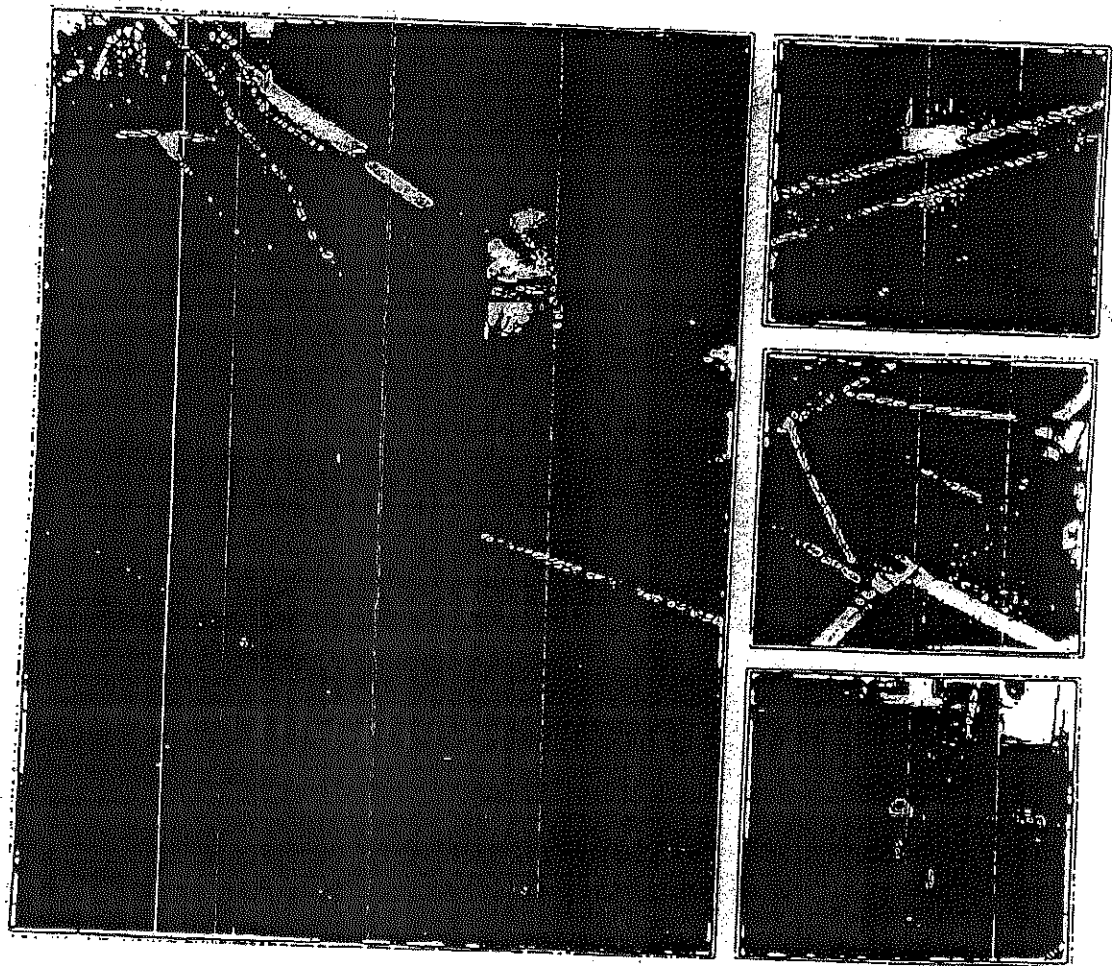


EFFICIENCY PRODUCTION, INC.

AMERICA'S TRENCH BOX BUILDER™

Build-A-Box™

Modular Trench Shielding System



EFFICIENCY PRODUCTION, INC.
Build-A-Box™ Tabulated Data

Tabulated Data

Effective January 4, 2010

Revised: August 27, 2012 - with CHANGE TWO



America's Trench Box Builder™

www.efficiencyproduction.com 800-552-8800 517-676-8800 Fax: 517-676-0373

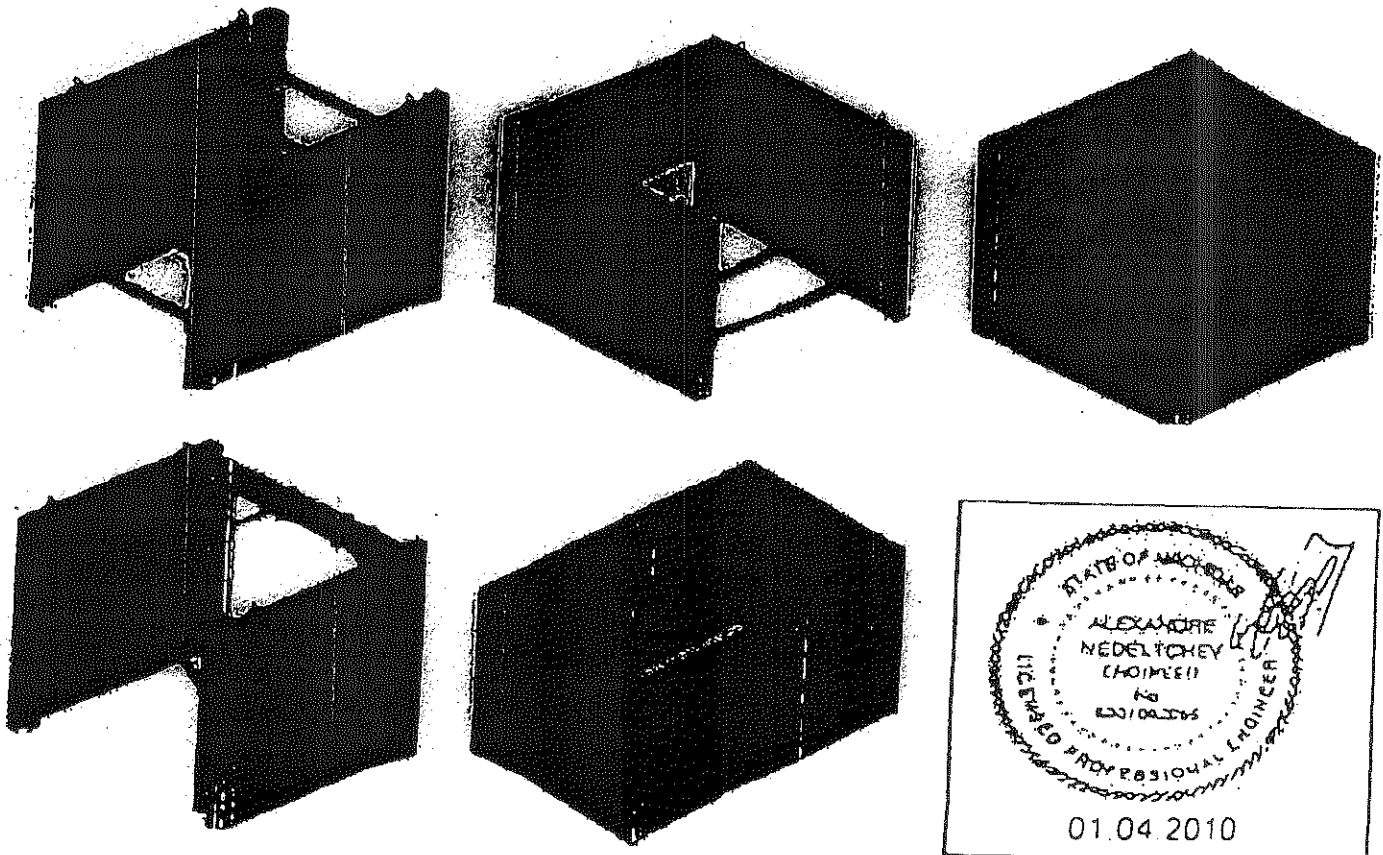
This tabulated data is a general set of guidelines and tables to assist the competent person in selecting a safety system and the proper shoring or shielding equipment. The competent person has sole responsibility for job site safety and the proper selection and installation and removal of the shoring 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.

1. The BUILD-A-BOX™ Modular Trench Shielding System tabulated data is based on the OSHA Safety requirements defined in 29 CFR, Part 1926, Subpart P - Excavations and Trenches
2. This data is to be used by a soils engineer, or a competent person. The competent person shall be experienced and knowledgeable of trenching and excavation procedures, the use of modular trench shielding systems, soils identification, and the OSHA standards.
 - a. 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.
 - b. All personnel shall be trained in correct excavation procedures, proper use of the protective system and all safety precautions.
 - c. Excavations and protective systems shall be inspected a minimum of once each working day and whenever there is a change of soil, water, or other job site conditions
 - d. 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.
3. The competent person shall continually monitor the excavation for signs of deterioration such as seepage of water or flowing soil into the excavation. Promptly dewater any accumulated water and reassess the trench for safety. Changing soil conditions may require adjustments to the shoring system.
 - a. All installation and removal of shielding or shoring shall be from above ground only
 - b. Do not allow personnel to enter an excavation that is not properly shored, shielded or sloped.
 - c. Personnel shall always work within the shielding or shoring. Personnel shall not stand on the edge of an un-shored excavation.
 - d. All personnel shall enter and exit excavations only within shielded or shored areas
4. The tabulated data shall only be used for those soil conditions indicated. The data is not considered adequate when loads imposed by structures, equipment, traffic, or stored materials adjacent to the trench exceed the assumed design surcharge loads of 20,000 pounds, or the imposed load of a 2 ft. spoil pile located less than 2 ft. from the edge of the excavation. An engineered shielding or shoring design is required for conditions other than those assumed in the tables.
5. Proper backfill sufficient to stabilize the BUILD-A-BOX™ and to minimize ground surface and/or foundation settlements is required. Where such settlements are not a concern, over digging may be performed, however, the clear distance shall not exceed 6 inches.
6. No vertical or horizontal loads shall be applied to the adjustable strut or static braces except as specified by Efficiency Production. Any mishandling, such as pounding with the backhoe bucket, will void the tabulated data.

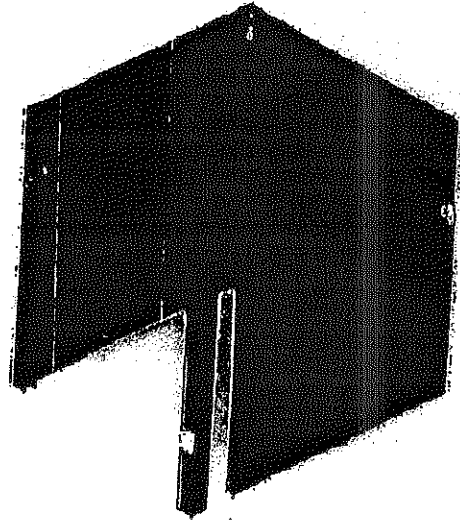
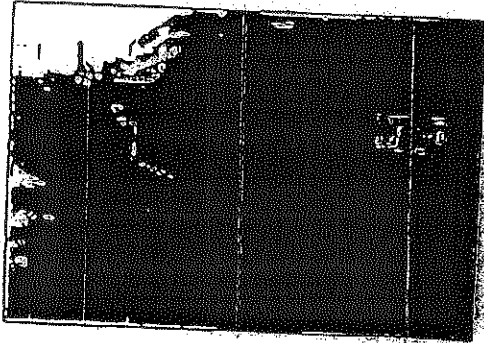
Data Limitations

- A When only the lower portion of a trench is to be shored and the remaining portion is benched or sloped at an angle steeper than three horizontal to one vertical (3H:1V), the allowable depth of excavation shall be measured from the top of the overall trench and not the toe of the sloped portion.
- B In sloped excavations, the top of the shield must be a minimum of 18 inches above the bottom of the slope and the top struts/braces must be located below the bottom of the slope. In unsloped excavations, the top of the shield may be flush with the ground surface, provided that the competent person determines that there is no hazard of objects rolling into the excavation.
- C BUILD-A-BOX™ Modular Trench Shield Systems shall be used with Efficiency Production adjustable struts and static braces pinned in place with two (2) Efficiency Production supplied 5/8" diameter pins at each end of the strut or brace as illustrated on page 5. ✓
- D BUILD-A-BOX™ Modular Trench Shield Systems shall be assembled and installed as shown and in accordance with these instructions. Note that installation videos and training at Efficiency Production are available upon request.
- E BUILD-A-BOX™ Modular Trench Shield Systems shall be handled by using the lifting lugs installed in holes provided in each panel or corner post. Stacking Brackets shall be used when stacking modular systems.
- F The bottom of the BUILD-A-BOX™ shall be located no more than two feet from the bottom of the excavation in soil Types "A", "B" and "C-60180" as long as no loss of soil from behind or below the shield is encountered. Proper benching of trench wall is required.



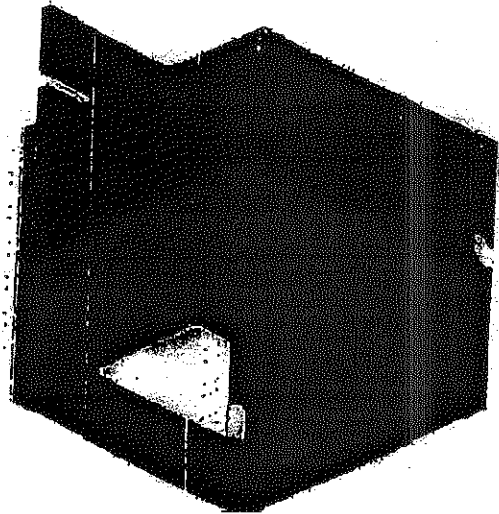
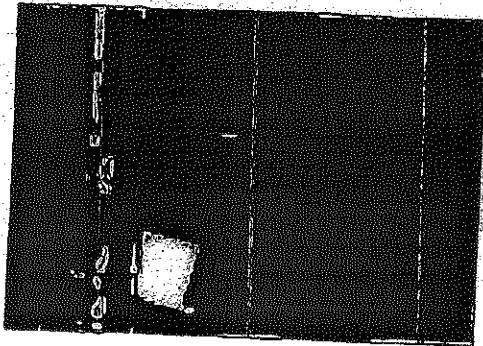
Step 3

To complete the third side, slide panels into the corner posts and pin in place. Add corner posts onto the panel and pin in place. Be sure to secure with pins and keepers



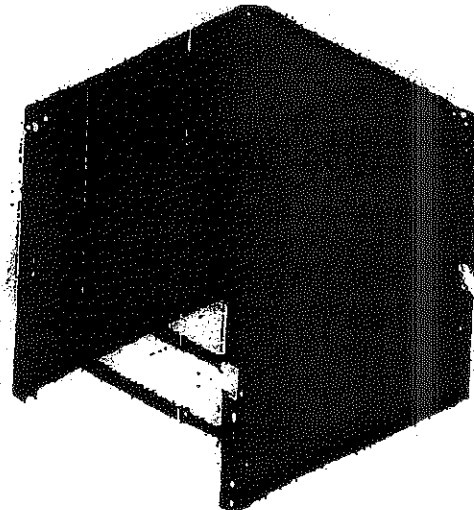
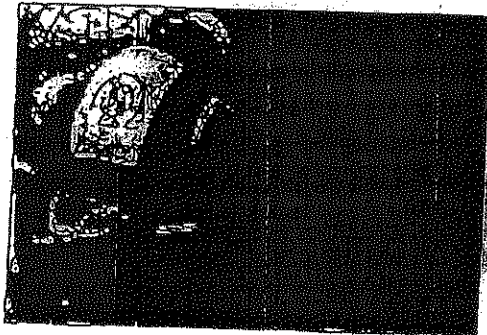
Step 4a

To assemble last side, slide panels down into corner posts until desired height is achieved. Pin panels to corner posts. Be sure to secure with pins and keepers.



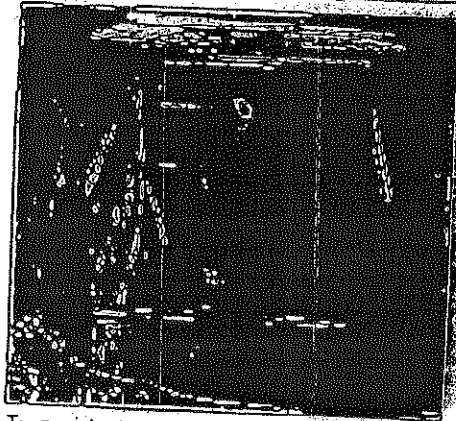
Step 4b

Or, slide a pair of aluminum telescoping spreaders into corner posts and secure with pins and keepers. Note: At least two spreaders are required.

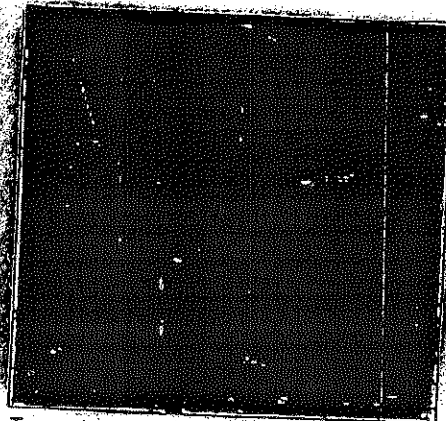


Two-Sided Configurations

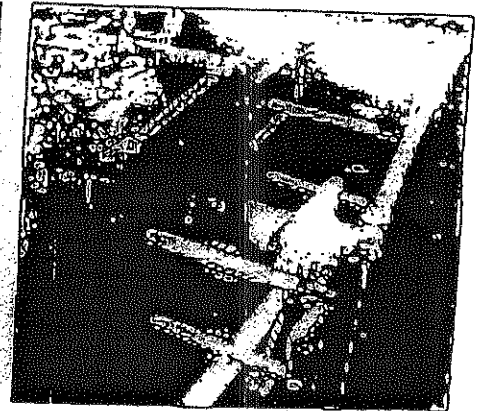
Configurations



Two-sided configuration with telescoping spreaders and full length corner posts

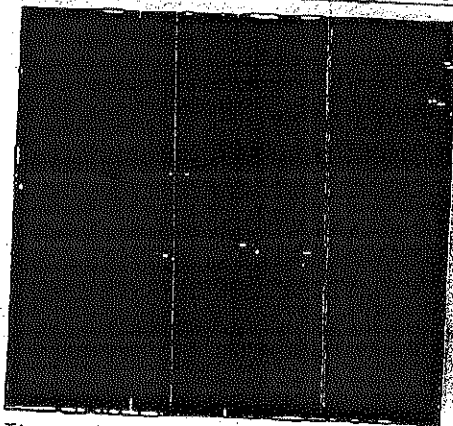


Two-sided configuration with full length corner posts and arches

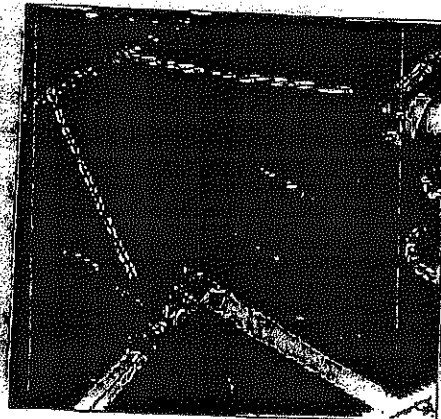


Two-Sided corner configuration with adjustable spreader struts and full length corner posts

Three-Sided Configurations



Three-sided configuration with telescoping spreaders and removed bottom panel

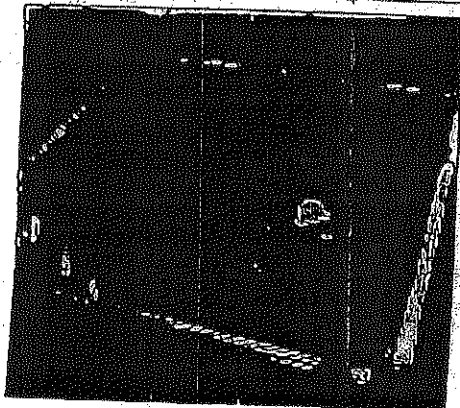


Three-Way "T" Configuration with adjustable spreader struts and combination l-posts and 4-way posts

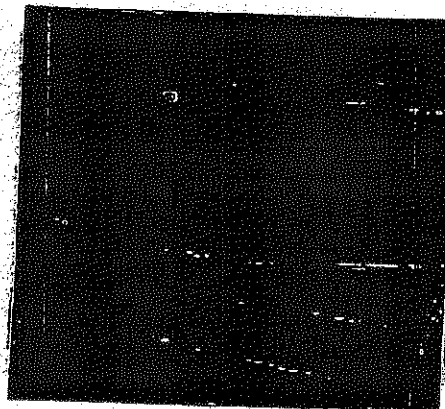


Large, three-sided configuration with hi-clearance arches and splice plates

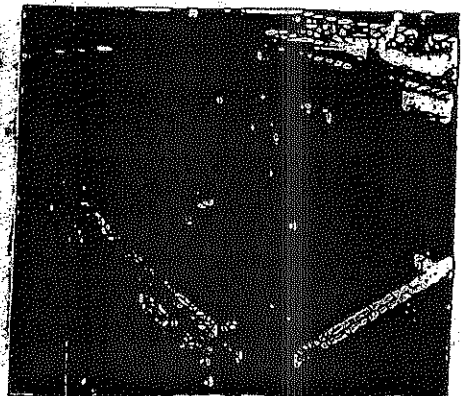
Four-Sided Configurations



Four-sided configuration with sectional corner posts and removed bottom panel



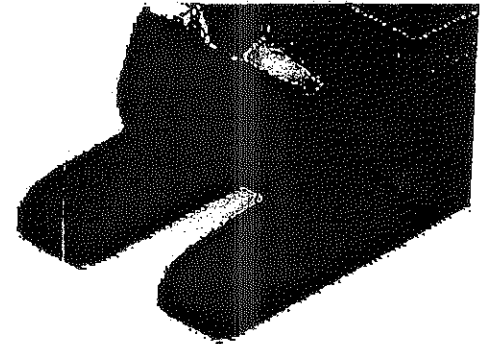
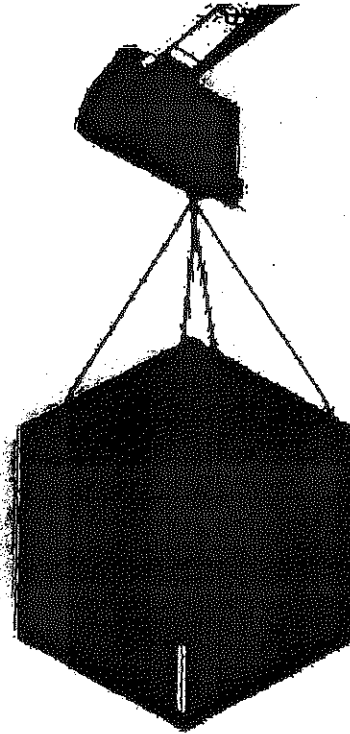
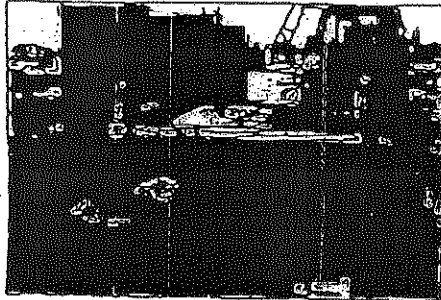
Four-sided inside a four-sided Configuration



ClearSpan™ Configuration with full length corner posts

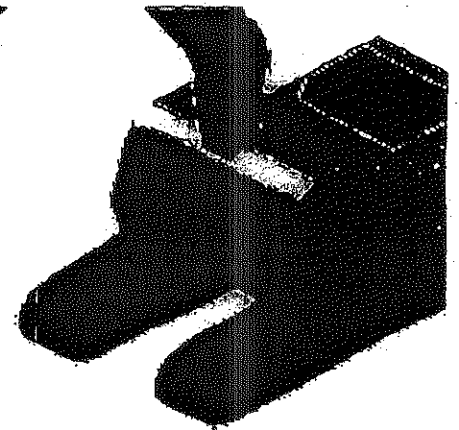
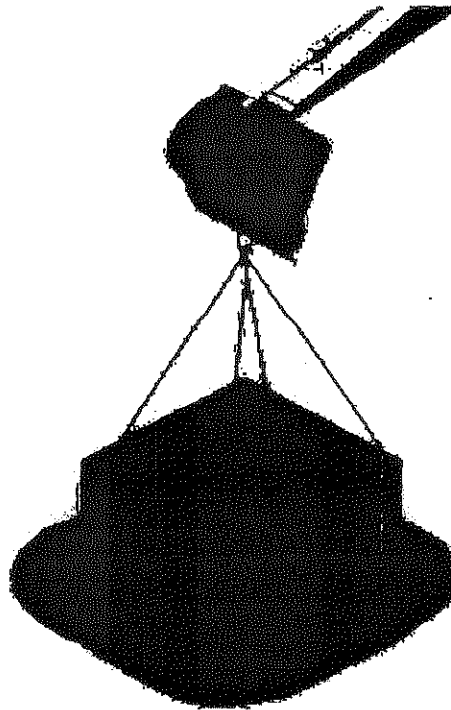
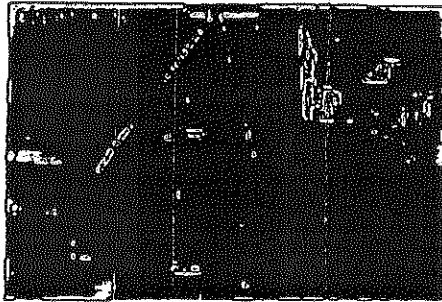
Step 1

Excavate to grade just slightly wider than Build-A-Box dimension. Dig walls vertical to minimum of 18 in. below the top of the box. Slope soil above box according to manufacturer's tabulated data.



Step 2

Lower box into trench. Backfill between outside wall of the box and wall of the trench before use.



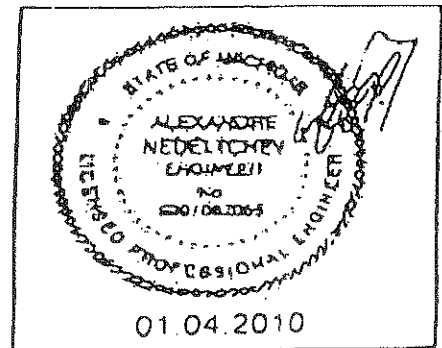
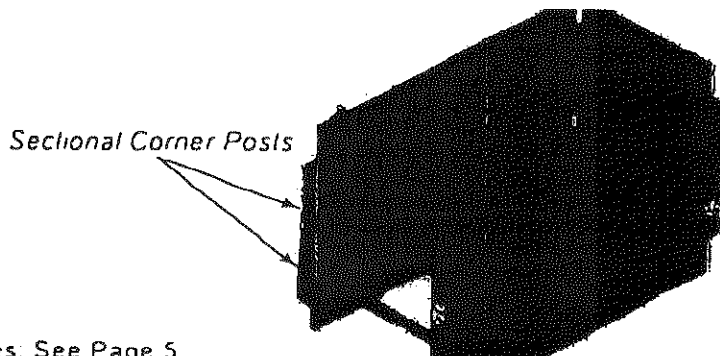
All Lifting Devices should be properly sized, designed, and used in compliance with all industry regulations and in conjunction with a trained and knowledgeable rigging and lifting expert's recommendations.

7 and 8 ft. Configurations

Struts on 24 in. vertical centers on open end

Sectional Corner Posts

3-Sided Build-A-Box™ Modular Trench Shield System					
Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
7 X 2	1,740	70	39	29	21
7 X 7	1,620	65	36	27	20
7 X 8	1,200	48	27	20	15
7 X 9	1,020	41	23	17	12
7 X 10	840	34	19	14	10
7 X 11	780	31	17	13	9
7 X 12	720	29	16	12	9
7 X 13	630	25	14	11	7
7 X 14	540	22	12	9	6
7 X 15	510	20	11	9	6
7 X 16	480	19	11	8	6
7 X 17	420	17	9	7	5
7 X 18	360	14	8	6	4
7 X 19	300	12	7	5	3
7 X 20	240	10	5	4	3
8 X 2	1,620	65	36	27	20
8 X 8	1,200	48	27	20	15
8 X 9	1,020	41	23	17	12
8 X 10	840	34	19	14	10
8 X 11	780	31	17	13	9
8 X 12	720	29	16	12	9
8 X 13	630	25	14	11	7
8 X 14	540	22	12	9	6
8 X 15	510	20	11	9	6
8 X 16	480	19	11	8	6
8 X 17	420	17	9	7	5
8 X 18	360	14	8	6	4
8 X 19	300	12	7	5	3
8 X 20	240	10	5	4	3



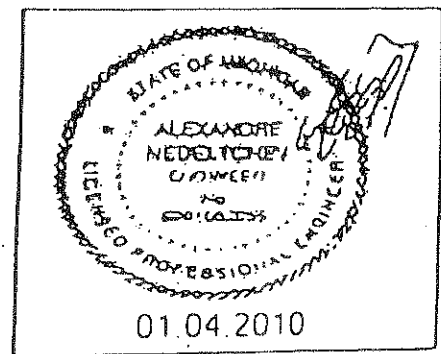
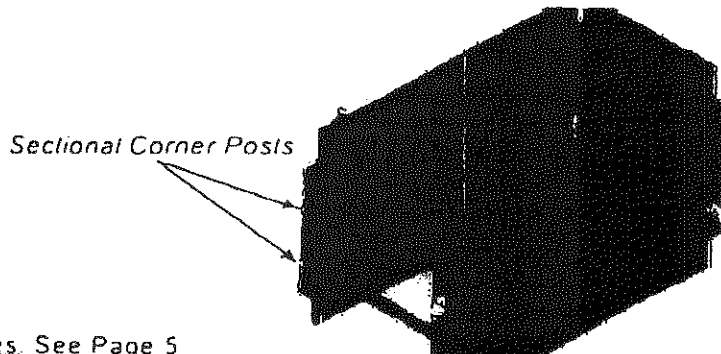
Notes: See Page 5

Build-A-Box™ - Tabulated Data

Sectional Corner Posts

12, 13, 14, and 15 ft. Configurations
Struts on 24 in. vertical centers on open end

3-Sided Build-A-Box™ Modular Trench Shield System					
Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
12 X 2	780	31	17	13	9
12 X 12	660	26	15	11	8
12 X 13	580	23	13	10	7
12 X 14	540	22	12	9	6
12 X 15	510	20	11	9	6
12 X 16	480	19	11	8	6
12 X 17	420	17	9	7	5
12 X 18	360	14	8	6	4
12 X 19	300	12	7	5	3
12 X 20	240	10	5	4	3
13 X 2	660	26	15	11	8
13 X 13	580	23	13	10	7
13 X 14	540	22	12	9	6
13 X 15	510	20	11	9	6
13 X 16	480	19	11	8	6
13 X 17	420	17	9	7	5
13 X 18	360	14	8	6	4
13 X 19	300	12	7	5	3
13 X 20	240	10	5	4	3
14 X 2	600	24	13	10	7
14 X 14	480	19	11	8	6
14 X 15	480	19	11	8	6
14 X 16	480	19	11	8	6
14 X 17	420	17	9	7	5
14 X 18	360	14	8	6	4
14 X 19	300	12	7	5	3
14 X 20	240	10	5	4	3
15 X 2	540	22	12	9	6
15 X 15	480	19	11	8	6
15 X 16	480	19	11	8	6
15 X 17	420	17	9	7	5
15 X 18	360	14	8	6	4
15 X 19	300	12	7	5	3
15 X 20	240	10	5	4	3



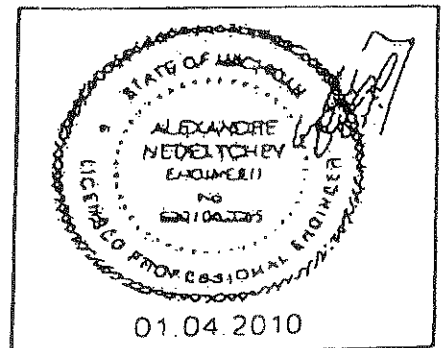
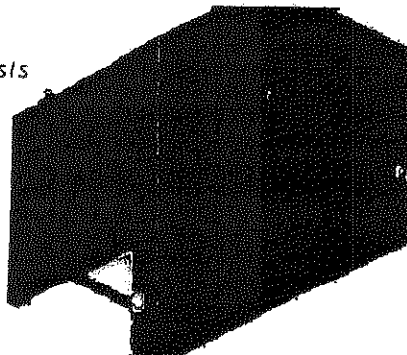
Notes. See Page 5

3 and 4 ft. Configurations

Struts on 36 in. vertical centers on open end

3-Sided Build-A-Box™ Modular Trench Shield System					
Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
3 X 2	1,680	67	37	28	21
3 X 3	1,680	67	37	28	21
3 X 4	1,620	65	36	27	20
3 X 5	1,500	60	33	25	18
3 X 6	1,320	53	29	22	16
3 X 7	1,140	46	25	19	14
3 X 8	1,020	41	23	17	12
3 X 9	900	36	20	15	11
3 X 10	780	31	17	13	9
3 X 11	690	28	15	12	8
3 X 12	600	24	13	10	7
3 X 13	570	23	13	10	7
3 X 14	540	22	12	9	6
3 X 15	510	20	11	9	6
3 X 16	480	19	11	8	6
3 X 17	420	17	9	7	5
3 X 18	360	14	8	6	4
3 X 19	300	12	7	5	3
3 X 20	240	10	5	4	3
4 X 2	1,680	67	37	28	21
4 X 4	1,620	65	36	27	20
4 X 5	1,500	60	33	25	18
4 X 6	1,320	53	29	22	16
4 X 7	1,140	46	25	19	14
4 X 8	1,020	41	23	17	12
4 X 9	900	36	20	15	11
4 X 10	780	31	17	13	9
4 X 11	690	28	15	12	8
4 X 12	600	24	13	10	7
4 X 13	570	23	13	10	7
4 X 14	540	22	12	9	6
4 X 15	510	20	11	9	6
4 X 16	480	19	11	8	6
4 X 17	420	17	9	7	5
4 X 18	360	14	8	6	4
4 X 19	300	12	7	5	3
4 X 20	240	10	5	4	3

Full Length Corner Posts



Notes See Page 5

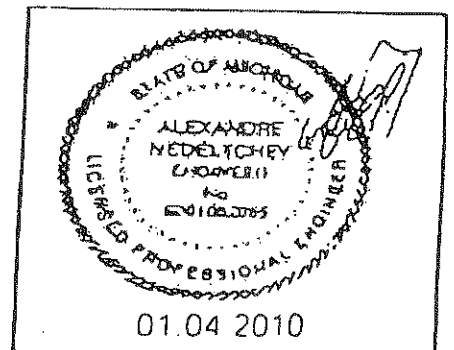
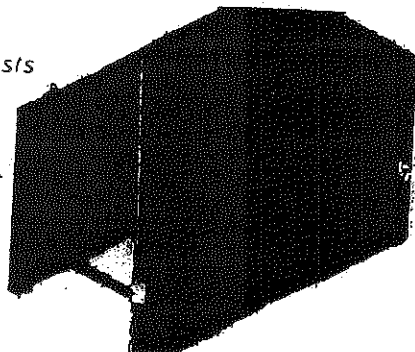
Build-A-Box™ - Tabulated Data

7 and 8 ft. Configurations
Struts on 36 in. vertical centers on open end

Full Length Corner Posts

3-Sided Build-A-Box™ Modular Trench Shield System					
Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
7 X 2	1,360	62	35	26	19
7 X 7	1,140	46	25	19	14
7 X 8	1,020	41	23	17	12
7 X 9	870	35	19	15	10
7 X 10	720	29	16	12	9
7 X 11	660	26	15	11	8
7 X 12	600	24	13	10	7
7 X 13	570	23	13	10	7
7 X 14	540	22	12	9	6
7 X 15	510	20	11	9	6
7 X 16	480	19	11	8	6
7 X 17	420	17	9	7	5
7 X 18	360	14	8	6	4
7 X 19	300	12	7	5	3
7 X 20	240	10	5	4	3
8 X 2	144	6	3	2	1
8 X 8	1,020	41	23	17	12
8 X 9	870	35	19	15	10
8 X 10	720	29	16	12	9
8 X 11	630	25	14	11	7
8 X 12	540	22	12	9	6
8 X 13	510	20	11	9	6
8 X 14	480	19	11	8	6
8 X 15	480	19	11	8	6
8 X 16	480	19	11	8	6
8 X 17	420	17	9	7	5
8 X 18	360	14	8	6	4
8 X 19	300	12	7	5	3
8 X 20	240	10	5	4	3

Full Length Corner Posts



Notes. See Page 5

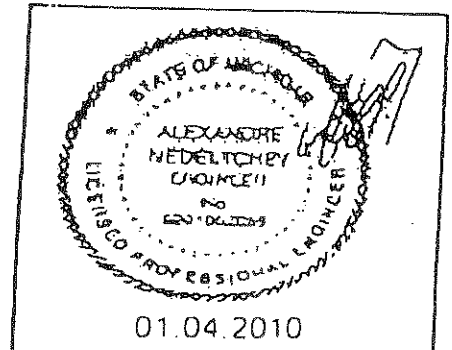
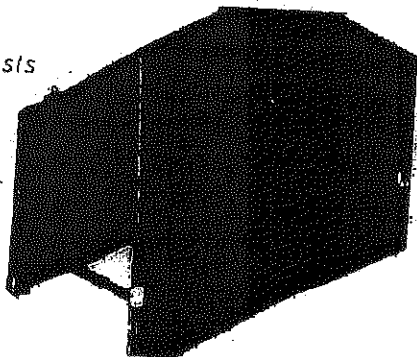
Build-A-Box™ - Tabulated Data

12, 13, 14, and 15 ft. Configurations
Struts on 36 in. vertical centers on open end

Full Length Corner Posts

3-Sided Build-A-Box™ Modular Trench Shield System					
Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
12 X 2	780	31	17	13	9
12 X 12	540	22	12	9	6
12 X 13	510	20	11	9	6
12 X 14	480	19	11	8	6
12 X 15	480	19	11	8	6
12 X 16	480	19	11	8	6
12 X 17	420	17	9	7	5
12 X 18	360	14	8	6	4
12 X 19	300	12	7	5	3
12 X 20	240	10	5	4	3
13 X 2	660	26	15	11	8
13 X 13	510	20	11	9	6
13 X 14	480	19	11	8	6
13 X 15	480	19	11	8	6
13 X 16	480	19	11	8	6
13 X 17	420	17	9	7	5
13 X 18	360	14	8	6	4
13 X 19	300	12	7	5	3
13 X 20	240	10	5	4	3
14 X 2	600	24	13	10	7
14 X 14	480	19	11	8	6
14 X 15	480	19	11	8	6
14 X 16	480	19	11	8	6
14 X 17	420	17	9	7	5
14 X 18	360	14	8	6	4
14 X 19	300	12	7	5	3
14 X 20	240	10	5	4	3
15 X 2	540	22	12	9	6
15 X 15	480	19	11	8	6
15 X 16	480	19	11	8	6
15 X 17	420	17	9	7	5
15 X 18	360	14	8	6	4
15 X 19	300	12	7	5	3
15 X 20	240	10	5	4	3

Full Length Corner Posts



Notes See Page 5

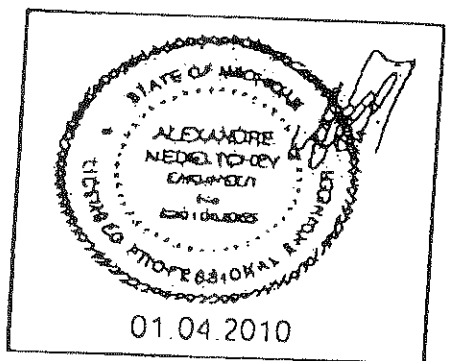
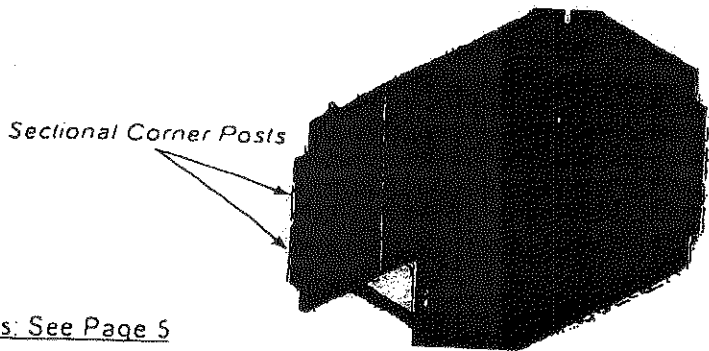
Build-A-Box™ - Tabulated Data

5 and 6 ft. Configurations

Sectional Corner Post

Struts on 24 in. vertical centers on open end

3-Sided Build-A-Box™ Modular Trench Shield System					
Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
5 X 2	2,100	84	47		
5 X 5	2,100	84	47	35	26
5 X 6	2,040	82	45	35	26
5 X 7	1,620	65	36	34	25
5 X 8	1,200	48	27	27	20
5 X 9	1,050	42	23	20	15
5 X 10	900	36	20	18	13
5 X 11	840	34	20	15	11
5 X 12	780	31	19	14	10
5 X 13	660	26	17	13	9
5 X 14	600	24	15	11	8
5 X 15	540	22	13	10	7
5 X 16	480	19	12	9	6
5 X 17	420	17	11	8	6
5 X 18	360	14	9	7	5
5 X 19	300	12	8	6	4
5 X 20	240	10	7	5	3
6 X 2	2,100	84	47	4	3
6 X 6	2,040	82	45	35	26
6 X 7	1,620	65	36	34	25
6 X 8	1,260	50	28	27	20
6 X 9	900	36	20	21	15
6 X 10	840	34	19	15	11
6 X 11	810	32	19	14	10
6 X 12	780	31	18	14	10
6 X 13	660	26	17	13	9
6 X 14	600	24	15	11	8
6 X 15	540	22	13	10	7
6 X 16	480	19	12	9	6
6 X 17	420	17	11	8	6
6 X 18	360	14	9	7	5
6 X 19	300	12	8	6	4
6 X 20	240	10	7	5	3



Notes: See Page 5

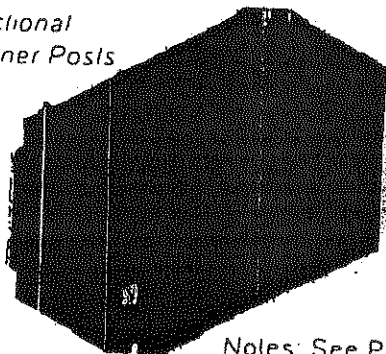
3 and 4 ft. Configurations

Sectional or Full Length Corner Posts

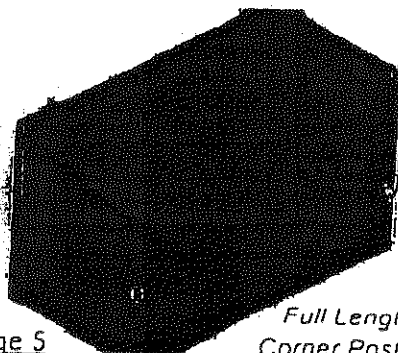
4-Sided Build-A-Box™ Modular Trench Shield System

Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
3 x 2	2,160	86	48	36	27
3 x 3	2,160	86	48	36	27
3 x 4	2,160	86	48	36	27
3 x 5	2,100	84	47	35	26
3 x 6	2,040	82	45	34	25
3 x 7	1,740	70	39	29	21
3 x 8	1,440	58	32	24	18
3 x 9	1,200	48	27	20	15
3 x 10	960	38	21	16	12
3 x 11	840	34	19	14	10
3 x 12	780	31	17	13	9
3 x 13	660	26	15	11	8
3 x 14	600	24	13	10	7
3 x 15	540	22	12	9	6
3 x 16	480	19	11	8	6
3 x 17	420	17	9	7	5
3 x 18	360	14	8	6	4
3 x 19	300	12	7	5	3
3 x 20	240	10	5	4	3
4 x 2	2,160	86	48	36	27
4 x 4	2,160	86	48	36	27
4 x 5	2,100	84	47	35	26
4 x 6	2,040	82	45	34	25
4 x 7	1,620	65	36	27	20
4 x 8	1,320	53	29	22	16
4 x 9	1,200	48	27	20	15
4 x 10	900	36	20	15	11
4 x 11	840	34	19	14	10
4 x 12	780	31	17	13	9
4 x 13	660	26	15	11	8
4 x 14	600	24	13	10	7
4 x 15	540	22	12	9	6
4 x 16	480	19	11	8	6
4 x 17	420	17	9	7	5
4 x 18	360	14	8	6	4
4 x 19	300	12	7	5	3
4 x 20	240	10	5	4	3

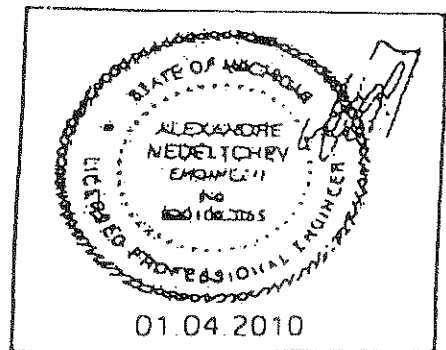
Sectional
Corner Posts



Notes: See Page 5



Full Length
Corner Posts



Build-A-Box™ - Tabulated Data

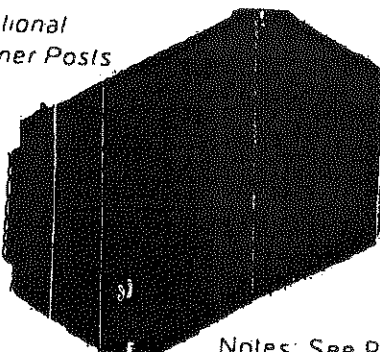
7 and 8 ft. Configurations

Sectional or Full Length Corner Posts

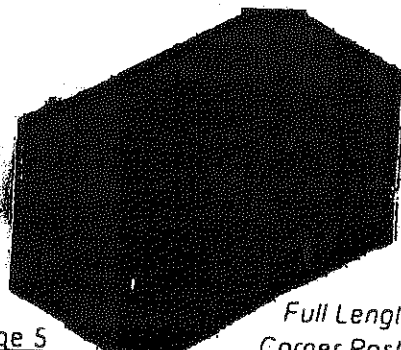
4-Sided Build-A-Box™ Modular Trench Shield System

Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
7 X 2	1,740	70	39	29	21
7 X 7	1,620	65	36	27	20
7 X 8	1,200	48	27	20	15
7 X 9	1,020	41	23	17	12
7 X 10	840	34	19	14	10
7 X 11	780	31	17	13	9
7 X 12	720	29	16	12	9
7 X 13	630	25	14	11	7
7 X 14	540	22	12	9	6
7 X 15	510	20	11	9	6
7 X 16	480	19	11	8	6
7 X 17	420	17	9	7	5
7 X 18	360	14	8	6	4
7 X 19	300	12	7	5	3
7 X 20	240	10	5	4	3
8 X 2	1,620	65	36	27	20
8 X 8	1,200	48	27	20	15
8 X 9	1,020	41	23	17	12
8 X 10	840	34	19	14	10
8 X 11	780	31	17	13	9
8 X 12	720	29	16	12	9
8 X 13	630	25	14	11	7
8 X 14	540	22	12	9	6
8 X 15	510	20	11	9	6
8 X 16	480	19	11	8	6
8 X 17	420	17	9	7	5
8 X 18	360	14	8	6	4
8 X 19	300	12	7	5	3
8 X 20	240	10	5	4	3

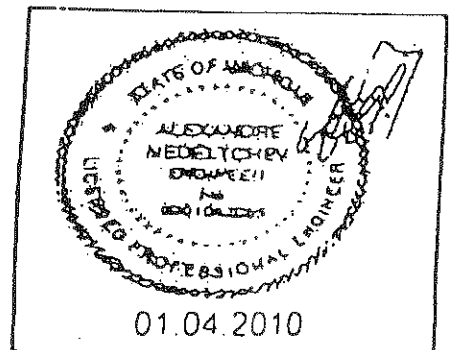
Sectional
Corner Posts



Notes: See Page 5



Full Length
Corner Posts

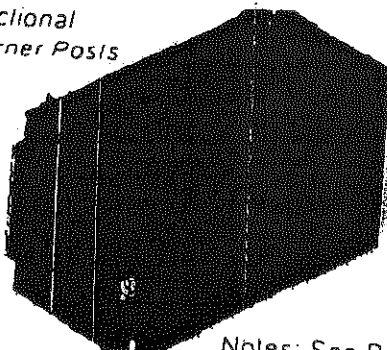


12, 13, 14, and 15 ft. Configurations Sectional or Full Length Corner Posts

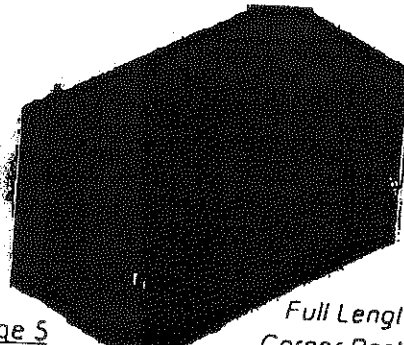
4-Sided Build-A-Box™ Modular Trench Shield System

Width x Length (Ft.)	Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
		A	B	C-60	C-80
12 X 2	780				
12 X 12	660	31	17	13	
12 X 13	580	26	15	11	9
12 X 14	540	23	13	10	8
12 X 15	510	22	12	9	7
12 X 16	480	20	11	9	6
12 X 17	420	19	11	8	6
12 X 18	360	17	9	7	6
12 X 19	300	14	8	6	5
12 X 20	240	12	7	5	4
13 X 2	660	10	5	4	3
13 X 13	580	26	15	11	8
13 X 14	540	23	13	10	7
13 X 15	510	22	12	9	6
13 X 16	480	20	11	9	6
13 X 17	420	19	11	8	6
13 X 18	360	17	9	7	5
13 X 19	300	14	8	6	4
13 X 20	240	12	7	5	3
14 X 2	600	10	5	4	3
14 X 14	480	24	13	10	7
14 X 15	480	19	11	8	6
14 X 16	480	19	11	8	6
14 X 17	420	19	11	8	6
14 X 18	360	17	9	7	5
14 X 19	300	14	8	6	4
14 X 20	240	12	7	5	3
15 X 2	540	10	5	4	3
15 X 15	480	22	12	9	6
15 X 16	480	19	11	8	6
15 X 17	420	19	11	8	6
15 X 18	360	17	9	7	5
15 X 19	300	14	8	6	4
15 X 20	240	12	7	5	3
		10	5	4	3

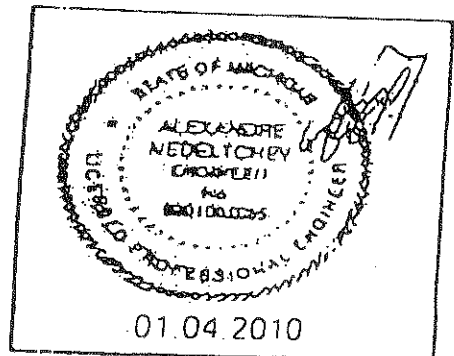
Sectional
Corner Posts



Notes: See Page 5



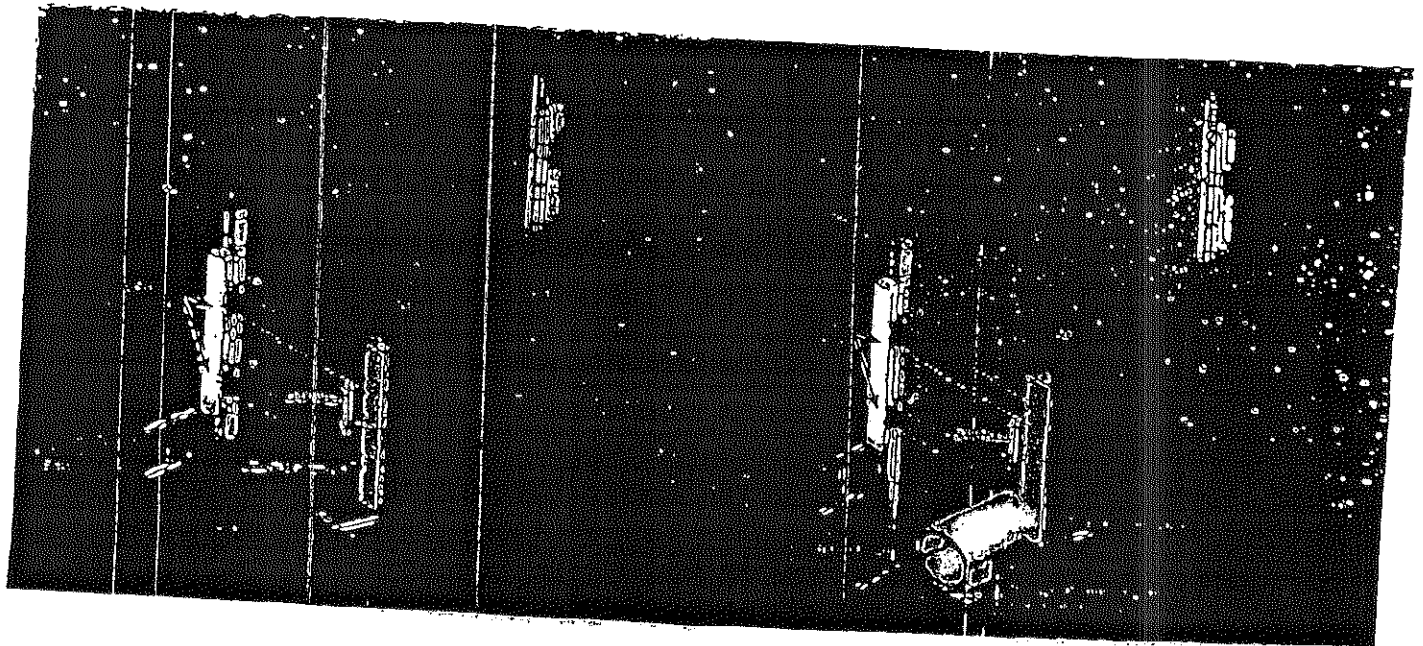
Full Length
Corner Posts



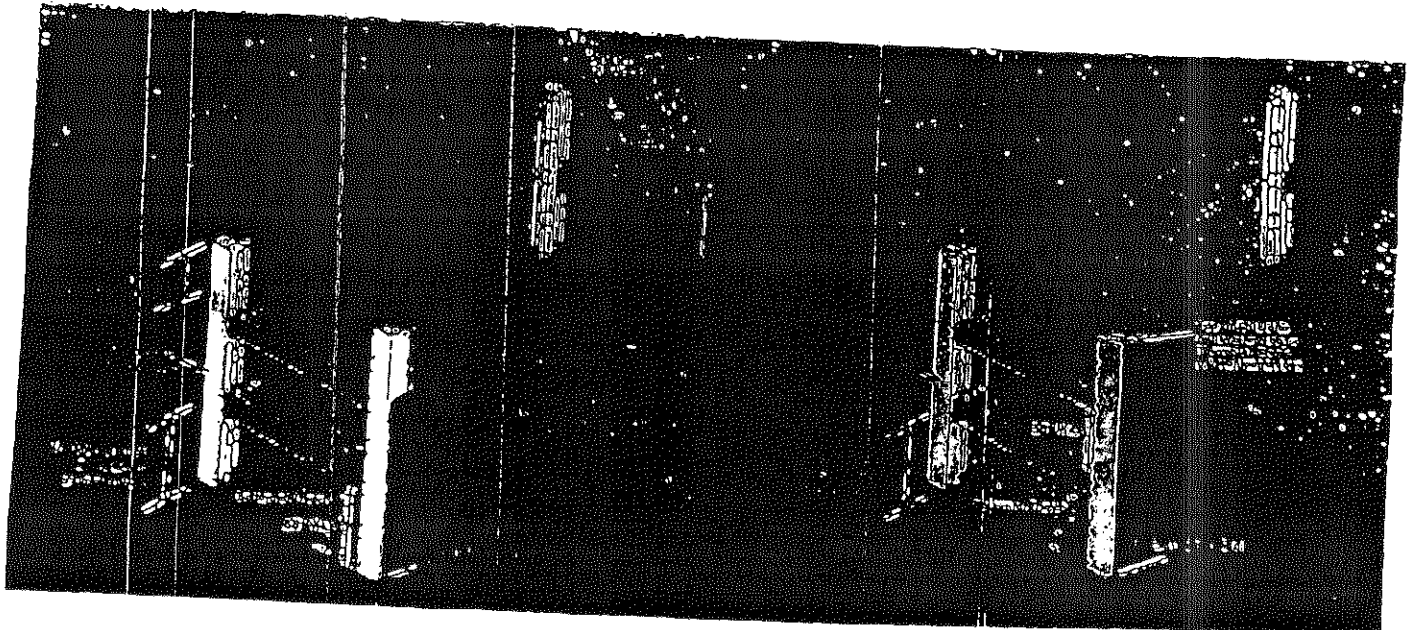
Build-A-Box™ - Tabulated Data

Sectional Corner Posts

Shield and Spreader Placement



Full Length Corner Posts



Additional Certification

The following additional certifications apply to pages 1-24 of this document, stamped by Alex Nedeltchev, P.E., on January 6, 2012.

Additional Certifications

