

**LIMITATIONS OF USE** FOR ALL "S" SERIES *ultra SHORE* SHIELDS

1. Shields cannot be used beyond the limits of the manufacturers *TABULATED DATA* and *LIMITATIONS OF USE* without the written permission of the manufacturer.
2. Shield use is based upon the maximum LATERAL EARTH PRESSURE (psf) at the trench bottom.
3. The *psf* rating and shield model number are located on an identification tag on each side panel. No shield should be used with the identification tag missing or when the information on the tag is not legible.
4. All "S" series shields are intended for use in DRY, MOIST or MODERATELY WET soils that are likely to collapse. The shield is not intended for use in conditions where adjacent soils are free flowing naturally saturated or submerged soils such as bogs or wetlands type conditions.
5. Any modifications or damage will void the trench shield certification. Use of the "S" series shields is limited to skilled workmen trained in the application and understanding of the *TABULATED DATA* and *LIMITATIONS OF USE*.
6. All shields can be stacked in any combination to any depth certified in the *TABULATED DATA*. In excavations greater than 8' depth, the shields should be stacked with the shield with the highest *psf* value on the bottom and the lowest *psf* value on the top.
7. All shields can be used in either the horizontal or vertical position. Models S24-60 and S24-84, must be coupled with authorized stacking tubes and keepers to any model of equal length for use horizontally, or if used as an individual unit, must be operated by pressurized spreaders approved by the manufacturer.
8. Lifting the shield with heavy equipment from an excavation under significant collapse, should be done with the use of nylon slings affixed around the spreader socket at all four uppermost points.
9. Each shield is given a *psf* rating that indicates the maximum lateral earth pressures the shield can be subjected to. Actual soil conditions will vary from the approximate bury depths given in the *TABULATED DATA* examples. The user must verify that the existing soil conditions do not exceed the shield rating. **In no case can the "S" series shields be used in excavations exceeding 12 feet in depth WITHOUT CONDUCTING THE PROPER EARTH PRESSURE CALCULATIONS.** *Ultra SHORE* recommends a soils engineer OR a *Qualified Person* be consulted to verify pressure rating of the soils being excavated.
10. Special care in determining the maximum depth of bury must be taken when ground water conditions or SURCHARGE loads exist. Adjacent surcharge loads include but are not limited to such things as spoil material, adjacent structures and traffic. Adjacent is considered to be the area parallel or perpendicular to the excavation that is equal to the excavation depth. Dry to moist spoil material can be valued at 32psf/vf of spoil height for that area adjacent to the trench. These loads must be taken into account in the determination of maximum bury depths. *ultra SHORE* recommends evaluation of surcharge loads by a Professional Engineer OR a *Qualified Person*.
11. Shields must be protected from lateral movement to any extent that could endanger workmen inside the shield. Lateral movement can be kept to a minimum by keeping the excavation walls as close to the shield as possible. Significant voids may occur at the time of excavation that would allow significant movement of the shield in the event of a cave-in. Control may be maintained by placing sufficient quantities of backfill material between the excavation sidewall and the exterior of the shield to limit lateral movement.
12. Shield use must be consistent with all applicable laws and regulations pertaining to excavations.

# ultraSHORE "S" SERIES SHIELDS

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See Limitations of Use on reverse side

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## TABULATED DATA

Classification of the partial makeup of soils as A, B, or C is not required when using this shield for the entire excavation depth.

psf = pounds per square foot · vf = vertical foot

### MAXIMUM BURY DEPTHS for each model EXCLUDING SURCHARGE LOADS

SOIL DESCRIPTION	SOIL LATERAL EARTH PRESSURE	model S24-84 (1600 psf)	psf rating	model S48-84 (950 psf)	psf rating	model S24-60 (1600 psf)	psf rating	model S48-60 (1100 psf)	psf rating
<i>Hard and Solid Soils - OSHA "A" Soils</i>									
Dry Stable material	25 psf/vf		12 vf		12 vf		12 vf		12 vf
<i>Soils likely to crack or crumble, Soft, sandy, filled or loose soils - OSHA "B" and "C" soils</i>									
Dry to Moist, fine sand	35psf/vf		12 vf		12 vf		12 vf		12 vf
clays, gravels	45psf/vf		12 vf		12 vf		12 vf		12 vf
Very moist	55psf/vf		12 vf		12 vf		12 vf		12 vf
Wet materials	65psf/vf		12 vf		12 vf		12 vf		12 vf
Mucky materials	75psf/vf		12 vf		12 vf		12 vf		12 vf
Free flowing saturated or submerged soils	85psf/vf	ultra SHORE Products strongly suggests consulting an Engineer for use in this category.							

**NOTE: The above depths can be exceeded if a qualified person evaluates the maximum earth pressure at the bottom of the excavation.**

Shield allowable depth of bury is determined by dividing the shield *psf rating* by the *LATERAL EARTH PRESSURE* rating. Spoil *Surcharge Loads* should be valued at 36psf/vf of spoil height. This surcharge load must be subtracted from the shield psf rating before any depth calculation.

**EXAMPLE using Model S48-84:**

950 psf *shield rating* less 5' of spoil (5x36=180) = 770psf (950 - 180 = 770psf).

The psf rating balance of 770, when divided by the soil *LATERAL EARTH PRESSURE* rating for a very moist sandy material of 55psf/vf = 14'.