

CERDA INDUSTRIES, INC.

TAB DATA FOR VERTICAL HYDRAULIC SHORING

CONDITIONS FOR USE OF TABULATED DATA

1. This Tabulated Data has been prepared by a Registered Professional Engineer as required to comply with the OSHA standard 29 CFR Part 1926, Subpart P.
2. HYDRAULIC SHORING must be used in a manner consistent with safe working procedures, Federal, State and Local regulations.
3. A "competent person", who has been trained in the proper use of hydraulic shoring safe excavation practices and soil classification methods must direct and control the use of the vertical hydraulic shoring system according to the spacing required in the depth chart.
4. The "competent person" must be knowledgeable and capable of complying with all federal regulations, state and local laws and ordinances.
5. The Soil Types A - 25, B - 45, are as defined in the OSHA Standard. Soil Type C - 60 is a moist, cohesive soil or a moist dense granular soil, which is not flowing or submerged and has an Equivalent Fluid Pressure (EFP) of 60 PSF per foot of depth. This soil can be cut vertically and will stand long enough to safely install the protective system.
6. The "competent person" must monitor the excavation for any signs of deterioration or condition change that may alter soil classifications.
7. "Competent person" is also one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
8. Any topic not covered by this data shall be governed by the OSHA standard.
9. CERDA INDUSTRIES shall not be liable for damage or injury resulting from improper use of the Hydraulic Shores. Improper use of, or modifications to the Hydraulic Shores, or use of components not specifically authorized by CERDA INDUSTRIES without the written consent of Cerda Industries shall void this data and all manufacturers warranty.

DESIGN CRITERIA AND LIMITATIONS

1. Depth and chart tables include a three-foot high spoil pile within a distance from the face of the excavation equal to the depth of excavation. Hydraulic Shores are not designed to support heavier surcharge loads, such as those imposed by building foundations. If Hydraulic Shores are used near building foundations, those foundations may need to be underpinned to prevent any settlement.
2. Hydraulic Shore struts are not designed to support any vertical loads and shall not be used as a ladder to provide access or egress to the trench.
3. This data is valid for Hydraulic Shores that are in structurally sound condition. Any significant damage will void this data, and all manufacturers warranty. Any damaged Hydraulic Shores shall not be used.
4. The competent person shall monitor the excavation and adjacent areas daily, after every rainstorm, and also after every event that might change the stability of the excavation.
5. The excavation must be free of water while using the Hydraulic Shores. Surface water shall be diverted away from the excavation and water must be pumped out of the excavation bottom. The competent person shall monitor the excavation in these conditions to prevent the water from generating excessive lateral pressure on the Hydraulic Shore.

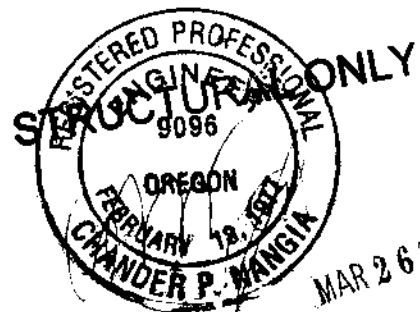
NOTES FOR TABULATED DATA

1. The top cylinder of the Hydraulic Shore shall be no less than twelve inches and no more than twenty-four inches below the top of the trench.
2. The lowest cylinder of a Hydraulic Shore shall be no more than forty-eight inches above the bottom of the excavation.
3. If sheeting is required, the sheeting shall extend from the top of the excavation to a maximum of two feet off the bottom of the excavation. Some soils may require that the sheeting be extended to the full depth of the excavation. (Maximum horizontal gap between sheets not to exceed 24").

NOTE: In some applications, sheeting may not be required, but it may be desired to prevent random sloughing or raveling of the soil.

4. When an Oversleeve is required, the Oversleeve shall be a structural steel tube (IS 3 1/2 x 3 1/2 x 3/16) and shall extend the full collapsed length of the cylinder. The Oversleeve is only applicable to a Vertical Shore.
5. Hydraulic Shores are to be used vertically.
6. If a Hydraulic Shore is positioned on a joint between two pieces of sheeting, the shore shall be spaced on the seam equally.
7. The hydraulic cylinders shall be energized and maintain a 750 psi. If the initial pressure can't be maintained because the soil is too soft, another protective system will be required.
8. An approved shoring system shall consist of a minimum of two Hydraulic Shores, spaced in accordance with this data, and the safe working area shall be between two consecutive shores.
9. In excavations that are six feet deep or less, only one Hydraulic Shore is required in a vertical plane.
10. The following materials, or an approved equal, shall be used for sheeting with the Hydraulic Shore:
 1. Two sheets of 3/4" thick CDX Plywood placed back to back
 2. 1 1/8" thick CDX Plywood
 3. 3/4" thick 14 ply Arctic White Birch (Finland Form)

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HYDRAULIC VERTICAL SHORE DEPTH TABLES

Hydraulic Shores - Type "A" Soils

Depth of Excavation	Excavation Width	Maximum Vertical Spacing Of Struts	Maximum Horizontal Spacing Of Struts	Sheeting Required	Steel Oversleeve Required
0 ft - 15ft	0 ft - 8ft*	4ft	8ft		No
	8 ft - 12ft			No	No
	12ft - 15ft				Yes
15ft - 25 ft	0 ft - 8ft*	4ft	8ft		No
	8 ft - 12ft			No	Yes
	12ft - 15ft				Yes

Hydraulic Shores - Type "B" Soils

Depth of Excavation	Excavation Width	Maximum Vertical Spacing Of Struts	Maximum Horizontal Spacing Of Struts	Sheeting Required	Steel Oversleeve Required
0 ft - 15ft	0 ft - 8ft*	4ft	8ft		No
	8 ft - 12ft			No	No
	12ft - 15ft				Yes
15ft - 25 ft	0 ft - 8ft*	4ft	6ft		No
	8 ft - 12ft			No	Yes
	12ft - 15ft				Yes

Hydraulic Shores - Type "C60" Soils

Depth of Excavation	Excavation Width	Maximum Vertical Spacing Of Struts	Maximum Horizontal Spacing Of Struts	Sheeting Required	Steel Overstevee Required
0 ft - 15ft	0 ft - 8ft*	4ft	6ft		No
	8 ft - 12ft			Yes	No
	12ft - 15ft				Yes
15ft - 25 ft	0 ft - 8ft*	4ft	4ft		No
	8 ft - 12ft			Yes	Yes
	12ft - 15ft				Yes

*Indicates maximum width for a Vertical End Shore

