

Primax Shoring Inc.

PO Box 338, Patterson, CA 95363

Tel: 209-862-3722

Fax: 209-892-4565

www.primaxshoring.com

PRIMAX

SLIDING STRUT SHORING SYSTEM

US Patents 7,056,067 and 7,056,068

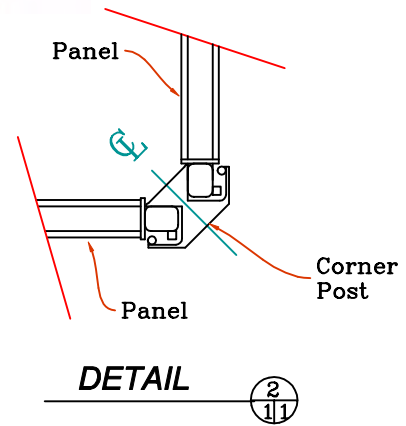
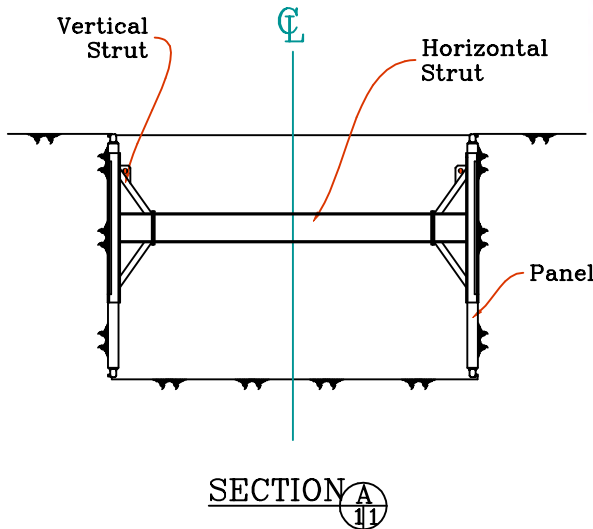
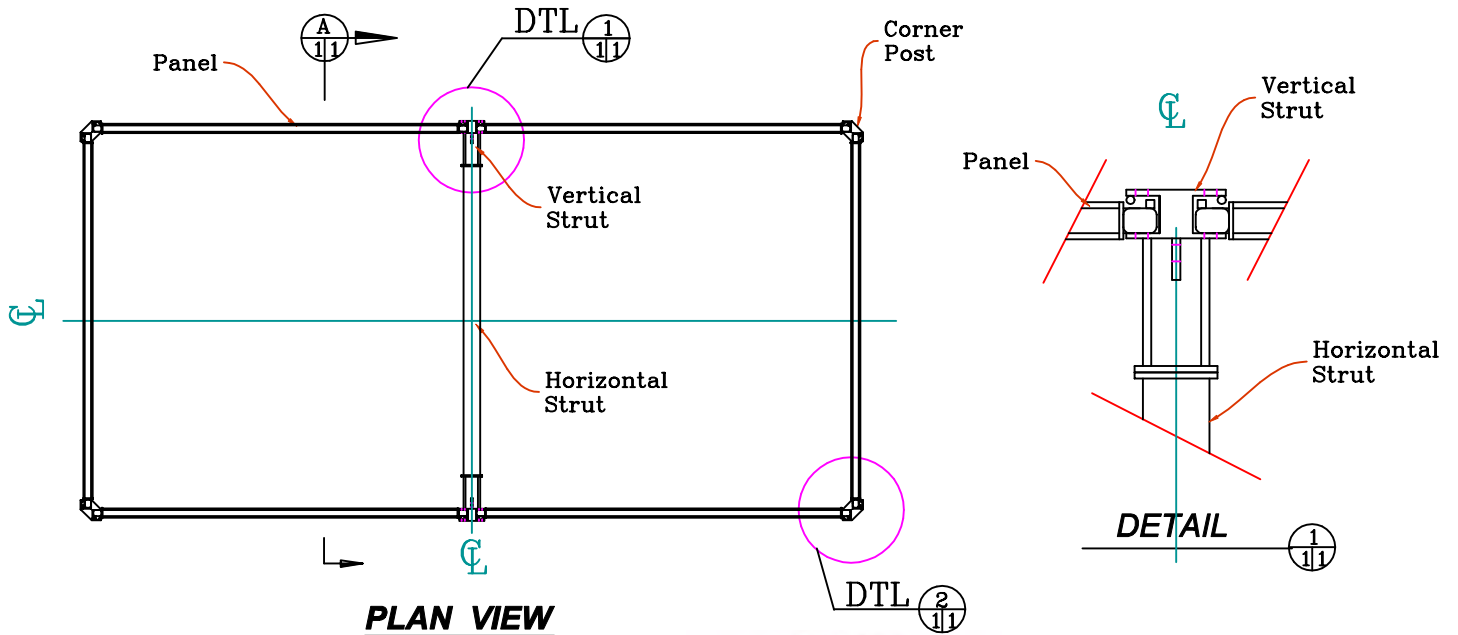


A Sliding Shoring System without Rail Posts

10/01/2015

PRIMAX SHORING SYSTEM

MANUFACTURING TABULATED DATA SHEET



Nomenclatura:

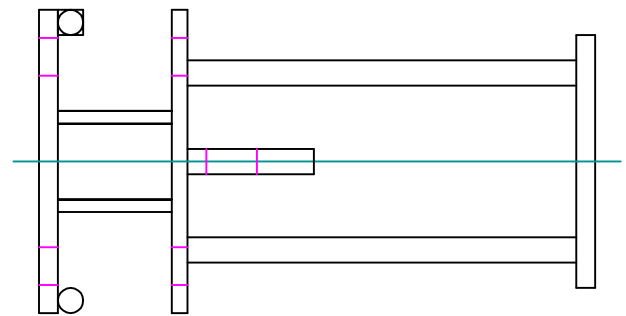
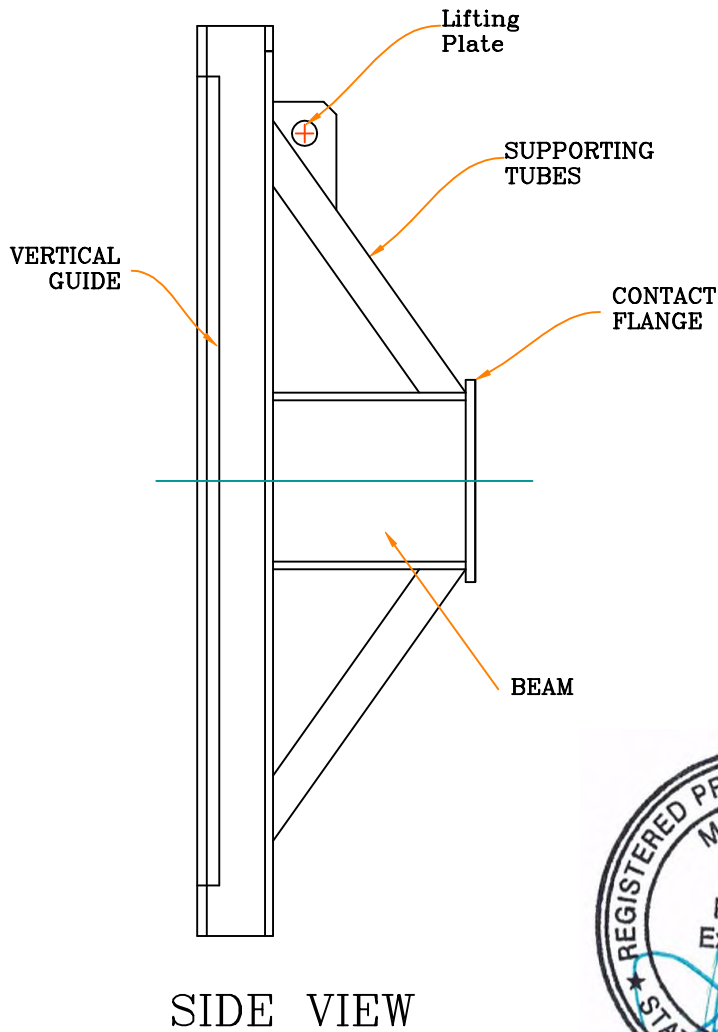
- P: Shoring Panel
- SST: Sliding Strut
- SCP: Single Guide Corner Post

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SIZE	Date 10/01/2015	Prep. and Rev. by Max Kadiu PhD PE
SCALE	SHEET 1:	GENERAL INFORMATION

PRIMAX SHORING SYSTEM

MANUFACTURING TABULATED DATA SHEET



TOP VIEW



Vertical Strut	
Height (Ft)	4
Weight (Lb)	450
Allowable Axial Load kips.	240
Axial Load Short term	319
Allowable Moment kip-ft.	450
Momet Short term kip-ft.	599

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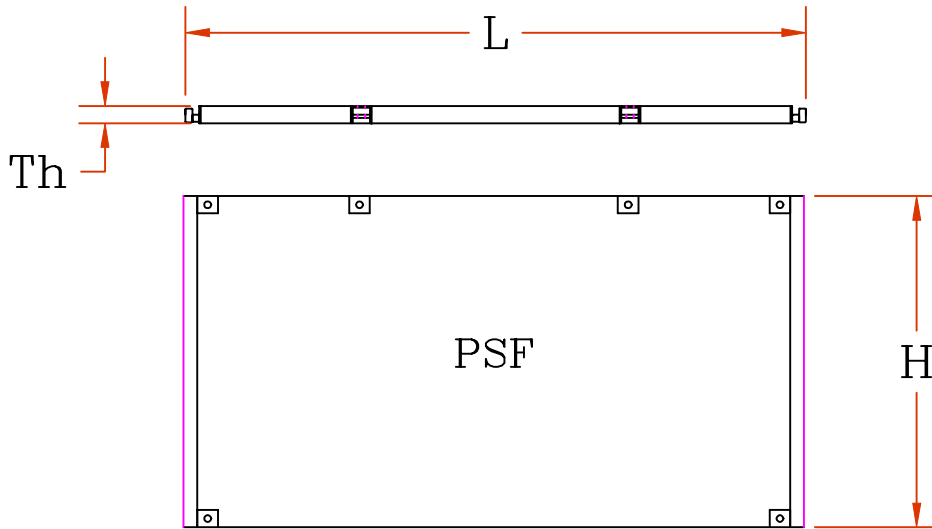
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SCALE	SHEET 2:	STRUTTING ASSEMBLY

PRIMAX SHORING SYSTEM

MANUFACTURING TABULATED DATA SHEET



NOTES:

- All excavation shall be in conformance with OSHA CFR 29, Part 1926, Subpart P, July 1997, and Cal OSHA Safety Orders Title 8 Sections 1504, 1539-1547.
- Soil Classification shall be in compliance with appendix A in OSHA CFR 29, Part 1926, Subpart P. Lateral earth pressure shall be determined as follows:

Type A-25 Soil	25 PSF x Depth + Surcharge
Type B-45 Soil	45 PSF x Depth + Surcharge
Type C-60 Soil	60 PSF x Depth + Surcharge
Type C-80 Soil	80 PSF x Depth + Surcharge
- Soil above top of shoring panel to be sloped according to OSHA regulations.
- Struts must remain in place while shoring panel is in excavation.
- Shoring panel may be held 2' above the bottom of excavation; however, loading shall be determined for full depth.
- Surcharge load to be determined by a competent person or engineer.
- Shoring panel lifting system shall be designed for shoring panel and strut weight + an appropriate factor of safety.
- Allowable depths include 100 PSF surcharge
- All material: $F_y = 46$ ksi steel.
- Thickness of panels: 5" unless specified otherwise

Shoring Panel											
Description	Code	Size (HxLxTh)			Capacity (PSF)		Weight	Allowable Depth Per Soils Type (ft)			
		Height (ft)	Length (ft)	Wall (in)	Long Term	Short Term		A-25	B-45	C-60	C80
Panel	P808	8	8.00	4	2,200	2,800	2,400	109	61	45	34
Panel	P810	8	10.42	4	2,000	3,143	2,600	123	68	51	38
Panel	P812	8	12.75	4	1,497	1,991	3,200	77	43	32	24
Panel	P815	8	15.00	5	1,431	1,903	4,500	73	41	30	23
Panel	P817	8	16.75	5	1,271	1,690	500	65	36	27	20
Panel	P820	8	20.25	5	902	1,200	6,000	45	25	19	14
Panel	P825	8	24.75	6	639	850	7,000	31	17	13	10



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SCALE	SHEET 3:	SHORING PANELS

PRIMAX SHORING SYSTEM

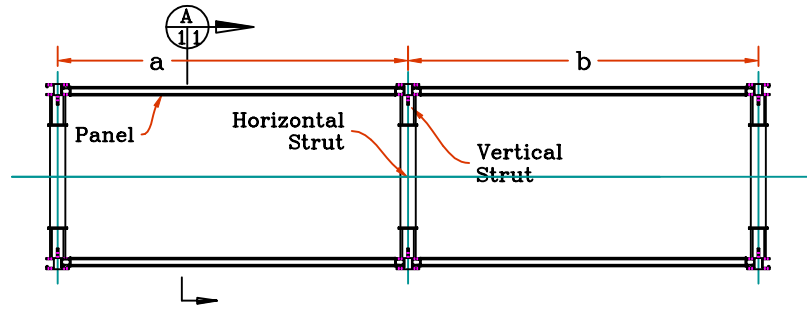
MANUFACTURING TABULATED DATA SHEET

Given Soil Parameters:

Soil Type, for example: C-60
Surcharge pressure, Ps: Ps := 100 PSF

Given Shoring & Excavation Parameters:

Depth of excavation, D:
Trench width, Lw (ft):
Distance between adjacent struts a, b (ft):
Height of the panel, hp:
Pipe culvert or clearance, c:



PLAN VIEW

Step 1: Calculate Active Pressure, Pa:

$$Pa := 60 \cdot D + Ps \quad \text{PSF}$$

Step 2: Check Panel Capacity

If Panel PSF Rating > Pa OK
Else Select a panel of higher PSF Rating.

Step 3: Check "H-Frame" Capacity

Tributary Width, Tw:
 $Tw := 0.5 \cdot (a + b) \quad \text{ft}$
Linear active Pressure on "H-Frame", Wp:

$$Wp := 0.001 \cdot Tw \cdot Pa \quad \text{kips/lin.Ft}$$

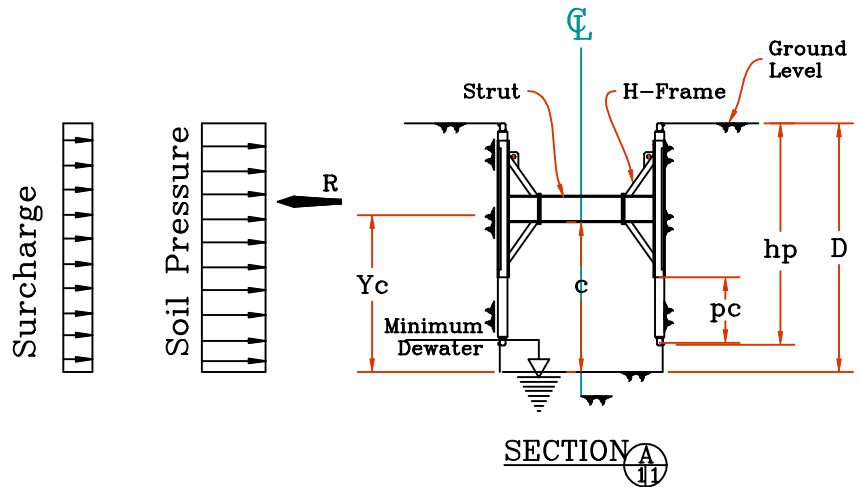
The allowable moment, Mallowable:

$$\text{Mallowable} := 450 \quad \text{kips - ft}$$

Maximum clearance allowable, Yc:

$$Yc := \sqrt{\frac{2 \cdot \text{Mallowable}}{Wp}} \quad \text{If } Yc > c \text{ then OK}$$

Check also: pc < Max. Panel Cantilever.



SECTION A-A

Step 4: Check Strut Size

Strut length, Ls: $Ls := Lw - 3 \quad \text{ft}$

Axial load on the strut:

$$Paxial := Wp \cdot D$$

Bending moment on the strut:

$$M := \frac{Wp \cdot [c^2 - (D - c)^2]}{2}$$

Check M again: it must be < M allowable.

Select beam "W Depth x Weight" having parameters A, Sxx, Syy, rx, ry, Fy=50 such that the following three conditions are satisfied:

$$fa := \frac{Paxial}{A} \quad \text{is } < \text{ than } Fa = \text{AISC Table 4-22 for } K=1 \text{ and entry } = KLs/ry$$

$$fb := \frac{M \cdot 12}{Sxx} \quad \text{is } < \text{ than } Fb = 0.66 \cdot Fy$$

$$\frac{fa}{Fa} + \frac{fb}{Fb} < 1$$

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SCALE	SHEET 4:	STRUT CALCULATION SHEET