3/16"	1/2"	3/4" 0	5"	6"	1 1/4"	2 1/2"	3 1/2"	1 1/4"	1 3/16"	3/8"	3/4" 0	1'-3"	2'-6"	*6	10"	3/4"	8 1/2"	
W6 X 20		6 1/2"	2"	1 1/4"	4 1/4"	1 1/8"	3/4"	1/2"	1/4"	1 1/32"	4 1/2"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	3/4"	1 3/16"	1/2"	3/4" 0	5"	6"	1 1/4"	2 1/2"	3 1/2"	1 1/4"	1 3/16"	3/8"	3/4" 0	1'-3"	2'-6"	*6	10 1/4"	3/4"	8 3/4"	
W8 X 24		7"	2 1/4"	1 3/8"	4 1/2"	1 1/4"	1"	3/4"	5/16"	1 3/32"	5 3/8"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" 0	6"	6 1/2"	1 1/2"	3"	3 1/2"	1 1/2"	1 5/16"	3/8"	7/8" 0	1'-6"	3'-0"	*7	11'-0 1/2"	7/8"	10 3/4"	
W8 X 35	3/4" x 3 1/2" TORQUE=369 in. lbs. TO 554 in. lbs.	8 1/2"	2 1/4"	1 3/8"	6"	1 1/4"	1"	3/4"	5/16"	1 3/32"	6"	3 5/8"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" 0	6"	8"	1 1/2"	3"	5"	1 1/2"	1 5/16"	1/2"	7/8" 0	1'-6"	3'-0"	*7	11'-0 3/4"	7/8"	10 7/8"	
W10 X 30		6 1/4"	2 1/4"	1 3/8"	3 3/4"	1 1/4"	1"	3/4"	5/16"	1 3/32"	6"	3 5/8"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" 0	6 5/8"	5 3/4"	1 1/2"	3 3/8"	2 3/4"	1 1/2"	1 5/16"	1/2"	7/8" 0	1'-9"	3'-0"	*9	11'-2 3/4"	7/8"	11'-1"	
W10 X 33		8 1/2"	2 1/4"	1 5/8"	6"	1 1/4"	1"	3/4"	5/16"	1 3/32"	6"	3 5/8"	1 1/2"	8"	5"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" 0	6 5/8"	8"	1 1/2"	3 5/8"	5"	1 1/2"	1 5/16"	7/16"	7/8" 0	1'-9"	3'-0"	*9	11'-2 1/4"	7/8"	11'-0 1/2"	
W12 X 30	1" x 3 1/2" TORQUE=460 in. lbs. TO 735 in. lbs.	7"	2 1/4"	1 3/8"	4 1/2"	1 1/4"	1"	3/4"	5/16"	1 3/32"	6"	3 5/8"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" 0	6 5/8"	6 1/2"	1 1/2"	3 3/4"	3 1/2"	1 1/2"	1 5/16"	7/16"	7/8" 0	2'-0"	3'-0"	*11	11'-4 3/8"	7/8"	11'-2 1/8"	



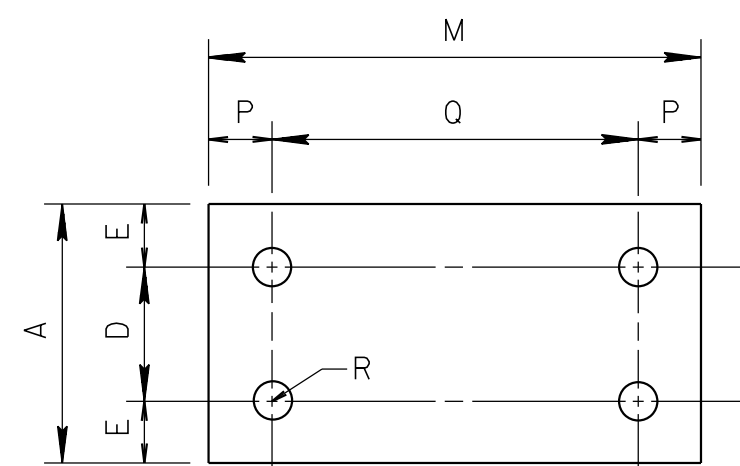
**SIGN POST AND STUB POST BASE CONNECTION DETAIL-ELEVATION VIEW (FOR WF SHAPE SUPPORT POSTS)**



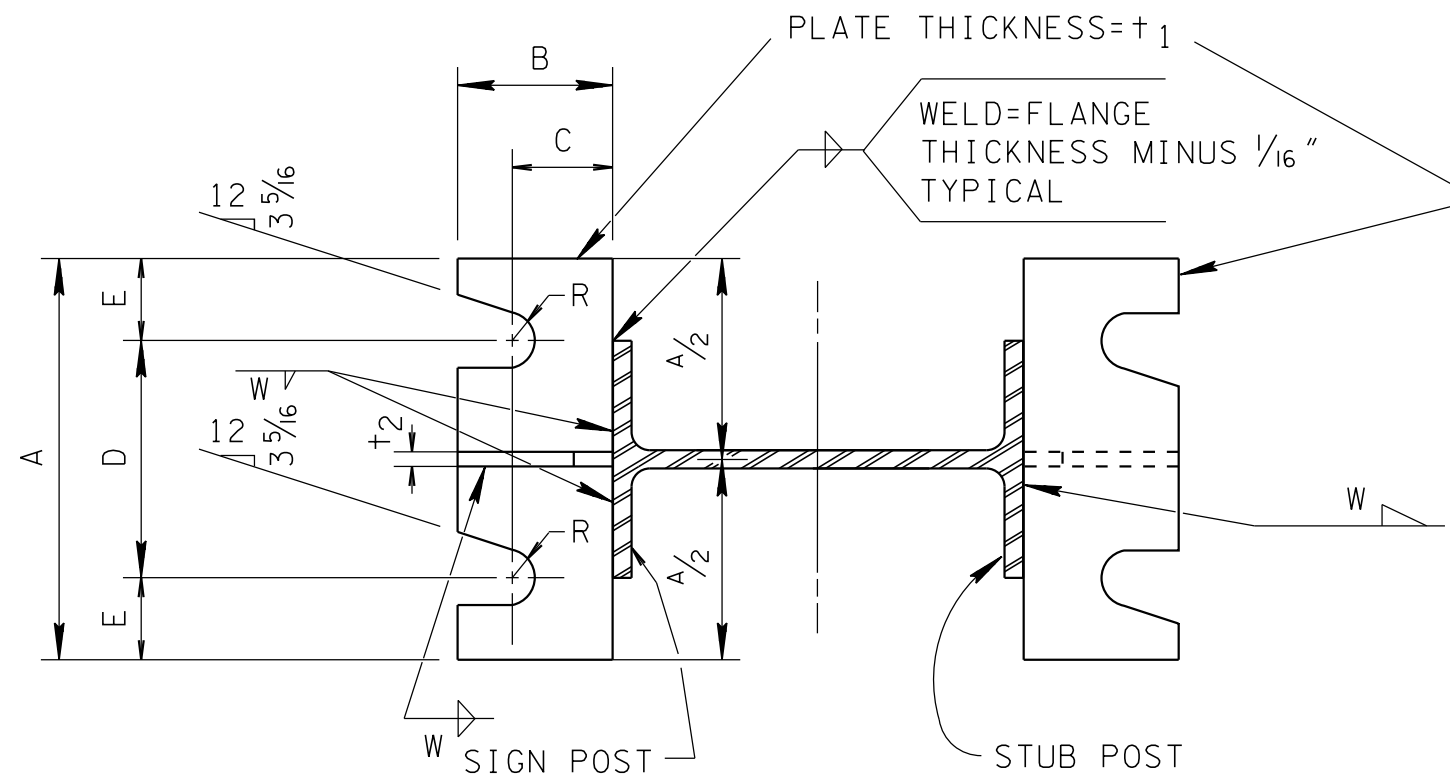
**FOUNDATION AND FOOTING ELEVATION DETAIL FOR WF POST SUPPORTS TYPE 6 FOOTING**



**SECTION C-C TYPE 6 FOOTING**

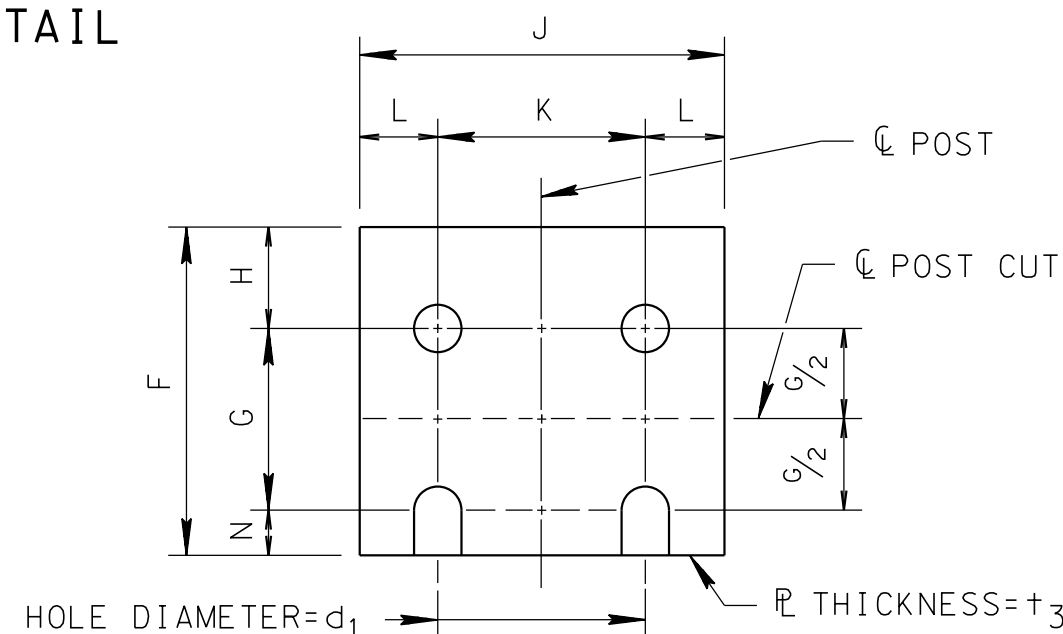


**BOLT KEEPER PLATE (28 GAUGE GALVANIZED STEEL)**



**SECTION A-A (SEE TABLE FOR DIMENSIONS)**

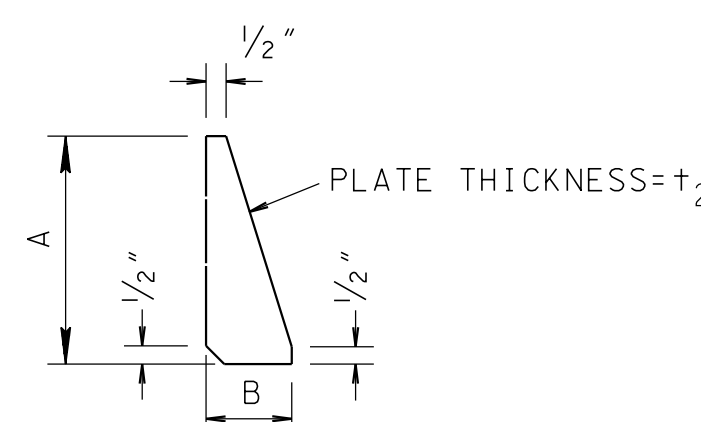
SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE AREAS. PLATE SLOT BEVELS ARE OPPOSITE HAND FROM THAT SHOWN FOR INSTALLATIONS ON LEFT SHOULDER.



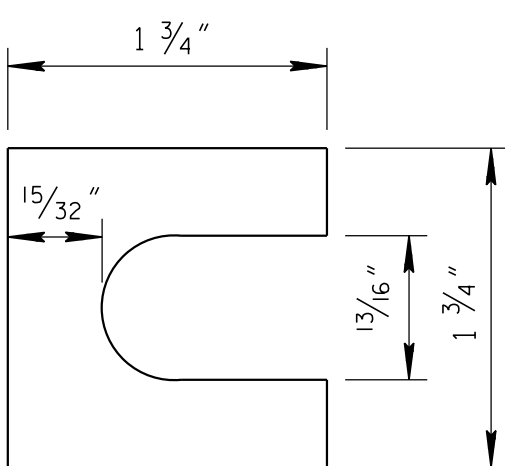
**FUSE PLATE DETAIL (SEE TABLE FOR DIMENSIONS)**

USE HIGH STRENGTH BOLTS WITH HEX HEAD, HEX HEAD NUT AND ONE FLAT WASHER UNDER EACH BOLT HEAD AND BEVEL OR FLAT WASHER (WHERE REQUIRED) UNDER NUT.

- PROCEDURE FOR ASSEMBLY OF BASE CONNECTION**
- ASSEMBLE POST TO STUB WITH BOLTS AND ONE BOLT KEEPER PLATE BETWEEN THEM.
  - SHIM AS REQUIRED TO PLUMB POST.
  - TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN.
  - RETIGHTEN BOLTS IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE (SEE TABLE).
  - BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

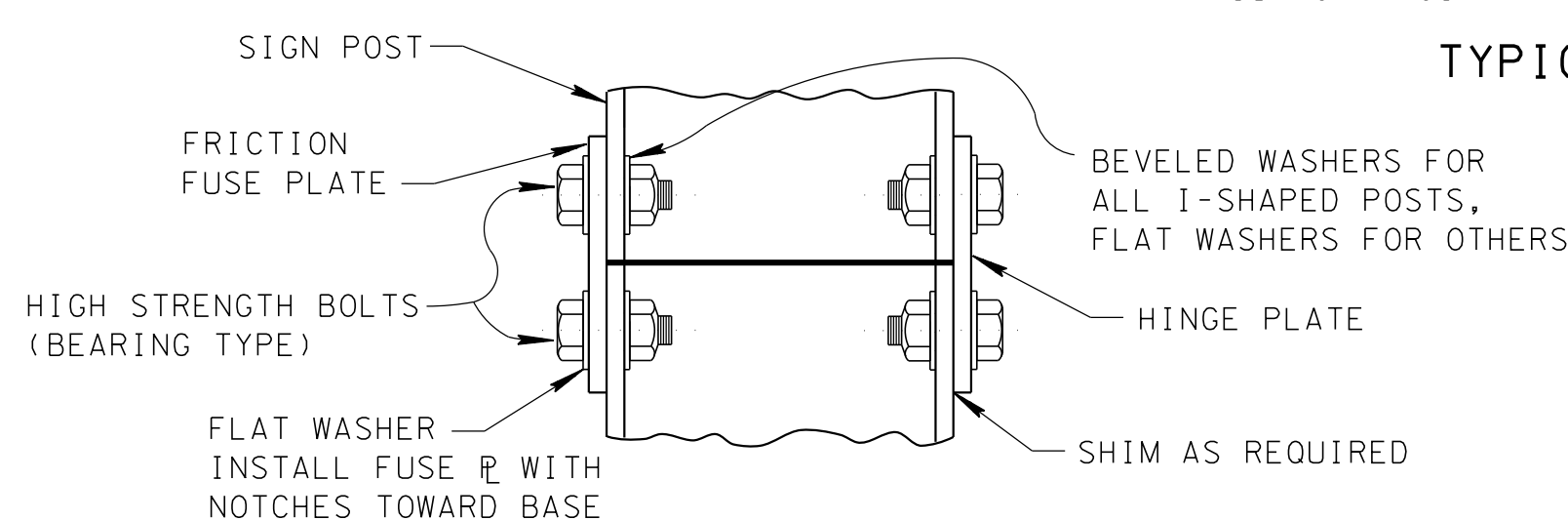


**STIFFENER PLATE DETAIL (SEE TABLE FOR DIMENSIONS)**



**SHIM DETAIL**

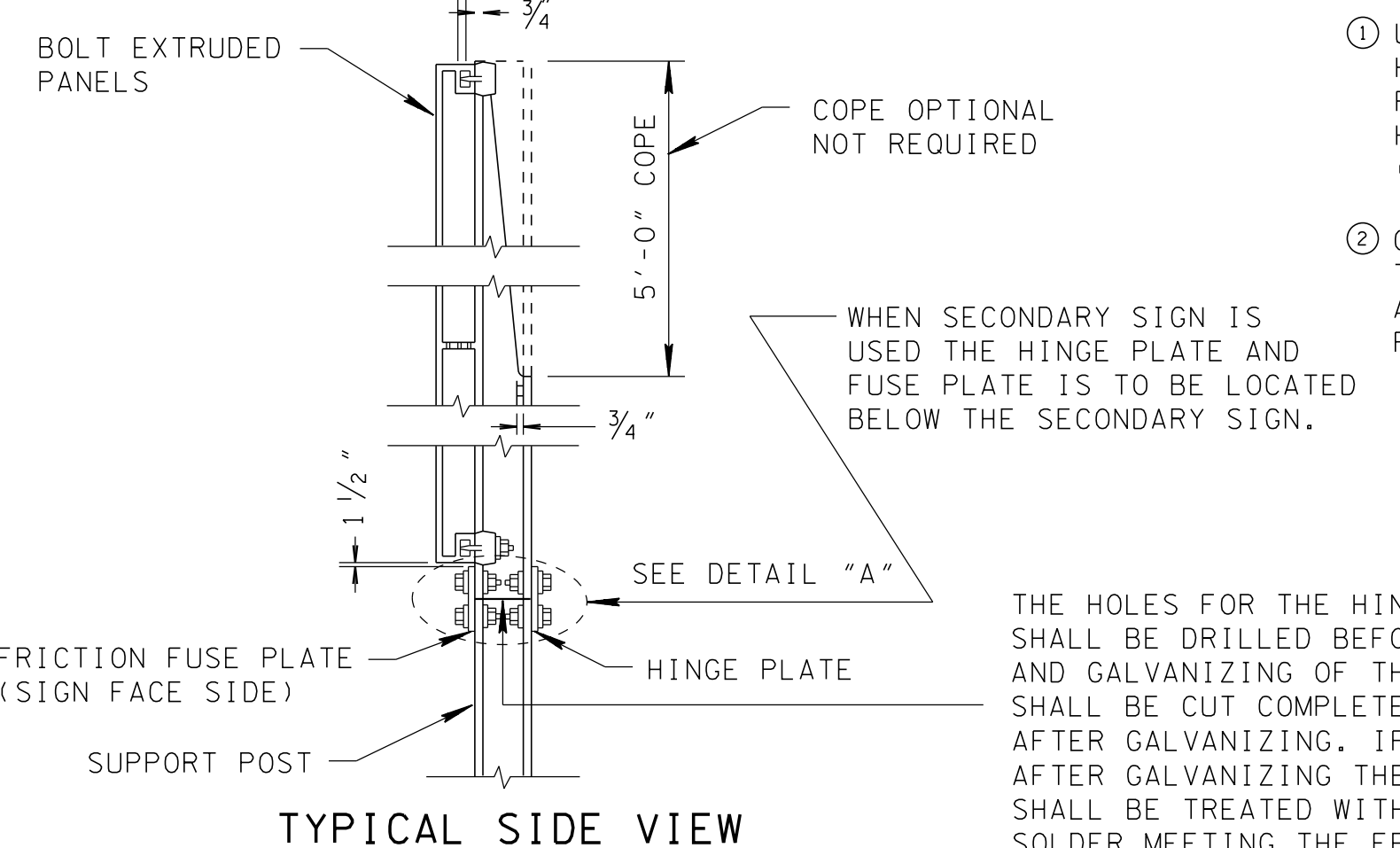
THE THICKNESS OF SHIMS SHALL NOT BE MORE THAN 0.032" NOR LESS THAN 0.012" AT ANY SINGLE BOLT. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO ASTM-B36.



**DETAIL "A"**

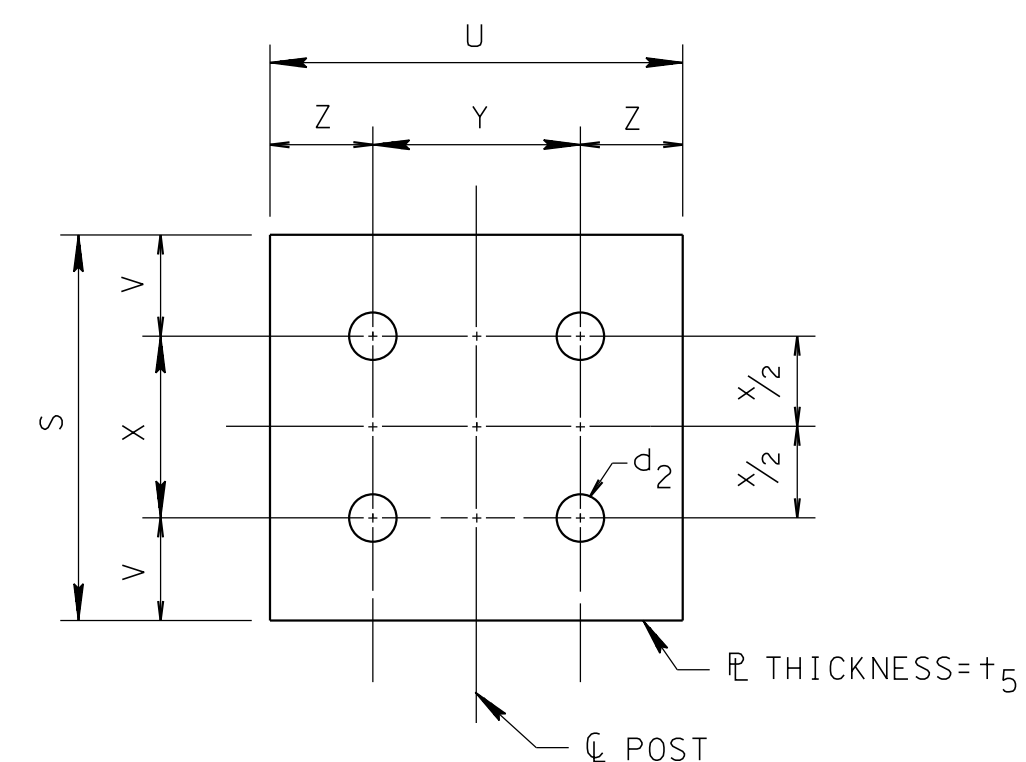
FABRICATOR NOTE: IMPORTANT- ALL FRICTION FUSE AND HINGE BOLTS SHALL BE TIGHTENED IN THE SHOP FOLLOWING A METHOD APPROVED BY THE ENGINEER. TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN THE FOLLOWING MINIMUM RESIDUAL TENSION IN EACH BOLT:

BOLT SIZE	MIN. RESIDUAL BOLT TENSION
1/2" 0	12,050 LBS.
5/8" 0	19,200 LBS.
3/4" 0	28,400 LBS.
7/8" 0	39,250 LBS.



**TYPICAL SIDE VIEW**

THE HOLES FOR THE HINGE AND FUSE PLATE SHALL BE DRILLED BEFORE THE SAW CUTTING AND GALVANIZING OF THE POST. THE POST SHALL BE CUT COMPLETELY THRU BEFORE OR AFTER GALVANIZING. IF THE POST IS CUT AFTER GALVANIZING THEN THE CUT SURFACE SHALL BE TREATED WITH AN APPROVED ZINC SOLDER MEETING THE FEDERAL SPECIFICATION O-G-93 (STICK ONLY).



**HINGE PLATE DETAIL (SEE TABLE FOR DIMENSIONS)**

- GENERAL NOTES**
- THE DESIGN CONFORMS WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (CURRENT EDITION).
  - THE MATERIALS AND FABRICATION SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION.
  - ALL STEEL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH STANDARD SPECIFICATION ASTM-A123 FOR SIGN SUPPORTS.
  - ALL HIGH STRENGTH BOLTS AND WASHERS SHALL CONFORM TO STANDARD SPECIFICATION ASTM-A325 OR SAE GRADE 5.
  - ALL HIGH STRENGTH NUTS SHALL BE OF SUCH CAPACITY AS TO DEVELOP THE BOLT STRENGTH.
  - TIGHTEN THE HIGH STRENGTH BOLTS IN THE BASE CONNECTION ONLY TO THE TORQUE SHOWN. CAUTION - DO NOT OVERTIGHTEN.
  - ALL BOLT, NUTS AND WASHERS OTHER THAN LABELED HIGH STRENGTH SHALL CONFORM TO STANDARD SPECIFICATION ASTM-A307, CLASS A.
  - THE WELDING SHALL BE DONE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (CURRENT EDITION).
  - ALL BOLTS AND NUTS SHALL BE COATED WITH A SUITABLE LUBRICANT.
  - THE MATERIAL USED FOR STRUCTURAL SHAPES AND PLATES SHALL BE ASTM-A36 GRADE STEEL.
  - ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS MAY BE CADMIUM PLATED IN ACCORDANCE WITH STANDARD SPECIFICATION ASTM-A165 OR GALVANIZED IN ACCORDANCE WITH STANDARD SPECIFICATION ASTM-A153.
  - FLANGE HOLES FOR HINGE AND FUSE PLATES SHALL BE DRILLED OR SUB-PUNCHED AND REAMED.
  - CLASS "A" CONCRETE CONSTRUCTION AND MATERIALS SHALL MEET THE REQUIREMENTS OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE
  - CLASS "A" CONCRETE AND REINFORCING STEEL USED IN CONJUNCTION WITH INSTALLATION OF THE SIGN SUPPORT POSTS IS TO BE PAID FOR UNDER ITEM NO. 713-01.01, CLASS "A" CONCRETE (FOUNDATION FOR SIGN SUPPORTS) PER CUBIC YARD, AND 713-01.02, STEEL BAR REINFORCEMENT (FOUNDATION FOR SIGN SUPPORTS) PER POUND.
  - CLASS "A" CONCRETE FOOTING SHALL BE PLACED ONLY ON UNDISTURBED MATERIAL OR IN FILL MATERIAL PLACED BY CONTROLLED COMPACTION AT DEPTHS UNAFFECTED BY FROST.
  - MATERIALS SURROUNDING FOOTING SHALL BE CAPABLE OF CARRYING A MINIMUM BEARING OF 2,500 POUNDS PER SQUARE FOOT. WHERE SOLID ROCK IS ENCOUNTERED, FOOTING SHALL BE LENGTH SHOWN ON THE SIGN SCHEDULE SHEET OR EXTEND A MINIMUM OF TWO FEET INTO THE ROCK.
  - PRE-APPROVED BREAKAWAY HARDWARE SYSTEMS ARE LISTED ON OPL COST OF BREAKAWAY DEVICE TO BE INCLUDED IN THE PRICE OF THE SIGN.  
ITEM NO. 713-06 STEEL I-BEAMS & WF-BEAMS (BREAKAWAY) SIGN SUPPORT LB

- REV. 10-27-66:** FOUNDATION NOTE.  
**REV. 3-29-67:** NOTE ADDED.  
**REV. 3-8-68:** FUSE PLATE NOTE ADDED.  
**REV. 12-3-69:** TORQUE FOR DETAIL "A" HINGE.  
**REV. 7-1-72:** CHANGED DEPARTMENT NAME.  
**REV. 5-1-73:** CHANGED NOTE.  
**REV. 3-12-74:** REVISED GENERAL NOTES.  
**REV. 10-3-75:** CHANGED TORQUE ON BOLTS AND POST SIZE.  
**REV. 1-1-76:** CHANGED DWG. NO. FROM RD-S-14 TO T-S-14.  
**REV. 7-29-76:** NEW AASHTO SPECIFICATIONS.  
**REV. 4-12-77:** CHANGED BOLTS AT FUSE PLATE AND ADDED BOLT KEEPER PLATE.  
**REV. 7-7-88:** ADDED HINGE PLATE DETAIL.  
**REV. 3-14-90:** CHANGED SLIP-BASE TORQUE IN TABLE. CORRECTED BOLT SIZE FROM 3/8" TO 3/4" IN TABLE.  
**REV. 12-7-90:** REDREW AND REORGANIZED SHEET. CHANGED POST SIZE ON FIRST LINE OF TABLE FROM W6 X 15.5 TO W6 X 15.  
**REV. 4-10-92:** CHANGED POST SIZE ON FIFTH LINE OF TABLE FROM W10 X 29 TO W10 X 30.  
**REV. 10-26-96:** CHANGED PAY ITEM NO. IN GENERAL NOTE (N).  
**REV. 5-27-01:** CHANGED NOTE UNDER SHIM DETAIL.  
**REV. 8-17-12:** CHANGED W12X31 POST TO W12X30.  
**REV. 10-21-19:** REVISED TITLE AND NOTE NOTE (O).

**- NOTES -**

- USE HIGH STRENGTH BOLT WITH HEX HEAD AND HEX HEAD NUT. ONE FLAT WASHER UNDER EACH BOLT HEAD AND BEVEL OR FLAT WASHER (WHERE REQUIRED) UNDER NUT.
- CUT SURFACES WILL NOT BE TREATED UNTIL BOTH PLATES ARE INSTALLED AND ALL BOLTS FULLY TIGHTENED.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION

WF-BEAM BREAK-AWAY LARGE SIGN SUPPORT DETAILS