



Caltrans® User Guide to Standard Plans Section S – OVERHEAD SIGNS – Tubular
Appendix D: Quantities – Two Post

Introduction

Appendix D provides quantity data for Two Post Tubular Structures

The following outlines the typical breakdown

Mast Arm (From Table 1)	_____
Mounting Brackets (From Table 2)	_____
Left Post (From Table 3 or Table 4)	_____
Right Post (From Table 3 or Table 4)	_____
Walkway assembly (assume 75 plf)	_____
Left Post Anchor Bolts and Nuts (From Table 5)	_____
Right Post Anchor Bolts and Nuts (From Table 5)	_____
Left Post Base Plate Gussets (From Table 6)	_____
Right Post Base Plate Gussets (From Table 6)	_____
Left Post Base Plate (From Table 7)	_____
Right Post Base Plate (From Table 7)	_____



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Table 1. Mast Arm Quantities (pounds)

Post Type	Pipe Specifications	Field Splice (one pair) (pounds)	Field Splice Bolt & Nut Set (pounds)	¼ inch End Plate for Cantilever (pounds)	¾ inch Square Bar on Mast Arm (pounds per foot)	Mast Arm Pipe (pounds per foot)
I	20 inch NPS x 3/8 inch thick	337.3	37.47	44.09	1.909	78.62
II	24 inch NPS x 3/8 inch thick	798.1	79.36	44.09	1.909	94.61
III	24 inch NPS x 3/8 inch thick	798.1	79.36	59.52	1.909	94.61
IV	30 inch NPS x 3/8 inch thick	1336	114.64	85.98	1.909	118.74
V	30 inch NPS x 3/8 inch thick	1336	114.64	85.98	1.909	118.74
VI	30 inch NPS x 3/8 inch thick	1336	114.64	85.98	1.909	118.74

Table 2. Mounting Bracket (pounds)

Post Type	Pipe Specifications	Clamp Assembly (Behind the panels)*	Mounting Bracket**						Gusset Support at Elbow
			Depth of Sign Panel (inches)						
			70	80	90	100	110	120	
I	20 inch NPS x 1/2 inch thick	72.7	99	104	110	117	121	128	9
II	24 inch NPS x 1/2 inch thick	77	99	104	110	117	121	128	9
III	24 inch NPS x 5/8 inch thick	77	99	104	110	117	121	128	9
IV	30 inch NPS x 1/2 inch thick	86	99	104	110	117	121	128	9
V	30 inch NPS x 5/8 inch thick	86	99	104	110	117	121	128	9
VI	30 inch NPS x 3/4 inch thick	86	99	104	110	117	121	128	9

*Clamp assembly includes WT 4x20 lb/ft, rods and ¼ inch triangular plate.

**Mounting bracket includes Channel C5x6. Lb.ft, horizontal W5x6.7 lb/ft, bolts and nuts



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Table 3. Vertical Post (pounds)

Post Type	Pipe Specifications	Radius (feet)	Pounds per foot	Height from Base Plate to Center of Mast Arm (feet)				
				21	23	25	27	29
I	20 inch NPS x 1/2 inch thick	12	104.09	2905.66	3112.90	3322.33	3531.77	3739.00
II	24 inch NPS x 1/2 inch thick	12	125.46	3503.11	3754.43	4005.76	4257.08	4508.41
III	24 inch NPS x 5/8 inch thick	12	155.96	4354.09	4667.14	4977.99	5291.04	5604.09
IV	30 inch NPS x 1/2 inch thick	12	157.58	4398.18	4713.43	503.90	5346.16	5661.41
V	30 inch NPS x 5/8 inch thick	12	195.95	5469.61	8066.63	6256.65	6649.07	7041.49
VI	30 inch NPS x 3/4 inch thick	12	233.91	6530.03	6999.61	7469.18	7936.56	8406.14

Table 4. Slanted Post (pounds)

Post Type	Pipe Specifications	Radius (feet)	Pounds per foot	Height from Base Plate to Center of Mast Arm (feet)				
				21	23	25	27	29
I	20 inch NPS x 1/2 inch thick	12	104.09	2921.10	3132.74	3346.58	3558.22	3769.87
II	24 inch NPS x 1/2 inch thick	12	125.46	3520.75	3778.68	434.42	4287.95	4543.68
III	24 inch NPS x 5/8 inch thick	12	155.96	4376.13	4695.80	5013.26	5330.72	5648.19
IV	30 inch NPS x 1/2 inch thick	12	157.58	4422.43	4744.30	5066.17	5382.84	5705.50
V	30 inch NPS x 5/8 inch thick	12	195.95	5500.48	5899.48	6298.54	6697.57	7096.61
VI	30 inch NPS x 3/4 inch thick	12	233.91	6565.30	6565.30	7519.89	7996.08	8472.28

Table 5. Anchor Bolts and Nuts (pounds)

Post Type	Pounds at each post
I	780
II	996
III	996
IV	1140
V	1140
VI	1140



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Table 6. Gussets for Post (pounds)

Post Type	Weight (pounds)
I	150
II	150
III	150
IV	181
V	181
VI	181

Table 7. Base Plate (lb)

Post Type	Weight (pounds)
I	721
II	890.6
III	890.6
IV	1177
V	1177
VI	1413