			Dimensions				Depth of Cut		
Equip #	Model #	Serial #	Height	Length	Brandname	PSF Rating	Type A	Type B	Type C
8901	HDXLAP-68-26	130152	6	8	Efficiency	1560	62	35	26
8902	HT6-820	125993	8	20	Efficiency	1560	62	35	26
8903	HT6-824	134064	8	24	Efficiency	1140	25	19	14
8904	XLDM-824	140999	8	24	Efficiency	600	13	12	10
8905	XLDM-824	141481	8	24	Efficiency	600	13	12	10
8906	MHXLD-810	141000	8	10	Efficiency	1980	44	40	33
8907	XLD-812	141661	8	12	Efficiency	2040	45	41	34

EFFICIENCY PRODUCTION, INC

8901 XLAP Trench Shield

Certification Sheet

685 HULL ROAD, MASON, MI 4885
PHONE (517) 676-880

MODEL HDXLAP-68-26

SERIAL NUMBER 130152

ERENCE TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS, VOL. 54, NO 209, PART 1926, SUBPART P

SOIL TYPE TO BE EXCAVATED

STATE OF MICHIGAN
NATHANG. BONE
ENGINEER
No. 39954
LICENSED PROFESSIONAL ENGINEER

JULY 5, 2005

CERTIFIED BY: EFFICIENCY PRODUCTION INC.

SHIELD SIZE		PSF RATING Maximum Lateral Earth Pressure Capacity at Trench Bottom in Pounds Per Square Foot	TYPE A Stiff, cohesive soil. 25 PSF per foot of depth	TYPE B Medium cohesive to granular soil. 45 PSF per foot of depth.	TYPE C Soft cohesive to submerged soil. 60 PSF per foot of depth
			DESCRIPTION Clay, silty clay, sandy clay, clay loam, unconfined compressive strength of 1.5 TSF or Greater or Commented Soils Such as Caliche or Hard Pan. See Note (7)	DESCRIPTION Clay, with Unconfined Compressive Strength Greater than .5 TSF But Less than 1.5 TSF Cohesionless Gravel, Silt, Silt Loam or Sandy Loam. See Note (8)	DESCRIPTION Soft Cohesive Soil Unconfined Compressive Strength Less than .5 TSF Gravel, Sand and Loamy Sand; Submerged Soil or Pock that is not Stable. See Note (9 & 10)
HEIGHT	LENGTH	PSF	Maximum Allowable Depth of Cut	Maximum Allowable Depth of Cut	Maximum Allowable Depth of Cut
6	8	1560	62	35	26

LIMITATIONS

1. XLAP Trench Shield to be assembled and installed as shown on the reverse side and in accordance with manufacturers instructions.

2. Shield to be used with manufacturer's spreader system or approved equivalent. All spreaders must be pinned at the selected width prior to installing in the excavation.

3. Excavation 2 feet below bottom of shield is permitted when no loss of soil from behind or below the bottom of shield is encountered. See paragraph 1926.652 (e)(2)(i). The competent person shall make the determination for compliance. Sudden shifting of the shield vertically shall be avoided.

4. Additional shields may be stacked with no penalty in depth rating. Stacked shields must only be rated to depth installed. Stacked shields must be pinned in alignment with manufacturer's stacking system or approved equivalent.

Contractor's competent/qualified person shall be responsible for monitoring soil conditions.

6. Depth certification indicated, is based on the assumption that no surcharge loads from structures, equipment or stored material are adjacent to the excavation. Consult the manufacturer should such loads be present.

7. No soil is Type A if the soil is fissured, subject to vibration, previously disturbed or part of a sloped layered system where layers dip into excavation on a slope of four horizontal to one vertical (4H:1V) or greater.

8. Previously disturbed soils may be Type B unless they would be classified Type C. (See Appendix A to Subpart P of part 1926 for soil descriptions. Type "C-60" represents a more stable condition than Type "C" described in Appendix A.) Soil that meets requirements for Type A, but is fissured or subject to vibration may be Type B. Dry rock that is unstable and material that is part of a layered system where layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V) are Type B, but only if the material would otherwise be classified Type B.

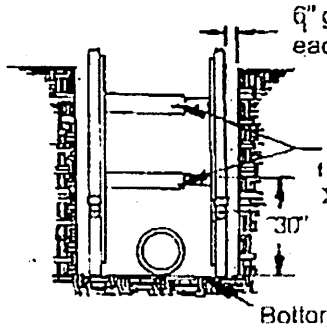
9. When excavations in Type C-60 soil are made with near vertical side walls, soil must be able to stand with unsupported vertical sidewalls long enough for shield installation. Otherwise it would be classified Type C.

10. Soil in a sloped, layered system where layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or steeper may be Type C. Submerged soil is material with water freely seeping and entering the excavation, but only part of the depth of the retained soil is submerged. Conditions more severe would require the services of a soils engineer to establish the applicable design pressure.

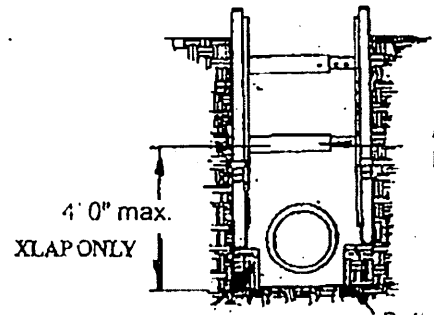
11. The use of the XLAP Trench Shield shall be in accordance with this data and the OSHA Standards. Any use of this product not specialty described on this certification could cause cave-in, collapse or structural failure resulting in death or serious injury.

SEE OTHER SIDE FOR ADDITIONAL INFORMATION ON INSTALLATION & HANDLING

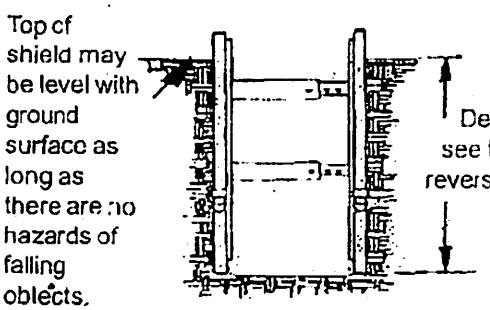
ALUM-A-SHIELD, COMPOSITE STATIC UTILITY BOX (CSUB), XLAP & XLAP5 SERIES TRENCH SHIELDS EXAMPLES OF TYPICAL INSTALLATIONS



STANDARD INSTALLATION



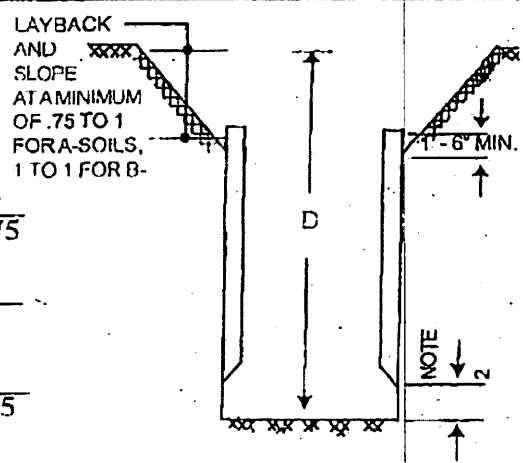
BENCHED INSTALLATION



UNSLOPED INSTALLATION

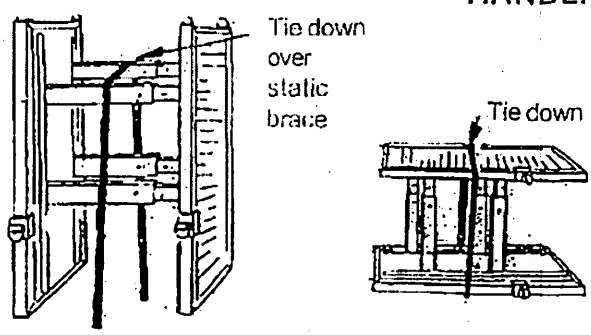
HANDLING GUIDELINES

A-SOILS (.75 TO 1 SLOPE)	1 / .75
B-SOILS (1 TO 1 SLOPE)	1 / 1
C-SOILS (1.5 TO 1 SLOPE)	1 / 1.5

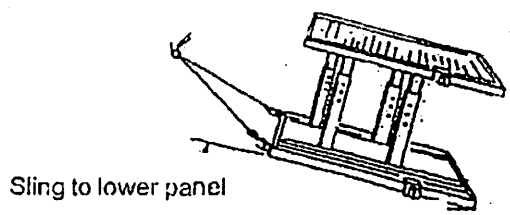


TIPPING UNIT

TRANSPORTING UNIT

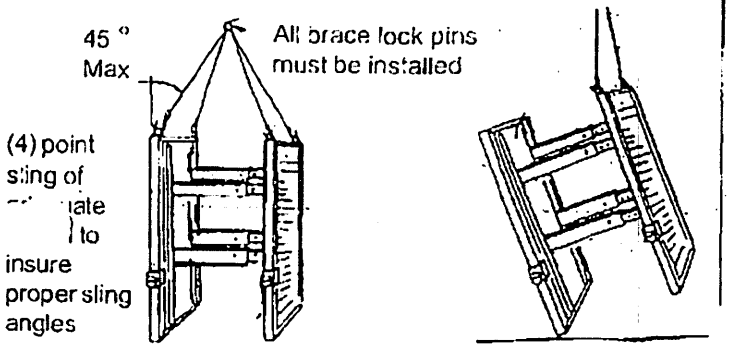


ALL BRACE LOCK PINS MUST BE INSTALLED

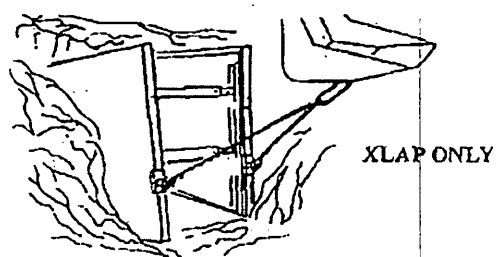


RECOMMEND BRACE LOCK PINS INSTALLED

SLINGING METHODS



MOVING SHIELD ALONG TRENCH



Using drag lugs, lift front end of shield approx. 6" off bottom of trench. Move to new location

EFFICIENCY **8902** 685 HULL ROAD, MASON, MI 48854 PHONE (517) 676-8800 EFFICIENCY TRENCH SHIELDS

MODEL **HT6-820** SERIAL NUMBER **125993**

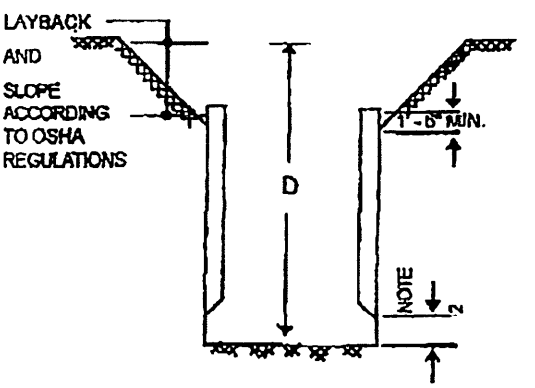
REFERENCE TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS, 29 CFR, NO 209, PART 1926, SUBPART P

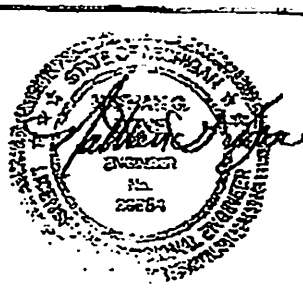
SHIELD SIZE		PSF RATING	MAXIMUM ALLOWABLE DEPTH OF CUT (FEET) D — SOIL TYPE TO BE EXCAVATED		
HEIGHT (FEET)	LENGTH (FEET)	MAXIMUM LATERAL EARTH PRESSURE CAPACITY AT TRENCH BOTTOM IN POUNDS PER SQUARE FOOT	TYPE A STIFF, COHESIVE SOIL 25 PSF PER FOOT OF DEPTH	TYPE B MEDIUM COHESIVE TO GRANULAR SOIL 45 PSF PER FOOT OF DEPTH.	TYPE C SOFT COHESIVE TO SUBMERGED SOIL 60 PSF PER FOOT OF DEPTH
8	20	1560	62	35	26
			DESCRIPTION Clay, silty clay, sandy clay, clay loam, unconfined compressive strength of 1.5 tons per square foot or greater. (see note 8 on reverse side)	**DESCRIPTION** Clay with unconfined compressive strength greater than .5 TSF but less than 1.5 TSF, cohesionless gravel, silt, silt loam or sandy loam. (see note 9 on reverse side)	**DESCRIPTION** Clay with unconfined compressive strength less than .5 TSF submerged sand, clay or fractured rock that is not stable. (see note 10 on reverse side)

LIMITATIONS IN USE OF TABLE

1. TRENCH SHIELD TO BE ASSEMBLED AND INSTALLED AS SHOWN AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. EXCAVATION 2 FEET BELOW BOTTOM OF SHIELD IS PERMITTED WHEN NO LOSS OF SOIL FROM BEHIND OR BELOW THE BOTTOM OF SHIELD IS ENCOUNTERED. SEE PARAGRAPH 1926.652 (e)(2)(i). THE COMPETENT PERSON SHALL MAKE THE DETERMINATION FOR COMPLIANCE. SUDDEN SHIFTING OF THE SHIELD VERTICALLY SHALL BE AVOIDED.
3. CONSULT MANUFACTURER WHEN RESTRICTION ON NOTE 2 IS NOT MET.
4. ADDITIONAL SHIELDS MAY BE STACKED WITH NO PENALTY IN DEPTH OF CUT AS LONG AS THE RATING OF THE BOTTOM SHIELD IS NOT EXCEEDED.
5. DEPTHS OF CUTS SHOWN ARE BASED ON EXAMPLES OF VARIOUS SOIL CONDITIONS. VERIFY ACTUAL SOIL PRESSURES PRIOR TO EACH USE.
6. ANY MODIFICATIONS OR ALTERATIONS NOT ALLOWED UNLESS APPROVED IN WRITING BY EFFICIENCY PRODUCTION, INC.
7. EXCAVATIONS OPEN FOR PERIODS EXCEEDING 24 HOURS REQUIRE CAREFUL MONITORING OF CHANGING SOIL CONDITIONS AND/OR DEWATERING SYSTEMS. FOR INSTANCE, IF THE BACKFILL CHANGES FROM FREE DRAINING TO A WATER TABLE AT THE TOP OF THE SHIELD, THE LATERAL PRESSURES MAY DOUBLE IN MAGNITUDE. A CHANGE FROM "WET" TO "FULLY SATURATED" MAY INCREASE LATERAL PRESSURES 30%. EXCAVATIONS OPEN FOR PERIODS EXCEEDING 6 DAYS MAY EXPERIENCE "LOSS OF COHESION" DUE TO CHANGES IN MOISTURE CONTENT, OXIDATION, TENSION CRACKS, ETC.

CONTINUED ON REVERSE SIDE





CERTIFIED BY:
EFFICIENCY PRODUCTION, INC.
JUNE 24, 2003

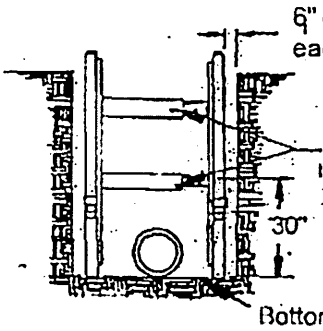
MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENT NUMBERS:
4,090,365-4,114,383-4,259,028
ONE OR MORE OF THE FOLLOWING CANADIAN PATENT NUMBERS: 1,082,683-1,062,684

USE THIS PRODUCT ONLY IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, OR LOCAL LAWS

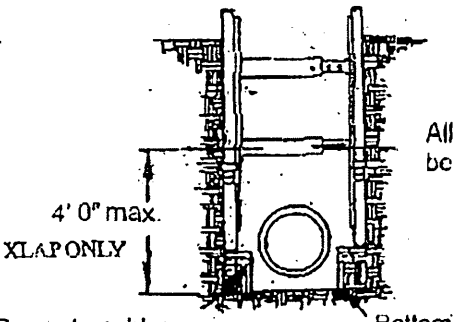
Any use of this product not specifically described on this certificate could cause cave-in, collapse, or structural failure resulting in death or serious injury.

703.444.9980

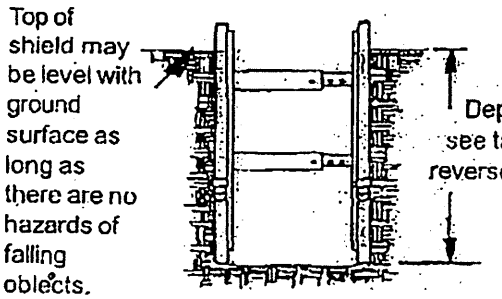
ALUM-A-SHIELD, COMPOSITE STATIC UTILITY BOX (CSUB), XLAP & XLAP5 SERIES TRENCH SHIELDS EXAMPLES OF TYPICAL INSTALLATIONS



STANDARD INSTALLATION



BENCHED INSTALLATION



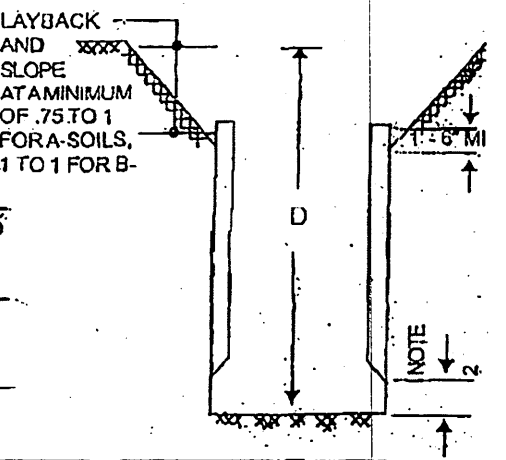
UNSLOPED INSTALLATION

HANDLING GUIDELINES

A-SOILS (.75 TO 1 SLOPE) 1 / .75

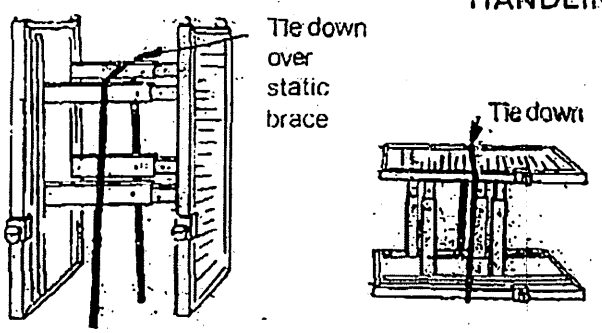
B-SOILS (1 TO 1 SLOPE) 1 / 1

C-SOILS (1.5 TO 1 SLOPE) 1 / 1.5

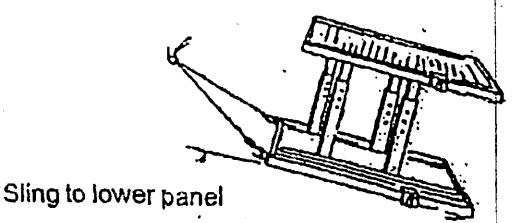


TIPPING UNIT

TRANSPORTING UNIT

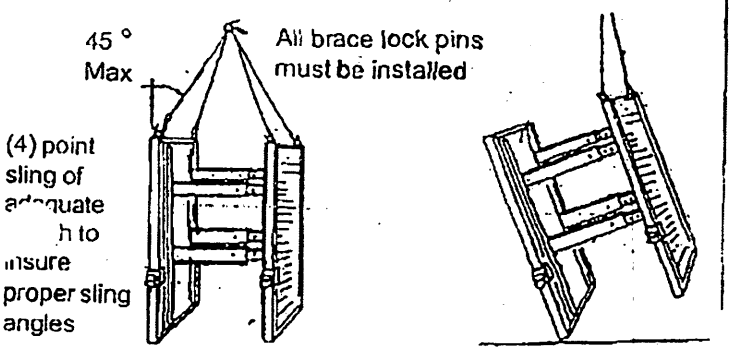


ALL BRACE LOCK PINS MUST BE INSTALLED

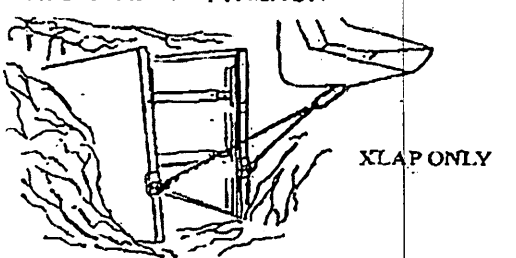


RECOMMEND BRACE LOCK PINS INSTALLED

SLINGING METHODS



MOVING SHIELD ALONG TRENCH



Using drag lugs, lift front end of shield approx. 6" off bottom of trench. Move to new location

EFFICIENCY PRODUCTION, INC

8903

685 HULL ROAD, MASON, MI 48854
PHONE (517) 676-8900

TRENCH SHIELD

MODEL **HT6-824** SERIAL NUMBER **134064**

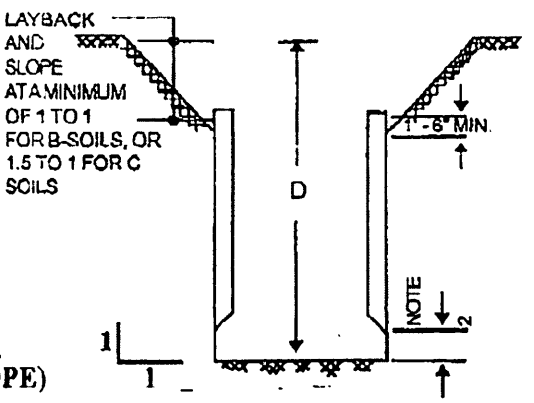
REFERENCE TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS, 29 CFR, NO 209, PART 1926, SUBPART P

SHIELD SIZE		PSF RATING	MAXIMUM ALLOWABLE DEPTH OF CUT (FEET) D — SOIL TYPE TO BE EXCAVATED		
HEIGHT (FEET)	LENGTH (FEET)	MAXIMUM LATERAL EARTH PRESSURE CAPACITY AT TRENCH BOTTOM IN POUNDS PER SQUARE FOOT	**TYPE B** MEDIUM COHESIVE TO GRANULAR SOIL 45 PSF PER FOOT OF DEPTH.	**TYPE C-60** SOFT COHESIVE TO SUBMERGED SOIL. 60 PSF PER FOOT OF DEPTH.	**TYPE C-80** SOFT COHESIVE TO SUBMERGED SOIL. 80 PSF PER FOOT OF DEPTH.
8	24	1140	25	19	14
			DESCRIPTION Clay, with Unconfined Compressive Strength Greater than .5 TSF But Less than 1.5 TSF Cohesionless Gravel, Silt, Slit Loam or Sandy Loam.	**DESCRIPTION** Soft Cohesive Soil Unconfined Compressive Strength Less than .5 TSF Gravel, Sand and Loamy Sand; Submerged Soil or fractured Rock that is not Stable.	**DESCRIPTION** Soft Cohesive Soil Unconfined Compressive Strength Less than .5 TSF Gravel, Sand and Loamy Sand; Submerged Soil or fractured Rock that is not Stable.

LIMITATIONS IN USE OF TABLE

1. TRENCH SHIELD TO BE ASSEMBLED AND INSTALLED AS SHOWN AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. EXCAVATION 2 FEET BELOW BOTTOM OF SHIELD IS PERMITTED WHEN NO LOSS OF SOIL FROM BEHIND OR BELOW THE BOTTOM OF SHIELD IS ENCOUNTERED. SEE PARAGRAPH 1926.652 (e)(2)(i). THE COMPETENT PERSON SHALL MAKE THE DETERMINATION FOR COMPLIANCE. SUDDEN SHIFTING OF THE SHIELD VERTICALLY SHALL BE AVOIDED.
3. CONSULT MANUFACTURER WHEN RESTRICTION ON NOTE 2 IS NOT MET.
4. ADDITIONAL SHIELDS MAY BE STACKED WITH NO PENALTY IN DEPTH OF CUT AS LONG AS THE RATING OF THE BOTTOM SHIELD IS NOT EXCEEDED.
5. DEPTHS OF CUTS SHOWN ARE BASED ON EXAMPLES OF VARIOUS SOIL CONDITIONS. VERIFY ACTUAL SOIL PRESSURES PRIOR TO EACH USE.
6. ANY MODIFICATIONS OR ALTERATIONS NOT ALLOWED UNLESS APPROVED IN WRITING BY EFFICIENCY PRODUCTION, INC.
7. CONTRACTOR'S COMPETENT/QUALIFIED PERSON SHALL BE RESPONSIBLE FOR MONITORING SOIL CONDITIONS AND SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.

CONTINUED ON REVERSE SIDE



B-SOILS (1 TO 1 SLOPE) 1 / 1

C-SOILS (1.5 TO 1 SLOPE) 1 / 1.5

STATE OF MICHIGAN — NATHANG, DUNE — ENGINEER — No. 39964 — LICENSED PROFESSIONAL ENGINEER

CERTIFIED BY:
EFFICIENCY PRODUCTION, INC.

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENT NUMBERS: 4,090,365-4,114,383-4,259,028
ONE OR MORE OF THE FOLLOWING CANADIAN PATENT NUMBERS: 1,062,683-1,062,684

USE THIS PRODUCT ONLY IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, OR LOCAL LAWS

Any use of this product not specifically described on this certificate could cause cave-in, collapse, or structural failure resulting in death or serious injury.

EFFICIENCY America's Trench Box Builder
8904
685 HULL ROAD, MASON, MI 48854
PHONE (517) 676-8800

MODEL XLDM-824 **SERIAL NUMBER** 140999

REFERENCE TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS, 29 CFR. NO 209, PART 1926, SUBPART P

SHIELD SIZE		PSF RATING	MAXIMUM ALLOWABLE DEPTH OF CUT (FEET) SOIL TYPE TO BE EXCAVATED		
HEIGHT (FEET)	LENGTH (FEET)	MAXIMUM LATERAL EARTH PRESSURE CAPACITY AT TRENCH BOTTOM IN POUNDS PER SQUARE FOOT	**TYPE B** MEDIUM COHESIVE TO GRANULAR SOIL 15 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT COHESIVE TO SUBMERGED CLAY SOIL 60 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT NON COHESIVE TO SUBMERGED SANDY SOIL 60 PSF PER FOOT OF DEPTH
8	24	600	13	12	10
			DESCRIPTION	DESCRIPTION	DESCRIPTION
			CLAY WITH UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF BUT LESS THAN 1.5 TSF COHESIONLESS GRAVEL, SILT, SILT LOAM OR SANDY LOAM	SOFT COHESIVE SOIL UNCONFINED COMPRESSIVE STRENGTH EQUAL TO 0.5 TSF CLAY, SAND AND LOAMY SAND; SUBMERGED SOIL THAT IS STABLE	SOFT COHESIONLESS SOIL UNCONFINED COMPRESSIVE STRENGTH LESS THAN 0.5 TSF GRAVEL, SAND AND LOAMY SAND, SUBMERGED SOIL OR FRACTURED ROCK THAT IS NOT STABLE

LIMITATIONS IN USE OF TABLE

1. TRENCH SHIELD TO BE ASSEMBLED AND INSTALLED AS SHOWN AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. EXCAVATION 2 FEET BELOW BOTTOM OF SHIELD IS PERMITTED WHEN NO LOSS OF SOIL FROM BEHIND OR BELOW THE BOTTOM OF SHIELD IS ENCOUNTERED. SEE PARAGRAPH 1926.652 (g)(2)(i). THE COMPETENT PERSON SHALL MAKE THE DETERMINATION FOR COMPLIANCE. SUDDEN SHIFTING OF THE SHIELD VERTICALLY SHALL BE AVOIDED.

3. CONSULT MANUFACTURER WHEN RESTRICTION ON NOTE 2 IS NOT MET.

4. ADDITIONAL SHIELDS MAY BE STACKED WITH NO PENALTY IN DEPTH OF CUT AS LONG AS THE RATING OF THE BOTTOM SHIELD IS NOT EXCEEDED.

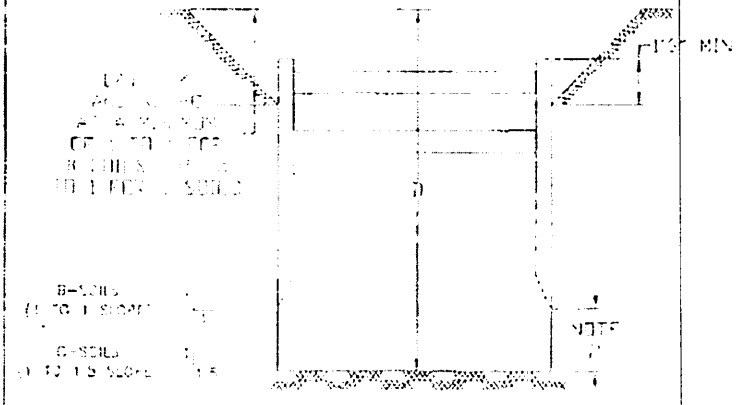
5. DEPTHS OF CUTS SHOWN ARE BASED ON EXAMPLES OF VARIOUS SOIL CONDITIONS. VERIFY ACTUAL SOIL PRESSURES PRIOR TO EACH USE.

6. ANY MODIFICATIONS OR ALTERATIONS NOT ALLOWED UNLESS APPROVED IN WRITING BY EFFICIENCY PRODUCTION, INC.

7. CONTRACTOR'S COMPETENT/QUALIFIED PERSON SHALL BE RESPONSIBLE FOR MONITORING SOIL CONDITIONS AND SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.

8. SPREADER PINS SHALL BE AISI C 1018 60-75 KSI MIN. YIELD AND NO MORE THAN 1/4" SMALLER THAN COLLAR AND SPREADER PIN HOLES AS MANUFACTURED BY EFFICIENCY PRODUCTION, INC.

CONTINUED ON REVERSE SIDE



STATE OF MICHIGAN
ALEXANDER NEDELTCHEV
ENGINEER
LICENSED PROFESSIONAL ENGINEER

06.02.2016

CERTIFIED BY:
EFFICIENCY PRODUCTION INC.
06.02.2016

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENT NUMBERS: 4,090,365-4,114,383-4,259,028 ONE OR MORE OF THE FOLLOWING CANADIAN PATENT NUMBERS: 1,062,683-1,062,684

USE THIS PRODUCT ONLY IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE OR LOCAL LAWS

ANY USE OF THIS PRODUCT NOT SPECIFICALLY DESCRIBED ON THIS CERTIFICATE COULD CAUSE IN CAVE-IN, COLLAPSE, OR STRUCTURAL FAILURE RESULTING IN DEATH OR SERIOUS INJURY

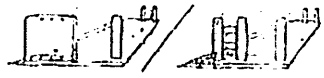
9. NOT TYPE A IF FISSURED, SUBJECT TO VIBRATION, PREVIOUSLY DISTURBED OR PART OF A SLOPED LAYERED SYSTEM WHERE LAYERS DIP INTO EXCAVATION ON A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) OR GREATER.
10. PREVIOUSLY DISTURBED SOILS MAY BE TYPE B UNLESS THEY WOULD BE CLASSED AS TYPE C. SOIL THAT MEETS REQUIREMENTS OF TYPE A, BUT IS SUBJECT TO VIBRATION OR FISSURED MAY BE TYPE B. DRY ROCK THAT IS NOT STABLE OR SOIL THAT IS PART OF A SLOPED, LAYERED SYSTEM WHERE LAYERS DIP INTO THE EXCAVATION ON A SLOPE LESS STEEP THAN FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) ARE TYPE B BUT ONLY IF MATERIAL WOULD OTHERWISE BE CLASSIFIED AS TYPE B.
11. SOIL IN A SLOPED LAYERED SYSTEM WHERE LAYERS DIP INTO THE EXCAVATION ON A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) OR STEEPER MAY BE TYPE C. SUBMERGED SOIL IS MATERIAL WITH WATER FREELY SEEPING AND ENTERING THE TRENCH, BUT ONLY PART OF THE DEPTH OF THE RETAINED SOIL IS SUBMERGED. CONDITIONS MORE SEVERE WOULD REQUIRE DEWATERING OR SEALING FOUR SIDES OF THE EXCAVATION AND PUMPING THE TRENCH. SUCH SEVERE CONDITIONS WOULD REQUIRE THE SERVICES OF A SOILS ENGINEER TO ESTABLISH THE DESIGN PRESSURE. CONSULT THE MANUFACTURER FOR PRESSURES EXCEEDING TABULATED VALUES.
12. ANY USE OF A TRENCH SHIELD WITHOUT EFFICIENCY SPREADERS AND PINS OR EQUAL WILL VOID THE TABULATED DATA AND WARRANTY.
13. SHIELD WAS DESIGNED TO BE USED WITHOUT PLATES EXTENDING BELOW, ABOVE, OR NEXT TO IT. ANY USE OF SUCH PLATES OR PANELS MAY VOID THE TABULATED DATA, AND MAY REQUIRE SITE SPECIFIC ENGINEERING.
14. TRENCH SHIELDS ARE DESIGNED TO BE PUSHED TO GRADE IF NECESSARY. AS NOTED BELOW, ANY UNNECESSARY ABUSE BY THE EXCAVATOR AND OR OPERATOR (SUCH AS POUNDING WITH THE BUCKET) WILL VOID THE TABULATED DATA AS WELL AS THE WARRANTY.
15. CONDITION OF SHIELD, SPREADER PIPES, AND SPREADER PINS MUST BE CHECKED/INSPECTED FOR SERVICEABILITY BY THE COMPETENT PERSON PRIOR TO EACH USE. PSF RATING IS NOT VALID IF THERE IS ANY VISIBLE DAMAGE TO, OR REPAIRS MADE TO THE SHIELD THAT HAVE NOT BEEN DOCUMENTED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
16. DEPTH AND PSF RATINGS ARE FOR LATERAL EARTH PRESSURES ONLY AND DO NOT TAKE ANY SURCHARGES INTO ACCOUNT.

Assembly

Lay side panel flat on ground with collar sockets up . .

Mud Plate Spreader System

Place spreader pipe and/or plate onto collars or into brackets and pin in place. Secure pins with keepers.

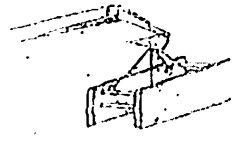


6 Pipe Spreader System

Lower second sidewall onto spreaders and pin.

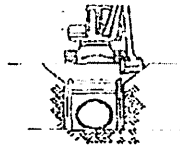
4 Pine Spreader System

Stand trench shield in upright position and prepare for installation.

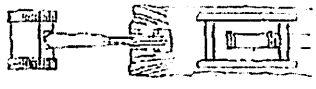


Using a trench shield in stable soil

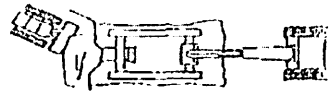
Excavate to grade just slightly wider than the trench shield. Dig walls vertical to minimum of 18" below the top of the shield. Slope soil above shield according to manufacturers tabulated data. Install shield in trench.



Excavate in front of the trench shield

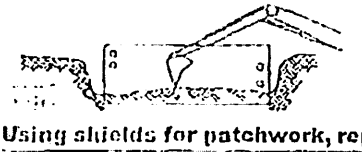


Pull shield forward by front top spreader pipe or with pulling eyes. (pulling eyes shall be used with spreaders wider than 72" or when soil pressure is severe enough to cause spreader to deflect).

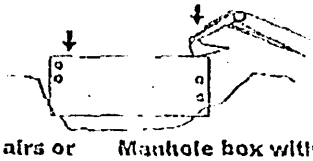


Using a shield in unstable soil

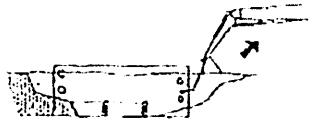
Excavate until soil begins to crumble beyond desired trench width. Place shield on line of excavation.



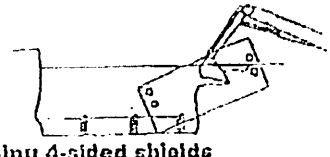
Press down on corners to push shield down to grade



Pull shield forward and up on appropriate angle.

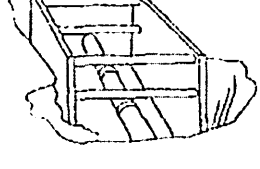


Excavate soil within the shield and repeat previous process.



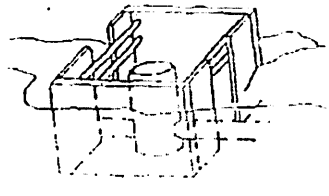
Using shields for patchwork, repairs or trains

- Center shield over work area.
- Lay soil at ends back according to manufacturers tabulated data or use manufacturer's designed end plates to protect from cave-ins.



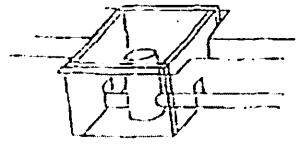
Manhole box with corner end plates

Corner end plates help prevent loose material from running into the end of the shield. Soil at ends should be sloped according to manufacturers tabulated data



Using 4-sided shields

When using shields as protection during manhole assembly work, insure that proper end panels are used, or lay soil at the ends back according to manufactures tabulated data.



- This material is intended to provide basic assembly and installation information only.
- Always use trench shield in accordance with applicable local, state, and federal safety laws and regulations. Failure to do so could cause severe injury or death.

EFFICIENCY PRODUCTION, INC. America's Trench Box Builder 8905

685 HULL ROAD, MASON, MI 48854
PHONE (517) 676-8800

MODEL XLDM-824 **SERIAL NUMBER** 141481

REFERENCE TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS, 29 CFR, NO 209, PART 1926, SUBPART P

SHIELD SIZE		PSF RATING	MAXIMUM ALLOWABLE DEPTH OF CUT (FEET) SOIL TYPE TO BE EXCAVATED		
HEIGHT (FEET)	LENGTH (FEET)	MAXIMUM LATERAL EARTH PRESSURE CAPACITY AT TRENCH BOTTOM IN POUNDS PER SQUARE FOOT	**TYPE B** MEDIUM COHESIVE TO GRANULAR SOIL 45 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT COHESIVE TO SUBMERGED CLAY SOIL 60 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT NON COHESIVE TO SUBMERGED SANDY SOIL 60 PSF PER FOOT OF DEPTH
8	24	600	13	12	10

LIMITATIONS IN USE OF TABLE

1. TRENCH SHIELD TO BE ASSEMBLED AND INSTALLED AS SHOWN AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. EXCAVATION 2 FEET BELOW BOTTOM OF SHIELD IS PERMITTED WHEN NO LOSS OF SOIL FROM BEHIND OR BELOW THE BOTTOM OF SHIELD IS ENCOUNTERED. SEE PARAGRAPH 1926.652 (e)(2)(i). THE COMPETENT PERSON SHALL MAKE THE DETERMINATION FOR COMPLIANCE. SUDDEN SHIFTING OF THE SHIELD VERTICALLY SHALL BE AVOIDED.

3. CONSULT MANUFACTURER WHEN RESTRICTION ON NOTE 2 IS NOT MET.

4. ADDITIONAL SHIELDS MAY BE STACKED WITH NO PENALTY IN DEPTH OF CUT AS LONG AS THE RATING OF THE BOTTOM SHIELD IS NOT EXCEEDED.

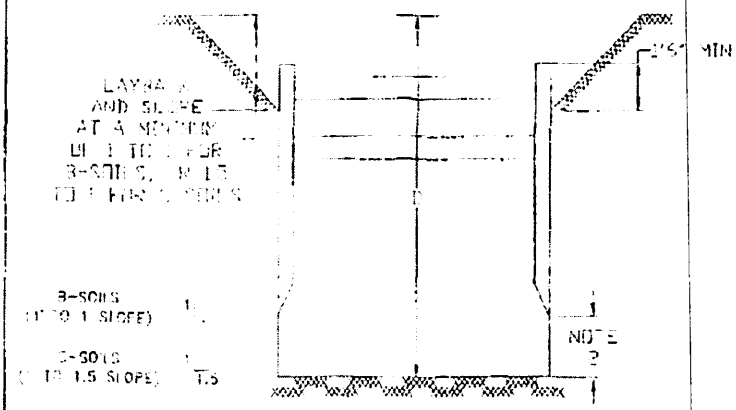
5. DEPTHS OF CUTS SHOWN ARE BASED ON EXAMPLES OF VARIOUS SOIL CONDITIONS. VERIFY ACTUAL SOIL PRESSURES PRIOR TO EACH USE.

6. ANY MODIFICATIONS OR ALTERATIONS NOT ALLOWED UNLESS APPROVED IN WRITING BY EFFICIENCY PRODUCTION, INC.

7. CONTRACTOR'S COMPETENT/QUALIFIED PERSON SHALL BE RESPONSIBLE FOR MONITORING SOIL CONDITIONS AND SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.

8. SPREADER PINS SHALL BE AISI C 1018 60-75 KSI MIN. YIELD AND NO MORE THAN 1/4" SMALLER THAN COLLAR AND SPREADER PIN HOLES AS MANUFACTURED BY EFFICIENCY PRODUCTION, INC.

DESCRIPTION	DESCRIPTION	DESCRIPTION
CLAY, WITH UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF BUT LESS THAN 1.5 TSF COHESIONLESS GRAVEL, SILT, SILT LOAM OR SANDY LOAM	SOFT COHESIVE SOIL UNCONFINED COMPRESSIVE STRENGTH EQUAL TO 0.5 TSF CLAY, SAND AND LOAMY SAND; SUBMERGED SOIL THAT IS STABLE	SOFT COHESIONLESS SOIL UNCONFINED COMPRESSIVE STRENGTH LESS THAN 0.5 TSF GRAVEL, SAND AND LOAMY SAND; SUBMERGED SOIL OR FRACTURED ROCK THAT IS NOT STABLE



CONTINUED ON REVERSE SIDE

STATE OF MICHIGAN
ALEXANDRE NEDELTCHEV
ENGINEER
No. 6201052555
LICENSED PROFESSIONAL ENGINEER

06.06.2016

CERTIFIED BY:
EFFICIENCY PRODUCTION INC.
06.06.2016

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENT NUMBERS: 4,090,365-4,114,383-4,259,028 ONE OR MORE OF THE FOLLOWING CANADIAN PATENT NUMBERS: 1,062,683-1,062,684

USE THIS PRODUCT ONLY IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE OR LOCAL LAWS

ANY USE OF THIS PRODUCT NOT SPECIFICALLY DESCRIBED ON THIS CERTIFICATE COULD CAUSE IN CAVE-IN, COLLAPSE, OR STRUCTURAL FAILURE RESULTING IN DEATH OR SERIOUS INJURY

9. NOT TYPE A IF FISSURED, SUBJECT TO VIBRATION, PREVIOUSLY DISTURBED OR PART OF A SLOPED LAYERED SYSTEM WHERE LAYERS DIP INTO EXCAVATION ON A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) OR GREATER.
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16. DEPTH AND PSF RATINGS ARE FOR LATERAL EARTH PRESSURES ONLY AND DO NOT TAKE ANY SURCHARGES INTO ACCOUNT.

Assembly

Lay side panel flat on ground with collar sockets up.

Mud Plate Spreader System

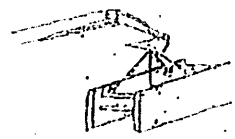
Place spreader pipe and/or plate onto collars or into brackets and pin in place. Secure pins with keepers.

3 Pipe Spreader System

Lower second sidewall onto spreaders and pin.

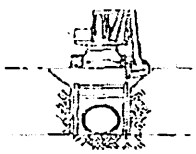
4 Pipe Spreader System

Stand trench shield in upright position and prepare for installation.

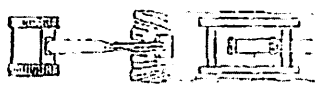


Using a trench shield in stable soil

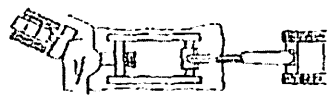
Excavate to grade just slightly wider than the trench shield. Dig walls vertical to minimum of 18" below the top of the shield. Slope soil above shield according to manufacturers tabulated data. Install shield in trench.



Excavate in front of the trench shield

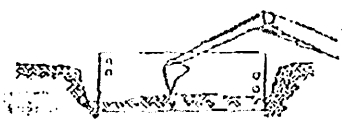


Pull shield forward by front top spreader pipe or with pulling eyes. (pulling eyes shall be used with spreaders wider than 72" or when soil pressure is severe enough to cause spreader to deflect).

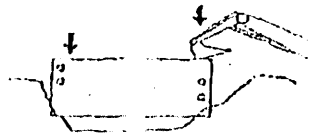


Using a shield in unstable soil

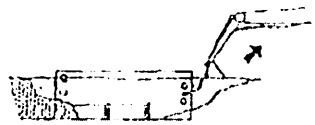
Excavate until soil begins to crumble beyond desired trench width. Place shield on line of excavation.



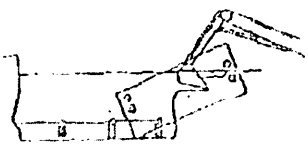
Press down on corners to push shield down to grade



Pull shield forward and up on appropriate angle.

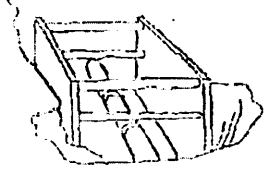


Excavate soil within the shield and repeat previous process.



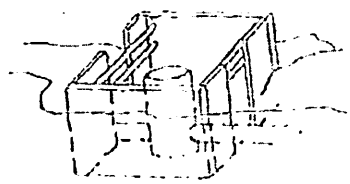
Using shields for patchwork, repairs or baths

- Center shield over work area.
- Lay soil at ends back according to manufacturers tabulated data or use manufacturer's designed end plates to protect from cave-ins.



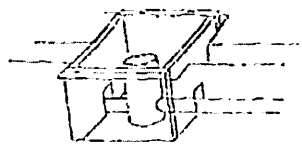
Manhole box with corner end plates

Corner end plates help prevent loose material from running into the end of the shield. Soil at ends should be sloped according to manufacturers tabulated data



Using 4-sided shields

When using shields as protection during manhole assembly work, insure that proper end panels are used, or lay soil at the ends back according to manufactures tabulated data.



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EFFICIENCY America's Trench Box Builder™ 8906

685 HULL ROAD, MASON, MI 48854
PHONE (517) 676-8800

MODEL MHXLD-810 **SERIAL NUMBER** 141000

REFERENCE TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS, 29 CFR, NO 209, PART 1926, SUBPART P

SHIELD SIZE		PSF RATING	MAXIMUM ALLOWABLE DEPTH OF CUT (FEET) SOIL TYPE TO BE EXCAVATED		
HEIGHT (FEET)	LENGTH (FEET)	MAXIMUM LATERAL EARTH PRESSURE CAPACITY AT TRENCH BOTTOM IN POUNDS PER SQUARE FOOT	**TYPE B** MEDIUM COHESIVE TO GRANULAR SOIL 15 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT COHESIVE TO SUBMERGED CLAY SOIL 60 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT NON COHESIVE TO SUBMERGED SANDY SOIL 60 PSF PER FOOT OF DEPTH
8	10	1980	44	40	33
			DESCRIPTION	DESCRIPTION	DESCRIPTION
			CLAY, WITH UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF BUT LESS THAN 1.0 TSF COHESIONLESS GRAVEL, SILT, SILT LOAM OR SANDY LOAM	SOFT COHESIVE SOIL UNCONFINED COMPRESSIVE STRENGTH EQUAL TO 0.5 TSF CLAY, SAND AND LOAMY SAND; SUBMERGED SOIL THAT IS STABLE	SOFT COHESIONLESS SOIL UNCONFINED COMPRESSIVE STRENGTH LESS THAN 0.5 TSF GRAVEL, SAND AND LOAMY SAND; SUBMERGED SOIL OR FRACTURED ROCK THAT IS NOT STABLE

LIMITATIONS IN USE OF TABLE

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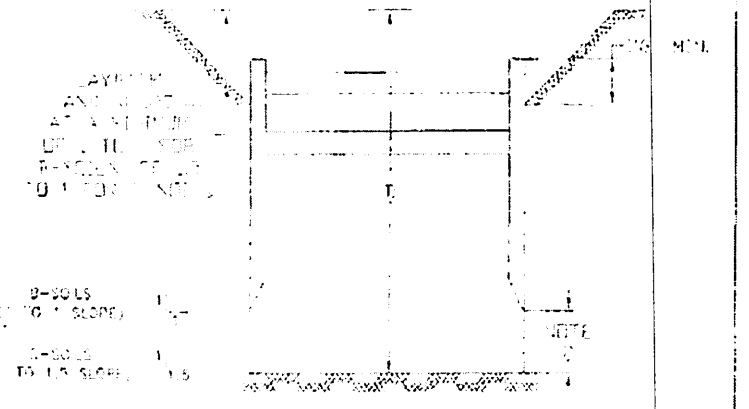
7. CONTRACTOR'S COMPETENT/QUALIFIED PERSON SHALL BE RESPONSIBLE FOR MONITORING SOIL CONDITIONS AND SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.

8. SPREADER PINS SHALL BE AISI 4140 OR 60-75 KSI MIN. YIELD AND NO MORE THAN 1/4" SMALLER THAN COLLAR AND SPREADER PIN HOLES AS MANUFACTURED BY EFFICIENCY PRODUCTION, INC.

CONTINUED ON REVERSE SIDE



06.02.2016

CERTIFIED BY:
EFFICIENCY PRODUCTION INC.
06.02.2016

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENT NUMBERS: 4,090,365-4,114,383-4,259,028 ONE OR MORE OF THE FOLLOWING CANADIAN PATENT NUMBERS: 1,062,683-1,062,684

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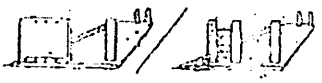
9. NOT TYPE A IF FISSURED, SUBJECT TO VIBRATION, PREVIOUSLY DISTURBED OR PART OF A SLOPED LAYERED SYSTEM WHERE LAYERS DIP INTO EXCAVATION ON A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) OR GREATER.
10. PREVIOUSLY DISTURBED SOILS MAY BE TYPE B UNLESS THEY WOULD BE CLASSED AS TYPE C. SOIL THAT MEETS REQUIREMENTS OF TYPE A, BUT IS SUBJECT TO VIBRATION OR FISSURED MAY BE TYPE B. DRY ROCK THAT IS NOT STABLE OR SOIL THAT IS PART OF A SLOPED, LAYERED SYSTEM WHERE LAYERS DIP INTO THE EXCAVATION ON A SLOPE LESS STEEP THAN FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) ARE TYPE B BUT ONLY IF MATERIAL WOULD OTHERWISE BE CLASSIFIED AS TYPE B.
11. SOIL IN A SLOPED LAYERED SYSTEM WHERE LAYERS DIP INTO THE EXCAVATION ON A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) OR STEEPER MAY BE TYPE C. SUBMERGED SOIL IS MATERIAL WITH WATER FREELY SEEPING AND ENTERING THE TRENCH, BUT ONLY PART OF THE DEPTH OF THE RETAINED SOIL IS SUBMERGED. CONDITIONS MORE SEVERE WOULD REQUIRE DEWATERING OR SEALING FOUR SIDES OF THE EXCAVATION AND PUMPING THE TRENCH. SUCH SEVERE CONDITIONS WOULD REQUIRE THE SERVICES OF A SOILS ENGINEER TO ESTABLISH THE DESIGN PRESSURE. CONSULT THE MANUFACTURER FOR PRESSURES EXCEEDING TABULATED VALUES.
12. ANY USE OF A TRENCH SHIELD WITHOUT EFFICIENCY SPREADERS AND PINS OR EQUAL WILL VOID THE TABULATED DATA AND WARRANTY.
13. SHIELD WAS DESIGNED TO BE USED WITHOUT PLATES EXTENDING BELOW, ABOVE, OR NEXT TO IT. ANY USE OF SUCH PLATES OR PANELS MAY VOID THE TABULATED DATA, AND MAY REQUIRE SITE SPECIFIC ENGINEERING.
14. TRENCH SHIELDS ARE DESIGNED TO BE PUSHED TO GRADE IF NECESSARY, AS NOTED BELOW, ANY UNNECESSARY ABUSE BY THE EXCAVATOR AND/OR OPERATOR (SUCH AS POUNDING WITH THE BUCKET) WILL VOID THE TABULATED DATA AS WELL AS THE WARRANTY.
15. CONDITION OF SHIELD, SPREADER PIPES, AND SPREADER PINS MUST BE CHECKED/INSPECTED FOR SERVICEABILITY BY THE COMPETENT PERSON PRIOR TO EACH USE. PSF RATING IS NOT VALID IF THERE IS ANY VISIBLE DAMAGE TO, OR REPAIRS MADE TO THE SHIELD THAT HAVE NOT BEEN DOCUMENTED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
16. OPERATING PSF RATINGS ARE FOR LATERAL EARTH PRESSURES ONLY AND DO NOT TAKE ANY SURCHARGES INTO ACCOUNT.

Assembly

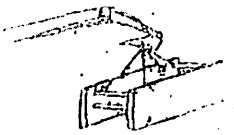
Lay side panel flat on ground with collar sockets up ...

Place spreader pipe and/or plate onto collars or into brackets and pin in place. Secure pins with keepers.



Lower second sidewall onto spreaders and pin.

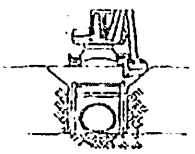
Stand trench shield in upright position and prepare for installation.



Mud Plate Spreader System 5 Pipe Spreader System 4 Pipe Spreader System

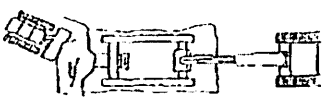
Using a trench shield in stable soil

Excavate to grade just slightly wider than the trench shield. Dig walls vertical to minimum of 18" below the top of the shield. Slope soil above shield according to manufacturers tabulated data. Install shield in trench.



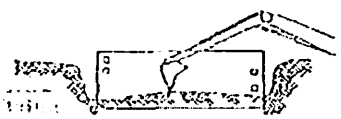
Excavate in front of the trench shield

Pull shield forward by front top spreader pipe or with pulling eyes. (pulling eyes shall be used with spreaders wider than 72" or when soil pressure is severe enough to cause spreader to deflect).

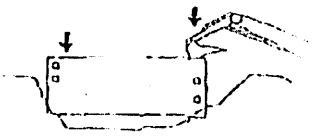


Using a shield in unstable soil

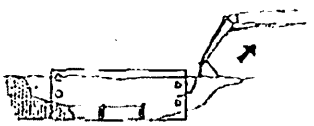
Excavate until soil begins to crumble beyond desired trench width. Place shield on line of excavation.



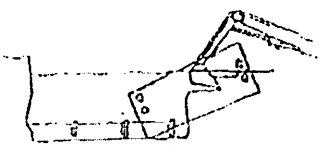
Press down on corners to push shield down to grade



Pull shield forward and up on appropriate angle.

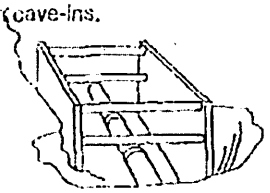


Excavate soil within the shield and repeat previous process.



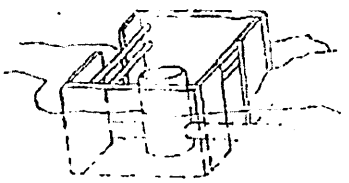
Using shields for patchwork, repairs or tie-ins

- Center shield over work area.
- Lay soil at ends back according to manufacturers tabulated data or use manufacturer's designed end plates to protect from cave-ins.



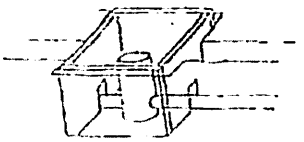
Manhole box with corner end plates

Corner end plates help prevent loose material from running into the end of the shield. Soil at ends should be sloped according to manufacturers tabulated data



Using spliced shields

When using shields as protection during manhole assembly work, insure that proper end panels are used, or lay soil at the ends back according to manufactures tabulated data.



- This material is intended to provide basic assembly and installation information only.
- Always use trench shield in accordance with applicable local, state, and federal safety laws and regulations. Failure to do so could cause severe injury or death.

EFFICIENCY PRODUCTION INC. America's Trench Box Builder
8907
685 HULL ROAD, MASON, MI 48854
PHONE (517) 676-8800

MODEL XLD-812 **SERIAL NUMBER** 141661

REFERENCE TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS, 29 CFR, NO 209, PART 1926, SUBPART P

SHIELD SIZE		PSF RATING	MAXIMUM ALLOWABLE DEPTH OF CUT (FEET) SOIL TYPE TO BE EXCAVATED		
HEIGHT (FEET)	LENGTH (FEET)	MAXIMUM LATERAL EARTH PRESSURE CAPACITY AT TRENCH BOTTOM IN POUNDS PER SQUARE FOOT	**TYPE B** MEDIUM COHESIVE TO GRANULAR SOIL 45 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT COHESIVE TO SUBMERGED CLAY SOIL. 60 PSF PER FOOT OF DEPTH	**TYPE C-60** SOFT NON COHESIVE TO SUBMERGED SANDY SOIL. 60 PSF PER FOOT OF DEPTH
8	**12**	**2040**	**45**	**41**	**34**
			DESCRIPTION	DESCRIPTION	DESCRIPTION
			CLAY, WITH UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF BUT LESS THAN 1.5 TSF COHESIONLESS GRAVEL, SILT, SILT LOAM OR SANDY LOAM	SOFT COHESIVE SOIL UNCONFINED COMPRESSIVE STRENGTH EQUAL TO 0.5 TSF CLAY, SAND AND LOAMY SAND; SUBMERGED SOIL THAT IS STABLE	SOFT COHESIONLESS SOIL UNCONFINED COMPRESSIVE STRENGTH LESS THAN 0.5 TSF GRAVEL, SAND AND LOAMY SAND; SUBMERGED SOIL OR FRACTURED ROCK THAT IS NOT STABLE

LIMITATIONS IN USE OF TABLE

1. TRENCH SHIELD TO BE ASSEMBLED AND INSTALLED AS SHOWN AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. EXCAVATION 2 FEET BELOW BOTTOM OF SHIELD IS PERMITTED WHEN NO LOSS OF SOIL FROM BEHIND OR BELOW THE BOTTOM OF SHIELD IS ENCOUNTERED. SEE PARAGRAPH 1926.652 (e)(2)(i). THE COMPETENT PERSON SHALL MAKE THE DETERMINATION FOR COMPLIANCE. SUDDEN SHIFTING OF THE SHIELD VERTICALLY SHALL BE AVOIDED.

3. CONSULT MANUFACTURER WHEN RESTRICTION ON NOTE 2 IS NOT MET.

4. ADDITIONAL SHIELDS MAY BE STACKED WITH NO PENALTY IN DEPTH OF CUT AS LONG AS THE RATING OF THE BOTTOM SHIELD IS NOT EXCEEDED.

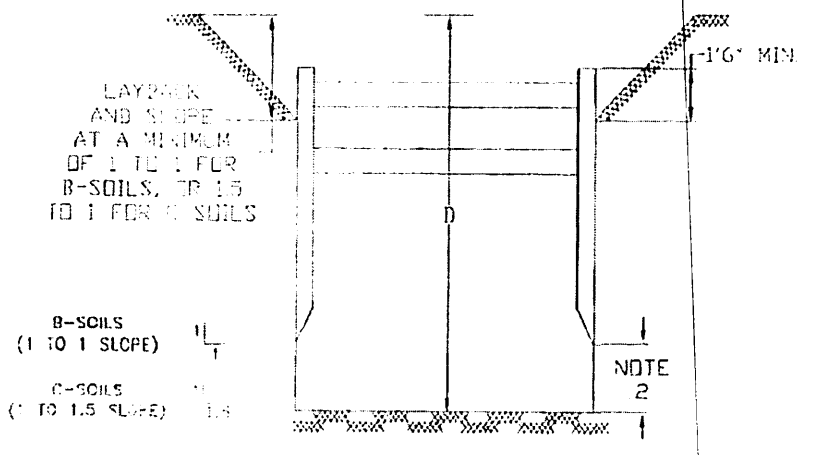
5. DEPTHS OF CUTS SHOWN ARE BASED ON EXAMPLES OF VARIOUS SOIL CONDITIONS. VERIFY ACTUAL SOIL PRESSURES PRIOR TO EACH USE.

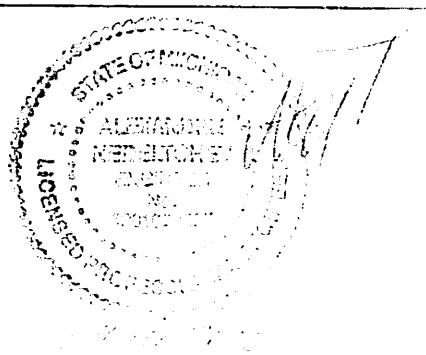
6. ANY MODIFICATIONS OR ALTERATIONS NOT ALLOWED UNLESS APPROVED IN WRITING BY EFFICIENCY PRODUCTION, INC.

7. CONTRACTOR'S COMPETENT/QUALIFIED PERSON SHALL BE RESPONSIBLE FOR MONITORING SOIL CONDITIONS AND SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL RULES AND REGULATIONS.

8. SPREADER PINS SHALL BE AISI C-1018 60-75 KSI MIN. YIELD AND NO MORE THAN 1/4" SMALLER THAN COLLAR AND SPREADER PIN HOLES AS MANUFACTURED BY EFFICIENCY PRODUCTION, INC.

CONTINUED ON REVERSE SIDE





CERTIFIED BY:
EFFICIENCY PRODUCTION INC.

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENT NUMBERS: 4,090,365-4,114,383-4,259,028 ONE OR MORE OF THE FOLLOWING CANADIAN PATENT NUMBERS: 1,062,683-1,062,684

USE THIS PRODUCT ONLY IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE OR LOCAL LAWS

ANY USE OF THIS PRODUCT NOT SPECIFICALLY DESCRIBED ON THIS CERTIFICATE COULD CAUSE IN CAVE-IN, COLLAPSE, OR STRUCTURAL FAILURE RESULTING IN DEATH OR SERIOUS INJURY

9. NOT TYPE A IF FISSURED, SUBJECT TO VIBRATION, PREVIOUSLY DISTURBED OR PART OF A SLOPED LAYERED SYSTEM WHERE LAYERS DIP INTO EXCAVATION ON A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) OR GREATER.
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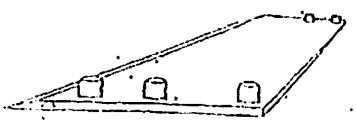
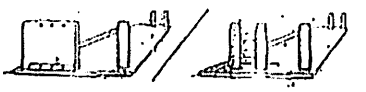
16. DEPTH AND PSF RATINGS ARE FOR LATERAL EARTH PRESSURES ONLY AND DO NOT TAKE ANY SURCHARGES INTO ACCOUNT.

Assembly

Lay side panel flat on ground with collar sockets up ...

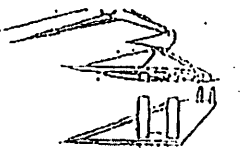


Place spreader pipe and/or plate onto collars or into brackets and pin in place. Secure pins with keepers.



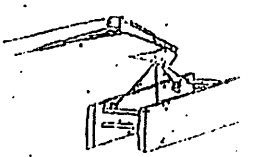
Mud Plate Spreader System 5 Pipe Spreader System

Lower second sidewall onto spreaders and pin.



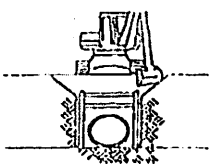
4 Pipe Spreader System

Stand trench shield in upright position and prepare for installation.



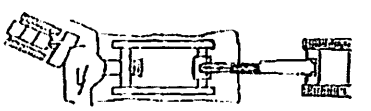
Using a trench shield in stable soil

Excavate to grade just slightly wider than the trench shield. Dig walls vertical to minimum of 18" below the top of the shield. Slope soil above shield according to manufacturers tabulated data. Install shield in trench.



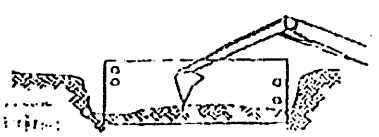
Excavate in front of the trench shield

Pull shield forward by front top spreader or with pulling eyes. (pulling eyes shall used with spreaders wider than 72" or when soil pressure is severe enough to cause spreader to deflect).

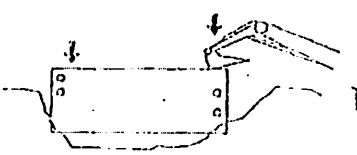


Using a shield in unstable soil

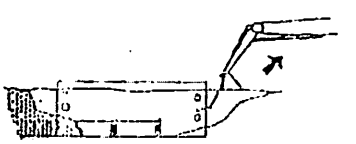
Excavate until soil begins to crumble beyond desired trench width. Place shield on line of excavation.



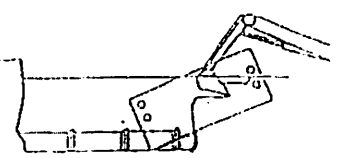
Press down on corners to push shield down to grade



Pull shield forward and up on appropriate angle.



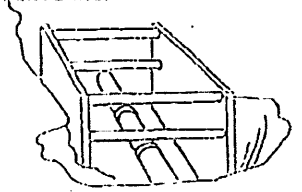
Excavate soil within the shield and repeat previous process.



Using shields for patchwork, repairs or tie-ins

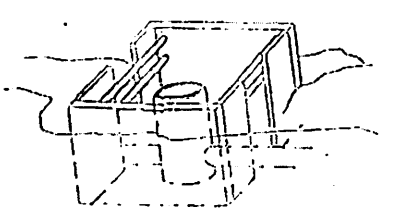
Center shield over work area.

Lay soil at ends back according to manufaturers tabulated data or use manufacturer's designed end plates to protect from cave-ins.



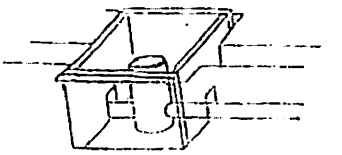
Manhole box with corner end plates

Corner end plates help prevent loose material from running into the end of the shield. Soil at ends should be sloped according to manufacturers tabulated data



Using 4-sided shields

When using shields as protection during manhole assembly work, insure that proper end panels are used, or lay soil at the ends back according to manufactures tabulated data.



This material is intended to provide basic assembly and installation information only.

Always use trench shield in accordance with applicable local, state, and federal safety laws and regulations. Failure to do so could cause severe injury or death.