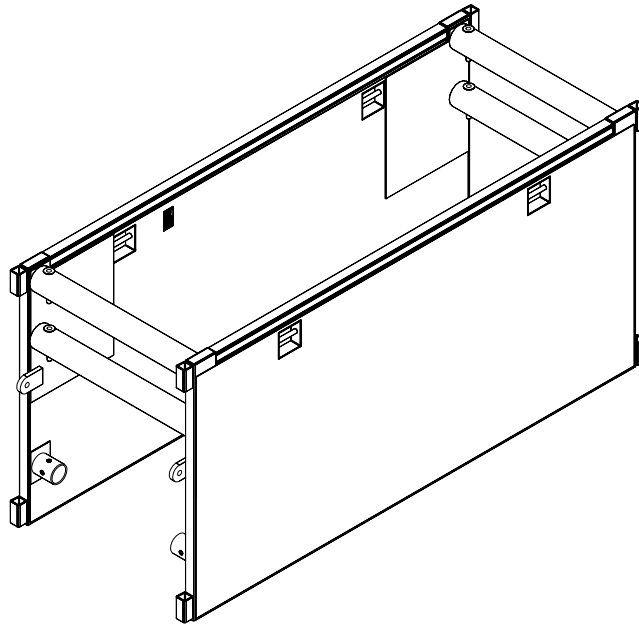


SPEED SHORE

MANUFACTURER'S TABULATED DATA

"DW" MODELS

STEEL TRENCH SHIELDS



August 4, 2004

SPEED  **SHORE**

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WARNING

EXCAVATION PROCEDURES MAY BE VERY DANGEROUS

- **A TRAINED *COMPETENT PERSON* SHALL: SUPERVISE ALL EXCAVATION OPERATIONS, ENSURE THAT ALL PERSONNEL ARE WORKING IN SAFE CONDITIONS, AND HAVE THOROUGH KNOWLEDGE OF THIS TABULATED DATA. THE *COMPETENT PERSON* SHALL HAVE THE AUTHORITY TO STOP WORK WHEN IT IS UNSAFE FOR WORKERS TO ENTER AN EXCAVATION.**
- **ALL PERSONNEL SHALL BE TRAINED IN CORRECT EXCAVATION PROCEDURES, PROPER USE OF THE PROTECTIVE SYSTEM AND ALL SAFETY PRECAUTIONS.**
- **EXCAVATIONS AND PROTECTIVE SYSTEMS SHALL BE INSPECTED AT LEAST DAILY AND WHENEVER THERE IS A CHANGE OF SOIL, WATER OR OTHER JOB SITE CONDITIONS.**
- **ALL LIFTING AND PULLING EQUIPMENT, INCLUDING CABLES, SLINGS, CHAINS, SHACKLES AND SAFETY HOOKS SHALL BE EVALUATED FOR SUITABILITY AND CAPACITY, AND SHALL BE INSPECTED FOR DAMAGE OR DEFECTS PRIOR TO USE.**
- **ALL INSTALLATION AND REMOVAL OF SHORING AND SHIELDING SHALL BE FROM ABOVE GROUND ONLY.**
- **DO NOT ALLOW PERSONNEL TO ENTER AN EXCAVATION THAT IS NOT PROPERLY SHORED, SHIELDED OR SLOPED.**
- **PERSONNEL SHALL ALWAYS WORK WITHIN THE SHORING AND SHIELDING. PERSONNEL SHALL NOT STAND ON THE EDGE OF AN UNSHORED EXCAVATION.**
- **ALL PERSONNEL SHALL ENTER AND EXIT EXCAVATIONS ONLY WITHIN SHIELDED OR SHORED AREAS.**

SPEED SHORE'S "MANUFACTURER'S TABULATED DATA" IS A GENERAL SET OF GUIDELINES AND TABLES TO ASSIST THE *COMPETENT PERSON* IN SELECTING A SAFETY SYSTEM AND THE PROPER SHORING OR SHIELDING EQUIPMENT. THE *COMPETENT PERSON* HAS SOLE RESPONSIBILITY FOR JOB SITE SAFETY AND THE PROPER SELECTION AND INSTALLATION AND REMOVAL OF THE SHORING OR SHIELDING EQUIPMENT.

THIS TABULATED DATA IS NOT INTENDED TO BE USED AS A JOB SPECIFIC EXCAVATION SAFETY PLAN, BUT SHALL BE USED BY THE *COMPETENT PERSON* TO SUPPLEMENT HIS TRAINING, HIS EXPERIENCE AND HIS KNOWLEDGE OF THE JOB CONDITIONS AND SOIL TYPE.

SPEED SHORE
TABULATED DATA

1.0 SCOPE

- 1.1 Speed Shore's Tabulated Data complies with the O.S.H.A. standards as stated in the Code of Federal Regulations 29, Part 1926, Subpart P - Excavations, Section 1926.652(c)(2). This data shall only be used by the contractor's **competent person** in the selection of Speed Shore Trench Shields. The **competent person** shall be experienced and knowledgeable in trenching and excavation procedures, soil identification and in the use of Speed Shore Trench Shields.
- 1.2 All personnel involved in the installation, removal and use of Trench Shields shall be trained in their use and advised of appropriate safety procedures.
- 1.3 Tables TS-1 and TS-2 are based upon requirements stated in CFR 29, Part 1926 and applicable portions of CFR 29, Part 1910. The **competent person** shall know and understand the requirements of those parts before using this data.
- 1.4 Whenever there is a variance between this Tabulated Data and CFR 29, Part 1926, Subpart P - Excavations, this Tabulated Data shall take precedence. Whenever a topic or subject is not contained in this Tabulated Data, the **competent person** shall refer to CFR 29, Part 1926, Subpart P - Excavations.
- 1.5 This data refers to the Code of Federal Regulations, 29, Parts 1910 and 1926. In states that have their own state O.S.H.A. refer to similar regulations in the current construction rules published by the state office of Occupational Health and Safety.
- 1.6 Tables TS-1 and TS-2 shall be used only in excavations with soil conditions as noted. For other soil and excavation conditions and depths, site-specific engineered designs are required. Contact Speed Shore Corporation for assistance.
- 1.7 This Tabulated Data is applicable for standard products manufactured exclusively by Speed Shore and may only be used with Speed Shore manufactured products. Any modification of Speed Shore products not specifically authorized by Speed Shore Corporation voids this data.

2.0 DEFINITIONS (RE: CFR 29, Part 1926.32 Definitions) - RESTATED FOR EMPHASIS

- 2.1 1926.32 (F) "**competent person**" means 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.
- 2.2 1926.32 (p) "Shall" means mandatory.

3.0 SOIL CLASSIFICATIONS

- 3.1 In order to use the data presented in Tables TS-1 and TS-2 the soil type, or types, in which the excavation is cut shall first be determined by the **competent person** according to the O.S.H.A. soil classifications as set forth in CFR 29, Part 1926, Subpart P, Appendix A.
- 3.2 Tables TS-1 and TS-2 are also for use in Type C-60 soil (see 3.3 for definition).
- 3.3 Type C-60 soil is a moist, cohesive soil or a moist dense granular soil which does not fit into Type A or Type B classifications, and is not flowing or submerged. This material can be cut with near vertical sidewalls and will stand unsupported long enough to allow the shields to be properly installed. The **competent person** must monitor the excavation for signs of deterioration of the soil as indicated by, but not limited to, freely seeping water or flowing soil entering the excavation around or below the Trench Shield. An alternate design for less stable Type C soil may be required where there is evidence of deterioration.
- 3.4 Water flowing into an excavation, from either above or below ground, will cause a decrease in the stability of the soil. Therefore, the **competent person** shall take action to prevent water from entering the excavation and promptly remove any water that accumulates in the excavation. Closer monitoring of the soil is required under wet conditions, particularly in the less cohesive (weaker) soil conditions. A small amount of water, or flowing conditions may downgrade the soil classification to a less stable

classification. A large amount of water, or flowing conditions will downgrade all soils to O.S.H.A. Type C. Speed Shore shoring and shielding systems may be used safely in wet conditions when the excavation is monitored by the *competent person*. Example: When repairing a leak in utility lines, it is often difficult or even impossible to keep water out of the excavation.

4.0 PRESENTATION OF INFORMATION

- 4.1 Information is presented in tabular form in Tables TS-1 and TS-2 for use in O.S.H.A. Type A, B and C soils, and for use in Type C-60 soil (see 3.3 for definition).
- 4.2 Tables TS-1 and TS-2 are not considered adequate when loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by 3 feet of soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.
- 4.3 Using Tables TS-1 and TS-2 and after determining the soil type, the *competent person* determines the maximum depth the Trench Shield may be used.

5.0 ASSEMBLY

- 5.1 Shields shall be inspected by a *competent person* before and after assembly.
- 5.2 All damage shall be evaluated and repairs made under the direction of a registered professional engineer. All missing or damaged components shall be replaced with genuine Speed Shore parts.
- 5.3 All lifting and pulling equipment, (including cables, slings, chains, shackles and safety hooks) used to handle shields or components shall be evaluated for lifting capacity, and inspected for damage or defects, prior to use, by experienced operators and shall meet O.S.H.A. requirements.
- 5.4 Tag lines or other approved safety devices shall be utilized to keep employees away from loads handled by lifting equipment.
- 5.5 Spreaders, arched spreaders, pins with keepers and accessories shall be in place before using the shields.
- 5.6 Standard Spreader Requirements: Diameter 8" schedule 80, 20' Maximum Spreader Length
- 5.7 Two spreaders are required at each end of all shields. Shields with 3 spreader sockets at the front end shall have spreaders at any 2 of the 3 sockets.
- 5.8 All spreaders shall be singled or doubled pinned at each end, based on number of holes in the spreader sockets, with 1.5-inch diameter pins furnished by Speed Shore.
- 5.9 Assembly instructions:
 - 5.9.1 Lay first panel on ground, spreader sockets up.
 - 5.9.2 Stand spreaders over sockets and insert pins with keepers.
 - 5.9.3 Lower second panel onto spreader tubes and insert pins with keepers.
 - 5.9.4 Attach 4-point lifting sling to lifting brackets.
 - 5.9.5 Stand shield up, attach tag lines and install into trench properly.
- 5.10 Trench Shields may be stacked utilizing stacking socket and appurtenances providing the allowable designed depth rating for each shield is not exceeded in the tables TS-1 and TS-2.

6.0 INSPECTION

- 6.1 The *competent person* must evaluate the soils to assure the rated capacity of the Trench Shields is not exceeded by the lateral pressure of the soil. Soils shall be evaluated in accordance with Part 3.0.
- 6.2 The *competent person* shall monitor all phases of the assembly, installation and use of this product to evaluate and eliminate methods, which could endanger employees utilizing this product.
- 6.3 Daily inspections of the Trench Shield and accessories must be performed by the *competent person* and deficiencies corrected.
- 6.4 Inspections shall be conducted as necessary for hazards associated with: water accumulation, changing soil conditions, or changing site weather conditions.
- 6.5 Stacked shields shall be monitored to assure that each panel is secured to the one below it.

7.0 SAFETY SPECIFICATIONS

- 7.1 Employees shall be protected from loose or falling material. Trench Shields must always be used in a manner that loose or falling soil cannot enter over the top or through the end of the shield. End plates may be required. Spoil piles must be kept back from the edge of the excavation at least 2 feet.
- 7.2 Employees shall not enter or exit shields through unprotected areas and shall remain in shields at all times while working.
- 7.3 Employees shall not be in or under a shield while it is being lifted or moved.
- 7.4 Bottom of shields may be a maximum of 2 feet above the bottom of the trench if there are no signs of deterioration of the trench face below or at the end of the shield.
- 7.5 Use of the spreader system for any purpose other than support for the sidewall panels, or for pulling them forward is prohibited without written permission from the manufacturer.
- 7.6 The sides of the excavation should be cut vertical and narrow to prevent lateral movement of the shield. The width of the excavation shall be no wider than the width of the shield plus 12 inches.
- 7.7 A Speed Shore supplied arch spreader may be used in place of standard spreaders.
- 7.8 Water shall be prevented from entering the excavation and any water that does accumulate in the excavation shall be pumped out.
- 7.9 Contact Speed Shore for any non-typical use of the Trench Shield.

8.0 EXAMPLE TO ILLUSTRATE THE USE OF TABLES TS-1 AND TS-2:

Problem: A trench is 16 feet deep in soil that has been classified by the *competent person* to be O.S.H.A. Type B. For pipe joint purposes, 20 feet long shields are required, and stacking 2 identical 8 feet high shields is desired. Which Trench Shields may be used?

Studying Table TS-1 shows that an 820DW4 is adequate down to 22 feet. Further down the table is an 820DW6, which is adequate down to 31 feet. Studying Table TS-2 shows an 820DW8 is also adequate to 44 feet.

Either of these 3 shields may be used.

TABLE TS-1

**"DW" MODELS
DOUBLE SKIN PLATE WALLS**

MODEL	CAPACITY P.S.F.	MAXIMUM DEPTH RATING FOR SOIL TYPES FEET					VERTICAL PIPE CLEARANCE INCHES	WEIGHT APPX. POUNDS
		A-25	B-35	B-45	C-60	C-80		
TS-0408DW4	5,540	50	50	50	50	50	20	2,430
TS-0410DW4	3,510	50	50	50	50	45	20	2,700
TS-0412DW4	2,365	50	50	50	40	31	20	3,125
TS-0416DW4	1,282	50	37	29	22	17	20	3,910
TS-0420DW4	803	31	23	18	14	11	20	4,595
TS-0424DW4	550	21	16	13	10	8	20	5,450
TS-0608DW4	4,240	50	50	50	50	50	42	3,150
TS-0610DW4	3,392	50	50	50	50	45	42	3,850
TS-0612DW4	2,353	50	50	50	41	32	42	4,350
TS-0616DW4	1,276	50	37	30	23	18	42	5,775
TS-0620DW4	889	36	26	21	17	13	42	7,475
TS-0624DW4	609	24	18	15	12	10	42	8,850
TS-0808DW4	2,275	50	50	50	41	32	62	3,950
TS-0810DW4	1,820	50	50	43	33	26	62	4,450
TS-0812DW4	1,517	50	45	36	28	22	62	5,290
TS-0816DW4	1,256	50	38	30	24	19	62	7,400
TS-0820DW4	899	37	27	22	18	14	62	9,650
TS-0824DW4	615	26	20	16	13	11	62	11,260
TS-1010DW4	1,105	46	35	28	22	18	86	5,950
TS-1012DW4	921	39	29	24	19	16	86	6,890
TS-1016DW4	761	33	25	20	16	14	86	9,460
TS-1020DW4	609	26	20	17	14	12	86	12,700
TS-1024DW4	507	22	17	15	12	10	86	15,240
TS-0412DW6	3,890	50	50	50	50	50	20	3,550
TS-0416DW6	2,109	50	50	47	36	27	20	4,500
TS-0420DW6	1,320	50	38	30	23	18	20	5,475
TS-0424DW6	904	35	26	20	16	12	20	6,350
TS-0428DW6	657	25	19	15	12	9	20	7,300
TS-0612DW6	3,814	50	50	50	50	50	42	5,050
TS-0616DW6	2,068	50	50	47	36	28	42	6,650
TS-0620DW6	1,295	50	38	30	23	18	42	8,150
TS-0624DW6	978	39	29	23	18	14	42	9,875
TS-0628DW6	711	29	21	17	14	11	42	11,260
TS-0812DW6	2,649	50	50	50	47	36	65	6,250
TS-0816DW6	2,047	50	50	48	37	29	65	8,350
TS-0820DW6	1,282	50	39	31	24	19	65	9,950
TS-0824DW6	980	40	30	24	19	15	65	12,400
TS-0828DW6	804	33	25	20	16	13	65	15,650
TS-1012DW6	1,629	50	49	40	31	24	86	7,390
TS-1016DW6	1,311	50	40	33	26	20	86	10,150
TS-1020DW6	1,049	44	33	27	21	17	86	12,150
TS-1024DW6	874	37	28	23	18	15	86	14,500
TS-1028DW6	749	32	24	20	16	13	86	17,200

TABLE TS-2

**"DW" MODELS
DOUBLE SKIN PLATE WALLS**

MODEL	CAPACITY P.S.F.	MAXIMUM DEPTH RATING FOR SOIL TYPES FEET					VERTICAL PIPE CLEARANCE INCHES	WEIGHT APPX. POUNDS
		A-25	B-35	B-45	C-60	C-80		
TS-0420DW8	1,969	50	50	44	34	26	20	6,300
TS-0424DW8	1,343	50	38	30	23	18	20	7,525
TS-0428DW8	975	38	28	22	17	13	20	8,500
TS-0430DW8	845	33	24	19	15	12	20	9,075
TS-0432DW8	740	29	21	17	13	10	20	9,550
TS-0620DW8	1,935	50	50	44	34	26	42	9,200
TS-0624DW8	1,320	50	39	31	24	19	42	11,000
TS-0628DW8	1,086	44	32	26	20	16	42	13,000
TS-0630DW8	941	38	28	22	17	14	42	13,900
TS-0632DW8	824	33	24	20	16	12	42	14,850
TS-0820DW8	1,874	50	50	44	34	27	65	11,400
TS-0824DW8	1,279	50	38	31	24	19	65	13,250
TS-0828DW8	1,268	50	38	31	24	19	65	18,675
TS-0830DW8	1,161	48	35	28	22	18	65	19,950
TS-0832DW8	962	40	29	24	19	15	65	20,850
TS-1020DW8	1,347	50	41	33	26	21	86	14,200
TS-1024DW8	1,123	47	35	28	23	18	86	16,850
TS-1028DW8	962	41	30	25	20	16	86	18,900
TS-1030DW8	957	40	30	25	20	16	86	21,640
TS-1032DW8	897	38	29	23	19	15	86	24,490

Notes

- (1) If a specific model DW trench shield is not shown in Table TS-1 or TS-2, the competent person must refer to the trench shield certification to determine capacity and working depths. All other aspects of this tabulated data applies to any DW shield not shown in Tables TS-1 or TS-2.
- (2) Weights are approximate.
- (3) Standard spreader sizes for DW trench shields as shown in Table TS-1 or TS-2 are 8' schedule 80 pipe, maximum length of 20'. For models not listed or custom shields, please see the serialized certification for each shield for spreader requirements.



EXAMPLES OF TYPICAL INSTALLATIONS

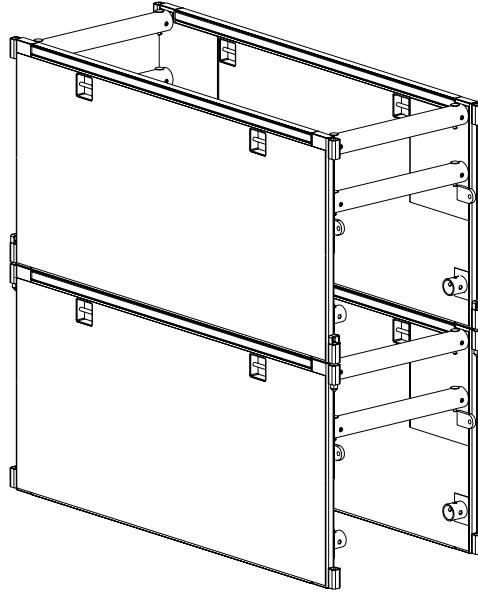


FIG 1 – TWO FLAT BOTTOM SHIELDS STACKED. PLEASE NOTE TOP SHIELD MAY BE INVERTED AND PINNED TO THE BOTTOM SHIELD

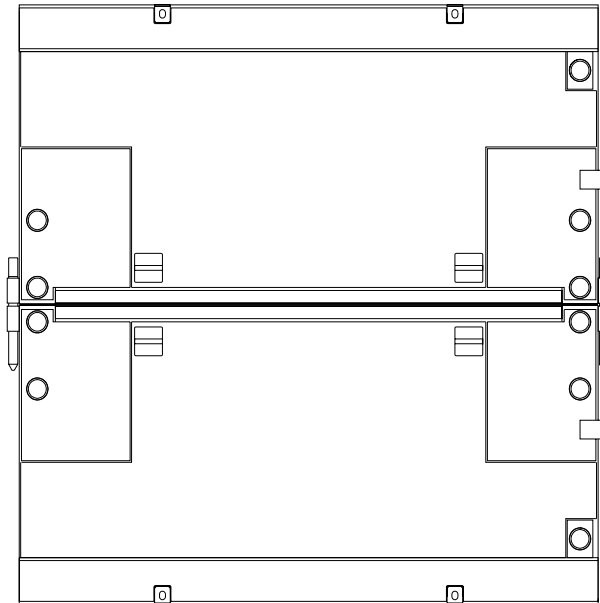


FIG 2 – TWO KNIFE EDGE SHIELDS STACKED

SPEED SHORE

MANUFACTURER'S TABULATED DATA

“SP” Series

STEEL TRENCH SHIELDS

January 27, 2003



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SPEED SHORE
TABULATED DATA

1.0 SCOPE

1.1 Speed Shore's Tabulated Data complies with the O.S.H.A. standards as stated in the Code of Federal Regulations 29, Part 1926, Subpart P - Excavations, Section 1926.652(c)(2). This data shall only be used by the contractor's *competent person* in the selection of Speed Shore Trench Shields. The *competent person* shall be experienced and knowledgeable in trenching and excavation procedures, soil identification and in the use of Speed Shore SP Trench Shields.

1.2 All personnel involved in the installation, removal and use of SP Trench Shields shall be trained in their use and advised of appropriate safety procedures.

1.3 Table SP-1 is based upon requirements stated in CFR 29, Part 1926 and applicable portions of CFR 29, Part 1910. The *competent person* shall know and understand the requirements of those parts before using this data.

1.4 Whenever there is a variance between this Tabulated Data and CFR 29, Part 1926, Subpart P - Excavations, this Tabulated Data shall take precedence. Whenever a topic or subject is not contained in this Tabulated Data, the *competent person* shall refer to CFR 29, Part 1926, Subpart P - Excavations.

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1.6 Table SP-1 shall be used only in excavations with soil conditions as noted. For other soil and excavation conditions and depths, site-specific engineered designs are required. Contact Speed Shore Corporation for assistance.

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2.2 1926.32 (p) "Shall" means mandatory.

3.0 SOIL CLASSIFICATIONS

3.1 In order to use the data presented in Table SP-1 the soil type, or types, in which the excavation is cut shall first be determined by the *competent person* according to the O.S.H.A. soil classifications as set forth in CFR 29, Part 1926, Subpart P, Appendix A.

3.2 Table SP-1 is also for use in Type C-60 soil (see 3.3 for definition).

3.3 Type C-60 soil is a moist, cohesive soil or a moist dense granular soil which does not fit into Type A or Type B classifications, and is not flowing or submerged. This material can be cut with near vertical sidewalls and will stand unsupported long enough to allow the shields to be properly installed. The *competent person* must monitor the excavation for signs of deterioration of the soil as indicated by, but not limited to, freely seeping water or flowing soil entering the excavation around or below the Trench Shield. An alternate design for less stable Type C soil may be required where there is evidence of deterioration.

3.4 Water flowing into an excavation, from either above or below ground, will cause a decrease in the stability of the soil. Therefore, the *competent person* shall take action to prevent water from entering the excavation and promptly remove any water that accumulates in the excavation. Closer monitoring of the soil is required under wet conditions, particularly in the less cohesive (weaker) soil conditions. A small amount of water, or flowing conditions may downgrade the soil classification to a less stable classification. A large amount of water, or flowing conditions will downgrade all soils to O.S.H.A. Type C. Speed Shore shoring and shielding systems may be used safely in wet conditions when the excavation is monitored by the *competent person*. Example: When repairing a leak in utility lines, it is often difficult or even impossible to keep water out of the excavation.

4.0 PRESENTATION OF INFORMATION

4.1 Information is presented in tabular form in Table SP-1 for use in O.S.H.A. Type A, B and C soils, and for use in Type C-60 soil (see 3.3 for definition).

4.2 Table SP-1 is not considered adequate when loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by 3 feet of soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

4.3 Using Table SP-1 the *competent person* determines the maximum depth the Tuff-Lite 3" Trench Shield may be used.

5.0 ASSEMBLY

5.1 SP Shields shall be inspected by a *competent person* before assembly.

5.2 All damage shall be evaluated and repairs made under the direction of a registered professional engineer. All missing or damaged components shall be replaced with genuine Speed Shore parts.

5.3 All lifting and pulling equipment, (including cables, slings, chains, shackles and safety hooks) used to handle shields or components shall be evaluated for lifting capacity, and inspected for damage or defects, prior to use, by experienced operators and shall meet O.S.H.A. requirements.

5.4 Tag lines or other approved safety devices shall be utilized to keep employees away from loads handled by lifting equipment.

5.5 Spreaders, pins with keepers and accessories shall be in place before using the SP shields.

5.6 Two spreaders are required at each end of all shields except when the 4 foot high shield is used as a stacker than 1 spreader may be used.

5.7 All spreaders shall be pinned at each end with 1.5 inch diameter pins furnished by Speed Shore.

5.8 Assembly instructions:

- A. Lay first SP panel on ground, spreader sockets up.
- B. Stand spreaders over sockets and insert pins with keepers.
- C. Lower second SP panel onto spreader tubes and insert pins with keepers.
- D. Attach 4-point lifting sling to lifting brackets.
- E. Stand Tuff-Lite 3" shield up, attach tag lines and install into trench properly.

6.0 INSPECTION

- 6.1 The *competent person* must evaluate the soils to assure the rated capacity of the SP Trench Shields is not exceeded by the lateral pressure of the soil. Soils shall be evaluated in accordance with Part 3.0.
- 6.2 The *competent person* shall monitor all phases of the assembly, installation and use of this product to evaluate and eliminate methods which could endanger employees utilizing this product.
- 6.3 Daily inspections of the SP Trench Shield and accessories must be performed by the *competent person* and deficiencies corrected.
- 6.4 Inspections shall be conducted as necessary for hazards associated with: water accumulation, changing soil conditions, or changing site weather conditions.
- 6.5 Stacked shields shall be monitored to assure that each panel is secured to the one below it. Four feet high stacking shields (those with only 2 spreaders) shall not be used as the bottom shield.

7.0 SAFETY SPECIFICATIONS

- 7.1 Employees shall be protected from loose or falling material. SP Trench Shields must always be used in a manner that loose or falling soil cannot enter over the top or through the end of the shield. End plates may be required. Spoil piles must be kept back from the edge of the excavation at least 2 feet.
- 7.2 Employees shall not enter or exit shields through unprotected areas and shall remain in shields at all times while working.
- 7.3 Employees shall not be in or under a shield while it is being lifted or moved.
- 7.4 Bottom of shields may be a maximum of 2 feet above the bottom of the trench if there are no signs of deterioration of the trench face below or at the end of the shield.
- 7.5 Use of the spreader system for any purpose other than support for the side wall panels, or for pulling them forward is prohibited without written permission from the manufacturer.
- 7.6 The sides of the excavation should be cut vertical and narrow to prevent lateral movement of the shield. The width of the excavation shall be no wider than the width of the shield plus 12 inches.
- 7.7 Use Speed Shore supplied standard spreaders.
- 7.8 Water shall be prevented from entering the excavation and any water that does accumulate in the excavation shall be pumped out.
- 7.9 Contact Speed Shore for any non-typical use of the SP Trench Shield.

8.0 EXAMPLE TO ILLUSTRATE THE USE OF TABLE SP-1:

Problem: A trench is 8 feet deep in soil that has been classified by the *competent person* to be O.S.H.A. Type B. For pipe joint purposes, 20 feet long shields are required. Which SP Trench Shield may be used?

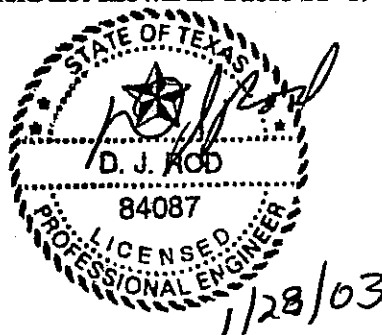
Studying Table SP-1 shows that a TS-820SP6 is adequate down to 31 feet.

TABLE SP-1

MODEL	CAPACITY P.S.F.	DEPTH A-25	DEPTH B-45	DEPTH C-60	DEPTH C-80
TS-0408SP4	5,540	50	50	50	50
TS-0410SP4	3,510	50	50	50	45
TS-0412SP4	2,365	50	50	40	31
TS-0416SP4	1,282	50	29	22	17
TS-0420SP4	803	31	18	14	11
TS-0424SP4	550	21	13	10	8
TS-0608SP4	4,240	50	50	50	50
TS-0610SP4	3,392	50	50	50	45
TS-0612SP4	2,353	50	50	41	32
TS-0616SP4	1,276	50	30	23	18
TS-0620SP4	889	36	21	17	13
TS-0624SP4	609	24	15	12	10
TS-0808SP4	2,275	50	50	41	32
TS-0810SP4	1,820	50	43	33	26
TS-0812SP4	1,517	50	36	28	22
TS-0816SP4	1,254	50	30	24	19
TS-0820SP4	899	37	22	18	14
TS-0824SP4	615	26	16	13	11
TS-0412SP6	3,890	50	50	50	50
TS-0416SP6	2,109	50	47	36	27
TS-0420SP6	1,320	50	30	23	18
TS-0424SP6	904	35	20	16	12
TS-0428SP6	657	25	15	12	9
TS-0612SP6	3,814	50	50	50	50
TS-0616SP6	2,068	50	47	36	28
TS-0620SP6	1,295	50	30	23	18
TS-0624SP6	978	39	23	18	14
TS-0628SP6	711	29	17	14	11
TS-0812SP6	2,649	50	50	47	36
TS-0816SP6	2,047	50	48	37	29
TS-0820SP6	1,282	50	31	24	19
TS-0824SP6	980	40	24	19	15
TS-0828SP6	804	33	20	16	13

Notes

(1) If a specific model SP trench shield is not shown in Table SP-1, the competent person must refer to the trench shield certification to determine capacity and working depths. All other aspects of this tabulated data applies to any SP shield not shown in Table SP-1.



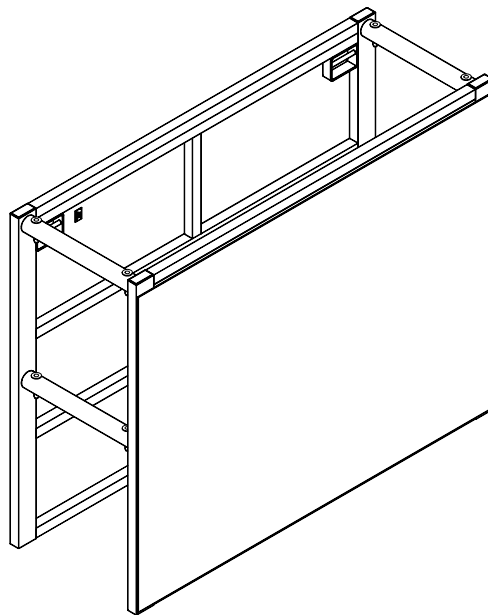
SPEED SHORE

MANUFACTURER'S TABULATED DATA

"SW" MODELS

STEEL TRENCH SHIELDS

3" and 4" Single Wall



January 01, 2005



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WARNING

EXCAVATION PROCEDURES MAY BE VERY DANGEROUS

- **A TRAINED *COMPETENT PERSON* SHALL: SUPERVISE ALL EXCAVATION OPERATIONS, ENSURE THAT ALL PERSONNEL ARE WORKING IN SAFE CONDITIONS, AND HAVE THOROUGH KNOWLEDGE OF THIS TABULATED DATA. THE *COMPETENT PERSON* SHALL HAVE THE AUTHORITY TO STOP WORK WHEN IT IS UNSAFE FOR WORKERS TO ENTER AN EXCAVATION.**
- **ALL PERSONNEL SHALL BE TRAINED IN CORRECT EXCAVATION PROCEDURES, PROPER USE OF THE PROTECTIVE SYSTEM AND ALL SAFETY PRECAUTIONS.**
- **EXCAVATIONS AND PROTECTIVE SYSTEMS SHALL BE INSPECTED AT LEAST DAILY AND WHENEVER THERE IS A CHANGE OF SOIL, WATER OR OTHER JOB SITE CONDITIONS.**
- **ALL LIFTING AND PULLING EQUIPMENT, INCLUDING CABLES, SLINGS, CHAINS, SHACKLES AND SAFETY HOOKS SHALL BE EVALUATED FOR SUITABILITY AND CAPACITY, AND SHALL BE INSPECTED FOR DAMAGE OR DEFECTS PRIOR TO USE.**
- **ALL INSTALLATION AND REMOVAL OF SHORING AND SHIELDING SHALL BE FROM ABOVE GROUND ONLY.**
- **DO NOT ALLOW PERSONNEL TO ENTER AN EXCAVATION THAT IS NOT PROPERLY SHORED, SHIELDED OR SLOPED.**
- **PERSONNEL SHALL ALWAYS WORK WITHIN THE SHORING AND SHIELDING. PERSONNEL SHALL NOT STAND ON THE EDGE OF AN UNSHORED EXCAVATION.**
- **ALL PERSONNEL SHALL ENTER AND EXIT EXCAVATIONS ONLY WITHIN SHIELDED OR SHORED AREAS.**

SPEED SHORE'S "MANUFACTURER'S TABULATED DATA" IS A GENERAL SET OF GUIDELINES AND TABLES TO ASSIST THE *COMPETENT PERSON* IN SELECTING A SAFETY SYSTEM AND THE PROPER SHORING OR SHIELDING EQUIPMENT. THE *COMPETENT PERSON* HAS SOLE RESPONSIBILITY FOR JOB SITE SAFETY AND THE PROPER SELECTION AND INSTALLATION AND REMOVAL OF THE SHORING OR SHIELDING EQUIPMENT.

THIS TABULATED DATA IS NOT INTENDED TO BE USED AS A JOB SPECIFIC EXCAVATION SAFETY PLAN, BUT SHALL BE USED BY THE *COMPETENT PERSON* TO SUPPLEMENT HIS TRAINING, HIS EXPERIENCE AND HIS KNOWLEDGE OF THE JOB CONDITIONS AND SOIL TYPE.

SPEED SHORE
TABULATED DATA

1.0 SCOPE

- 1.1 Speed Shore's Tabulated Data complies with the O.S.H.A. standards as stated in the Code of Federal Regulations 29, Part 1926, Subpart P - Excavations, Section 1926.652(c)(2). This data shall only be used by the contractor's **competent person** in the selection of Speed Shore Trench Shields. The **competent person** shall be experienced and knowledgeable in trenching and excavation procedures, soil identification and in the use of Speed Shore Trench Shields.
- 1.2 All personnel involved in the installation, removal and use of Trench Shields shall be trained in their use and advised of appropriate safety procedures.
- 1.3 Table TS-1 is based upon requirements stated in CFR 29, Part 1926 and applicable portions of CFR 29, Part 1910. The **competent person** shall know and understand the requirements of those parts before using this data.
- 1.4 Whenever there is a variance between this Tabulated Data and CFR 29, Part 1926, Subpart P - Excavations, this Tabulated Data shall take precedence. Whenever a topic or subject is not contained in this Tabulated Data, the **competent person** shall refer to CFR 29, Part 1926, Subpart P - Excavations.
- 1.5 This data refers to the Code of Federal Regulations, 29, Parts 1910 and 1926. In states that have their own state O.S.H.A. refer to similar regulations in the current construction rules published by the state office of Occupational Health and Safety.
- 1.6 Table TS-1 shall be used only in excavations with soil conditions as noted. For other soil and excavation conditions and depths, site-specific engineered designs are required. Contact Speed Shore Corporation for assistance.
- 1.7 This Tabulated Data is applicable for standard products manufactured exclusively by Speed Shore and may only be used with Speed Shore manufactured products. Any modification of Speed Shore products not specifically authorized by Speed Shore Corporation voids this data.

2.0 DEFINITIONS (RE: CFR 29, Part 1926.32 Definitions) - RESTATED FOR EMPHASIS

- 2.1 1926.32 (F) "**competent person**" means 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.
- 2.2 1926.32 (p) "Shall" means mandatory.

3.0 SOIL CLASSIFICATIONS

- 3.1 In order to use the data presented in Table TS-1, the soil type, or types, in which the excavation is cut shall first be determined by the **competent person** according to the O.S.H.A. soil classifications as set forth in CFR 29, Part 1926, Subpart P, Appendix A.
- 3.2 Table TS-1 is also for use in Type C-60 soil (see 3.3 for definition).
- 3.3 Type C-60 soil is a moist, cohesive soil or a moist dense granular soil which does not fit into Type A or Type B classifications, and is not flowing or submerged. This material can be cut with near vertical sidewalls and will stand unsupported long enough to allow the shields to be properly installed. The **competent person** must monitor the excavation for signs of deterioration of the soil as indicated by, but not limited to, freely seeping water or flowing soil entering the excavation around or below the Trench Shield. An alternate design for less stable Type C soil may be required where there is evidence of deterioration.
- 3.4 Water flowing into an excavation, from either above or below ground, will cause a decrease in the stability of the soil. Therefore, the **competent person** shall take action to prevent water from entering the excavation and promptly remove any water that accumulates in the excavation. Closer monitoring of the soil is required under wet conditions, particularly in the less cohesive (weaker) soil conditions. A small amount of water, or flowing conditions may downgrade the soil classification to a less stable

classification. A large amount of water, or flowing conditions will downgrade all soils to O.S.H.A. Type C. Speed Shore shoring and shielding systems may be used safely in wet conditions when the excavation is monitored by the *competent person*. Example: When repairing a leak in utility lines, it is often difficult or even impossible to keep water out of the excavation.

4.0 PRESENTATION OF INFORMATION

- 4.1 Information is presented in tabular form in Table TS-1 is for use in O.S.H.A. Type A, B and C soils, and for use in Type C-60 soil (see 3.3 for definition).
- 4.2 Table TS-1 is not considered adequate when loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by 3 feet of soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.
- 4.3 Using Table TS-1 after determining the soil type, the *competent person* determines the maximum depth the Trench Shield may be used.

5.0 ASSEMBLY

- 5.1 Shields shall be inspected by a *competent person* before and after assembly.
- 5.2 All damage shall be evaluated and repairs made under the direction of a registered professional engineer. All missing or damaged components shall be replaced with genuine Speed Shore parts.
- 5.3 All lifting and pulling equipment, (including cables, slings, chains, shackles and safety hooks) used to handle shields or components shall be evaluated for lifting capacity, and inspected for damage or defects, prior to use, by experienced operators and shall meet O.S.H.A. requirements.
- 5.4 Tag lines or other approved safety devices shall be utilized to keep employees away from loads handled by lifting equipment.
- 5.5 Spreaders, arched spreaders, pins with keepers and accessories shall be in place before using the shields.
- 5.6 Standard Spreader Requirements:
 - 5.6.1 3" Single Wall Shields - Diameter 4" schedule 40, 8' Maximum Spreader Length.
 - 5.6.2 4" Single Wall Shields - Diameter 5" schedule 80, 12' Maximum Spreader Length.
- 5.7 Two spreaders are required at each end of all shields.
- 5.8 All spreaders shall be singled or doubled pinned at each end, based on number of holes in the spreader sockets, with 1.5-inch diameter pins furnished by Speed Shore.
- 5.9 Assembly instructions:
 - 5.9.1 Lay first panel on ground, spreader sockets up.
 - 5.9.2 Stand spreaders over sockets and insert pins with keepers.
 - 5.9.3 Lower second panel onto spreader tubes and insert pins with keepers.
 - 5.9.4 Attach 4-point lifting sling to lifting brackets.
 - 5.9.5 Stand shield up, attach tag lines and install into trench properly.
- 5.10 Trench Shields may be stacked utilizing stacking socket and appurtenances providing the allowable designed depth rating for each shield is not exceeded in the table TS-1.

6.0 INSPECTION

- 6.1 The *competent person* must evaluate the soils to assure the rated capacity of the Trench Shields is not exceeded by the lateral pressure of the soil. Soils shall be evaluated in accordance with Part 3.0.
- 6.2 The *competent person* shall monitor all phases of the assembly, installation and use of this product to evaluate and eliminate methods, which could endanger employees utilizing this product.
- 6.3 Daily inspections of the Trench Shield and accessories must be performed by the *competent person* and deficiencies corrected.
- 6.4 Inspections shall be conducted as necessary for hazards associated with: water accumulation, changing soil conditions, or changing site weather conditions.

6.5 Stacked shields shall be monitored to assure that each panel is secured to the one below it.

7.0 SAFETY SPECIFICATIONS

- 7.1 Employees shall be protected from loose or falling material. Trench Shields must always be used in a manner that loose or falling soil cannot enter over the top or through the end of the shield. End plates may be required. Spoil piles must be kept back from the edge of the excavation at least 2 feet.
- 7.2 Employees shall not enter or exit shields through unprotected areas and shall remain in shields at all times while working.
- 7.3 Employees shall not be in or under a shield while it is being lifted or moved.
- 7.4 Bottom of shields may be a maximum of 2 feet above the bottom of the trench if there are no signs of deterioration of the trench face below or at the end of the shield.
- 7.5 Use of the spreader system for any purpose other than support for the sidewall panels, or for pulling them forward is prohibited without written permission from the manufacturer.
- 7.6 The sides of the excavation should be cut vertical and narrow to prevent lateral movement of the shield. The width of the excavation shall be no wider than the width of the shield plus 12 inches.
- 7.7 A Speed Shore supplied arch spreader may be used in place of standard spreaders.
- 7.8 Water shall be prevented from entering the excavation and any water that does accumulate in the excavation shall be pumped out.
- 7.9 Contact Speed Shore for any non-typical use of the Trench Shield.

8.0 EXAMPLE TO ILLUSTRATE THE USE OF TABLE TS-1:

Problem: A trench is 8 feet deep in soil that has been classified by the *competent person* to be O.S.H.A. Type B. For pipe joint purposes, 10 feet long shields are required. The contractor prefers to use a rubber tire back-hole. Which Trench Shields may be used?

Studying Table TS-1 shows that a TS-0810SW3 is adequate down to 12 feet. Further down the table is a TS-0810SW4, which is adequate down to 20 feet. Either of these 2 shields may be used. However due to machine limitations the 3” may be preferred.

TABLE TS-1

**"SW" MODELS
SINGLE WALLS**

MODEL	CAPACITY P.S.F.	MAXIMUM DEPTH RATING FOR SOIL TYPES FEET					VERTICAL PIPE CLEARANCE INCHES	WEIGHT APPX. POUNDS
		A-25	B-35	B-45	C-60	C-80		
3" SINGLE WALL								
TS-0406SW3	1700	25	25	25	25	22	22"	935
TS-0408SW3	910	25	25	20	16	13	22"	1150
TS-0410SW3	570	21	16	13	10	8	22"	1395
TS-0412SW3	510	19	14	12	9	8	22"	1760
TS-0606SW3	1200	25	25	25	22	17	34"	1305
TS-0608SW3	820	25	24	19	15	12	34"	1655
TS-0610SW3	510	20	15	13	10	9	34"	1965
TS-0612SW3	430	17	13	11	9	7	34"	2415
TS-0806SW3	750	25	22	18	14	12	46"	1665
TS-0808SW3	560	23	18	15	12	10	46"	2055
TS-0810SW3	450	18	14	12	10	8	46"	2520
TS-0812SW3	380	16	12	11	9	8	46"	3060
4" SINGLE WALL								
TS-0406SW4	2840	25	25	25	25	25	22"	1020
TS-0408SW4	1520	25	25	25	25	20	22"	1250
TS-0410SW4	950	25	25	21	17	13	22"	1575
TS-0412SW4	650	24	18	15	12	9	22"	1775
TS-0414SW4	670	25	19	15	12	10	22"	2350
TS-0416SW4	650	24	18	15	12	9	22"	3010
TS-0606SW4	2080	25	25	25	25	25	36"	1550
TS-0608SW4	1520	25	25	25	25	21	36"	1890
TS-0610SW4	950	25	25	22	18	14	36"	2300
TS-0612SW4	650	25	19	16	13	10	36"	2810
TS-0614SW4	600	23	18	15	12	10	36"	3225
TS-0616SW4	460	18	14	11	9	8	36"	3590
TS-0806SW4	1300	25	25	25	24	19	46"	1985
TS-0808SW4	980	25	25	24	19	15	46"	2425
TS-0810SW4	780	25	23	20	16	13	46"	2980
TS-0812SW4	650	25	20	17	14	11	46"	3510
TS-0814SW4	560	23	18	15	12	10	46"	4075
TS-0816SW4	430	18	14	12	10	9	46"	4710

- (1) If a specific model SW trench shield is not shown in Table TS-1, the competent person must refer to the trench shield certification to determine capacity and working depths. All other aspects of this tabulated data will apply to any SW shield not shown in Tables TS-1.
- (2) Weights are approximate.
- (3) Standard spreader sizes for SW trench shields as shown in Table TS-1:
 - 3.1. 3" Single Wall - 4" schedule 40 pipe, maximum length of 8'.
 - 3.2. 4" Single Wall - 5" schedule 80 pipe, maximum length of 12'.



EXAMPLES OF TYPICAL INSTALLATIONS

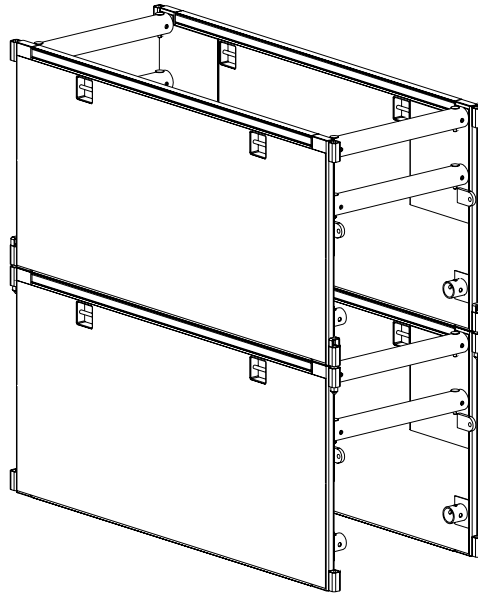


FIG 1 – TWO FLAT BOTTOM SHIELDS STACKED. PLEASE NOTE TOP SHIELD MAY BE INVERTED AND PINNED TO THE BOTTOM SHIELD

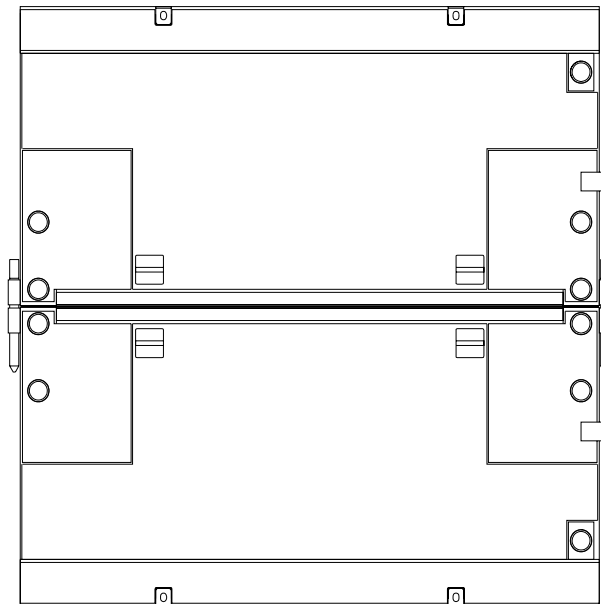


FIG 2 – TWO KNIFE EDGE SHIELDS STACKED