

Freestanding Walls, Columns, and Vertical Walls

FREESTANDING WALLS

Solid VERSA-LOK® Standard units do it all, including easy-to-install freestanding walls with the same natural, classic look as VERSA-LOK Standard retaining walls. VERSA-LOK units are easily modified by splitting off the back of the units. From these split units, installers can build freestanding walls with textured faces on both sides.

Unlike retaining walls, freestanding walls are exposed on both sides and do not retain soil. Designers can use VERSA-LOK freestanding walls for stand-alone walls set directly at grade (Figure 1) or for parapets, extending above the top of retaining walls (Figure 2).

Similar to VERSA-LOK retaining walls, freestanding wall units inter-connect with pins and rest on granular leveling pads. No mortar or concrete footings are needed. The weight of freestanding units and the pinned unit connection provide wall stability. Stand-alone freestanding walls are stable up to 3 feet. Freestanding walls used as parapets at the top of retaining walls are stable up to 2.5 feet.

While VERSA-LOK 10-inch-thick freestanding walls provide excellent aesthetic options and visual screening, do not rely on them or use them to resist loads such as pedestrian or vehicular traffic.

To protect against lateral loads, engineer-designed structures (like guardrails or concrete traffic barriers) should be installed behind walls. For more information on top-of-wall barriers and back-to-back parapets, see Technical Bulletin No. 8 – Fences, Railings, & Traffic Barriers.

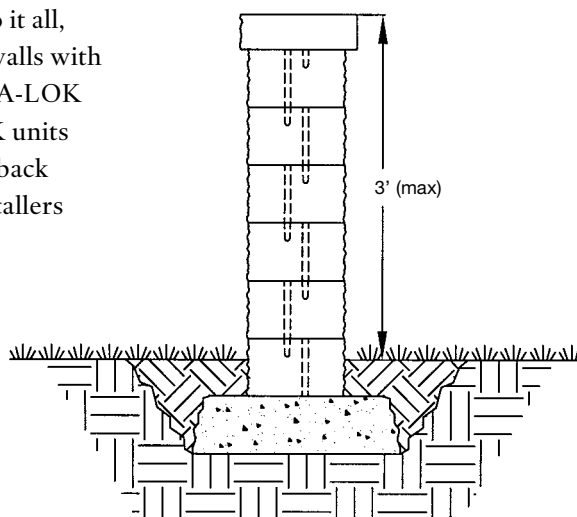


FIGURE 1

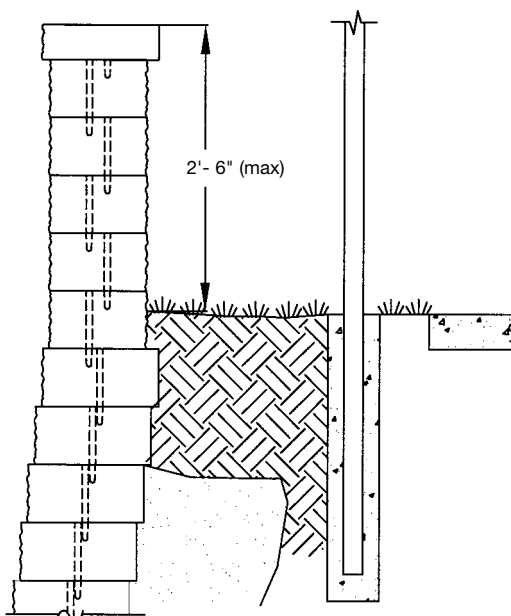


FIGURE 2

TECHNICAL BULLETIN

This Technical Bulletin is the sixth in a series of informational papers that provide specific application ideas and installation tips for VERSA-LOK® Retaining Wall Systems. Additional information is available in our *Design & Installation Guidelines*.

The information, including technical and engineering data, figures, tables, designs, drawings, details, suggested procedures and suggested specifications, presented in this publication is for general information only. While every effort has been made to ensure its accuracy, this information should not be used or relied upon for any application without verification of accuracy, suitability and applicability for the use contemplated, which is the sole responsibility of the user. A final, project-specific design should be prepared by a qualified, licensed, professional engineer based on actual site conditions. VERSA-LOK Retaining Wall Systems disclaims any and all express or implied warranties of merchantability fitness for any general or particular purpose, trademark or copyright in regard to information or products contained or referred to herein.


VERSA-LOK®
 Retaining Wall Systems
Solid Solutions.™

6348 Hwy. 36, Suite 1
 Oakdale, MN 55128
 (651) 770-3166
 (800) 770-4525
 (651) 770-4089 fax
 www.versa-lok.com

SPLITTING UNITS FOR FREESTANDING WALLS

Splitting on the groove that extends across the back of a VERSA-LOK Standard unit (Figure 3) creates a textured split-face on the back of the unit, similar to the appearance on the front face. Because this split is 2 inches from the back, it reduces the original 12-inch-deep unit to 10-inches deep. For consistent splits, a mechanical splitter must be used. In some cases, a supplier may be able to provide pre-split units for an added charge. Check with your local VERSA-LOK supplier.

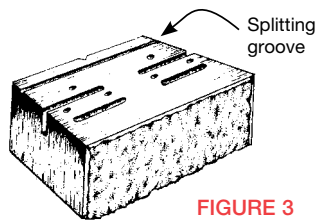


FIGURE 3

STRAIGHT FREESTANDING WALLS

Using these back-split units, install straight freestanding walls by aligning the rear split face of one unit with the front face of the units placed next to it (Figure 4).

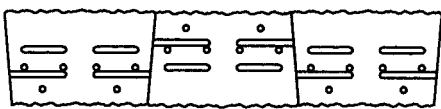


FIGURE 4

Continue alternating the direction units face as you place the remainder of units for the first course. Place succeeding courses in the same way but shift each course halfway over the units below (half-bond). Pin units using the center holes and front slots (Figure 5).

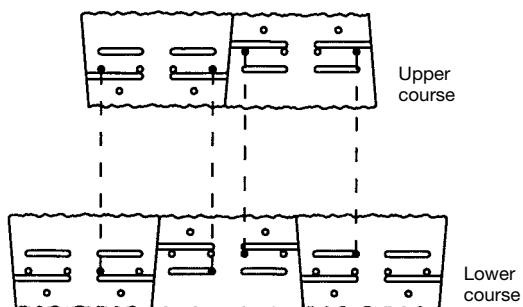


FIGURE 5

In addition to pinning, VERSA-LOK Concrete Adhesive is used between each course to help stabilize the wall. However, do not stop using pins. Full curing of adhesive may take several days. Without pins, wall units may slide as work progresses.

CURVED FREESTANDING WALLS

Create curved freestanding walls by placing the back-split units tightly next to each other, with the front of the units all on the same side (Figure 6). This creates about an 8-foot-radius curve, measured from the front of the units. (No other radius is possible without gapping units or extensive saw-cutting.) Place succeeding courses the same way, with the next course of units shifted halfway over the units below (half-bond).

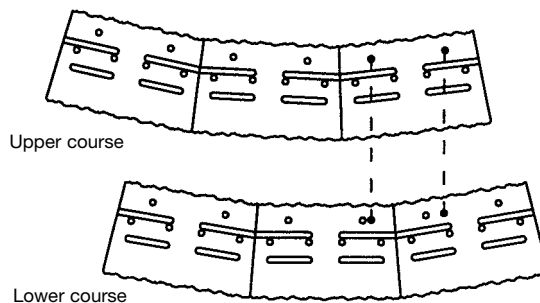


FIGURE 6

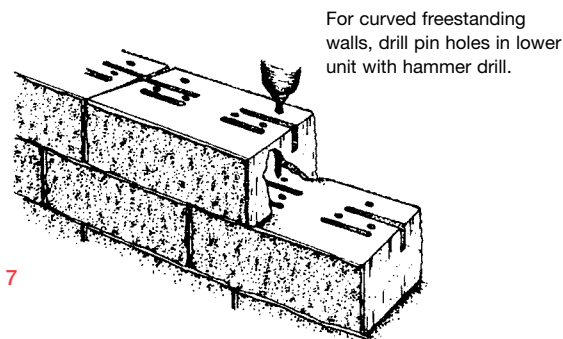


FIGURE 7

Pinning curved freestanding walls requires drilling receiving pinholes with a hammer drill (Figure 7). Pass a 1/2-inch-diameter by 10-inch-long masonry bit through the rear holes in upper units and bore 2-inch-deep holes into the lower units. Pin through the rear holes of the upper units into the newly drilled holes in lower units. Also use VERSA-LOK Concrete Adhesive on each course to help stabilize wall. Transitions from curved to straight walls or serpentine curves require saw-cutting units. For curves of different radii, back-to-back walls can be used.

CAPS FOR FREESTANDING WALLS

There are two suggested methods for capping freestanding walls. The standard method uses VERSA-LOK caps without modification. Place these 12-inch-deep caps so they overhang both sides of the wall units by one inch. VERSA-LOK caps have a split face only on the front, so this method leaves one side of the cap with a smooth face (Figure 8).

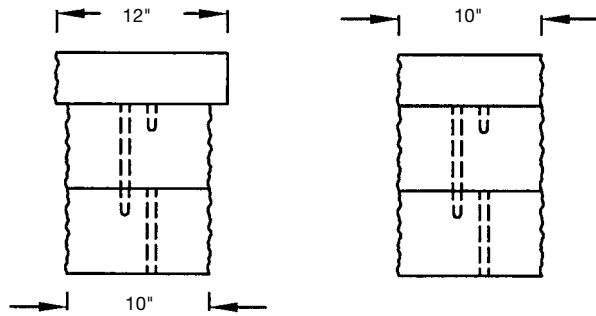


FIGURE 8

FIGURE 9

An alternate capping method provides textured faces on both sides of the cap but eliminates overhang of the cap. Using a mechanical splitter, split off the back 2 inches of the caps (a minimum 2-inch split is needed to achieve a proper split). Place these modified caps with the split faces of the caps flush with the faces of the wall units (Figure 9).



For straight freestanding walls, alternately place A and B cap units along the length of the wall. For curved walls, place all A caps or all B caps. The radius of either A or B caps is slightly different than the 8-foot radius of the wall units, so some cutting of caps on curved walls is needed to create a completely gap-free appearance. Arrange all cap units first, then secure with VERSA-LOK Concrete Adhesive. For more information on capping, see Technical Bulletin No. 4 – Caps.

ENDS FOR FREESTANDING WALLS

The end of a freestanding wall can be nicely finished with textured, split-faces that match the faces on the front and back of the wall. Split the modified freestanding wall units between the slots (Figure 10). This split should be as close to the slots on one side as possible, without exposing these slots. Place these split units at the end of each course, alternately using the narrower-split and then the wider-split units on succeeding courses. For the courses ending with the wider-split units, place a saw-cut partial unit next to the end unit to get back on half-bond (Figure 11).

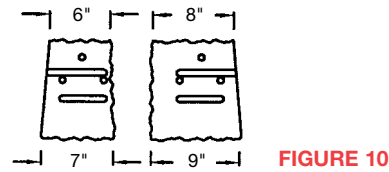


FIGURE 10

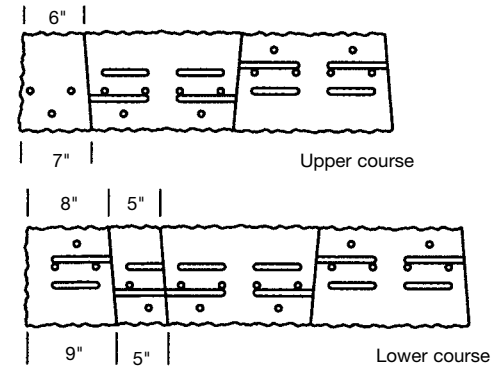


FIGURE 11

BACK-TO-BACK WALLS

At grade, back-to-back vertical freestanding walls allow additional design options. Because they are 24 inches thick, back-to-back walls provide more width for seat walls (Figure 12) and allow the radius of the curve to vary. For additional information on back-to-back wall construction, see Technical Bulletin No. 8 – Fences, Railings, & Traffic Barriers.

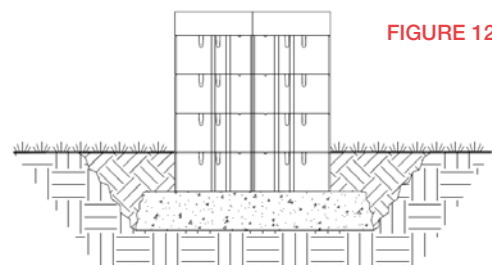


FIGURE 12

COLUMNS

A wide variety of attractive columns can be easily built using VERSA-LOK Standard units. Like VERSA-LOK retaining walls, columns less than 4 feet tall can be stacked without mortar, placed on granular leveling pads, and do not require footings below frost (Figure 13). Generally, columns should have a minimum of one course of units (6 inches) buried below grade. VERSA-LOK columns typically have a vertical face (no setback).

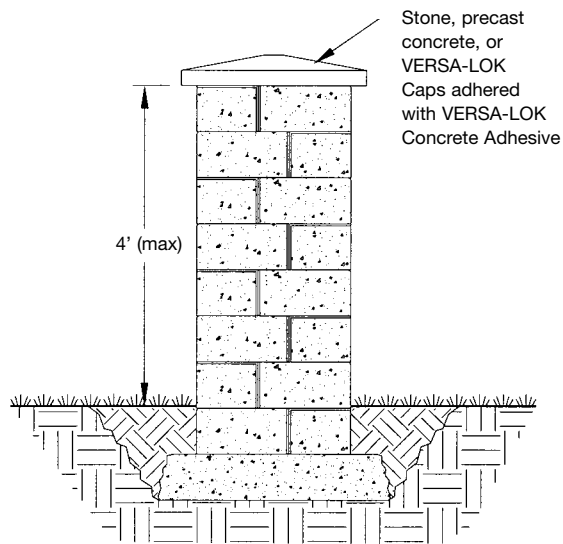


FIGURE 13

A 20-inch-square column is created simply by splitting VERSA-LOK Standard units into half units and placing a half unit at each of the four corners of the column (Figure 14). For each succeeding course, shift the bond so the half units being placed overlap the half units below (Figure 15). One simple way to do this is to split four VERSA-LOK Standard units at a time. Place the four, right-side half units first and then for the next course, place the four left-side half units.

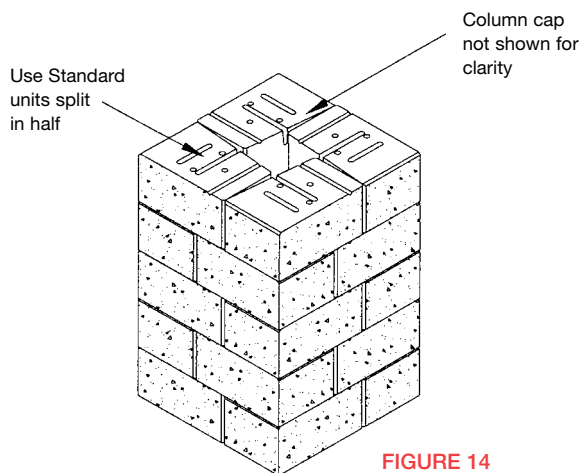


FIGURE 14

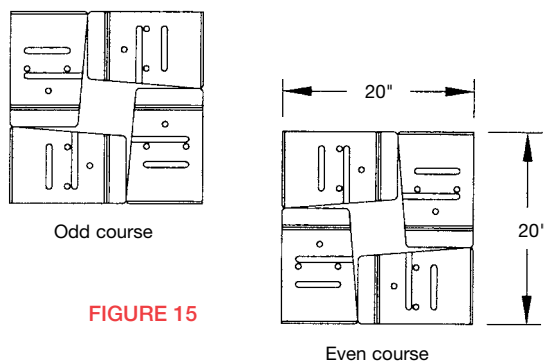


FIGURE 15

VERSA-LOK columns can be widened in 4" increments (24", 28", 32", 36", 40" etc.) by placing split half-units at the corners and combinations of whole Standard units and saw-cut half-Standard units (or Cobble units) between the split corner, half-units (Figure 16). For other column options, see VERSA-LOK Standard unit column details on our website.

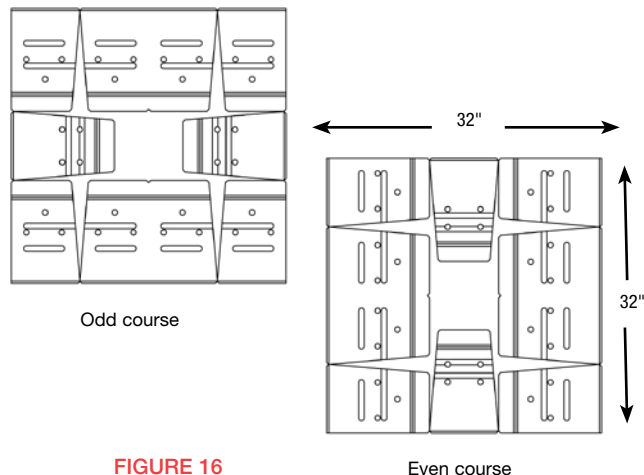


FIGURE 16

Units placed in columns will not pin, so each course of units should be adhered to the units below with VERSA-LOK Concrete Adhesive. Do not use rigid adhesive or mortar for VERSA-LOK columns on flexible granular pads or they will shift slightly, causing rigid adhesives to fail.

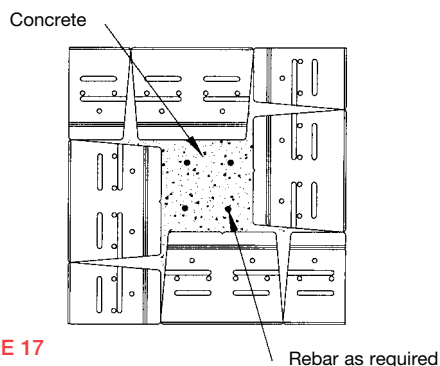


FIGURE 17

VERSA-LOK columns can be built taller than 4 feet if they are either widened enough or built with a structural footing below frost, tied to steel-reinforcement and concrete placed within the columns (Figure 17). The design of columns more than 4 feet tall should be provided by a qualified professional engineer.

VERSA-LOK columns alone should not be relied on to support structural loads like fencing or arbors. Additional structural elements such as metal posts or steel-reinforced concrete within the VERSA-LOK

columns, and frost footings, are needed to carry such structural loads. VERSA-LOK unit columns can be placed around the outside of the actual structural support materials to provide an aesthetic exterior. The design of structural load-bearing columns should be provided by a qualified professional engineer.

COLUMNS WITH WALLS

VERSA-LOK columns can be combined with VERSA-LOK retaining walls and freestanding walls to create attractive landscaping elements. Also, columns provide an aesthetic way to create a corner within a freestanding wall (Figure 18). The suggested way to incorporate a column with a freestanding wall is to saw-cut the units in the freestanding wall to butt against the adjacent column. With proper design, columns can also be used as highlight elements or corner features within VERSA-LOK retaining walls.

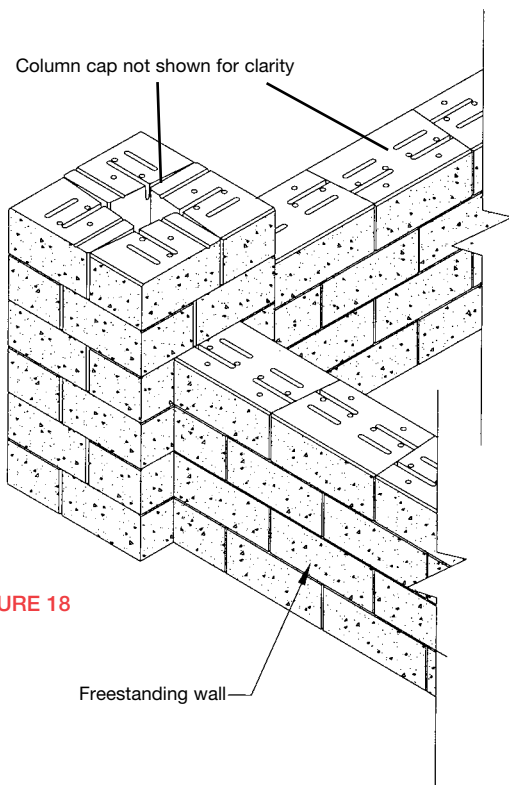


FIGURE 18

VERTICAL RETAINING WALLS

On tight project sites, building vertical VERSA-LOK Standard Unit retaining walls can save valuable space at the top of the wall. However, there are several reasons installing walls with the standard 3/4-inch setback may be preferable, when space allows. Vertical walls are not as stable as setback walls because they do not lean back into the soil. The maximum unreinforced vertical retaining wall height is 3 feet and may be lower depending on site and soil conditions. Vertical walls also eliminate the aesthetically pleasing horizontal lines created by the standard setbacks. Installers should use special care when building vertical walls to avoid moving units during construction. Any deviation in alignment of a vertical wall is very visible and also may affect wall stability. Also, reinforced vertical walls require more geogrid, better backfill and more installation time than setback walls. While vertical walls are more difficult to pin properly, using VERSA-LOK Concrete Adhesive in place of pins is not recommended. The adhesive may take several days to fully cure and retained soil pressures may slide units out of place during, or shortly after, construction.

STRAIGHT VERTICAL RETAINING WALLS

Straight vertical walls are installed on half-bond (upper unit halfway over lower units) so the rear pin holes line up. Do not build vertical walls on stacked bond (upper units directly over lower units). After laying the base course, insert pins into all the rear holes and, using a second pin and hammer, drive the pins 2 to 4 inches into the leveling pad. Pins in the base course provide a stop, keeping pins in the units above from dropping all the way through the upper units. Lay the next course of units so the rear holes in each upper unit line up with the rear holes in both units below (Figure 19). Insert pins through upper units, into the rear holes in the units below.

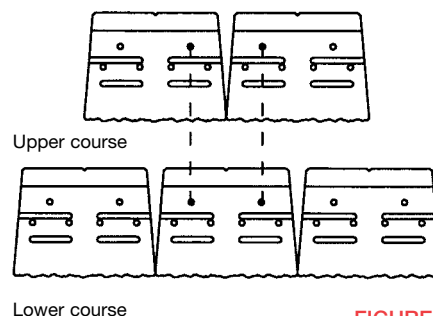


FIGURE 19

6

TECHNICAL BULLETIN

For more detailed information regarding design and installation, please contact your local dealer or VERSA-LOK® Retaining Wall Systems.

Made worldwide under license from VERSA-LOK Retaining Wall Systems. U.S. Patent D319,885, U.S. Patent D321,060, U.S. Patent D341,215, U.S. Patent D346,667, U.S. Patent D435,302, U.S. Patent D439,678, U.S. Patent D447,573, U.S. Patent D452,332, U.S. Patent D458,387, U.S. Patent D537,533, U.S. Patent D552,258, U.S. Patent D555,810, U.S. Patent D569,010, U.S. Patent 6,488,448, U.S. Patent 6,960,048, U.S. Patent 7,229,235, U.S. Patent 7,244,079 and other U.S. patents pending

Canadian Industrial Design Registration No. 63929, No. 71472, No. 73910, No. 73911, No. 73912, No. 91178, No. 115161, No. 123413, No. 123414 and No. 123415; Canadian Patent No. 2,313,061, No. 2,313,062 and No. 2,288,575; ICC ESR-1784

©2019 Kiltie Corporation
Printed in U.S.A. • VLS-506


VERSA-LOK®
Retaining Wall Systems
Solid Solutions.™

6348 Hwy. 36, Suite 1
Oakdale, MN 55128
(651) 770-3166
(800) 770-4525
(651) 770-4089 fax
www.versa-lok.com

CURVED VERTICAL RETAINING WALLS

Curved vertical walls require drilling so they can be pinned. The procedure for drilling pin holes is similar to that described previously for freestanding walls. Position upper-course units on half-bond, and drill through both rear holes in upper units into the lower units to create receiving pin holes (Figure 20). Pin units using these holes.

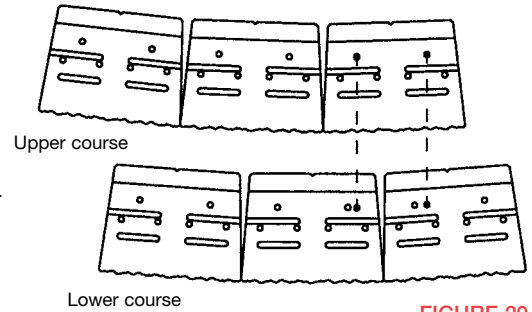


FIGURE 20

CORNERS FOR VERTICAL RETAINING WALLS

Inside and outside corners for vertical retaining walls are installed similarly to corners for setback walls. However, to maintain the half-bond needed for vertical walls, additional saw-cut partial units must be installed next to the corner units. For an outside 90-degree corner, lay a split half unit at the corner and then place a saw-cut, 12-inch-wide, partial unit next to it (Figure 21). Corner and partial units should be secured with VERSA-LOK Concrete Adhesive or drilled and pinned.

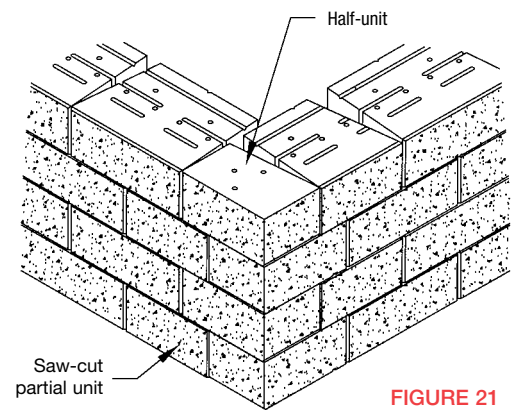


FIGURE 21