DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. — CIVIL — STATE OF CALIFORNIA

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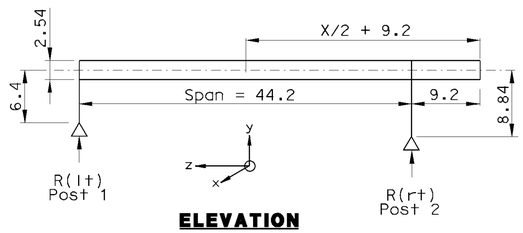
Caltrans Metric

2 POST TRUSS SIGN, POSTS SELECTION

EXAMPLE # 1:
To determine post type: 100% panel coverage dimensions meter (U.O.N.)



The following method is for sizing of columns only. (Verified by GT-strudl computer runs)
Use the right side to size the post, then check the left side

Panel depth	= 2.54 m
Height from base plate to center of truss	= 8.84 m
Span	= 44.2 m
Cantilever	= 9.2 m
Wind pressure	= 1930 Pa
Force = area x pressure	= (X/2 + 9.2) x panel depth x pressure
	= (44.2/2 + 9.2) x 2.54 x 1930
	= 153438 N
Actual M = Mx + Mz	= Wind load moment on base
	= height x area of sign x wind pressure(1930 Pa) x 1.05

(5% increase in the moment will take care of the 20% lateral wind forces, AASHTO spec. computer runs verify by GT-strudl)

M = force x height = 1533438 N x 8.84 m x 1.05 = 1424211 N-m
Read from post type selection chart, left side corresponding to moment = 1424211 N-m
Read column VI-S, which correspond to the moment VI-S, NPS pipe 24 x 24.6 tk, split 254.
Any moment bigger than 1705845 N-m, requires special column design.
Use same column size for left-hand side, the above example is using 100% panel coverage

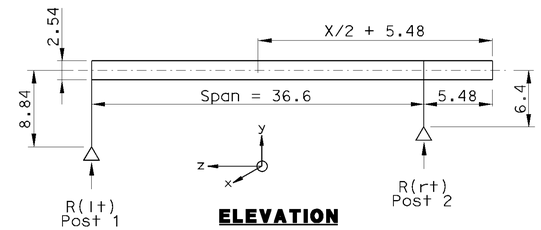
EXAMINE LEFT HAND SIDE COLUMN

Panel depth	= 2.54 m
Height from base plate to center of truss	= 6.4 m
Span	= 44.2 m
Cantilever	= 0 m
Wind pressure	= 1930 Pa
Force = area x pressure	= (X/2 + 0) x panel depth x pressure
	= (44.2/2 + 0) x 2.54 x 1930
	= 108338 N
Actual M = Mx + Mz	= Wind load moment on base
	= height x area of sign x wind pressure(1930 Pa) x 1.05

(5% increase in the moment will take care of the 20% lateral wind forces, AASHTO spec. computer runs verify by GT-strudl)

M = force x height = 108338 N x 6.4 x 1.05 = 728031 N-m
Read from post type selection chart, left side corresponding to moment = 728031 N-m
Read column V-S, which correspond to the moment V-S, NPS pipe 24 x 12.7 tk, split 203
HOWEVER, for both side USE COLUMN SIZE VI-S, NPS pipe 24 x 24.6 tk, split 254,
the larger column section of the left & right side shall govern

EXAMPLE # 2:
To determine post type: 100% panel coverage dimensions meter (U.O.N.)



The following method is for sizing of columns only. (Verified by GT-strudl computer runs)
Use the right side to size the post, then check the left side

Panel depth	= 2.54 m
Height from base plate to center of truss	= 6.4 m
Span	= 36.6 m
Cantilever	= 5.48 m
Wind pressure	= 1930 Pa
Force = area x pressure	= (X/2 + 5.48) x panel depth x pressure
	= (36.6/2 + 5.48) x 2.54 x 1930
	= 116574 N
Actual M = Mx + Mz	= Wind load moment on base
	= height x area of sign x wind pressure(1930 Pa) x 1.05

(5% increase in the moment will take care of the 20% lateral wind forces, AASHTO spec. computer runs verify by GT-strudl)

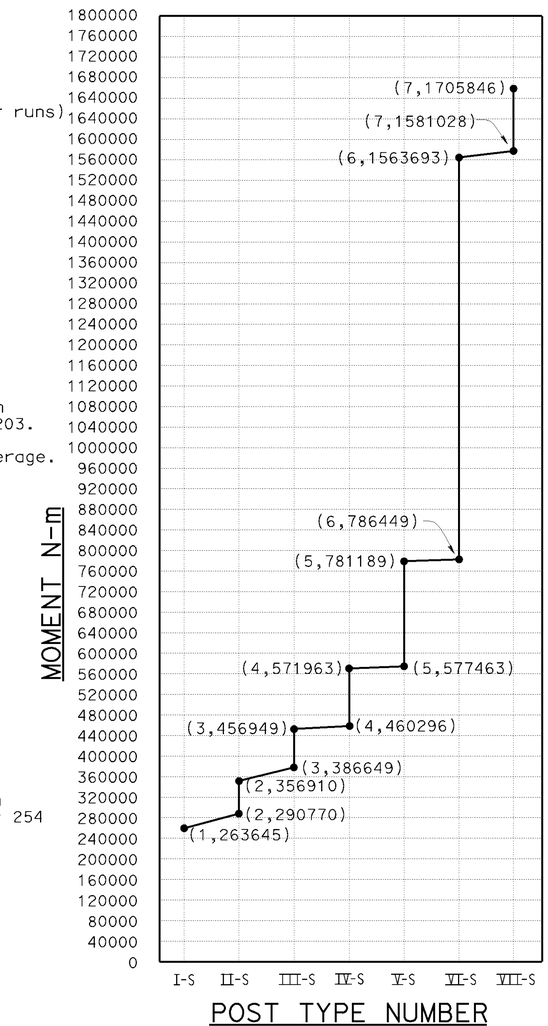
M = force x height = 116574 x 6.4 x 1.05 = 783379 N-m
Read from post type selection chart, left side corresponding to moment = 783379 N-m
Read column V-S, which correspond to the moment V-S, NPS pipe 24 x 12.7 tk, split 203.
Any moment bigger than 1705845 N-m, requires special column design.
Use same column size for left-hand side, the above example is using 100% panel coverage.

EXAMINE LEFT HAND SIDE COLUMN

Panel depth	= 2.54 m
Height from base plate to center of truss	= 8.84 m
Span	= 36.6 m
Cantilever	= 0 m
Wind pressure	= 1930 Pa
Force = area x pressure	= (X/2 + 0) x panel depth x pressure
	= (36.6/2 + 0) x 2.54 x 1930
	= 89710 N
Actual M = Mx + Mz	= Wind load moment on base
	= height x area of sign x wind pressure(1930 Pa) x 1.05

(5% increase in the moment will take care of the 20% lateral wind forces, AASHTO spec. computer runs verify by GT-strudl)

M = force x height = 89710 x 8.84 x 1.05 = 832688 N-m
Read from post type selection chart, left side corresponding to moment = 832688 N-m
Read column VI-S, which correspond to the moment VI-S, NPS pipe 24 x 24.6 tk, split 254
HOWEVER, for both side USE COLUMN SIZE VI-S, NPS pipe 24 x 24.6 tk, split 254,
the larger column section of the left & right side shall govern



Post Type	Specification of pipe post	
		Split (mm)
I-S	Pipe NPS 14 x 12.7 TK	127
II-S	Pipe NPS 16 x 12.7 TK	152
III-S	Pipe NPS 18 x 12.7 TK	178
IV-S	Pipe NPS 20 x 12.7 TK	203
V-S	Pipe NPS 24 x 12.7 TK	203
VI-S	Pipe NPS 24 x 24.6 TK	254
VII-S	Pipe NPS 24 x 24.6 TK	254

1. Legend:
   TK = Thickness
   X = span
2. Dimensions are in meter

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

THIS SHEET NOT A PART OF CONTRACT PLANS

OVERHEAD SIGNS-TRUSS TWO POST TYPE POST TYPES I-S THROUGH VII-S

POST SELECTION CHART | **11**