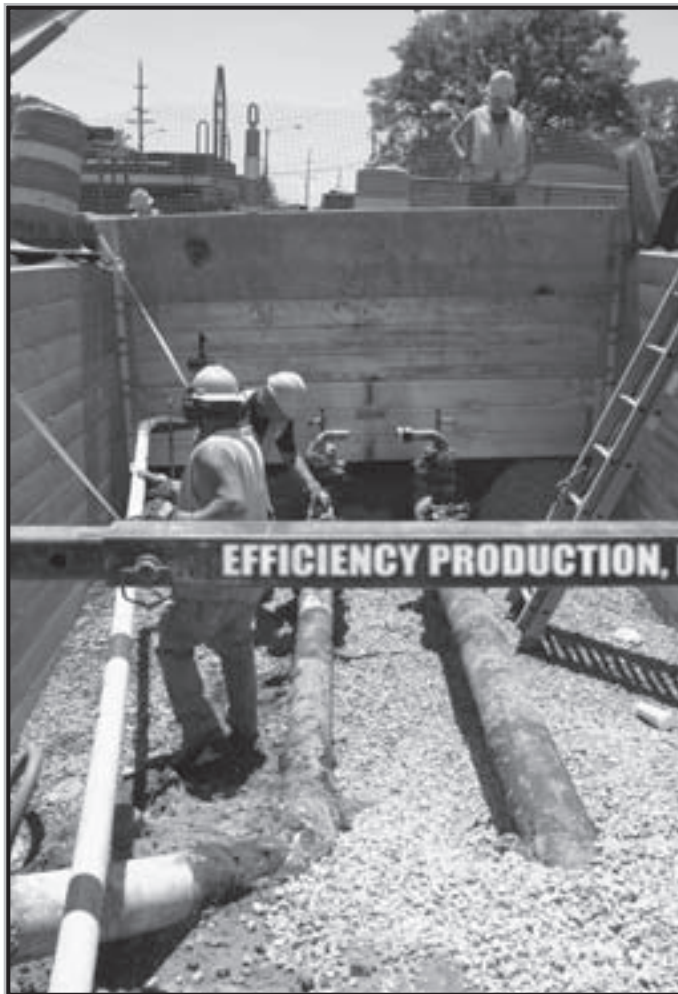


EFFICIENCY PRODUCTION, INC.

AMERICA'S TRENCH BOX BUILDER™

Build-A-Box™

Modular Trench Shielding System



Tabulated Data
Effective January 4, 2010

Revised: April 21, 2015 - with CHANGE THREE

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



America's Trench Box Builder™

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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.

Classification of Soil Types

The soil descriptions for OSHA Type “A”, “B”, & “C” Soils are based on Appendix A to OSHA Subpart P of 29CFR Part 1926, “Excavations and Trenches”. The Type “C-60” Soil referred to in Efficiency’s Tabulated Data represents a more stable soil condition than the Type “C” described in Appendix A.

Type “A” Soil - Equivalent weight effect of **25 PSF** per foot of depth.

Description: Cohesive soil (i.e., silt, silty clay, sandy clay, clay loam) with an unconfined compressive strength of 1.5 TSF (tons per square foot) or greater; or cemented soils such as caliche and hardpan. No soil is Type A if the soil is fissured; subject to vibration from heavy traffic, pile driving or similar effects; has been previously disturbed; or part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater.

Type “B” Soil - Equivalent weight effect of **45 PSF** per foot of depth.

Description: Cohesive soil with an unconfined compressive strength greater than .5 TSF but less than 1.5 TSF; and granular cohesionless soils including angular gravel, silt, silt loam, sandy loam, and in some cases, silty clay loam and sand clay loam; previously disturbed soils except those which would otherwise be classed as Type C; soil that meets requirements for Type A, but is fissured or subject to vibration; 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), but only if the material would otherwise be classified as Type B.

Type “C-60” Soil - Equivalent weight effect of **60 PSF** per foot of depth.

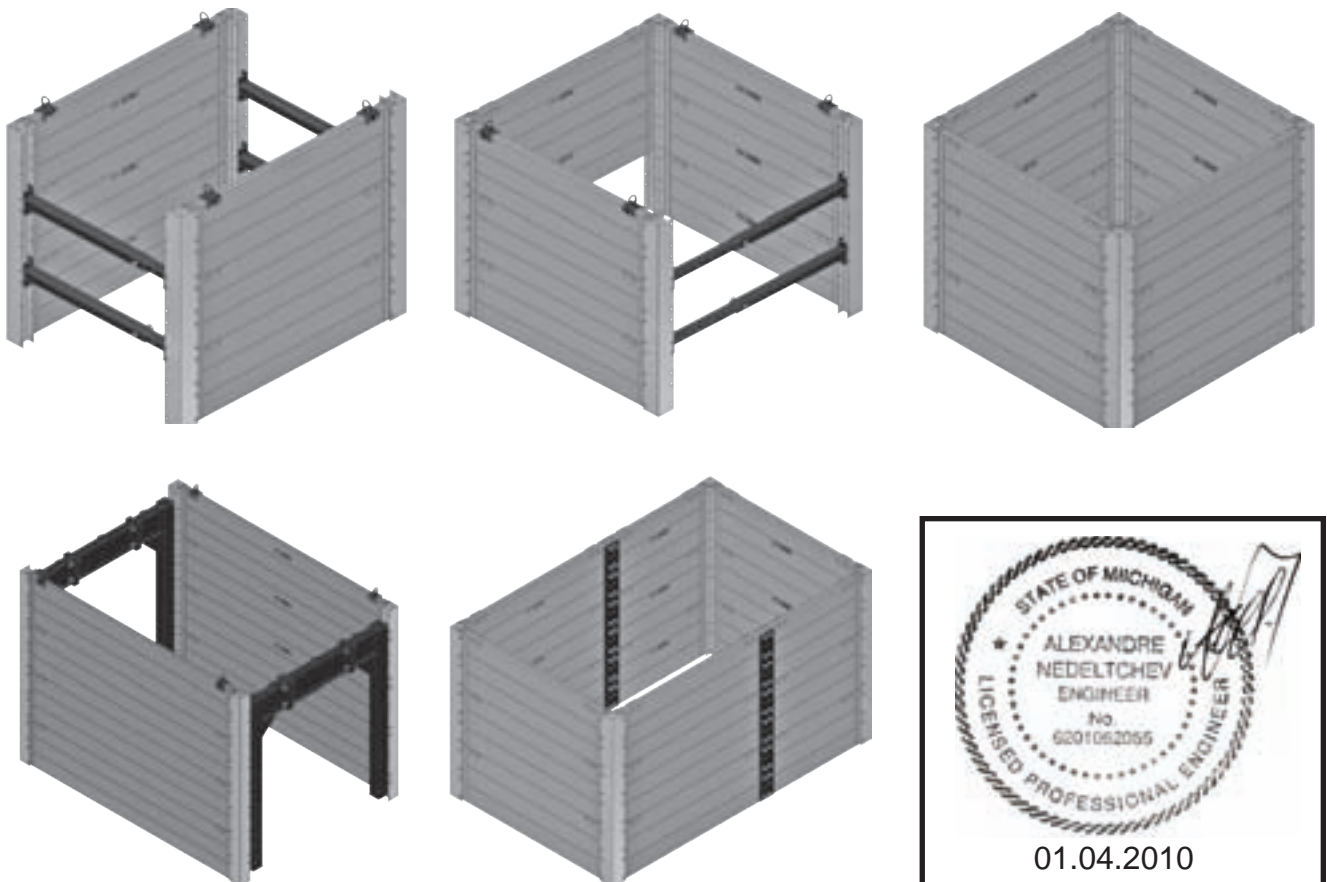
Description: Soft cohesive to moist soil with an unconfined compressive strength less than .5 TSF; moist cohesive soil or moist dense sand which is not flowing or submerged. When cut with near vertical side walls, soil can stand with unsupported vertical sidewalls long enough for shoring installation. (see “1.c.”)

Type “C-80” Soil - Equivalent weight effect of **80 PSF** per foot of depth.

Description: Cohesive soil with an unconfirmed compressive strength of .5 TSF or less; granular soils including gravel, sand, and loamy sand; submerged soil or soil from which water is freely seeping; submerged rock that is not stable; and material in a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H : 1V) or steeper.

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 un-sloped 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-60\80" as long as no loss of soil from behind or below the shield is encountered. Proper benching of trench wall is required.



Two-Sided Configurations



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



Two-sided configuration with full length corner posts and arches



A series of two-sided configured Build-A-Box shielding a long pipeline

Three-Sided Configurations



Three-sided configuration with telescoping spreaders and removed bottom panel



A three-sided configuration with end panels pinned 1 ft. up in corner posts allowing gas utility to run through



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



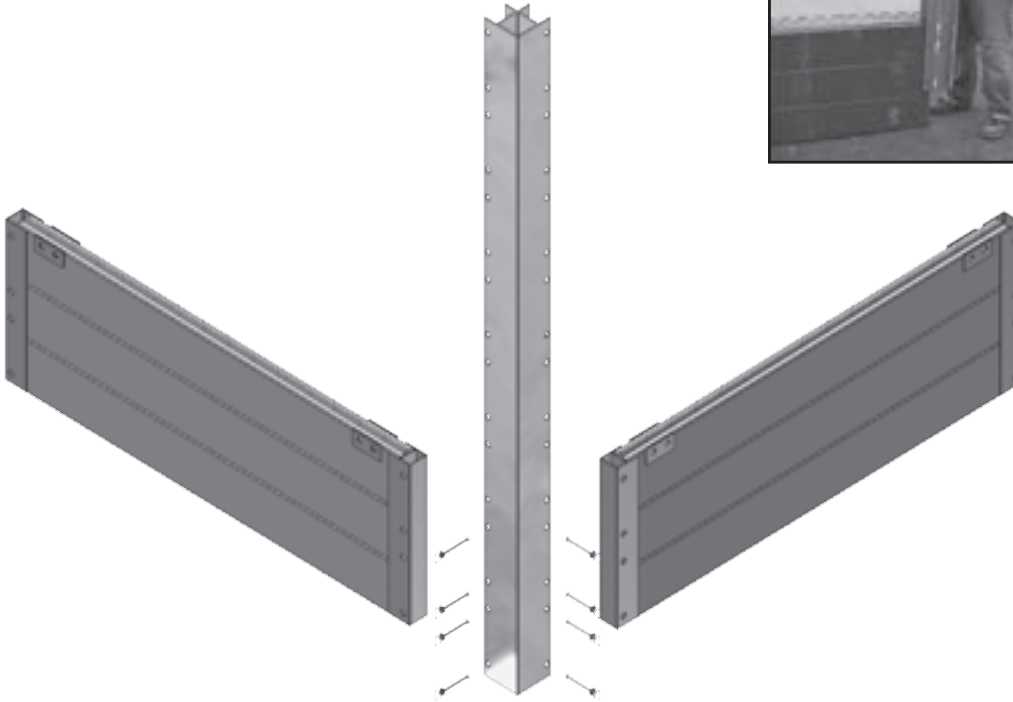
Long paneled four-sided configuration with sectional corner posts



Two, 8x8x8 ft. stacked Build-A-Box with Stacking Guide accessory

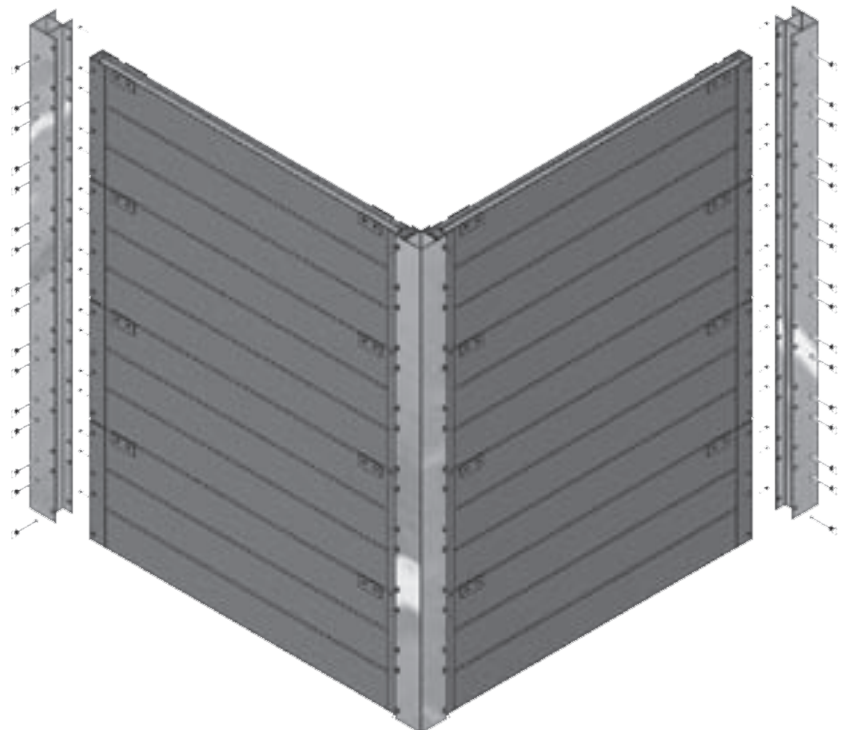
Step 1

Slide first panel into corner post and pin in place. Slide perpendicular panel into the corner posts and pin in place. Continue with as many panels as necessary to achieve desired height. Be sure to secure with pins and keepers.



Step 2

Slide corner posts onto panels and pin in place. Be sure to secure with pins and keepers.



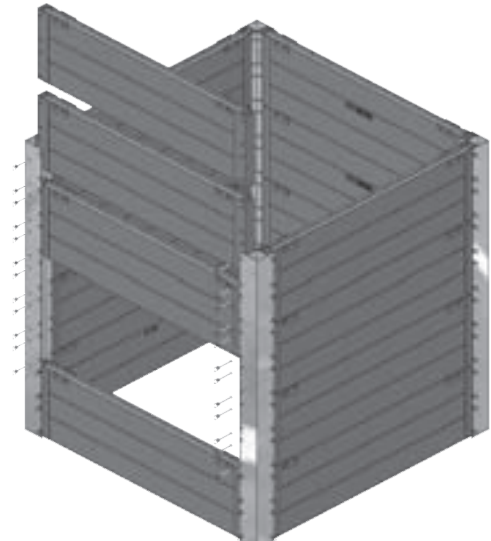
Step 3

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

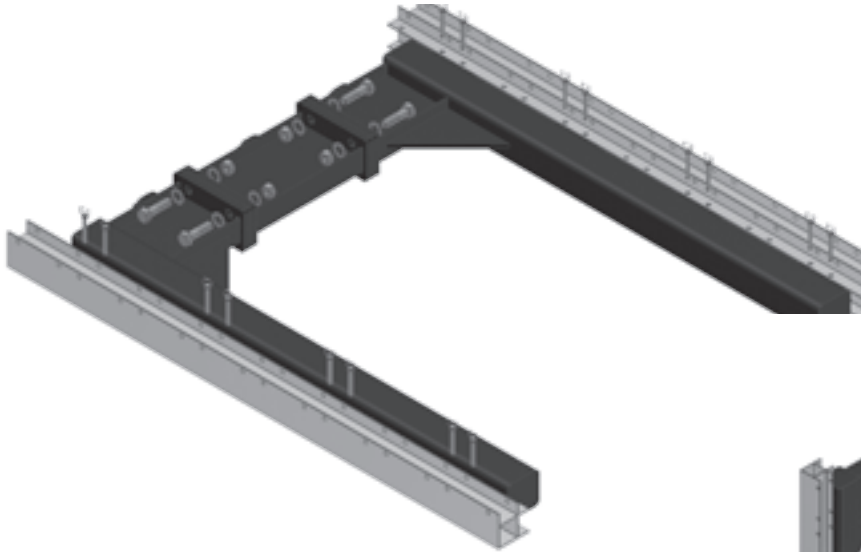
Or, slide a pair of aluminum telescoping spreaders into corner posts and secure with pins and keepers. Note: At least two spreaders are required.



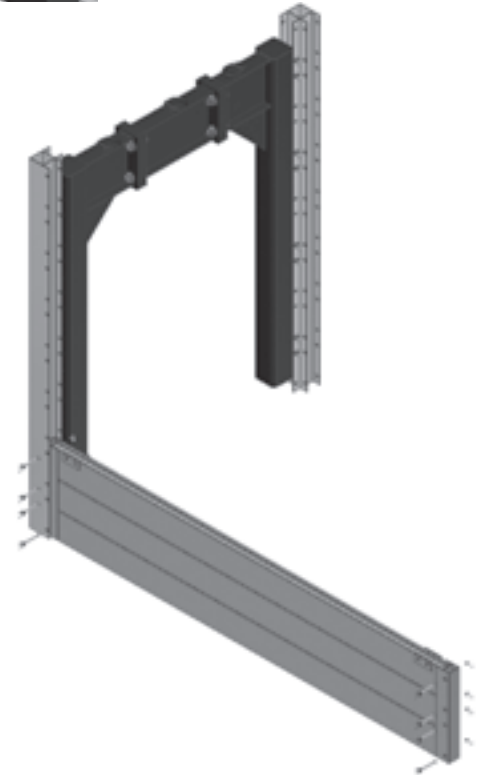
Assembly - BAB & Arch

Step 1

Set ground and slide the corner posts onto the arch and secure with pins

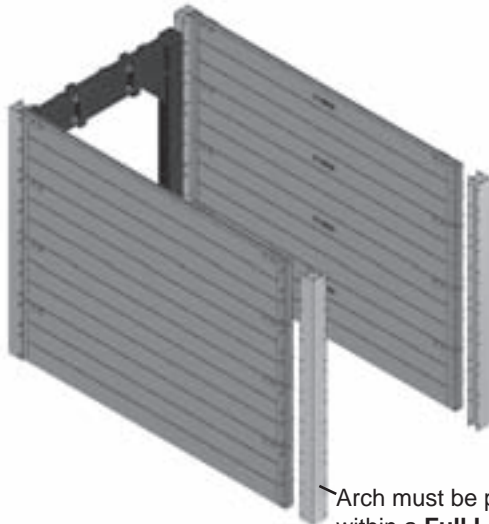


Stand the Arch up, and slide panels into the posts. Continue with as many panels on each side as necessary to reach desired height with pins and

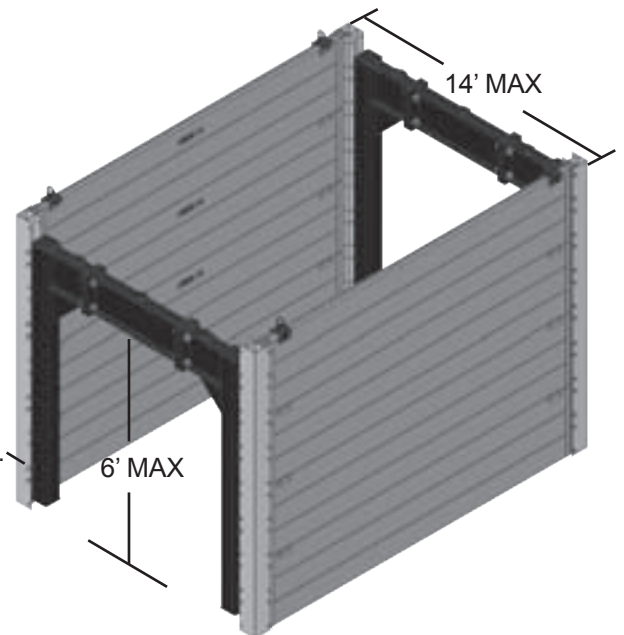


Step 3

Slide corner posts onto panels and secure with pins and keepers. Complete the fourth side by installing either panel spreaders, or another Arch.



Arch must be pinned completely within a **Full Length** corner post.

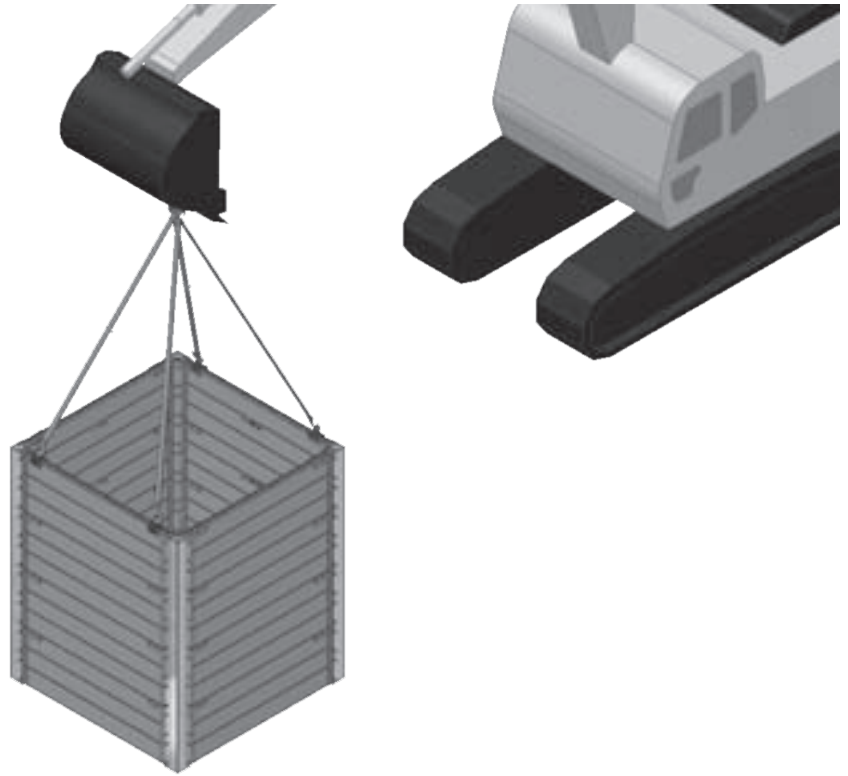


Note:

Use Build-A-Box tabulated data charts providing vertical clearance is 6' or less and horizontal clearance is 14' or less.

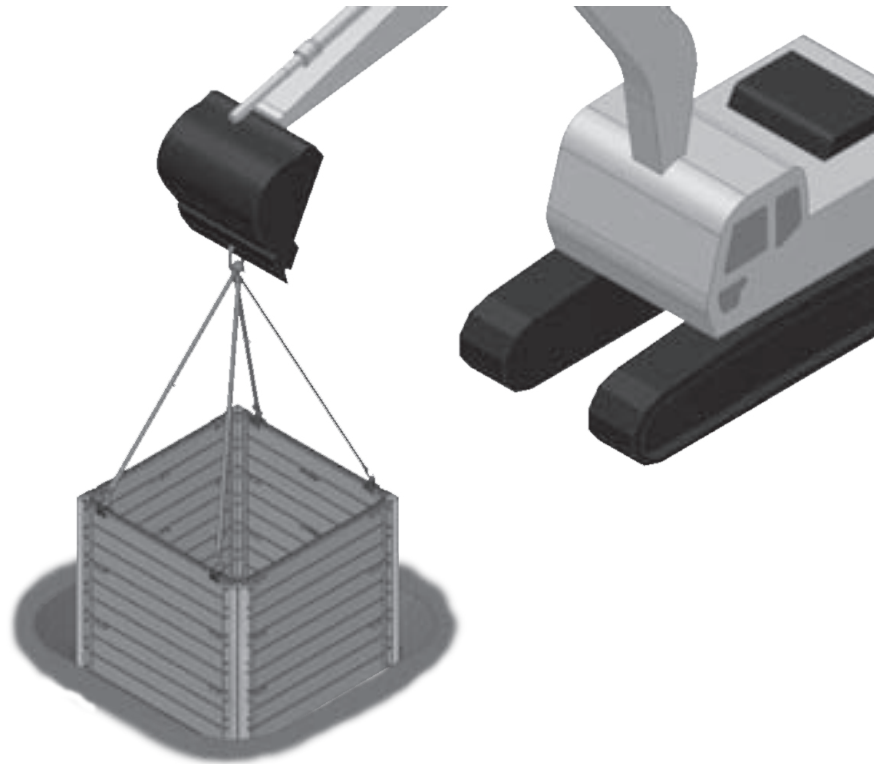
Step 1

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.



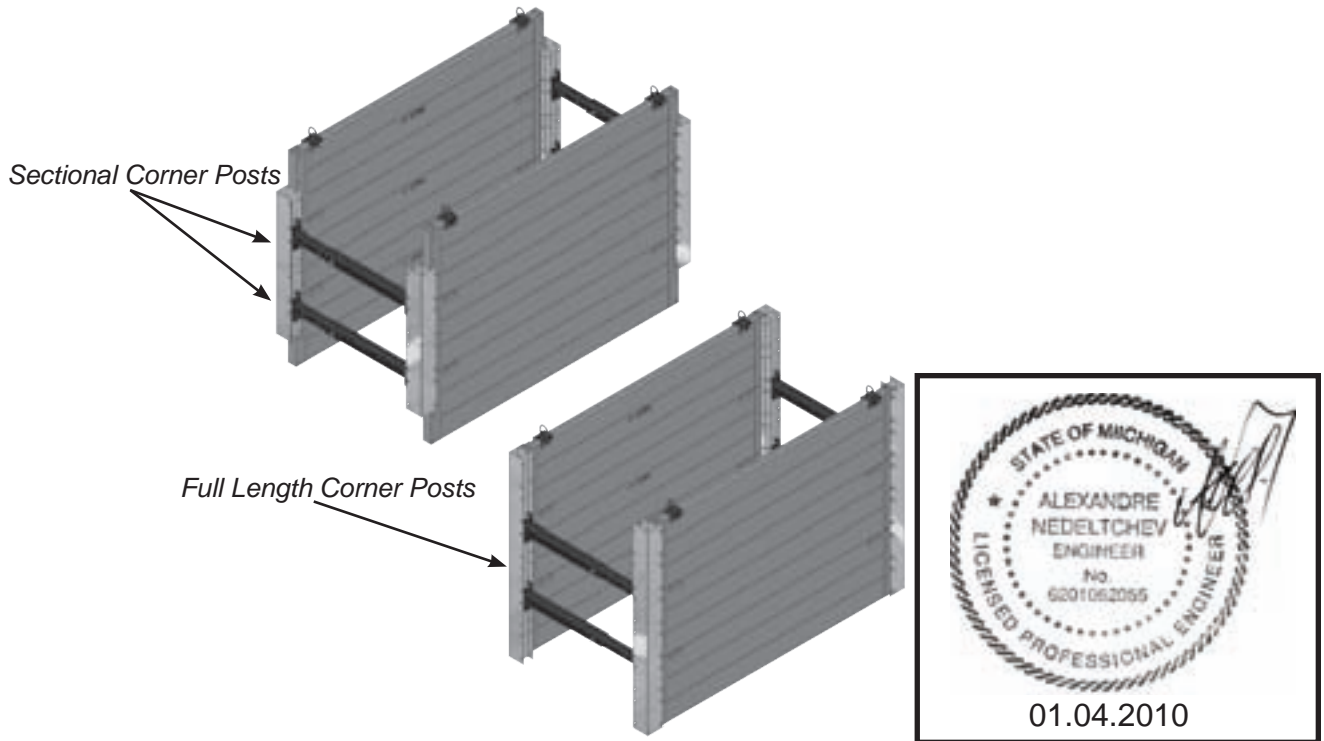
All Lifting Devices should be properly sized, designed, and used in compliance with all industry regulations and in conjunction with a trained and knowledgeable rigging and lifting expert's recommendations.

- 1) Numerous other combinations of panels, corner posts, t-posts, 4-way posts and struts, other than those shown on page 7, are permissible with approval from Efficiency Production.
- (2) Build-A-Box™ Modular Trench Shielding Systems, are designed for use with Efficiency Production adjustable struts and static braces.
- (3) Depth ratings are based on one strut per sectional corner post pair on 24 inch centers for the entire height of the system. Sectional corner posts must be installed in a manner to have the struts centered on the posts and in line with the panel joints. Alternately, struts may be used on 36 inch vertical centers if used with full length end posts. The full length end posts must extend to within 12 inches of the top and bottom of the panels. Full length corner posts may extend below the bottom of the panels to serve as legs; however depth of cut remains the same.
- (4) When splice kits are used the PSF rating is the same as the resultant length panel (see tabulated data). All available bolt holes must be used. Three-quarter (3/4) inch ASTM A-325 hex head cap bolts, washers, lock washers, and nuts must be used for each panel splice kit. Tighten all to 140 foot-pounds. When using multiple splice kits vertically they may be either Aligned or staggered.
- (5) When t-posts or 4-way corner posts are used, struts must be installed at every t-post and/or corner post, on the same maximum vertical centers as the ends.
- (6) Each wheel kit assembly may be used to lift a maximum of 1,500 pounds. Two wheel kits are required per panel section.
- (7) Four or 6 foot tall panels with or without factory installed cutouts may be substituted for two or three, 2 foot panels with no penalty in depth of cut.



Sectional or Full Length Corner Posts Struts on 24 or 36 in. vertical centers

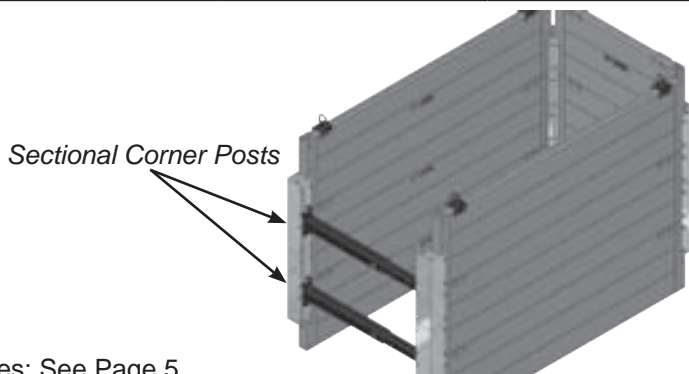
2-Sided Build-A-Box™ Modular Trench Shield System						
Panel Selection Chart		Shield Capacity (PSF)	Depth of Cut (ft.) - Soil Type			
Ht. x Lg. (Ft.)	Weight (Lbs.)		A	B	C-60	C-80
22 BBP	28	2,400	96	53	40	30
23 BBP	40	2,400	96	53	40	30
24 BBP	52	2,400	96	53	40	30
25 BBP	64	2,400	96	53	40	30
26 BBP	76	2,400	96	53	40	30
27 BBP	88	1,740	70	39	29	22
28 BBP	100	1,440	58	32	24	18
29 BBP	112	1200	48	27	20	15
210 BBP	124	960	38	21	16	12
211 BBP	136	840	34	19	14	11
212 BBP	148	780	31	17	13	10
213 BBP	160	660	26	15	11	8
214 BBP	172	600	24	13	10	8
215 BBP	184	540	22	12	9	7
216 BBP	196	480	19	11	8	6
217 BBP	208	420	17	9	7	5
218 BBP	220	360	14	8	6	5
219 BBP	232	300	12	7	5	4
220 BBP	244	240	10	5	4	3



3 and 4 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
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

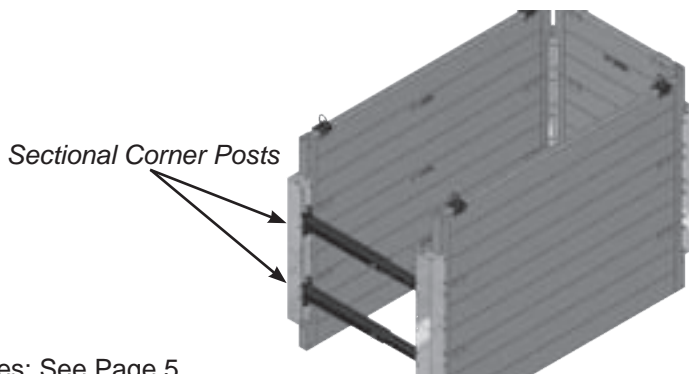


Notes: See Page 5

5 and 6 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
5 X 2	2,100	84	47	35	26
5 X 5	2,100	84	47	35	26
5 X 6	2,040	82	45	34	25
5 X 7	1,620	65	36	27	20
5 X 8	1,200	48	27	20	15
5 X 9	1,050	42	23	18	13
5 X 10	900	36	20	15	11
5 X 11	840	34	19	14	10
5 X 12	780	31	17	13	9
5 X 13	660	26	15	11	8
5 X 14	600	24	13	10	7
5 X 15	540	22	12	9	6
5 X 16	480	19	11	8	6
5 X 17	420	17	9	7	5
5 X 18	360	14	8	6	4
5 X 19	300	12	7	5	3
5 X 20	240	10	5	4	3
6 X 2	2,100	84	47	35	26
6 X 6	2,040	82	45	34	25
6 X 7	1,620	65	36	27	20
6 X 8	1,260	50	28	21	15
6 X 9	900	36	20	15	11
6 X 10	840	34	19	14	10
6 X 11	810	32	18	14	10
6 X 12	780	31	17	13	9
6 X 13	660	26	15	11	8
6 X 14	600	24	13	10	7
6 X 15	540	22	12	9	6
6 X 16	480	19	11	8	6
6 X 17	420	17	9	7	5
6 X 18	360	14	8	6	4
6 X 19	300	12	7	5	3
6 X 20	240	10	5	4	3

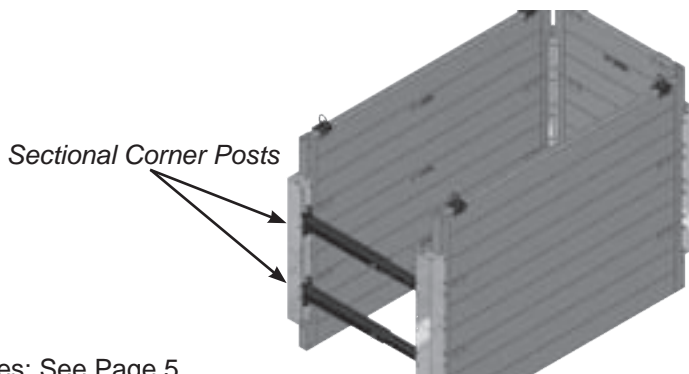


Notes: See Page 5

7 and 8 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
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



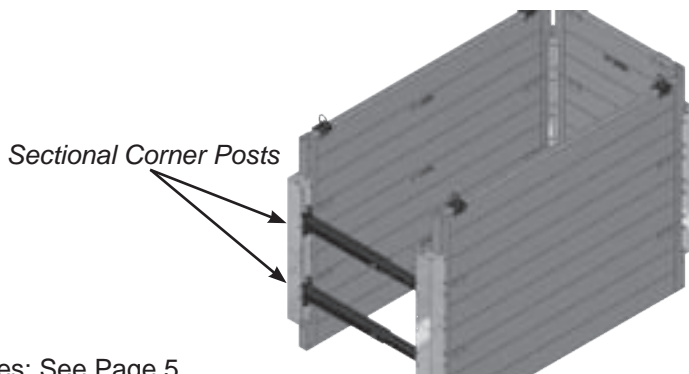
Notes: See Page 5



9, 10, and 11 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
9 X 2	1,200	48	27	20	15
9 X 9	1,020	41	23	17	12
9 X 10	840	34	19	14	10
9 X 11	780	31	17	13	9
9 X 12	720	29	16	12	9
9 X 13	630	25	14	11	7
9 X 14	540	22	12	9	6
9 X 15	510	20	11	9	6
9 X 16	480	19	11	8	6
9 X 17	420	17	9	7	5
9 X 18	360	14	8	6	4
9 X 19	300	12	7	5	3
9 X 20	240	10	5	4	3
10 X 2	840	34	19	14	10
10 X 10	780	31	17	13	9
10 X 11	750	30	17	13	9
10 X 12	720	29	16	12	9
10 X 13	630	25	14	11	7
10 X 14	540	22	12	9	6
10 X 15	510	20	11	9	6
10 X 16	480	19	11	8	6
10 X 17	420	17	9	7	5
10 X 18	360	14	8	6	4
10 X 19	300	12	7	5	3
10 X 20	240	10	5	4	3
11 X 2	840	34	19	14	10
11 X 11	780	31	17	13	9
11 X 12	720	29	16	12	9
11 X 13	630	25	14	11	7
11 X 14	540	22	12	9	6
11 X 15	510	20	11	9	6
11 X 16	480	19	11	8	6
11 X 17	420	17	9	7	5
11 X 18	360	14	8	6	4
11 X 19	300	12	7	5	3
11 X 20	240	10	5	4	3

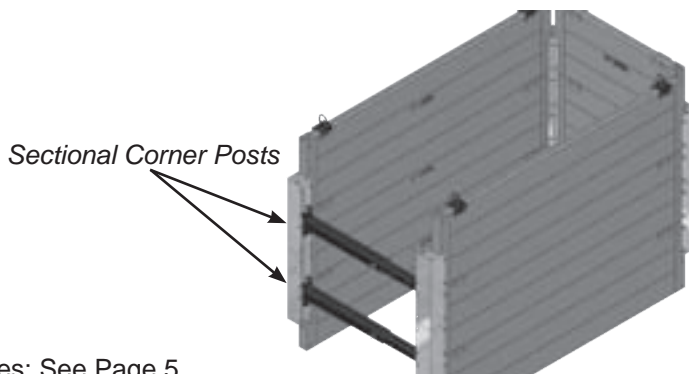


Notes: See Page 5

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

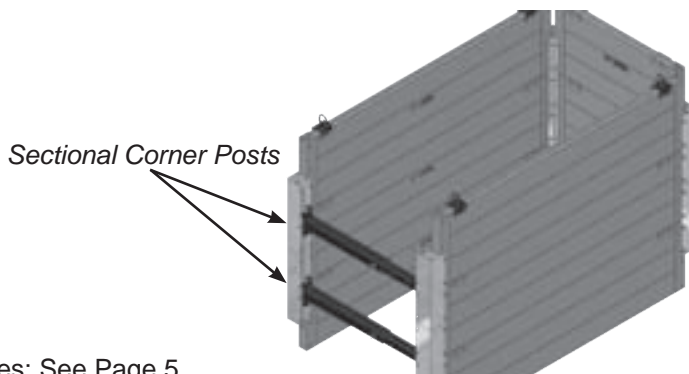


Notes: See Page 5

16, 17, 18, 19, and 20 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
16 X 2	480	19	11	8	6
16 X 16	480	19	11	8	6
16 X 17	420	17	9	7	5
16 X 18	360	14	8	6	4
16 X 19	300	12	7	5	3
16 X 20	240	10	5	4	3
17 X 2	420	17	9	7	5
17 X 17	420	17	9	7	5
17 X 18	360	14	8	6	4
17 X 19	300	12	7	5	3
17 X 20	240	10	5	4	3
18 X 2	360	14	8	6	4
18 X 18	360	14	8	6	4
18 X 19	300	12	7	5	3
18 X 20	240	10	5	4	3
19 X 2	300	12	7	5	3
19 X 19	300	12	7	5	3
19 X 20	240	10	5	4	3
20 X 2	240	10	5	4	3
20 X 20	240	10	5	4	3



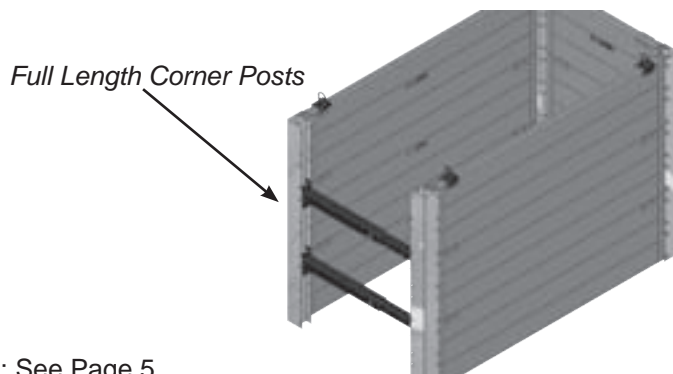
Notes: See Page 5



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

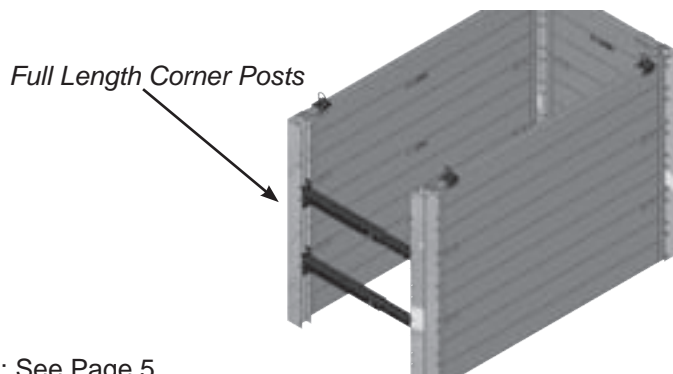


Notes: See Page 5

5 and 6 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
5 X 2	1,620	65	36	27	20
5 X 5	1,500	60	33	25	18
5 X 6	1,320	53	29	22	16
5 X 7	1,140	46	25	19	14
5 X 8	1,020	41	23	17	12
5 X 9	870	35	19	15	10
5 X 10	720	29	16	12	9
5 X 11	660	26	15	11	8
5 X 12	600	24	13	10	7
5 X 13	570	23	13	10	7
5 X 14	540	22	12	9	6
5 X 15	510	20	11	9	6
5 X 16	480	19	11	8	6
5 X 17	420	17	9	7	5
5 X 18	360	14	8	6	4
5 X 19	300	12	7	5	3
5 X 20	240	10	5	4	3
6 X 2	1,560	62	35	26	19
6 X 6	1,320	53	29	22	16
6 X 7	1,140	46	25	19	14
6 X 8	1,020	41	23	17	12
6 X 9	870	35	19	15	10
6 X 10	720	29	16	12	9
6 X 11	660	26	15	11	8
6 X 12	600	24	13	10	7
6 X 13	570	23	13	10	7
6 X 14	540	22	12	9	6
6 X 15	510	20	11	9	6
6 X 16	480	19	11	8	6
6 X 17	420	17	9	7	5
6 X 18	360	14	8	6	4
6 X 19	300	12	7	5	3
6 X 20	240	10	5	4	3

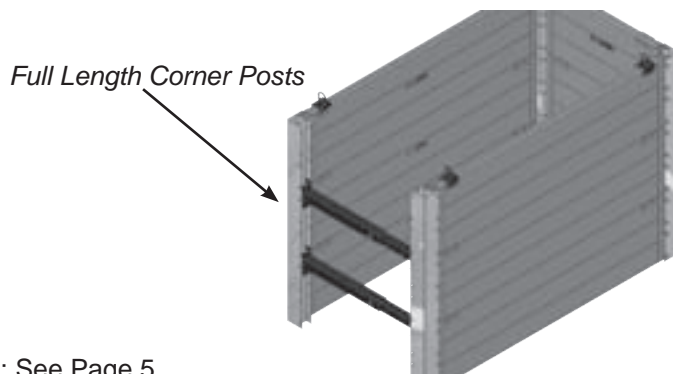


Notes: See Page 5

7 and 8 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
7 X 2	1,560	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

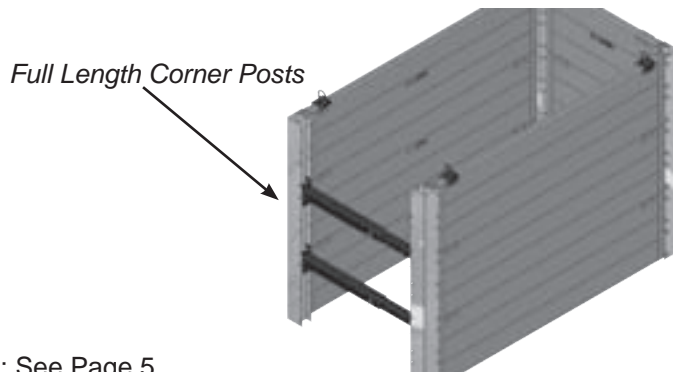


Notes: See Page 5

9, 10, and 11 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
9 X 2	1,200	48	27	20	15
9 X 9	810	32	18	14	10
9 X 10	720	29	16	12	9
9 X 11	630	25	14	11	7
9 X 12	540	22	12	9	6
9 X 13	510	20	11	9	6
9 X 14	480	19	11	8	6
9 X 15	480	19	11	8	6
9 X 16	480	19	11	8	6
9 X 17	420	17	9	7	5
9 X 18	360	14	8	6	4
9 X 19	300	12	7	5	3
9 X 20	240	10	5	4	3
10 X 2	960	38	21	16	12
10 X 10	660	26	15	11	8
10 X 11	600	24	13	10	7
10 X 12	540	22	12	9	6
10 X 13	510	20	11	9	6
10 X 14	480	19	11	8	6
10 X 15	480	19	11	8	6
10 X 16	480	19	11	8	6
10 X 17	420	17	9	7	5
10 X 18	360	14	8	6	4
10 X 19	300	12	7	5	3
10 X 20	240	10	5	4	3
11 X 2	840	34	19	14	10
11 X 11	600	24	13	10	7
11 X 12	540	22	12	9	6
11 X 13	510	20	11	9	6
11 X 14	480	19	11	8	6
11 X 15	480	19	11	8	6
11 X 16	480	19	11	8	6
11 X 17	420	17	9	7	5
11 X 18	360	14	8	6	4
11 X 19	300	12	7	5	3
11 X 20	240	10	5	4	3

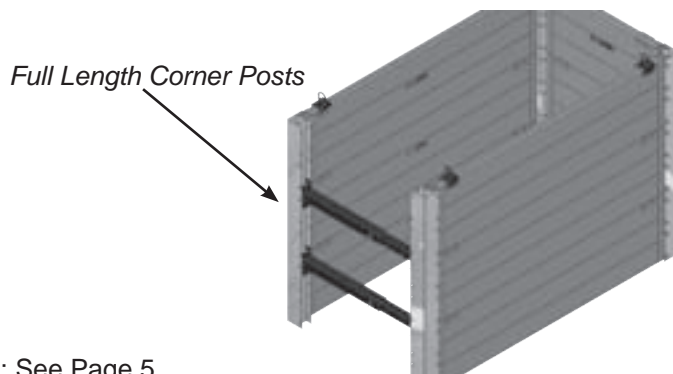


Notes: See Page 5

12, 13, 14, and 15 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
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

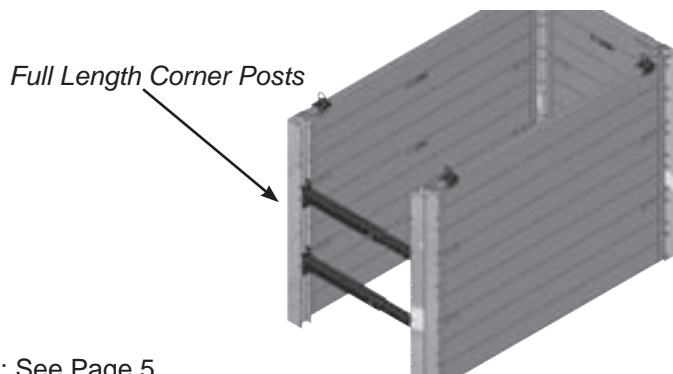


Notes: See Page 5

16, 17, 18, 19, and 20 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
16 X 2	480	19	11	8	6
16 X 16	480	19	11	8	6
16 X 17	420	17	9	7	5
16 X 18	360	14	8	6	4
16 X 19	300	12	7	5	3
16 X 20	240	10	5	4	3
17 X 2	420	17	9	7	5
17 X 17	420	17	9	7	5
17 X 18	360	14	8	6	4
17 X 19	300	12	7	5	3
17 X 20	240	10	5	4	3
18 X 2	360	14	8	6	4
18 X 18	360	14	8	6	4
18 X 19	300	12	7	5	3
18 X 20	240	10	5	4	3
19 X 2	300	12	7	5	3
19 X 19	300	12	7	5	3
19 X 20	240	10	5	4	3
20 X 2	240	10	5	4	3
20 X 20	240	10	5	4	3

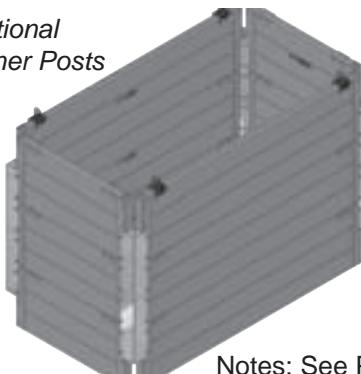


Notes: See Page 5

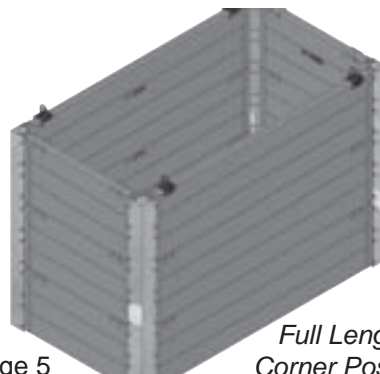


3 and 4 ft. Configurations

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

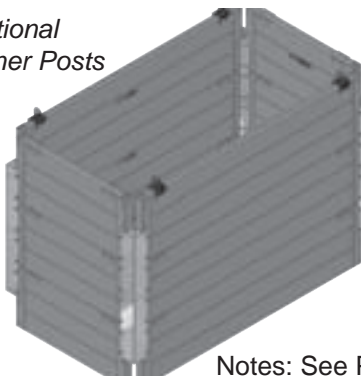
 Sectional
 Corner Posts


Notes: See Page 5

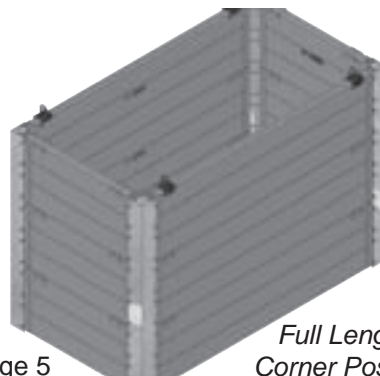

 Full Length
 Corner Posts


5 and 6 ft. Configurations

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
5 X 2	2,100	84	47	35	26
5 X 5	2,100	84	47	35	26
5 X 6	2,040	82	45	34	25
5 X 7	1,620	65	36	27	20
5 X 8	1,200	48	27	20	15
5 X 9	1,050	42	23	18	13
5 X 10	900	36	20	15	11
5 X 11	840	34	19	14	10
5 X 12	780	31	17	13	9
5 X 13	660	26	15	11	8
5 X 14	600	24	13	10	7
5 X 15	540	22	12	9	6
5 X 16	480	19	11	8	6
5 X 17	420	17	9	7	5
5 X 18	360	14	8	6	4
5 X 19	300	12	7	5	3
5 X 20	240	10	5	4	3
6 X 2	2,100	84	47	35	26
6 X 6	2,040	82	45	34	25
6 X 7	1,620	65	36	27	20
6 X 8	1,260	50	28	21	15
6 X 9	900	36	20	15	11
6 X 10	840	34	19	14	10
6 X 11	810	32	18	14	10
6 X 12	780	31	17	13	9
6 X 13	660	26	15	11	8
6 X 14	600	24	13	10	7
6 X 15	540	22	12	9	6
6 X 16	480	19	11	8	6
6 X 17	420	17	9	7	5
6 X 18	360	14	8	6	4
6 X 19	300	12	7	5	3
6 X 20	240	10	5	4	3

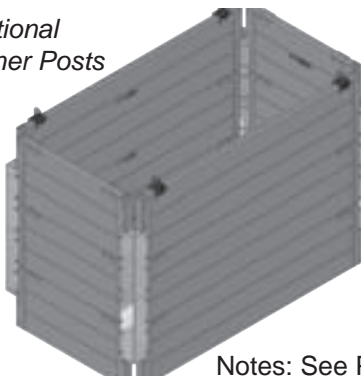
 Sectional
 Corner Posts


Notes: See Page 5

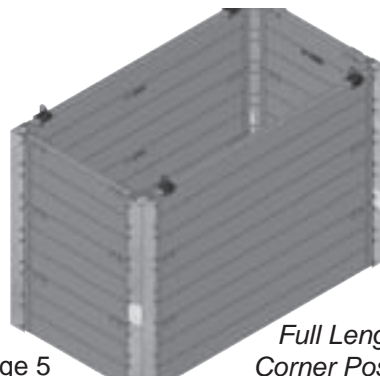

 Full Length
 Corner Posts


7 and 8 ft. Configurations

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


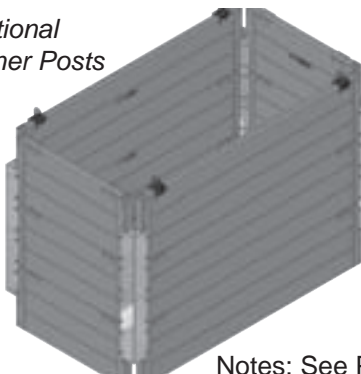
Notes: See Page 5


 Full Length
 Corner Posts

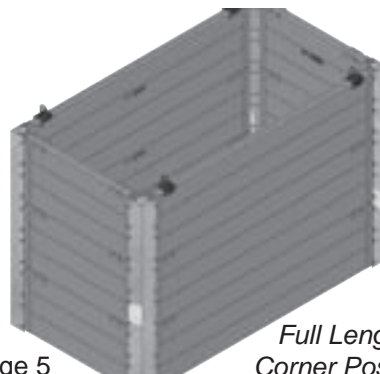

Sectional or Full Length Corner Posts

9, 10, and 11 ft. Configurations

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
9 X 2	1,200	48	27	20	15
9 X 9	1,020	41	23	17	12
9 X 10	840	34	19	14	10
9 X 11	780	31	17	13	9
9 X 12	720	29	16	12	9
9 X 13	630	25	14	11	7
9 X 14	540	22	12	9	6
9 X 15	510	20	11	9	6
9 X 16	480	19	11	8	6
9 X 17	420	17	9	7	5
9 X 18	360	14	8	6	4
9 X 19	300	12	7	5	3
9 X 20	240	10	5	4	3
10 X 2	840	34	19	14	10
10 X 10	780	31	17	13	9
10 X 11	750	30	17	13	9
10 X 12	720	29	16	12	9
10 X 13	630	25	14	11	7
10 X 14	540	22	12	9	6
10 X 15	510	20	11	9	6
10 X 16	480	19	11	8	6
10 X 17	420	17	9	7	5
10 X 18	360	14	8	6	4
10 X 19	300	12	7	5	3
10 X 20	240	10	5	4	3
11 X 2	840	34	19	14	10
11 X 11	780	31	17	13	9
11 X 12	720	29	16	12	9
11 X 13	630	25	14	11	7
11 X 14	540	22	12	9	6
11 X 15	510	20	11	9	6
11 X 16	480	19	11	8	6
11 X 17	420	17	9	7	5
11 X 18	360	14	8	6	4
11 X 19	300	12	7	5	3
11 X 20	240	10	5	4	3

 Sectional
 Corner Posts


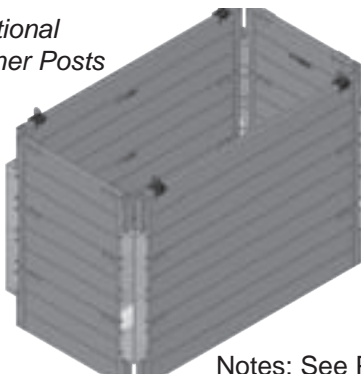
Notes: See Page 5


 Full Length
 Corner Posts

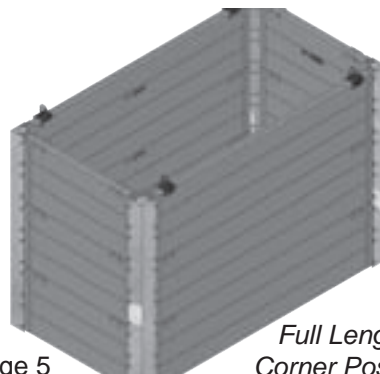

Sectional or Full Length Corner Posts

12, 13, 14, and 15 ft. Configurations

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	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

 Sectional
 Corner Posts


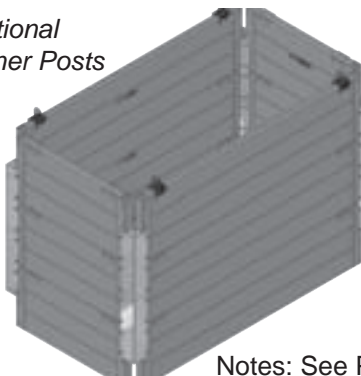
Notes: See Page 5


 Full Length
 Corner Posts

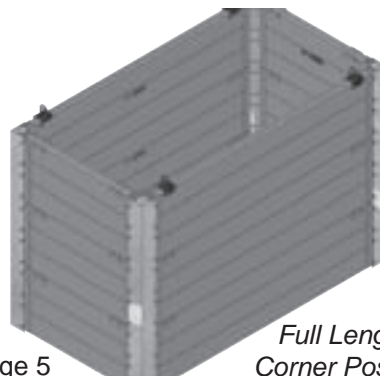

Additional Configurations

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
16 X 2	480	19	11	8	6
16 X 16	480	19	11	8	6
16 X 17	420	17	9	7	5
16 X 18	360	14	8	6	4
16 X 19	300	12	7	5	3
16 X 20	240	10	5	4	3
17 X 2	420	17	9	7	5
17 X 17	420	17	9	7	5
17 X 18	360	14	8	6	4
17 X 19	300	12	7	5	3
17 X 20	240	10	5	4	3
18 X 2	360	14	8	6	4
18 X 18	360	14	8	6	4
18 X 19	300	12	7	5	3
18 X 20	240	10	5	4	3
19 X 2	300	12	7	5	3
19 X 19	300	12	7	5	3
19 X 20	240	10	5	4	3
20 X 2	240	10	5	4	3
20 X 20	240	10	5	4	3

Sectional
Corner Posts



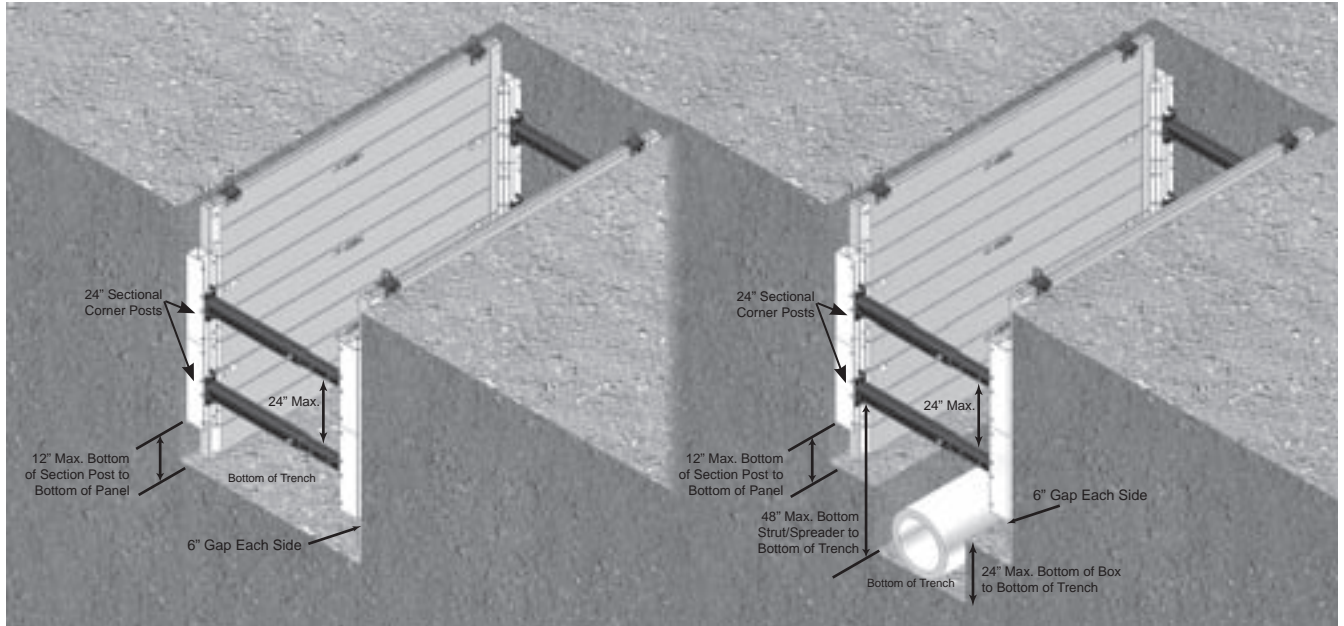
Notes: See Page 5



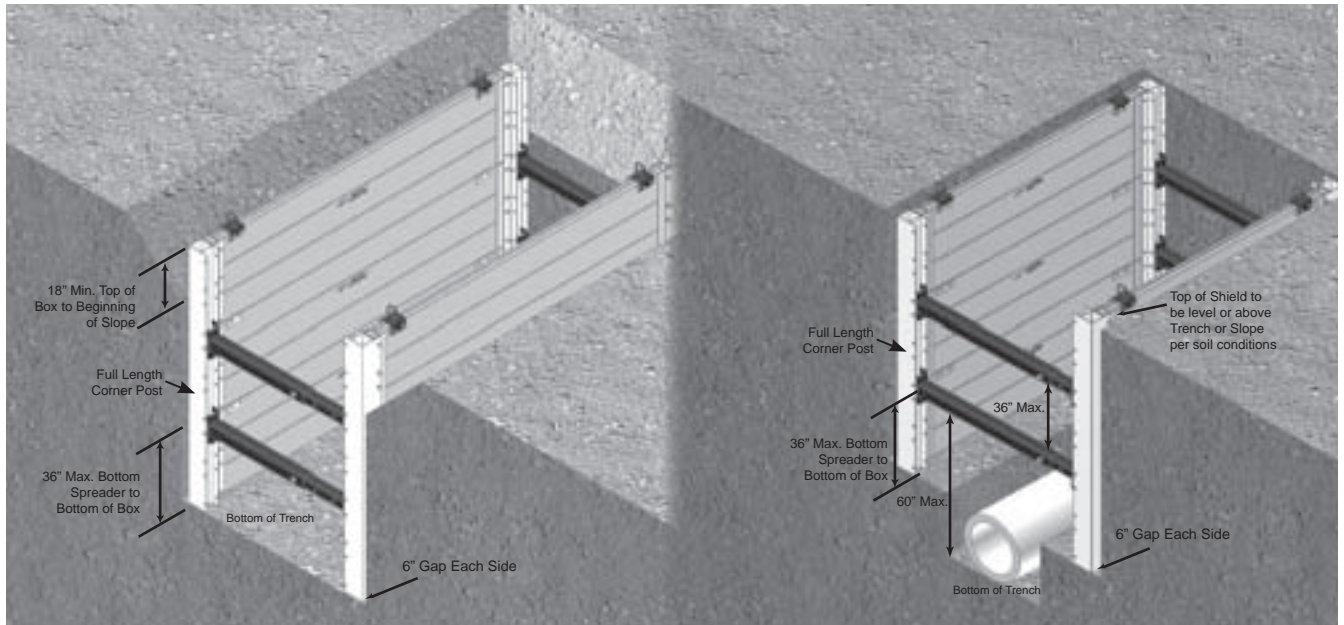
Full Length
Corner Posts



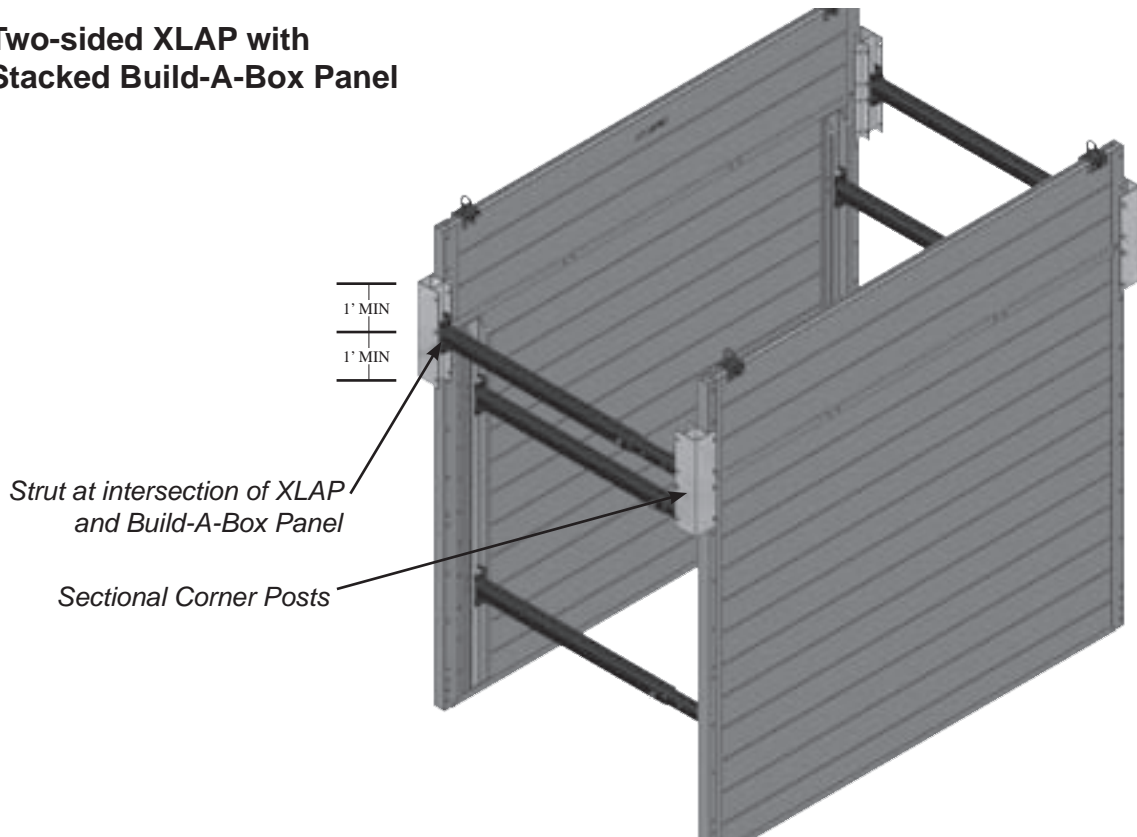
Sectional Corner Posts



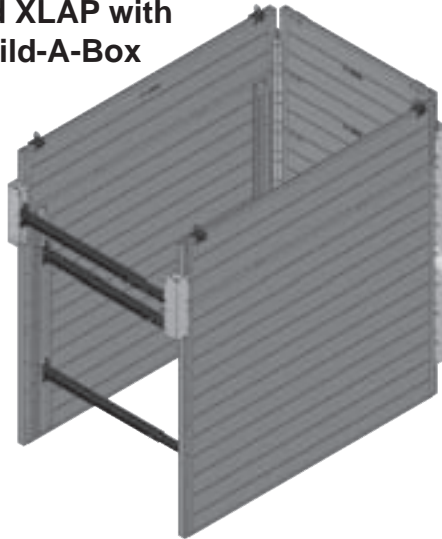
Full Length Corner Posts



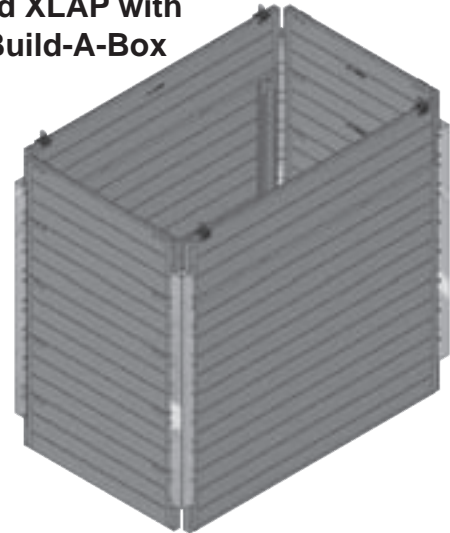
**Two-sided XLAP with
Stacked Build-A-Box Panel**



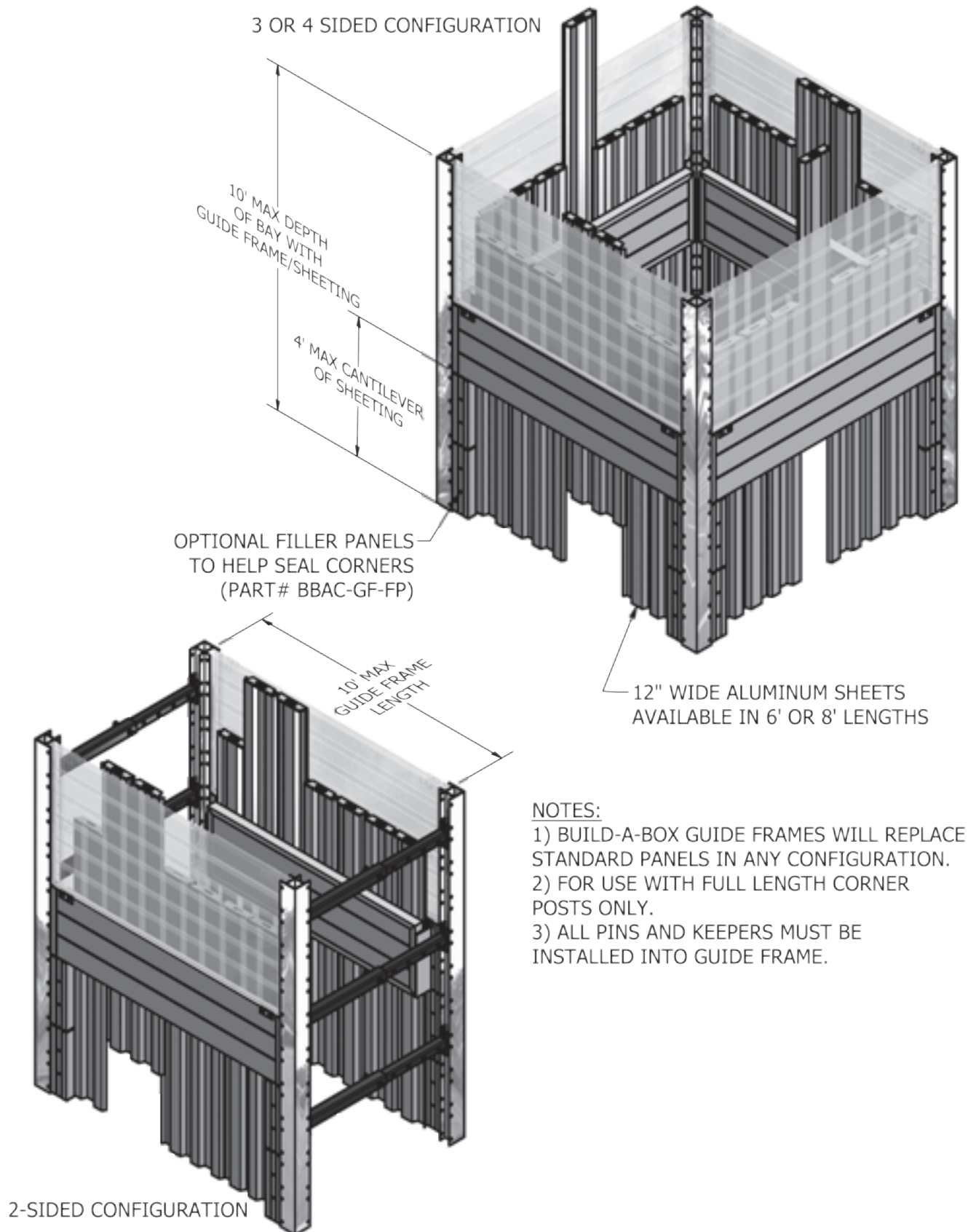
**Three-sided XLAP with
Stacked Build-A-Box
Panel**



**Four-sided XLAP with
Stacked Build-A-Box
Panel**



1. Corner Posts must extend a minimum of 1 ft. both below and above the intersection of the Build-A-Box panel on the XLAP Aluminum Trench Shield
2. For two and three-sided systems, struts (spreaders) must be located at the intersection of the Build-A-Box panel and the XLAP Aluminum Trench Shield, and vertically per the Tabulated Data.
3. Follow the Tabulated Data charts for additional stacked Build-A-Box assemblies.



Additional Certifications

The following additional certifications apply to pages 1-31 of this document, stamped by Alex Nedeltchev, P.E., on **April 23, 2015**.

 <p>LICENSED PROFESSIONAL ENGINEER A.V. NEDELTCHEV 04.23.15 PROVINCE OF ONTARIO</p>	 <p>PROFESSIONAL ENGINEER ALBERTA ALEX NEDELTCHEV 04.23.2015</p>	 <p>PROFESSIONAL ENGINEER A.V. NEDELTCHEV MEMBER 14762 15.04.23 YR. MRL DAY SASKATCHEWAN</p>
 <p>REGISTERED PROFESSIONAL ENGINEER DATE 04.23.2015 NEDELTCHEV 7001 PROVINCE OF NOVA SCOTIA</p>	 <p>PROFESSIONAL ENGINEER PROVINCE OF A. NEDELTCHEV # 31609 BRITISH COLUMBIA ENGINEER 04.23.2015</p>	 <p>PROVINCE OF MANITOBA A.V. NEDELTCHEV Member 33107 REGISTERED PROFESSIONAL ENGINEER 04.23.2015</p>
 <p>STATE OF MICHIGAN ALEXANDRE NEDELTCHEV ENGINEER No. 0201062055 LICENSED PROFESSIONAL ENGINEER 04.23.2015</p>		

Additional Certifications

The following additional certifications apply to pages 1-31 of this document.

