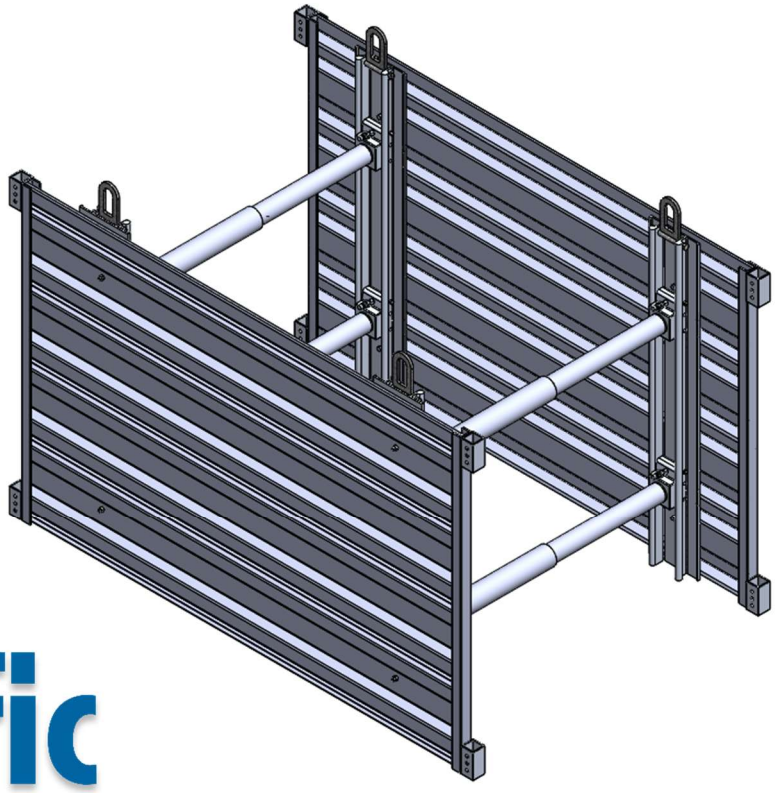
LIGHT CORRUGATED ALUMINUM SHORING SHIELDS WITH WHEEL KIT OPTION

TABULATED DATA
Effective December 17, 2019



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DESCRIPTION

The Pacific Shoring Horizontal Corrugated Aluminum Shoring Shield is a lightweight backhoe liftable shield built from vertical heavy or light-duty shoring rails and horizontal corrugated sheeting. Struts for the hydraulic mode are 2" hydraulic with aluminum tube oversleeves. Alternatively, aluminum oversleeves can be pinned for use in the static mode. The vertical rail configuration is set up so that the shield can be used with rolling wheel kits or easily lifted with cables using a backhoe, excavator or boom truck. These shoring shields are designed for light duty utility work in OSHA Type A, B, and C-60 soil in depths to 16 ft. Shield sizes vary in lengths from 4ft. to 12ft. and heights of 2ft. and 4ft. Allowable trench widths are from 2ft to 10ft without end sheeting, or 2ft to 7ft with sheeting.

GENERAL INFORMATION FOR USE OF HORIZONTAL CORRUGATED ALUMINUM SHIELDS

1.1 The Pacific Shoring Horizontal Corrugated Aluminum Shoring Shields tabulated here are based on requirements of Federal OSHA 29CFR, Part 1926, Subpart P-Excavations and Trenches

> **1926.652(c)(2)**-Option (2) - Designs Using Manufacturer's Tabulated Data.
> 1926.652(c)(2)(i) -Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

All provisions of Subpart P apply when utilizing this tabulated data. The contractor's competent person shall use this data to select allowable trench depth, and width for the shield being used. The competent person utilizing this tabulated data shall be experienced and knowledgeable of all requirements of Subpart P, and trained in the use and safety procedures for aluminum hydraulic shoring shields.

1.2 Use of this tabulated data is dependent on first classifying the soil in accordance with OSHA Appendix A, Soil Classification. Classification shall be just prior to installing shoring. Soil conditions may change at a later date and require shores to be reset at a different spacing.

1.3 Pacific Shoring Horizontal Corrugated Aluminum Shoring Shields are tabulated based on the effect of a 20,000 lb surcharge load set back 2 ft from the edge of the trench and the equivalent weight effect of the OSHA soil type, see classification of soil types, 2.2.

1.4 The depth and spacing given in Table 1 governs the use of Pacific Shoring Light Corrugated Aluminum Shoring Shields Pacific. This Tabulated data applies exclusively to shoring shields manufactured by Pacific Shoring. Any alterations to the shields or variance from this tabulated data shall be indicated in a site-specific plan prepared and approved by a registered engineer.

1.5 When the lower portion of the trench is shored and the top is sloped the shoring shield shall extend a minimum of 18" above the top of the vertical trench wall and the sloping beyond shall be in accordance with OSHA sloping and benching for the soil type encountered.

1.6 Shields shall be installed and removed from outside the trench.

1.7 The competent person shall continually monitor the shored excavation for changed conditions such as water seepage, soil movement cracks at the surface, sloughing or raveling, proper surcharge load weight less than 20,000 lbs and setback a minimum of 2 ft, and damaged shores.

1.8 Workers shall always enter, exit, and work inside the shored area of the trench.

CLASSIFICATION OF SOIL TYPES

2.1 Soil classification shall be in accordance with OSHA Appendix A and classified just prior to installing waler rail systems. Soil conditions may change at a later date and require waler rails to be reset at a different spacing.

2.3 The equivalent weight of OSHA soil types* is assumed to be as follows:

- OSHA Type "A" Soil 25 PSF per ft of depth
- OSHA Type "B" Soil 45 PSF per ft of depth
- Type "C-60" Soil 60 PSF per ft of depth**
- OSHA Type "C" Soil 80 PSF per ft of depth

* These equivalent weights were adapted from OSHA 1926 Subpart P App C, Timber Shoring for Trenches, Tables C-1.1, C-1.2, and C-1.3

** Type C-60 soil is not identified or classified in OSHA Appendix A

2.2 Type C-60 soil is soil that does not qualify as OSHA Type A, or Type B, can be cut with vertical walls and will stand up long enough to safely insert and pressurize the hydraulic shore.

SHORING SHIELD SELECTION GUIDE

4ft High Shield Allowable Depth (ft)						
Panel Length	Soil Rating			PSF	Approx Weight (lb)	
	A25	B45	C60		Hydraulic	Static
4ft	16	16	16	960	203	190
6ft	16	16	16	960	267	250
8ft	16	15	11	660	325	308
10ft	16	12	9	516	394	377
12ft	14	8	6	348	454	437

Table 1: Light Shield Depth Ratings

Notes: Horizontal Corrugated Aluminum Shoring Shields

1. Vertical end beams are Pacific Shoring heavy-duty trench rails.

2. The PS-Shoring Shield capacities denote the maximum lateral soil pressure, in pounds per square foot (PSF)

3. In the “hydraulic mode”, the PS-Shoring Shields are used with the Pacific Shoring Strut pressurized to a minimum of 750 psi with shoring fluid. When PS-Shoring Shields are pressurized against the excavation faces, they may be stacked one above the other to the depths shown.

4. When PS-Shoring Shields are used in OSHA Type C soil, the shield wall must not be greater than 2’ from the bottom of the excavation.

5. In the “static mode”, the PS-Shoring Shields are used with all the Pacific Shoring Struts pinned. When PS-Shoring Shields are used in the “static mode” and not pressurized, they may be stacked 3 deep if the bottom shield is no deeper than the allowable depths shown. PS-Shoring Shields shall be connected in the “static mode” with stacking brackets manufactured or approved by Pacific Shoring LLC.

6. This tabulated data also applies to 2ft high shields. 2ft high shields have the same PSF rating as 4ft shields. Approximate weight is half of a 4ft high shield of the same length.

7. Weights listed are for shields with light-duty rails. Shields with heavy-duty rails are 16 pounds heavier.

END SHEETING

Pacific Shoring Light Corrugated Shield can be end loaded using optional telescoping brackets. When using end sheeting, either of the following requirements must be met:

a) Shield is in hydraulic configuration with standard 2" shoring cylinders and pressurized to 1000psi.
b) Shield is configured as a static 4-sided box, with sheeting on both sides.

End loading a lightweight shield without following the above requirement may result in the shield shifting in the event of an end collapse.

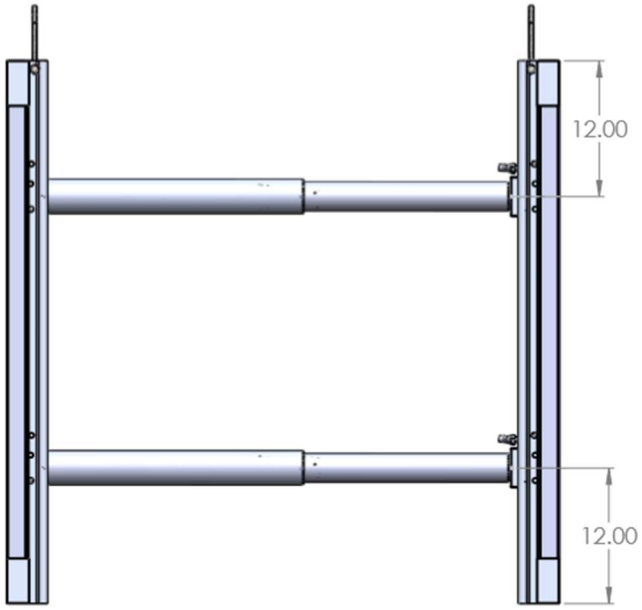
1. All notes from **Table 1** Apply.
2. Plywood sheeting used with Light Shields shall be in accordance with **Table 2**. Plywood shall not be used in C-60 soil below 10 ft deep.
3. Acceptable metal sheeting is;
   a. Pacific Shore Corrugated Aluminum sheeting or and aluminum sheeting with a minimum section modulus of 1.13in3
   b. Steel sheeting with a minimum section modulus of 1.125 in3 such as ¾"plate or sheet piles.

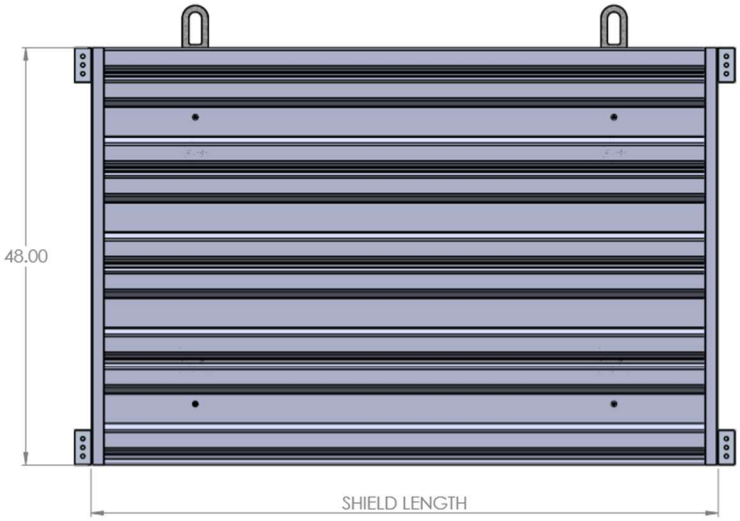
Material	Grade Stress Level	Effective Section Modulus KS	Allowable Bending F_b
1-1/8"-2.4.1 int APA Plywood Finland Form	S-2	0.840 in^3/ft	1100 psi
¾" All-Birch	S-1	0.4826	3600 psi

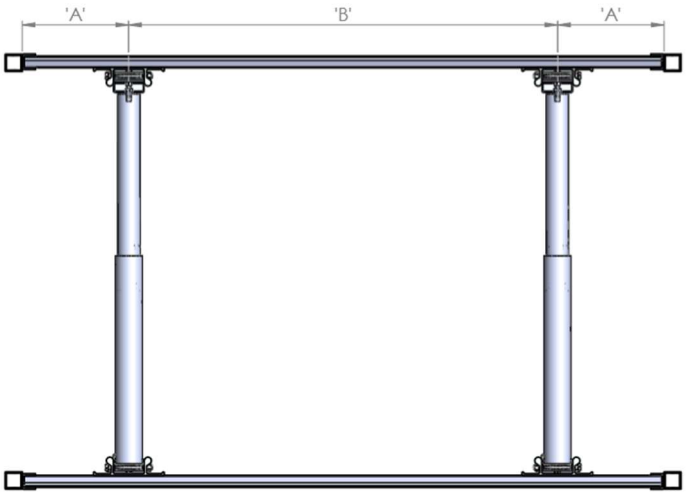
Table 2 Bending properties for OSHA Sheeting

LIGHT CORRUGATED ALUMINUM SHORING SHIELDS WITH WHEEL KIT

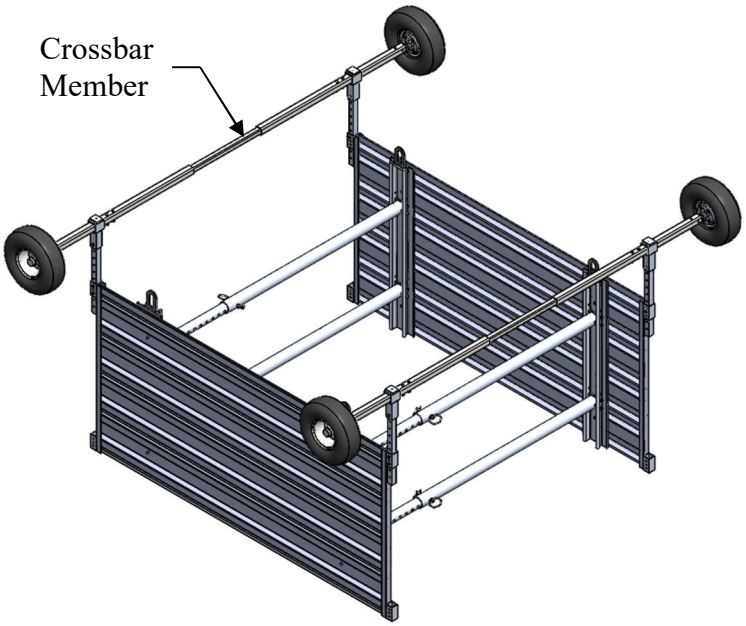
SHIELD LENGTH (FEET)	'A' DIMENSION (INCHES)	'B' DIMENSION (INCHES)
4'	6"	36"
6'	12"	48"
8'	16"	64"
10'	24"	72"
12'	28"	88"







WHEEL KIT



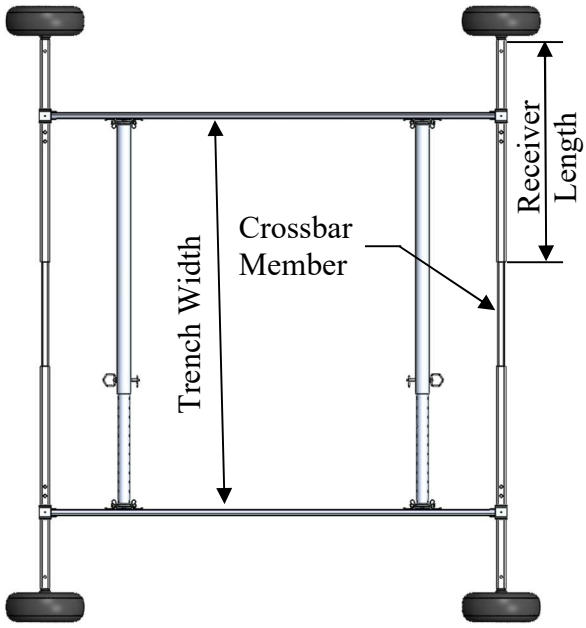


Table 2: Crossbar Member Size for Wheel Kit (**2' Aluminum Receivers**)								
Stacked No. of Shields	Trench Width							
	3'	4'	5'	6'	7'	8'	9'	10'
1	CB1	CB1	CB1	CB1	CB1	CB2	CB2	CB2
2	CB1	CB1	CB2	CB2	CB2	CB2	CB2	CB2
3	CB1	CB2	CB2	CB2	CB2	N/A	N/A	N/A
CB1:	1.5" Square x 3/16" Aluminum Tube (ASTM 6061-T6)							
CB2:	1.5" Square x 3/16" Steel Tube (ASTM A36)							

Table 3: Crossbar Member Size for Wheel Kit (**4' Steel Receivers**)								
Stacked No. of Shields	Trench Width							
	3'	4'	5'	6'	7'	8'	9'	10'
1	CB1	CB1	CB1	CB1	CB1	CB1	CB1	CB1
2	CB1	CB1	CB1	CB1	CB1	CB1	CB2	CB2
3	CB1	CB1	CB1	CB1	CB2	CB2	CB2	CB2
CB1:	1.5" Square x 3/16" Aluminum Tube (ASTM 6061-T6)							
CB2:	1.5" Square x 3/16" Steel Tube (ASTM A36)							

Notes: Wheel Kit with Aluminum Corrugated Shields

1. The wheel kit can only be used when shields are in the "static mode" (see note #5 on page 6 for requirements).
2. The crossbar of the wheel kit must be selected per Table 2 and Table 3 and the crossbar must be pinned to the wheel kit.
3. The shields shall be securely connected to the wheel kit connection point with pins at all 4 corners. If the shields are to be stacked, then the shields must be connected with pins at all 4 corners.
4. The maximum cumulative weight of shields that can be attached to the wheel kit is 1,380 lbs.