

WALLS

WALLS, PILLARS & PLANTERS



PHYSICAL AND GEOMETRICAL CHARACTERISTICS

CHARACTERISTICS		ASTM C 1372	TECHO-BLOC
Compressive strength		3 000 psi [21 MPa] min.	5 050 psi [35 MPa] min.
Durability to freeze thaw cycles		after 100 cycles 1 % (max.) or,	after 100 cycles 1 % (max.) or,
	Mass loss	after 150 cycles 1,5 % (max.)	after 150 cycles 1,5 % (max.)
Water absorption		13 lb/ft ³ [208 kg/m ³] max	9 lb/ft ³ [144 kg/m ³] max.
Dimension tolerance ¹	length	± 1/8" [3 mm]	± 1/8" [3 mm]
	width	± 1/8" [3 mm]	± 1/8" [3 mm]
	height	± 1/8" [3 mm]	± 1/8" [1.5 mm]

Notes : 1. The dimension tolerance is not applicable to split facings or other architectural finish.

2. The dimensional tolerance for Stonedge wet cast retaining wall units is: ± 3/16" (5 mm) for height and ± 1/2" (13 mm) for length and width. During the installation, the level between adjacent wall units will vary (usually more than for a dry cast wall unit) in order to obtain a more realistic appearance of a natural stone wall. Stonedge collection of wet cast wall units include, but are not limited to, the following: Borealis, Prescott, Röcka and Travertina Raw wall units.

APPLICATION CHART

Product	Depth (Nominal)		Batter	Connector Type	Alignment		Retaining Walls						Freestanding Walls	Pillars	Steps	Outdoor Fire Features		
	mm	in.			Straight Wall	Curved Wall	Typical Height Range ⁽¹⁾			Gravity		Geogrid Reinforced				Pervious Concrete Backfill	Fire Pit	Grill Island
							Landscape up to 1.5-4 ft	Midsize up to 8-10 ft	Heavy Duty 10 ft and above	Single Depth	Multi Depth							
Borealis	152	6	0° ^{(1),(2)}	-	X		X			X			X			X ⁽⁵⁾	X ⁽⁵⁾	
Brandon	250	9 13/16	0°; 4.4° ⁽¹⁾	HDPE Vertical Key (Short)	X	X		X		X		X	X	X ⁽⁴⁾	X	X ⁽⁶⁾	X ⁽⁶⁾	
Fascia	263	10 3/8	0°; 5.3° ⁽¹⁾	HDPE Horizontal Key & Front Lip	X		X		X				X	X	X			
G-Force	290	11 3/16	3.9°	HDPE Vertical Key (Long)	X	X			X	X		X	X	X ⁽⁴⁾	X	X ⁽⁵⁾		
Graphix	205 - 280	8 1/16 - 11	Variable	HDPE Horizontal Key	X			X		X		X	X	X	X			
Mini-Creta	250	9 13/16	0°; 5.3° ⁽¹⁾	HDPE Horizontal Key	X	X		X		X		X	X	X	X ⁽⁴⁾	X	X ⁽⁵⁾	X ⁽⁵⁾
Prescott	250	9 13/16	0°; 4.5° ⁽¹⁾	HDPE Vertical Key (Short)	X	X	X		X		X		X	X ⁽⁴⁾	X	X ⁽⁴⁾		
Raffinato	249	9 13/16	0°; 4.4° ⁽¹⁾	HDPE Vertical Key (Short)	X	X		X		X		X	X	X	X ⁽⁴⁾	X	X ⁽⁴⁾	X ⁽⁵⁾
Röcka	203	8	0° ^{(1),(2)}	-	X		X		X				X			X ⁽⁵⁾	X ⁽⁵⁾	
Semma	279	11	0°; 7.6° ⁽¹⁾	HDPE Horizontal Key	X	X			X	X		X	X	X ⁽⁴⁾	X	X ⁽⁵⁾		
Skyscraper ⁽⁹⁾	590 - 1220	23 1/4 - 48 1/16	0.8°; 12.7°	Precast Concrete Key	X	X			X	X								
Travertina Raw	202	7 13/16	0°; 5.2° ⁽¹⁾	HDPE Vertical Key (Short)	X	X	X		X				X	X ⁽⁴⁾	X			

- (1) For 0° degree (vertical) batter retaining walls, it is recommended a slight positive batter achieved by tilting the top surface of the leveling pad from front to back. This will accommodate forward rotation of the wall during or after installation.
- (2) Alternatively to tilting the leveling pad, an offset of 1/4" (6 mm) min. per row could be used instead.
- (3) These typical height ranges may require geogrid. Contact our Technical Support for assistance.
- (4) Available Corner/Pillar units, sold separately.
- (5) Installation drawing available.
- (6) Not pre-assembled kits available.
- (7) Pre-assembled kits available.
- (8) UL-127 & ULC-S610 Compliant
- (9) Mechanical installation required.

INSTALLATION GUIDE

GRAVITY RETAINING WALL CHARACTERISTICS - RESIDENTIAL

The chart below provides general information for residential garden walls based on optimal conditions (see Note 2 below). Contact our Technical Service department if your project requires a higher wall, conditions are not optimal or for commercial applications.

WALL PRODUCT	MAXIMUM TOTAL HEIGHT (INCLUDING EMBEDMENT) WITHOUT SURCHARGE OR SLOPE												MINIMUM DRAINAGE COLUMN WIDTH		MINIMUM RADIUS	
	INCLINED						VERTICAL									
	ANGLE	SETBACK		HEIGHT		ANGLE	SETBACK		HEIGHT		mm	in.	m	FT		
	(°)	mm	in.	ROWS	mm	in.	(°)	mm	in.	ROWS	mm	in.				
BOREALIS	-	-	-	-	-	-	0.0	0.0	0	3	457	18	400	16	-	-
BRANDON 90 mm	4.4	7.0	¼	8	720	28	0.0	0.0	0	6	540	21	350	14	2.3	7'-6"
BRANDON 180 mm	4.4	14.0	⅜	4	720	28	0.0	0.0	0	3	540	21	350	14	2.3	7'-6"
FASCIA	5.3	14.0	⅜	5	750	30	0.0	0.0	0	4	600	24	350	14	-	-
GRAPHIX	VARIABLE			8	600	24	-	-	-	-	-	-	350	14	-	-
G FORCE	3.9	14.0	⅜	4	813	32	-	-	-	-	-	-	300	12	3.0	9'-10"
MINI-CRETA 3"	5.3	7.0	¼	10	750	30	0.0	0.0	0	8	600	24	350	14	2.1	7'-0"
MINI-CRETA 6"	5.3	14.0	⅜	5	750	30	0.0	0.0	0	4	600	24	350	14	2.1	7'-0"
PRESCOTT 2.25"	4.5	4.5	⅜	14	800	32	0.0	0.0	0	12	686	27	350	14	1.6	5'-2"
PRESCOTT 4.5"	4.5	9.0	⅜	7	800	32	0.0	0.0	0	6	686	27	350	14	1.6	5'-2"
RAFFINATO 90 mm	4.4	7.0	¼	8	720	28	0.0	0.0	0	6	540	21	350	14	2.6	8'-6"
RAFFINATO 180 mm	4.4	14.0	⅜	4	720	28	0.0	0.0	0	3	540	21	350	14	2.6	8'-6"
RÖCKA	-	-	-	-	-	-	0.0	0.0	0	3	457	18	400	16	-	-
SEMMA	7.6	20.0	13/16	6	900	35	0.0	0.0	0	4	600	24	330	13	2.1	7'-0"
SKYSCRAPER	12.7	68.5	2 1/16	SEE SKYSCRAPER DESIGN CHART			0.8	4.5	3/16	SEE SKYSCRAPER DESIGN CHART			300	12	INSIDE CURVE 5.5 18'-0" OUTSIDE CURVE 11.0 36'-1"	
TRAVERTINA RAW	5.2	14.0	⅜	5	762	30	0.0	0.0	0	4	610	24	400	16	-	-

- [1] The total height does not include the cap thickness. The total height measurement refers to the vertical distance between the top of the leveling pad (aggregate base) and the top of the uppermost course.
- [2] The optimal conditions assumed for the development of this chart are the following: (i) The retained soil type is granular with an internal friction angle of 36 degrees; (ii) There is no presence of load applied or slope above the wall; and (iii) An adequate drainage system is provided to the wall system.
- [3] The minimum radius is measured from the center of the circle to the outer face of the wall. It corresponds to the lowest course in an internal curve and to the uppermost course in an external curve.

INSTALLATION GUIDE

SUMMARY OF CHARACTERISTICS

Type of wall	FREESTANDING WALL						PILLARS				
	MAXIMUM EXPOSED HEIGHT [2,3]		MINIMUM WALL RADIUS [4]				MAXIMUM PERMISSIBLE HEIGHT [2,3,5]				
			inside		Outside		Exposed		Total		
	mm	in	mm	in	mm	in	mm	in	mm	in	
Borealis	612	24"	-	-	-	-	-	-	-	-	-
Brandon 90 mm [6]	750	29 7/16"	1538	61"	1788	70"	930	36 1/2"	1080	42 1/2"	
Brandon 180 mm [6]	750	29 7/16"	1538	61"	1788	70"	930	36 1/2"	1080	42 1/2"	
Fascia Wall Collection	600	23 1/2"	-	-	-	-	750	29 7/16"	900	35 7/16"	
Graphix	600	23 1/2"	-	-	-	-	1050	41 1/4"	1200	47 1/4"	
G Force	-	-	-	-	-	-	1069	42"	1219	48"	
Mini-Creta 3" [6]	750	29 7/16"	907	36"	1158	46"	1050	41 1/4"	1200	47 1/4"	
Mini-Creta 6" [6]	750	29 7/16"	907	36"	1158	46"	1050	41 1/4"	1200	47 1/4"	
Prescott 2.25" [6]	650	25 1/2"	863	34"	1114	44"	993	39"	1143	45"	
Prescott 4.5" [6]	650	25 1/2"	863	34"	1114	44"	993	39"	1143	45"	
Raffinato 90 mm [6]	750	29 7/16"	2259	89"	2510	99"	930	36 1/2"	1080	42 1/2"	
Raffinato 180 mm [6]	750	29 7/16"	2259	89"	2510	99"	930	36 1/2"	1080	42 1/2"	
Röcka	612	24"	-	-	-	-	-	-	-	-	
Semma [6]	750	29 7/16"	519	20"	807	32"	1050	41 1/4"	1200	47 1/4"	
Travertina Raw [6]	612	24"	-	-	-	-	917	36"	1067	42"	

- [1] Vertical Retaining walls are constructed without any face inclination or setback.
- [2] Heights do not include cap thickness.
- [3] - Total Height is the vertical distance measured from the top of the footing (aggregate base) to the top of the uppermost course.
- Exposed Height is the vertical distance measured from the finished grade at the bottom of the wall to the top of the uppermost course. It does not include the wall depth below grade (embedment).
- [4] Freestanding Minimum Wall radius based on the shortest tapered unit.
- [5] The maximum height does not necessarily correspond to the amount of blocks in a pallet.
- [6] Pillar units sold separately.

PRELIMINARY DESIGN ASSISTANCE - REQUEST FORM FOR DESIGN PROFESSIONALS, ENGINEERS AND CONTRACTORS

Techo-Bloc can help you in your preliminary design of retaining walls. However, preliminary design should only be used to assess the suitability of a wall system to a specific project or for estimating budget costs. For final construction designs, please contact a qualified engineer in your area.

Techo-Bloc Sales Representative _____ Date _____

CUSTOMER TYPE: Landscape Architect Engineer Contractor Other: _____ Are you a Techo-Pro? Yes No _____

1. GENERAL PROJECT INFORMATION

Project Name _____ Address _____

Contact _____ E-mail _____ City _____

Entreprise _____ Telephone _____ State/Province _____

Postal Code _____

2. PROJECT SPECIFICATIONS

Type: Industrial Commercial Institutional Residential Information date required _____ Units (metric or imperial) _____

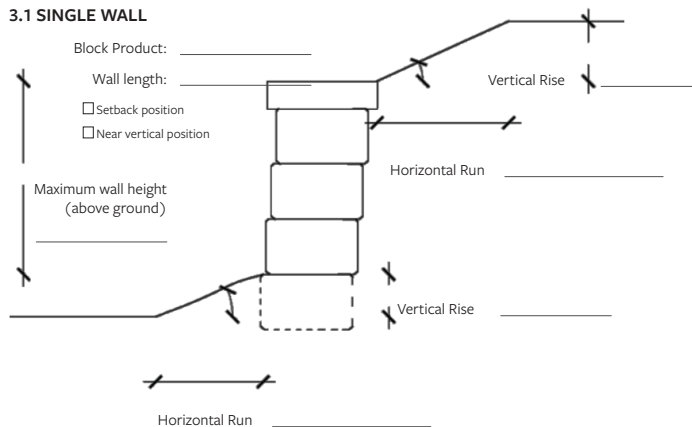
2.1 SPECIAL CONSIDERATIONS

Maximum available space behind wall: _____

Maximum required freestanding wall portion: _____

3. GENERAL INFORMATION ON WALLS

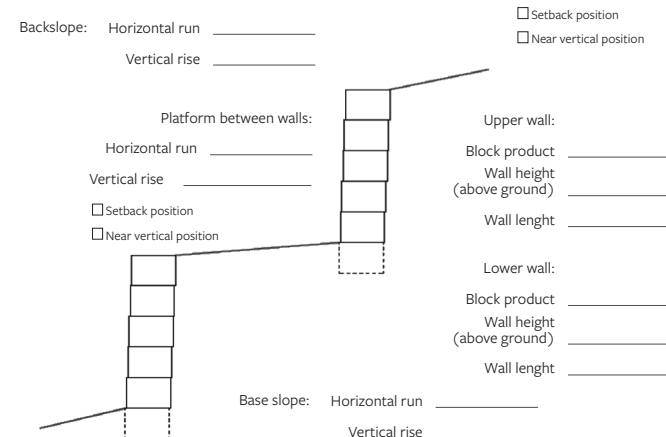
3.1 SINGLE WALL



*Include only the Retaining portion of the wall. Freestanding portion must be included in section 2.1 under Project Specification.

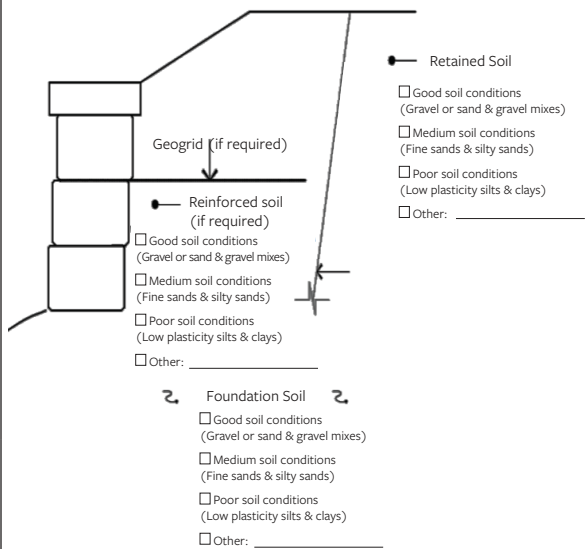
**If a grading plan is available, include it with this request (drawing should indicate the location of the wall, grade lines and loads). Otherwise clear and detailed sketches must be provided.

3.2 TIERED WALL



4. TYPE OF SOIL

If a soil report is available, attach it to this request.



5. SURCHARGE ABOVE WALL

TYPE OF SURCHARGE (LOAD)	DISTANCE TO WALL
<input type="checkbox"/> ROUTE	_____
<input type="checkbox"/> PARKING / ALLEY FOR HEAVY VEHICLES	_____
<input type="checkbox"/> PARKING / ALLEY FOR LIGHT VEHICLES	_____
<input type="checkbox"/> SWIMMING POOL	_____
<input type="checkbox"/> PAVED SURFACE	_____
<input type="checkbox"/> LAWN	_____
<input type="checkbox"/> OTHER	_____

COMPATIBILITY CHART

Walls & Pillars	Caps															
	Architectural cap	Brandon cap	Bullnose	Bullnose Grande	Graphix cap	Pacific cap	Piedimonte	Piedimonte 28" x 28"	Portofino	Raffinato 60 mm	Raffinato 90 mm	Travertina Raw 12" x 30"	Travertina Raw 14" x 28"	York	York 28" x 28"	York 32" x 32"
Borealis (does not require a cap)																
Brandon 90 & 180 mm		x	x	x		x	x		x	x	x	x	x	x		
Brandon 90 & 180 mm pillar								x		x	x		x		x	
Fascia Wall Collection - single-sided	x	x	x	x	x	x	x		x	x	x	x	x	x		
Fascia Wall Collection - double-sided									x							
G-Force					x		x			x	x	x	x			
Graphix					x		x			x	x	x	x			
Mini-Creta Collection	x	x	x	x		x	x		x	x	x	x	x	x		
Mini-Creta Pillar 24" Collection								x		x	x		x		x	
Prescott Collection							x		x	x	x	x	x	x		
Prescott Pillar Collection								x		x	x		x		x	
Raffinato Collection				x	x		x			x	x	x	x			
Raffinato Pillar Collection								x		x	x		x			
Röcka (does not require a cap)																
Semma	x	x	x		x	x	x		x	x	x	x	x	x		
Semma Pillar										x			x			x
Skyscraper										x	x					
Travertina Raw	x	x	x	x	x	x	x		x	x	x	x	x	x		
Travertina Raw pillar										x	x		x		x	

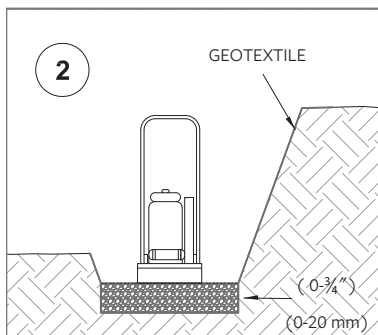
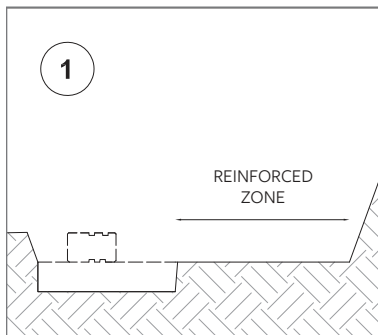
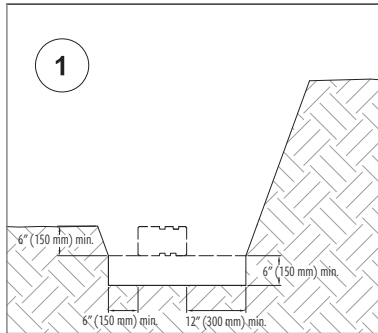
NOTE: The combinations shown in this chart are not complete. Other possible combinations exist.

Applications	Caps																						
	Architectural cap	Bali Travertina Raw	Brandon cap	Bullnose	Bullnose Grande	Graphix cap	Pacific cap	Piedimonte 12" x 30"	Piedimonte 14" x 30"	Piedimonte 28" x 28"	Portofino	Raffinato 60 mm	Raffinato 90 mm	Travertina Raw 12" x 30"	Travertina Raw 14" x 28"	York wall caps 16", 32", 48"	York 14" x 48"	York 24" x 36"	York 28" x 28"	York 32" x 32"	Blu 45 mm	Venetian	
Step	x		x	x	x	x		x	x		x	x	x	x	x	x	x						
Concrete & step overlay system							x															x	x
Pool coping		x		x	x	x	x	x			x	x	x	x	x	x							
Wall single-sided	x		x	x	x	x	x	x			x	x	x	x	x	x	x						
Wall double-sided	x					x		x	x		x	x	x	x	x	x	x						
Counter top										x	x					x			x	x	x		
Pillar										x		x			x				x	x			

INSTALLATION GUIDE

RETAINING WALLS

Installation outline



01 EXCAVATION

- Check the location of existing structures and utilities before starting the excavation.
- Dig out a trench. Its depth should be calculated according to the thickness of the leveling pad and the burial depth of the wall.
- Plan for a thickness of at least 6" (150 mm) for the leveling pad and consider that at least 10% of the height of the wall should be buried in the ground. In all cases, the wall must be buried no less than 6" (150 mm) deep.
- In determining the width of the trench, allow for a space of at least 6" (150 mm) at the front of the wall and 12" (300 mm) at the back. Compact and level the excavation base.



FOR GEOGRID REINFORCED RETAINING WALLS

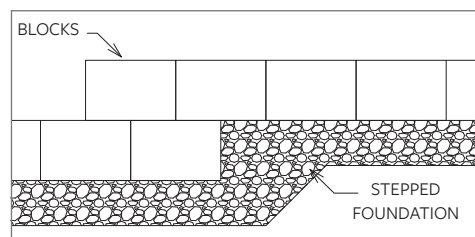
The excavation must also take into account the length of geogrid.

02 FOUNDATION

- Cover the base and back of the trench with a geotextile. Extend the geotextile towards the back of the excavation and eventually above the drainage fill once it is in place close to the top of the wall.
- Next, spread the 0-3/4" (0-20 mm) stone in the trench and compact using a vibratory plate or jumping jack, ensuring that the surface is level. The compacted leveling pad must be at least 6" (150 mm) thick.

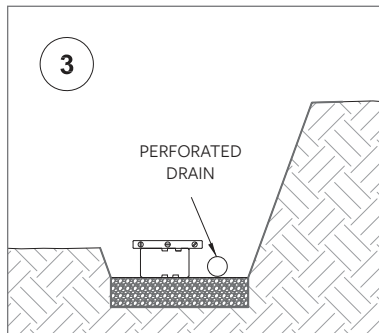
NOTE FOR STEPPED FOUNDATION

A wall built on an incline requires stepped foundations. For steep inclines, several steps may be required. Construction should start at the lowest level. Each of the steps must follow a level horizontal path and the vertical distance separating the successive steps must equal the height of a block.



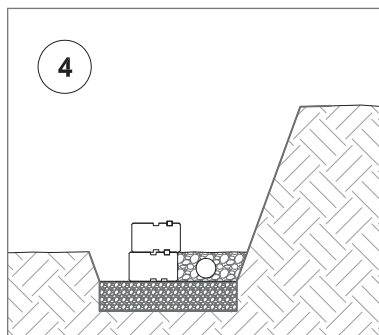
INSTALLATION GUIDE

RETAINING WALLS



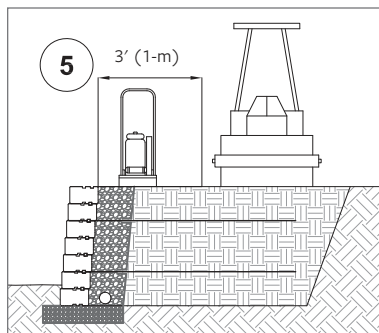
03 BUILDING THE FIRST COURSE

- Using blocks of the same height, place the first course on the compacted leveling pad according to the predetermined layout. Check the alignment and leveling in all directions and make sure that all the blocks are in full contact with the leveling pad and properly supported.
- Place the exposed surfaces of the blocks side by side. There must be no space between the exposed faces of adjacent blocks.
- At the back of the wall and on the compacted leveling pad, lay a 4" (100 mm) diameter perforated drain. Connect this drain to the existing drainage system so that it clears the water accumulated behind the wall.



04 BACKFILLING

Backfill at the rear of the wall and the space between the back of the blocks with $\frac{3}{4}$ " (20 mm) clean stone. Use a minimum of 12" (300 mm) of clean stone behind the wall unit, but not less than a minimum of 24" (600 mm) from the face of the wall. Level and settle the clean stone. Any cavities in the blocks must also be filled with clean stone.



05 SUBSEQUENT COURSES

- Clean the top of each block before laying the next course. Depending on the type of block, install the connectors on the extremity of each block.
- Lay the subsequent courses, backfilling at the rear of the wall every 8" (200 mm maximum), using the same method outlined in step 4.
- Make sure the subsequent courses are laid such that the vertical seams are aligned with the blocks below.



FOR GEOGRID REINFORCED RETAINING WALLS

Where geogrids are to be used, cover the clean stone with a geotextile. Select the geogrid according to the type, level and appropriate length. Position the geogrid according to the main reinforcement direction perpendicular to the wall. The geogrid must be continuous all along its embedment length. Splicing of the geogrid in the main reinforcement direction is not permitted. The geogrid must be installed horizontally over the compacted backfill and the previous course of blocks. Fix the connectors on the geogrid and lay the next course of blocks. Pull on the back of the geogrid and maintain its tension by stakes or pins. Repeat with a new section of geotextile and place the reinforced backfill directly behind the drainage fill. Fill and compact up to the level of the blocks.

Heavy equipment must not be used less than 3' (1-m) behind the blocks. Construction equipment must not drive directly over the geogrid. Repeat the various installation steps.

06 FINISHING

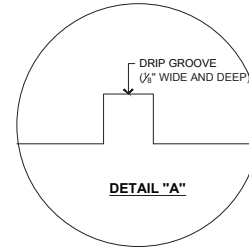
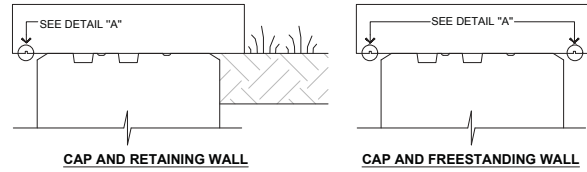
Position the course of coping stones (if applicable) or the final course of blocks to complete the wall. The coping stones or final course of blocks must be fixed to the subjacent blocks using concrete adhesive and there must be no space between the blocks.

INSTALLATION GUIDE

RETAINING WALLS

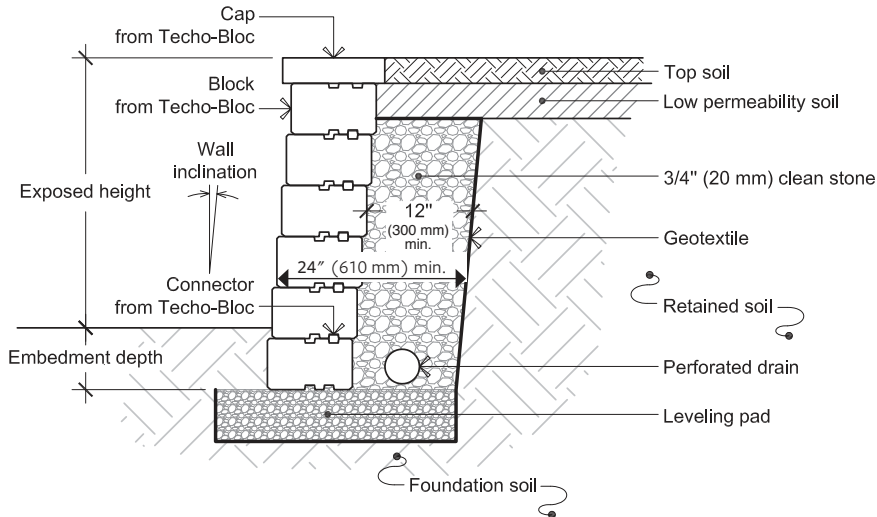
CAP UNIT – DRIP GROOVE

While optional, drip groove applied to the underside of wall cap units is beneficial to reduce the potential of leaving water marks and stains on the wall surface (retaining or freestanding wall). Rain water will run underneath the cap unit, reach the drip groove and fall directly to the ground, instead of continuing to run underneath the cap and down the wall.



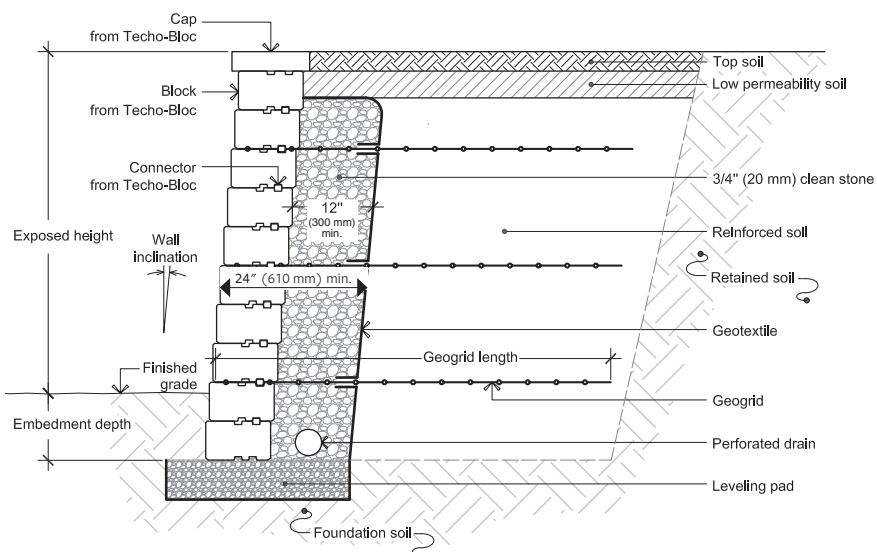
GRAVITY WALL

Typical cross section



GEOGRID REINFORCED WALL

Typical cross section

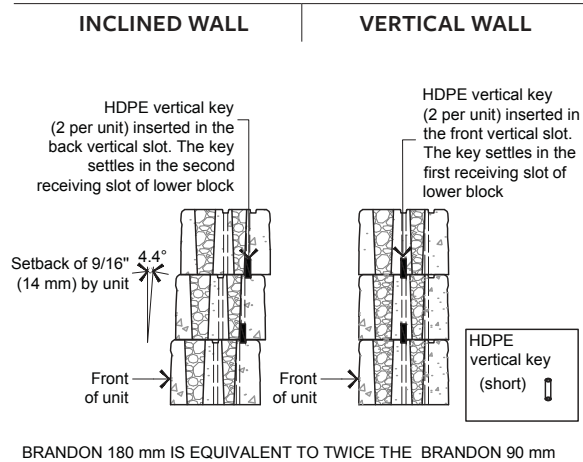


INSTALLATION GUIDE

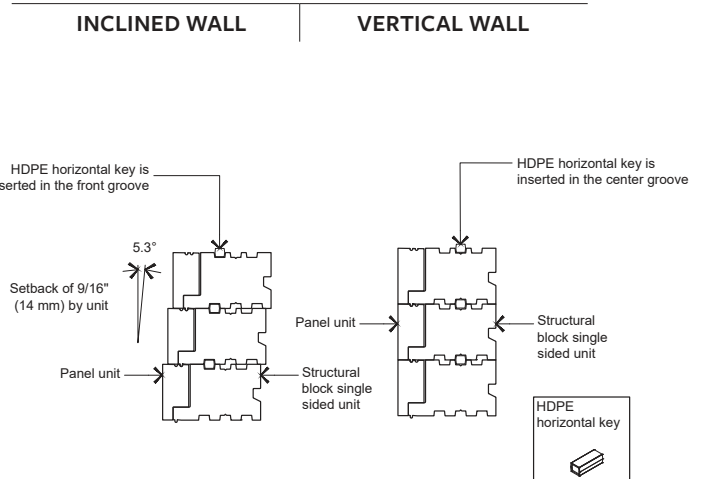
RETAINING WALLS

Anchoring systems

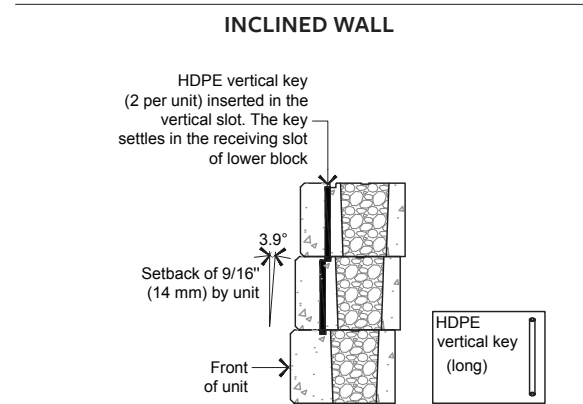
BRANDON 180 mm



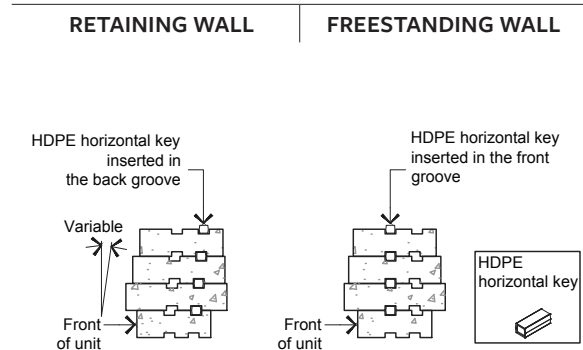
FASCIA WALL COLLECTION



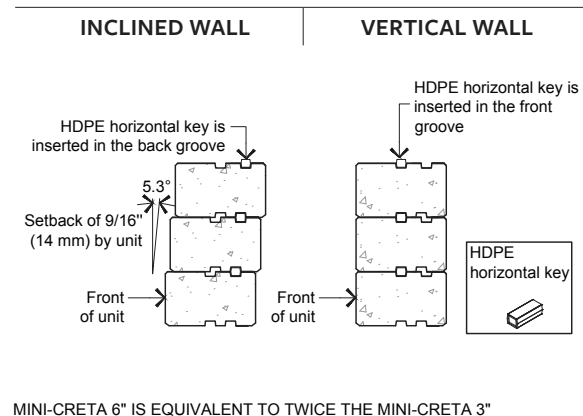
G-FORCE



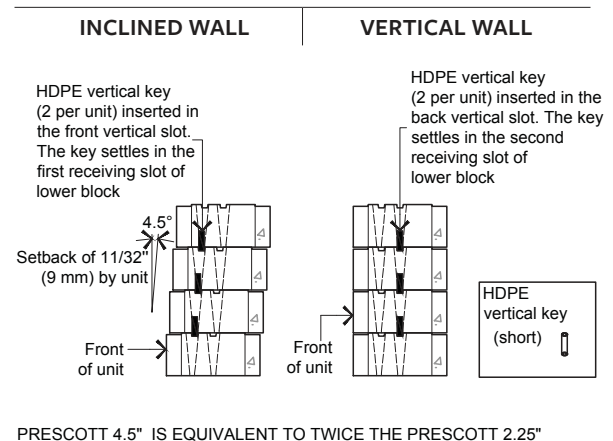
GRAPHIX



MINI-CRETA 6"



PRESCOTT 4.5"

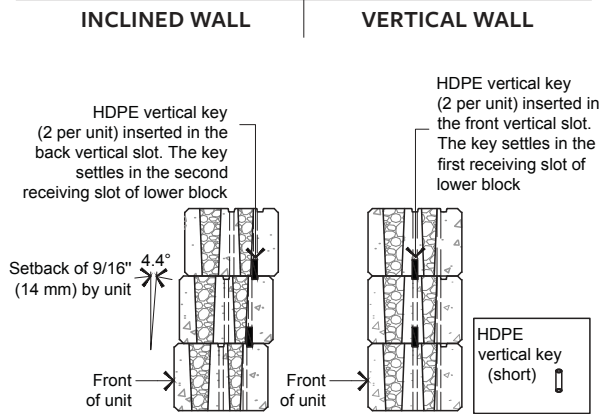


INSTALLATION GUIDE

RETAINING WALLS

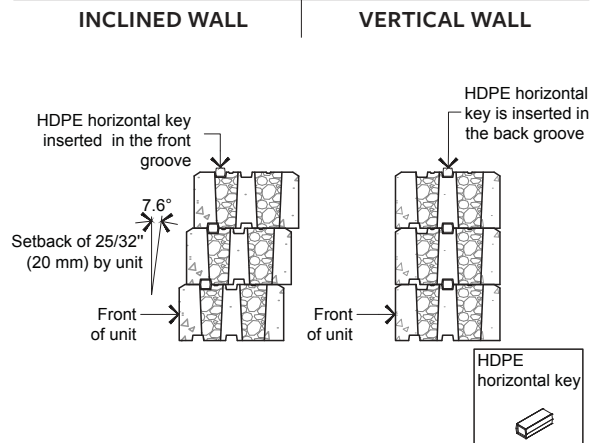
Anchoring systems

RAFFINATO 180 mm

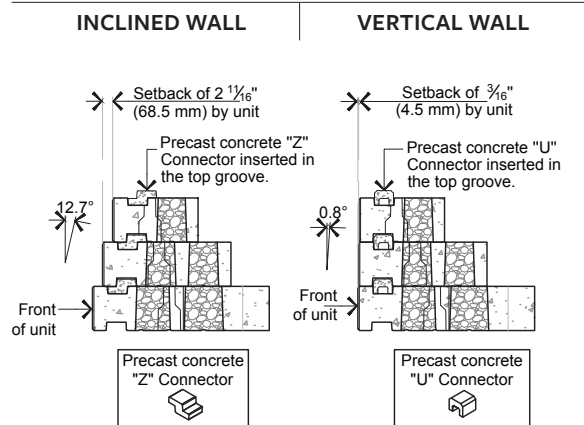


RAFFINATO 180 mm IS EQUIVALENT TO TWICE THE RAFFINATO 90 mm

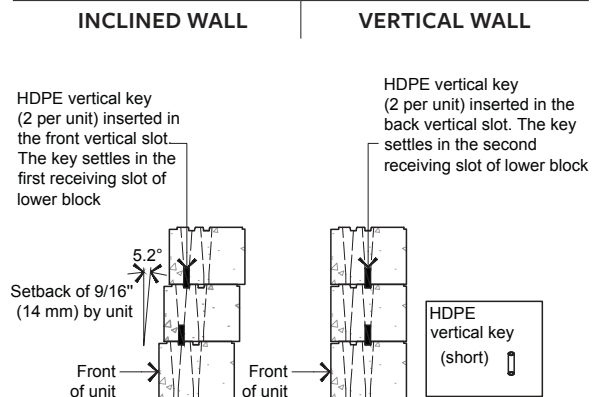
SEMMA



SKYSCRAPER



TRAVERTINA RAW



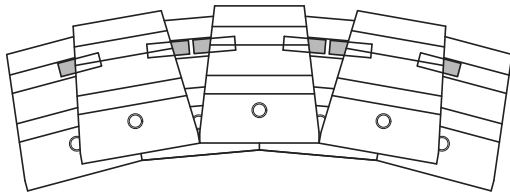
INSTALLATION GUIDE

RETAINING WALLS

Anchoring system | Connectors in curved wall application

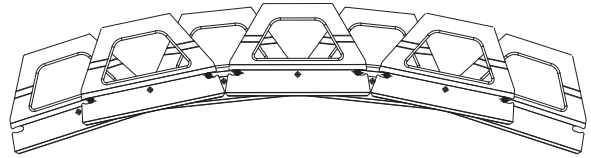
HDPE Horizontal Key

When creating internal curves and the HDPE horizontal keys are in the back groove, two connectors must be installed on each block as illustrated.



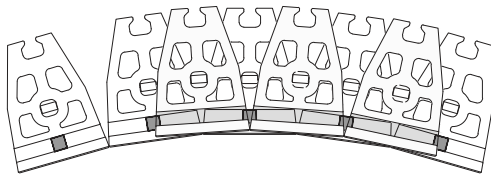
HDPE Vertical Key

When creating curves using HDPE vertical keys adjust placement in field to achieve desired curve.



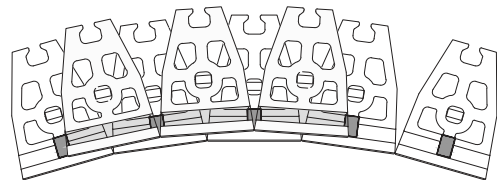
Precast concrete "U" Connector

When creating internal curves with the precast concrete "U" connector, place one connector on top center of each lower course block and adjust placement in field to achieve desired curve.



Precast concrete "Z" Connector

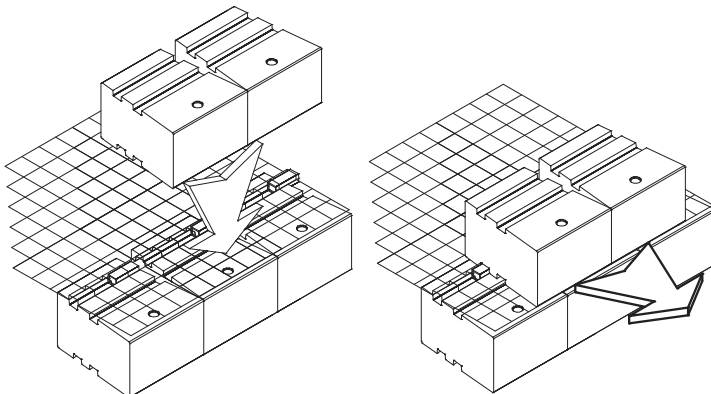
When creating internal curves with the precast concrete "Z" connector, place one connector on top center of each lower course block and adjust placement in field to achieve desired curve.



Anchoring system | Connectors in geogrid reinforced wall application

HDPE Horizontal Key

When installing a geogrid, using HDPE horizontal keys, it must be placed above the connectors. The connectors will therefore be placed before the geogrid. After positioning the geogrid, move the block (from the above course) forward until it touches the connectors and ensures that the system is locked.

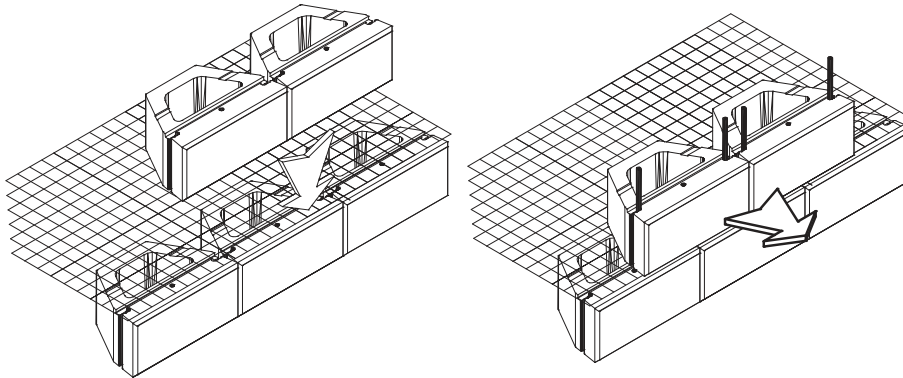


INSTALLATION GUIDE

RETAINING WALLS

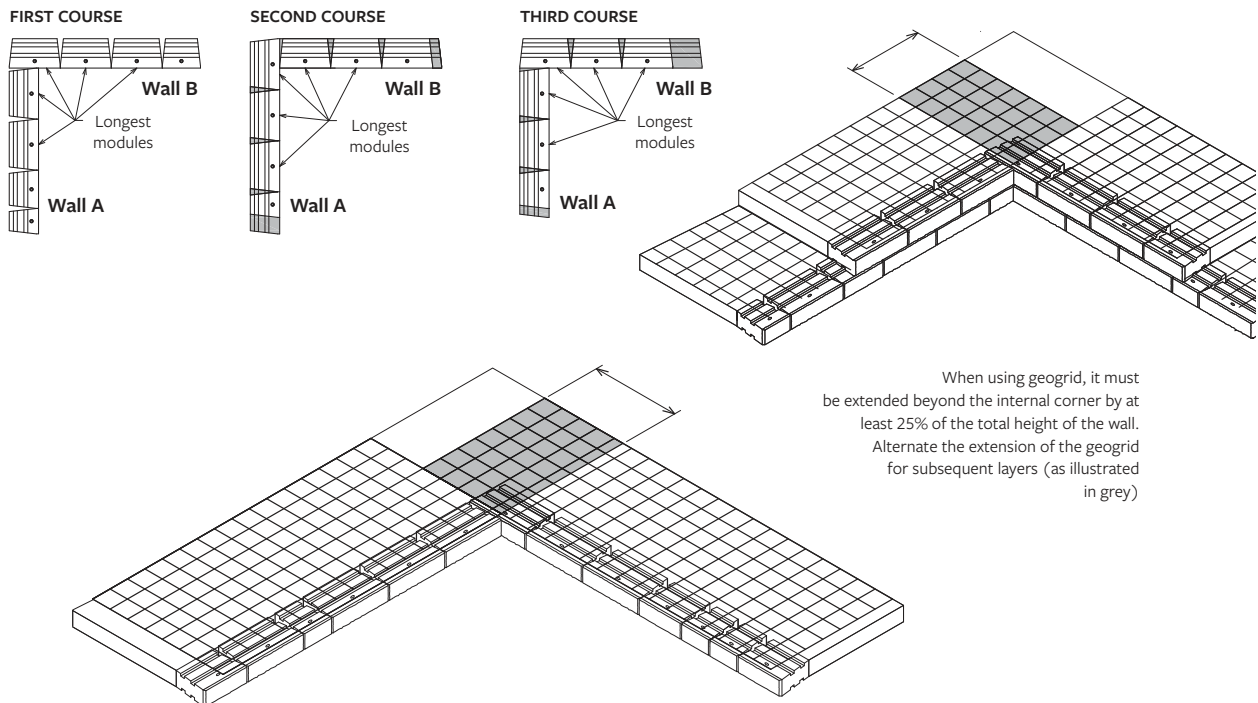
HDPE Vertical Key

When installing geogrid, using HDPE vertical keys, it must be placed immediately above the lower course block. The connectors will be inserted in the vertical slots of the upper course blocks. Ensure that pin all ways settles into the receiving slot of the lower course block and not on the geogrid. Once the pin settles, move forward the upper block until it touches the connectors and ensures that the system is locked.



Internal corner

When building a wall with an internal corner, it is recommended to start constructing the wall at the corner and build out from this point in both directions. To form the corner, use the longer modules as illustrated. Build wall B by extending it out from wall A so the end of wall B is aligned with the back of wall A. For subsequent courses, simply alternate the extension of walls A and B.

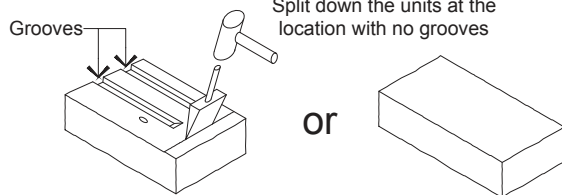
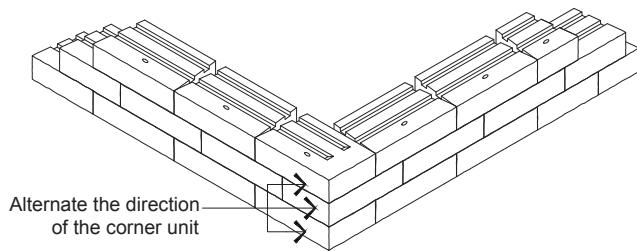


INSTALLATION GUIDE

RETAINING WALLS

External corner

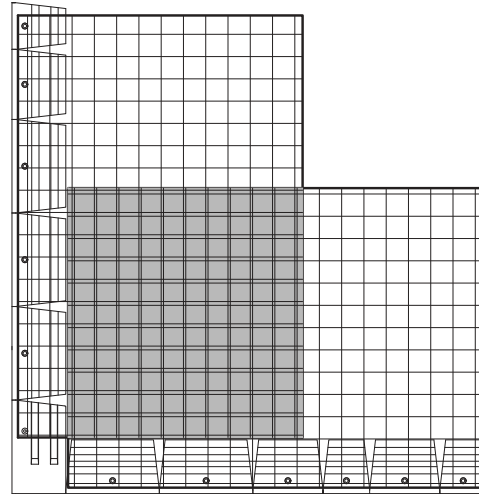
For walls with an external corner, start building the wall from the corner and continue from this point in both directions. For each subsequent course, alternate the direction of the corner unit and secure the corner unit to the block below using concrete adhesive.



Split down the units at the location with no grooves

or

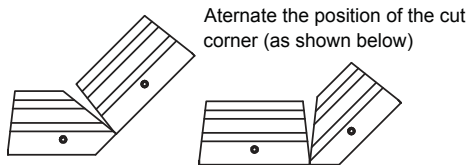
Use corner unit with finish already available on the side



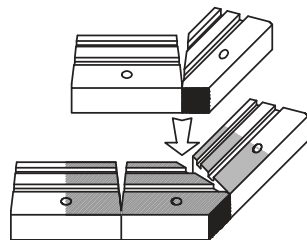
When overlapping two geogrids in the same layer (as illustrated by shaded area) allow at least 3" (75 mm) of backfill in between the overlapping section

Oblique corner

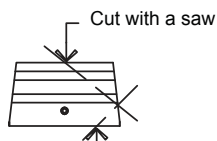
The longer modules should be used to build an oblique external corner. Alternatively, corner can be replaced by a curve.



Alternate the position of the cut corner (as shown below)

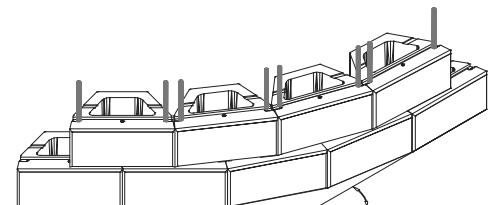
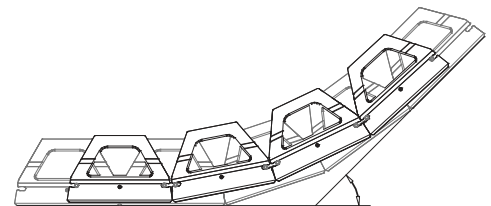


Alternate the corner unit for each subsequent course (as shown above)



Cut with a saw

Cut with a chisel or splitter for a texture face or with saw for a smooth face.



Note: Cut face finish may differ from original face finish

Note: Adjust placement in field to achieve desired angle

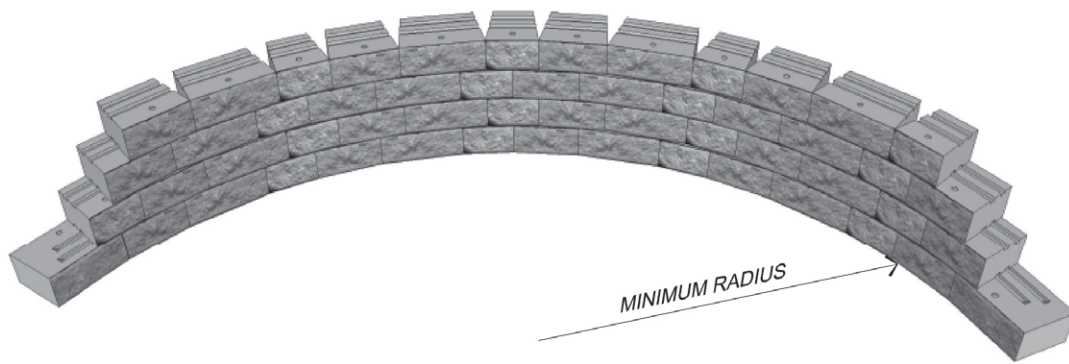
INSTALLATION GUIDE

RETAINING WALLS

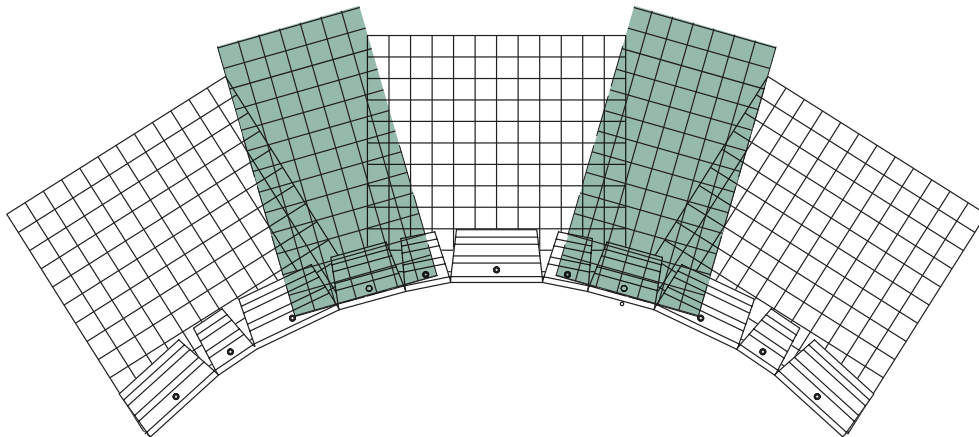
Internal curve

The Techo-Bloc retaining wall system allows walls to be built with internal and external curves. These curves can be achieved without cutting the blocks. You will need to angle the curves according to the minimum radius specified by Techo-Bloc.

When building a wall with an internal curve, it is recommended to start building the wall at the center of the curve and place blocks alternately to the left and right of the central block. If the wall to be constructed requires a setback (inclined wall), each course should be offset to the back and the curve will then become bigger. The minimum radius is therefore that of the first course.



When using geogrid, it must cover 100% of the surface around the curve. To do this, additional layers of geogrid are placed on the next course of blocks to fill voids created from previous course (as illustrated in green).

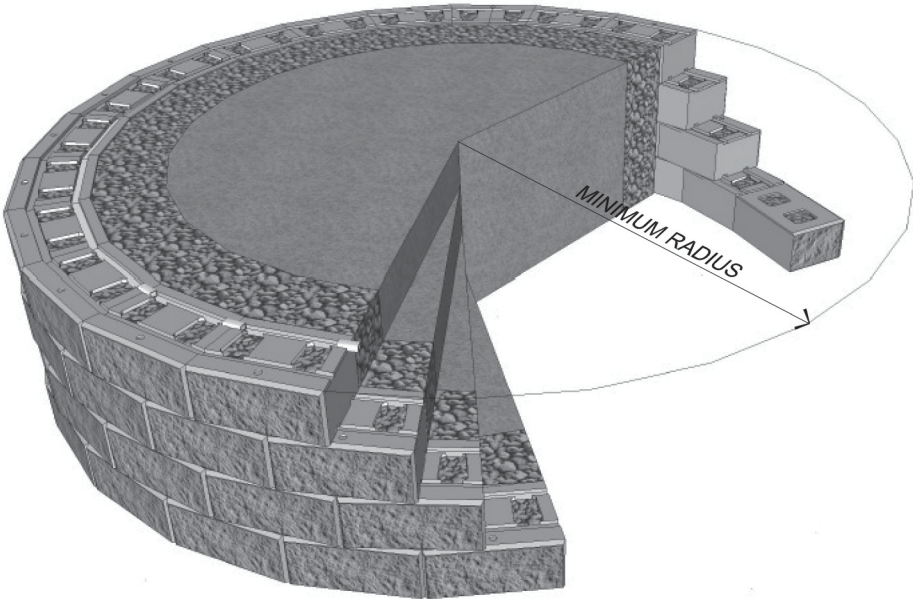


INSTALLATION GUIDE

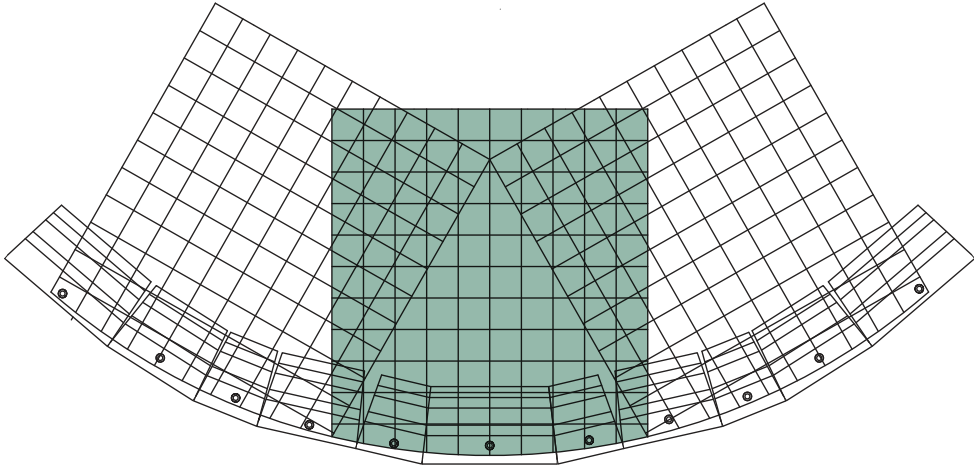
RETAINING WALLS

External curve

When building a wall with an external curve, it is recommended to start building the wall at the center of the curve and place blocks alternately to the left and right of the central block. Unlike internal curves, the external curve gets smaller as courses are added. The minimum radius is therefore that of the last course.



When using geogrid, it must cover 100% of the surface around the curve. To achieve this, additional layers of geogrid are placed on the same course of blocks to fill voids (as illustrated in green). In this case, we recommend at least 3" (75 mm) of backfill in between the overlapping sections.

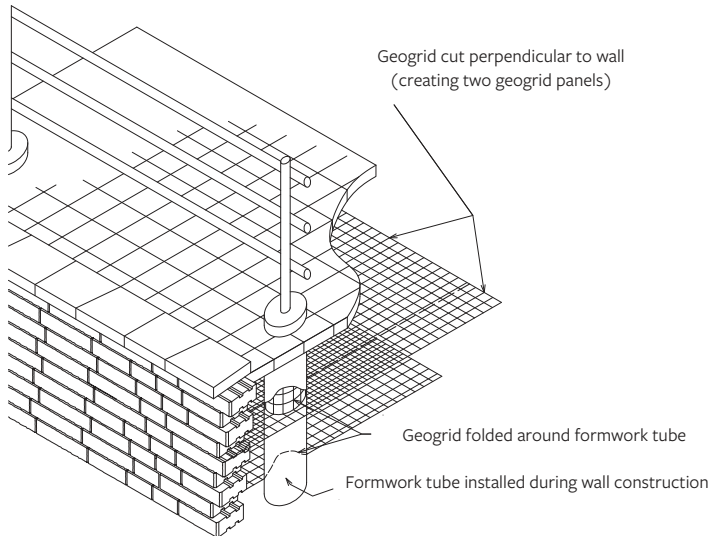


INSTALLATION GUIDE

RETAINING WALLS

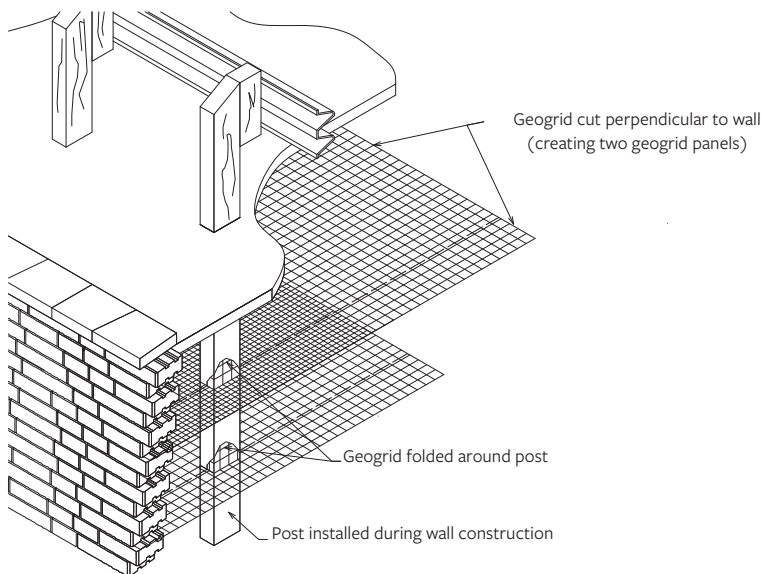
Fencing

Fencing can be erected behind the blocks. Fence posts must be placed in formwork tubes positioned during construction of the wall and then filled with concrete. The geogrid may be cut to accommodate installation of the tubes. Cut the geogrid in alignment with the center of the formwork tube and perpendicular to the wall, thus creating two geogrid panels. Connect the two geogrid panels at the front and back of the formwork tube and bend the geogrid to fit around the formwork.



Guard Rail

As with fencing, a guardrail can be incorporated behind the blocks. The guardrail posts must be installed during construction of the wall. The geogrid is cut perpendicular to the wall and in alignment with the center of the post, thus creating two geogrid panels. These two panels are connected at the front and back of the post. The geogrid can be bent to fit around the post.

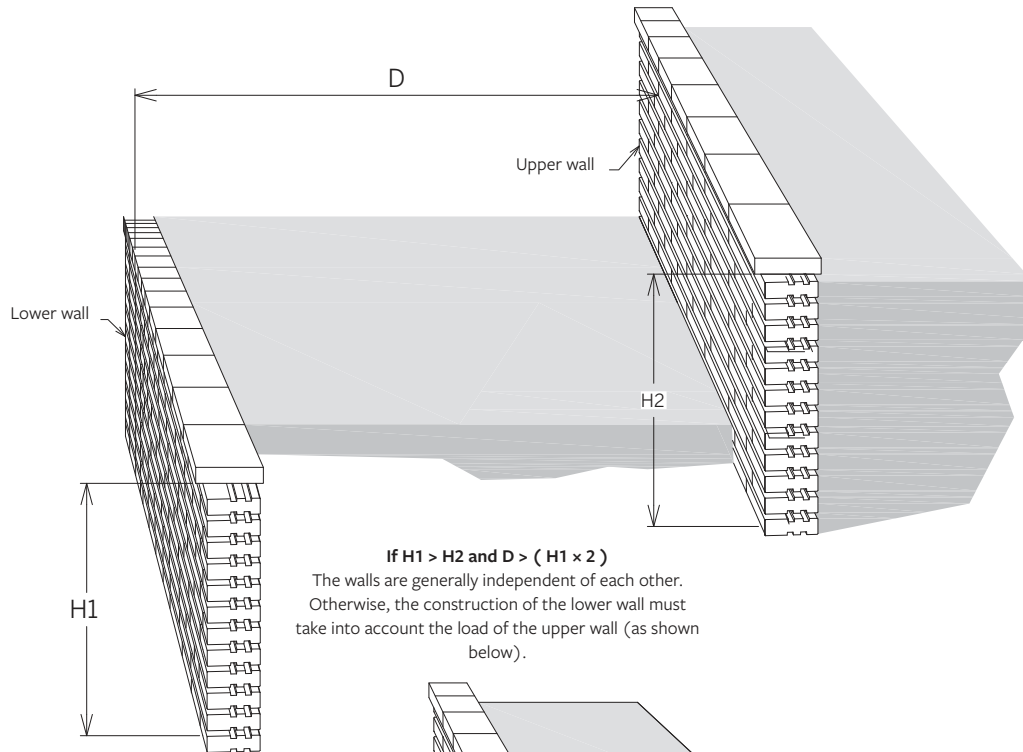


INSTALLATION GUIDE

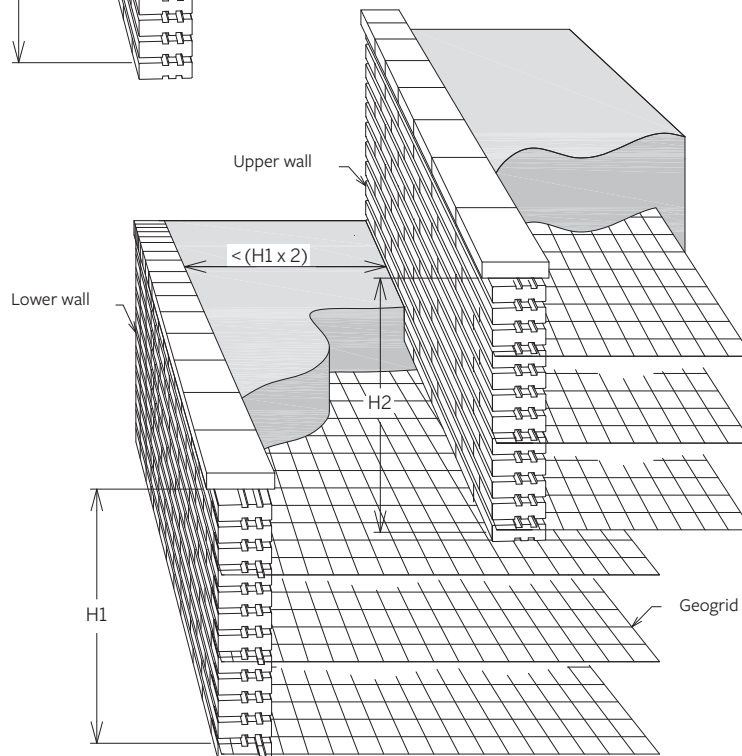
RETAINING WALLS

Tiered Wall

Although tiered walls look appealing, it is important to take into account the additional load the upper wall applies on the lower wall. If the distance between the walls is at least twice the height of the lower wall, the walls are generally independent of each other. However, if this distance is less the lower wall must be built to take account of the load of the upper wall and geogrids may be required.



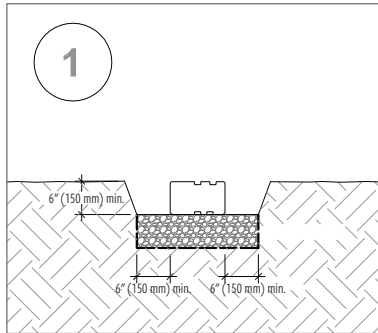
If $H1 > H2$ and $D > (H1 \times 2)$
The walls are generally independent of each other.
Otherwise, the construction of the lower wall must take into account the load of the upper wall (as shown below).



INSTALLATION GUIDE

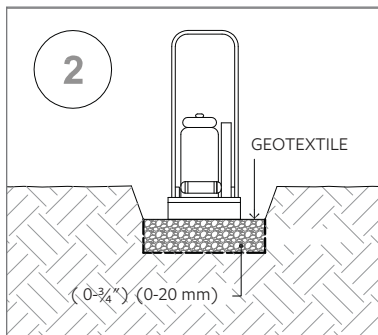
FREESTANDING WALLS

Installation Outline



01 EXCAVATION

- Check the location of existing structures and utilities before starting the excavation.
- Dig out a trench. The trench should be 12" wider than the block width (6" (150mm) at the front and at the back of the wall).
- The trench should be a minimum 12" (300mm) deep. This depth will provide 6" (150mm) for the compacted base and a minimum 6" (150mm) free-standing wall embedment.
- In areas where unstable soils or one particularly affected by freeze-thaw cycles, a thicker compacted base may be necessary.
- The foundation soil should be checked to make sure it is firm, level and capable of supporting the freestanding wall.

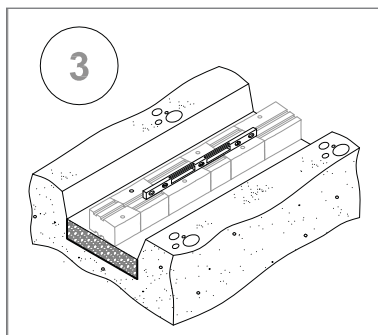


02 FOUNDATION

- Cover the excavated area with a geotextile. Create a leveling pad of compacted aggregate base material. The pad should be composed of 0- $\frac{3}{4}$ " (0-20 mm) crushed stone with a minimum thickness of 6" (150 mm).

NOTE FOR STEPPED FOUNDATION

A wall built on an incline requires stepped foundations. For steep inclines, several steps may be required. Construction should start at the lowest level. Each of the steps must follow a level horizontal path and the vertical distance separating the successive steps must equal the height of a block.



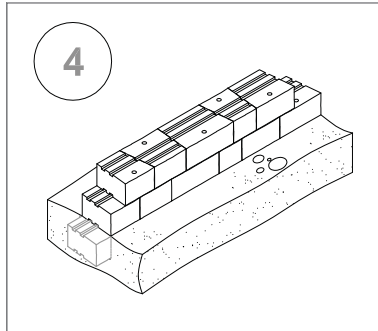
03 BUILDING THE FIRST COURSE

- Using blocks of the same height, place the first course on the compacted leveling pad according to the predetermined layout. Check the alignment and leveling in all directions and make sure that all the blocks are in full contact with the leveling pad and properly supported.
- Place the blocks side by side. There must be no space between adjacent blocks. For alignment of straight walls, use a string line aligned on the connector's slots of applicable units, or back of the block of full solid units.
- For tapered units, alternate front and back faces to obtain straight walls.

INSTALLATION GUIDE

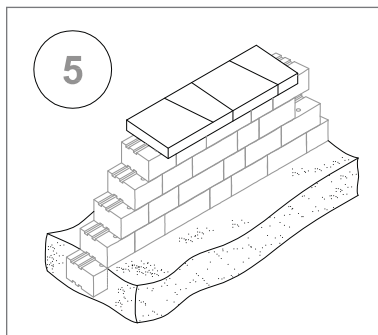
FREESTANDING WALLS

Installation Outline



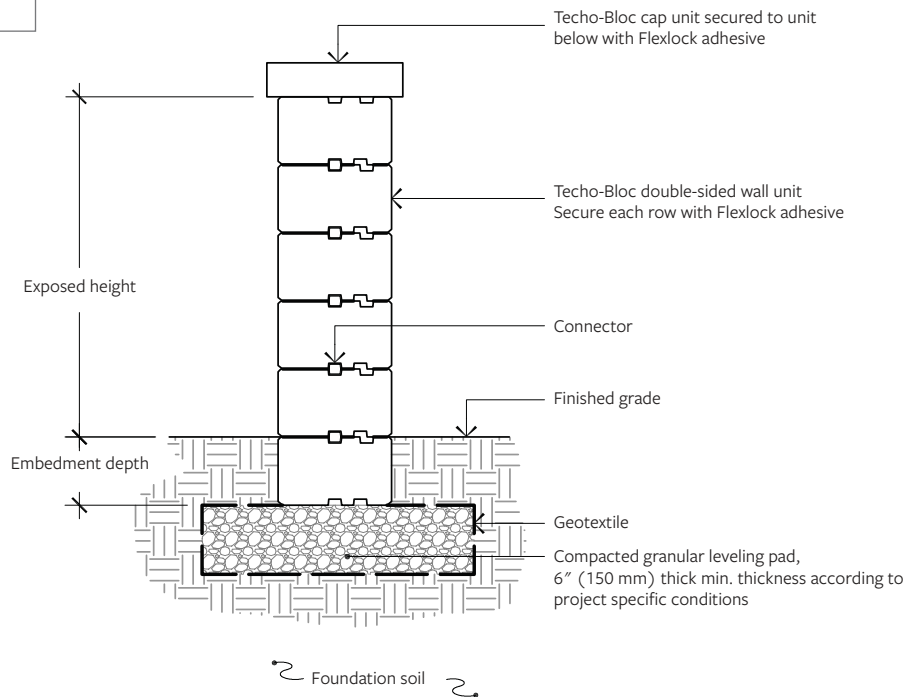
04 SUBSEQUENT COURSES

- A. Clean the top of each block before laying the next course. Depending on the type of block, install the connectors if available on each block.
- B. Stagger joints from one row to the next.
- C. Glue all modules at each row with a concrete adhesive for securing.
- D. All Free-standing walls must be installed in vertical position.
- E. Any cavities in the blocks must be filled with $\frac{3}{4}$ " (20 mm) clean stone.
- F. Continue building to the desired and permissible height.



05 FINISHING

- A. Position the cap units (if applicable) or the final course of blocks to complete the wall. The cap units (if applicable) or final course of blocks must be fixed to the subjacent blocks using concrete adhesive and there must be no space between the blocks.



INSTALLATION GUIDE

PILLARS

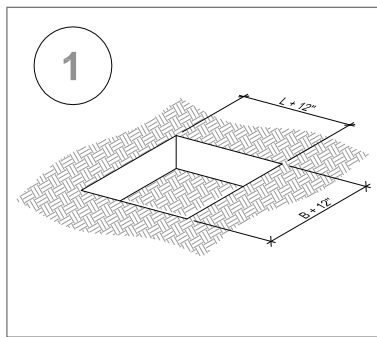
General Note

It is important to adequately glue each row with a concrete adhesive in order to obtain a stable pillar.

If you are planning to install a light on top of the pillar, make sure you run the electrical wires prior to installing the blocks.

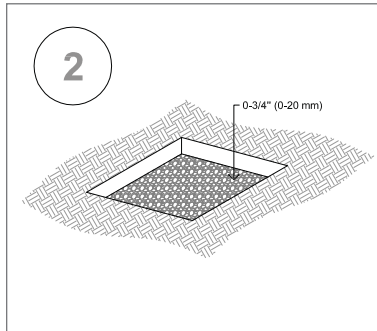
If you are planning to build a pillar with a planter, make sure to install a geotextile membrane inside the pillar before filling the cavity with planting soil.

Installation Outline



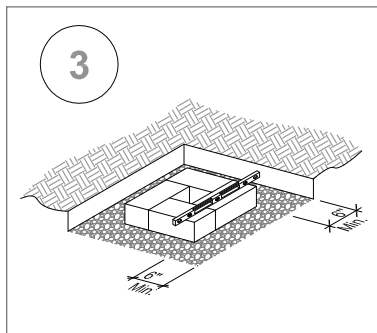
01 EXCAVATION

- Check the location of existing structures and utilities before starting the excavation.
- Excavate an area that is 12" (300 mm) wider than the pillar (6" [150 mm] at each side of the pillar).
- The excavated area should be a minimum 12" (300mm) deep. This depth will provide 6" (150mm) for the compacted base and a minimum 6" (150mm) of embedment.
- In areas where unstable soils or one particularly affected by freeze-thaw cycles, a thicker compacted base may be necessary.
- The foundation soil should be checked to make sure it is firm, level and capable of supporting the pillar.



02 FOUNDATION

- Cover the excavated area with a geotextile. Create a leveling pad of compacted granular base material. The pad should be composed of 0-3/4" (0-20 mm) crushed stone with a minimum thickness of 6" (150 mm).



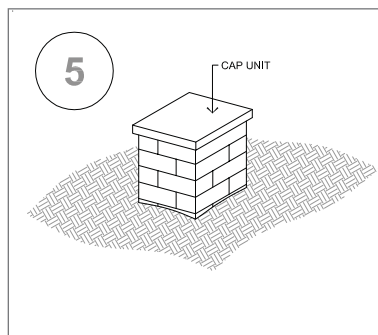
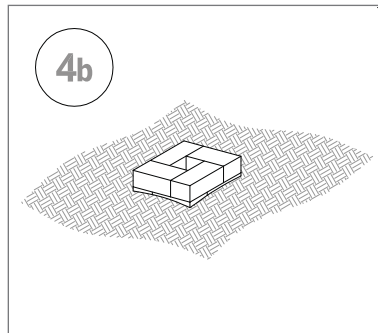
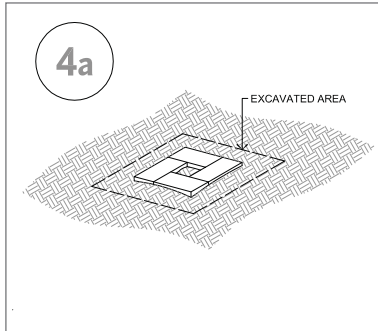
03 BUILDING THE FIRST COURSE

- Using the corresponding pillar or corner units, place the first course on the compacted base according to the predetermined layout. Check the alignment and leveling in all directions and make sure that all the blocks are in full contact with the base and properly supported.

INSTALLATION GUIDE

PILLARS

Installation outline



04 SUBSEQUENT COURSES

- Clean the top of each block before laying the next course.
- Stagger joints from one row to the next.
- Glue all modules at each row with a concrete adhesive for securing.
- Backfill the excavated area surrounding the pillar.
- Continue building to desired and permissible height.

05 CROWNING

- Crown the pillar using Techo-Bloc Pillar cap units and securing to blocks underneath with a concrete adhesive.

