

BelAir Wall™ Collection

BELGARD®

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This product is manufactured
using technology licensed from
Anchor Wall Systems, Inc.



BELGARD NEW ARRIVAL

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BelAir Wall™

A BELGARD AUTHORIZED BRAND

An excellent alternative to traditional retaining wall systems

Timeless multipiece design for maximum versatility

Engineered for easy installation and alignment

*Ideal for a wide range of applications, from sweeping curved
walls and raised patios, to steps and columns*

See inside for specs and details.





BelAir Free-standing Wall



BelAir Free-standing Wall

WHEN TO USE A PATTERN FOR FREE-STANDING WALLS

You can install the BelAir Wall™ free-standing wall system in a random pattern using any combination of units. Just avoid vertical lines that span more than 18 inches in height. If you are building a straight wall, use a pattern for inspiration or follow a pattern exactly. Pleasing random patterns can be built using an equal square footage of 3- and 6-inch-high units. The estimating formulas in this brochure are based on using an equal square footage of units of each size in each height. When using a pattern, begin at one edge laying the units as indicated. Install at least one repeat of the pattern to establish the pattern before proceeding to the next course.

Please see your local representative for color samples available in your area.



BelAir Retaining Wall



BELAIR WALL™ COLLECTION

BelAir Wall™ offers designers, contractors and homeowners the ideal solution for residential and light commercial retaining and free-standing wall construction where pleasing aesthetics are a key consideration. The attractive multipiece design and blended colors offer an alternative look to traditional retaining wall units. The design of this easy-to-use product allows for sweeping curves. The system can be used in applications ranging from curves to corners, terraces to raised patios, or steps to columns.



**VISIT WWW.BELAIRWALL.COM FOR MORE DETAILS,
INCLUDING INFORMATION ON INSTALLATION TRAINING VIDEOS.**

INTRODUCING THE



Collection

DIMENSIONS



Retaining Wall Units	6" x 16"	6" x 8"	3" x 16"	3" x 8"
Approx. Dimensions*	6" x 16" x 8"	6" x 8" x 8"	3" x 16" x 8"	3" x 8" x 8"
Approx. Weight	52 lbs.	26 lbs.	25 lbs.	13 lbs.
Coverage	.67 sq. ft.	.33 sq. ft.	.33 sq. ft.	.17 sq. ft.
Setback/Batter	1"/9.5°	1"/9.5°	1/2"/9.5°	1/2"/9.5°



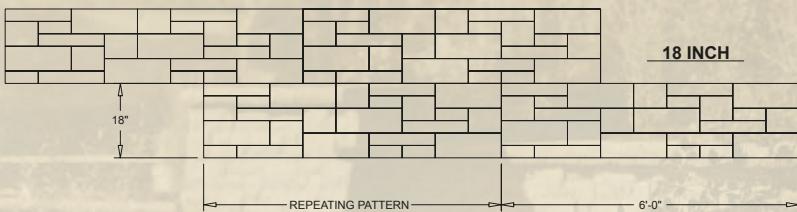
Free-Standing Wall Units	6" x 16"	6" x 8"	3" x 16"	3" x 8"
Approx. Dimensions*	Front, 6" x 16" x 11" Rear, 6" x 14" x 11"	Front, 6" x 8" x 11" Rear, 6" x 6" x 11"	Front, 3" x 16" x 11" Rear, 3" x 14" x 11"	Front, 3" x 8" x 11" Rear, 3" x 6" x 11"
Approx. Weight	63 lbs.	27 lbs.	27 lbs.	13 lbs.
Coverage	Front, .67 sq. ft. Rear, .58 sq. ft.	Front, .33 sq. ft. Rear, .25 sq. ft.	Front, .33 sq. ft. Rear, .29 sq. ft.	Front, .17 sq. ft. Rear, .13 sq. ft.



Accessories	Cap Unit	Corner/Column Unit
Approx. Dimensions*	Front, 3" x 8" x 13-1/2" Rear, 3" x 7" x 13-1/2"	6" x 16" x 8"
Approx. Weight	22 lbs.	67 lbs.
Coverage	.625 linear ft.	

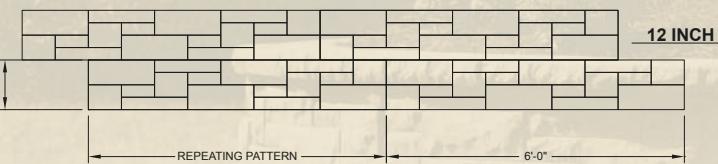
*Dimensions may vary. Please check with your local Belgard representative for exact product specifications.

LAYING PATTERNS



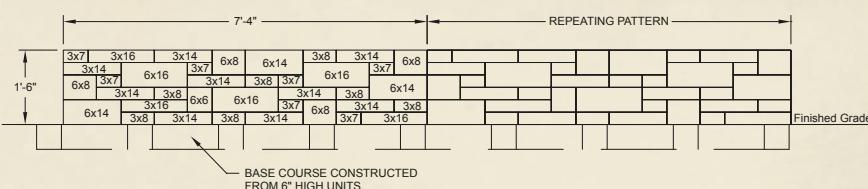
18-INCH BY 6-FOOT RETAINING WALL PATTERN

This illustrates an 18-inch-high by 6-foot-long repeating pattern. When your plan requires reinforcement, this pattern is ideal because it eliminates cutting if the grid is at 18 inches.



12-INCH BY 6-FOOT RETAINING WALL PATTERN

This illustrates a 12-inch-high by 6-foot-long repeating pattern. When your plan requires reinforcement at 12 or 24 inches, this pattern is ideal because it eliminates cutting.



18-INCH BY 7-FEET, 4-INCH FREE-STANDING WALL PATTERN

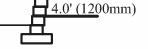
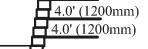
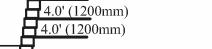
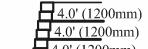
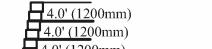
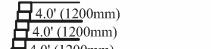
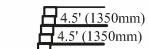
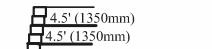
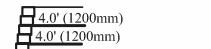
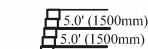
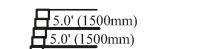
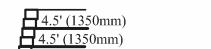
This illustrates an 18-inch-high by 7-foot, 4-inch-long repeating pattern.

WHEN TO USE A PATTERN FOR RETAINING WALLS

You can install the BelAir Wall™ retaining wall system in a random pattern using any combination of units. Just avoid vertical lines that span more than 18 inches in height. If you are building a wall without geosynthetic reinforcement, use a pattern for inspiration or follow a pattern exactly. Planning random patterns can be built using an equal number of 3- and 6-inch-high units. The estimating formulas in this brochure are based on using an equal number of units of each size in each height. When building a wall that includes geosynthetic reinforcement, using a pattern at the appropriate spacing eliminates the need to cut the grid. When using a pattern, begin at one edge laying the units as indicated. Install at least one repeat of the pattern to establish the pattern before proceeding to the next course.

BELGARD BELAIR RETAINING WALLS GEOGRID ESTIMATING CHART

No Slopes / No Surcharges

CLAY AND SILT SOIL		SILTY / CLAYEY SAND SOIL		CLEAN SAND AND GRAVEL SOIL	
H NO SLOPES OR SURCHARGES		H NO SLOPES OR SURCHARGES		H NO SLOPES OR SURCHARGES	
1.0 FT. (300mm)		1.0 FT. (300mm)		1.0 FT. (300mm)	
2.0 FT. (600mm)		2.0 FT. (600mm)		2.0 FT. (600mm)	
3.0 FT. (900mm)		3.0 FT. (900mm)		3.0 FT. (900mm)	
4.0 FT. (1200mm)		4.0 FT. (1200mm)		4.0 FT. (1200mm)	
5.0 FT. (1500mm)		5.0 FT. (1500mm)		5.0 FT. (1500mm)	
6.0 FT. (1800mm)		6.0 FT. (1800mm)		6.0 FT. (1800mm)	

BELAIR WALL™ INSTALLATION TIPS

RETAINING WALL

GETTING STARTED

Use best practices to lay out and build walls. See Belgard.biz for standard installation details. The information in this brochure will help you get started using BelAir Wall™.

BASE COURSE

Since the 6-inch units are palletized together, it is easiest to use both the 6" x 16" and 6" x 8" units to build the base. This will help maintain the ratio of one-to-one with the units and will eliminate the need to pick around the smaller units on the pallet and save time. Remove the rear lip from the unit to ensure proper contact with the gravel base. Due to the manufacturing process of this unit, pitch the base course back slightly to keep the wall level on higher courses.

COMPACTION

Compaction is critical to the success of any wall and this is no different with the BelAir Wall™ product. Keep heavy compaction equipment 4 feet away from the face of the wall and make sure you are compacting in proper lifts according to your equipment. After compaction, tap the back of the units with a rubber mallet or dead-blow hammer to ensure the unit has remained seated against the unit below.

90° CORNERS

Corners are built by using the corner/column unit in an alternating fashion. Reversing the unit direction back and forth also allows them to be integrated into the patterns with little effort. Depending on the wall layout, there may be a need to go off the pattern and randomize wall units near the corner to blend together. Glue should be applied to every corner unit from bottom to top. Corner units should be set back to reflect the batter of the wall units.

USING 8-INCH UNITS IN CONSTRUCTION

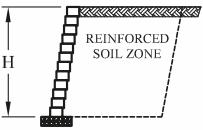
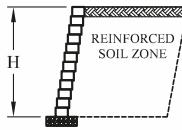
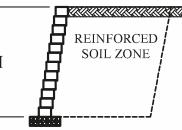
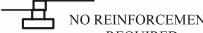
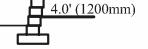
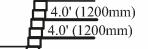
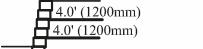
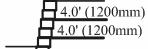
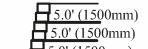
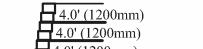
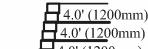
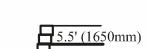
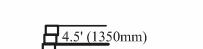
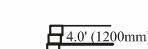
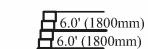
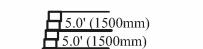
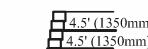
The 8-inch-wide units in both the 3-inch and 6-inch heights have two shapes. One has an offset angle on the left side and the other has an offset on the right. Either unit can be used in most situations. In a curved wall, it may be necessary to select one shape or the other. An easy rule of thumb would be that on a curve, if two 8-inch units of either height meet on a 16-inch unit, put the two 90-degree sides together to form a 16-inch unit.

BUILDING AN OUTSIDE RADIUS CURVE

A function of geometry with battered, multiple-height walls is that the outside radius gets smaller and smaller as the wall gets taller. As a result, the spaces between the units also shrink. This requires some shaving or trimming of the units to fit. Plan to shave 3-inch units as you build. This will save time and saw blades. When removing a 1/2 inch or less, a small handheld grinder will be easier and quicker to use than a large saw.

BELGARD BELAIR RETAINING WALLS GEOGRID ESTIMATING CHART

100 PSF Surcharge

CLAY AND SILT SOIL			SILTY / CLAYEY SAND SOIL			CLEAN SAND AND GRAVEL SOIL		
H φ = 26° γ = 120 pcf (19 kN/cubic meter) 100 PSF (5 kPa) SURCHARGE 	H φ = 30° γ = 120 pcf (19 kN/cubic meter) 100 PSF (5 kPa) SURCHARGE 	H φ = 34° γ = 120 pcf (19 kN/cubic meter) 100 PSF (5 kPa) SURCHARGE 	1.0 FT. (300mm) 	1.0 FT. (300mm) 	1.0 FT. (300mm) 	2.0 FT. (600mm) 	2.0 FT. (600mm) 	2.0 FT. (600mm) 
3.0 FT. (900mm) 	3.0 FT. (900mm) 	3.0 FT. (900mm) 	4.0 FT. (1200mm) 	4.0 FT. (1200mm) 	4.0 FT. (1200mm) 	5.0 FT. (1500mm) 	5.0 FT. (1500mm) 	5.0 FT. (1500mm) 
6.0 FT. (1800mm) 	6.0 FT. (1800mm) 	6.0 FT. (1800mm) 						

BUILDING AN INSIDE RADIUS CURVE

When building an inside curve, the radius gets bigger as the wall gets taller. This gapping is a function of geometry and batter and will happen with any multiple-height system. If the gaps created are small, space the gaps out over several units to minimize the openings. If this doesn't work, fill the opening with two units. This will require going off pattern for a while. For the best appearance, do not use pieces smaller than 4 inches. For example, a space that would be 8 inches in the pattern is 9 inches on an inside radius. This would require cutting a 16-inch piece to 9 inches instead of using an 8-inch piece and a 1-inch sliver.

USING GEOSYNTHETIC REINFORCEMENT

For walls that are less than 4 feet, use a light-weight grid. Miragrid 2XT is a good example of a grid that would work well. It is thinner and can be used in either direction for a strong wall. Use best practices for installing grid. Lay grid perpendicular to the wall face, bringing it to within 1 inch from the wall face. Pull the grid tight before backfilling. Cut off the salvage edge on grid to eliminate any unevenness of grid.

STEPS

When constructing steps, consider whether it is a fill or a cut grade situation. Construction is similar but varies in the amount of dummy units required.

A fill step solution will have a base course of dummy units in the entire footprint of the steps. For each additional step, add dummy units behind the facing units for stability. The facing units on the steps should alternate between 8-inch and 16-inch units glued to the dummy units.

A cut grade set of steps will use one layer of dummy units under each step, effectively stepping up the grade. Both applications will require some sort of tread to cover the facing units. The double-sided cap is a great solution.

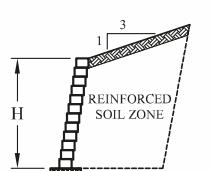
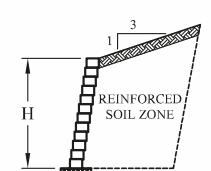
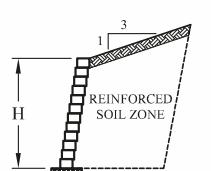
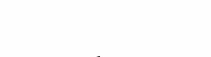
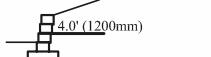
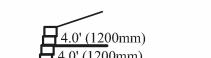
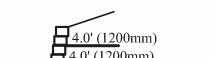
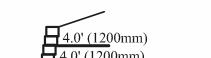
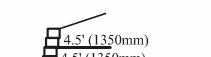
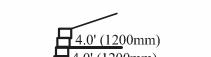
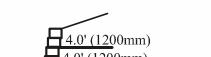
ALTERNATIVE TO GEOSYNTHETIC REINFORCEMENT

Stabilized aggregate is a porous backfill material that can be used as an alternative to geogrid when building with BelAir Wall™ in cut wall situations where you don't have room to excavate for geogrid. Excavation time can be reduced by around 40%. Reducing excavation also means reducing backfill time and eliminating the need to compact all the backfill soil.

Stabilized aggregate effectively increases the depth of the facing unit and creates a permeable concrete mass that can resist the weight of the soil wedge behind the wall. It is a proven system with several million square feet built with this method. For more information, refer to the Stabilized Aggregate Manual. *(Continued on following page)*

BELGARD BELAIR RETAINING WALLS GEOGRID ESTIMATING CHART

3:1 Crest Slope

CLAY AND SILT SOIL			SILTY / CLAYEY SAND SOIL			CLEAN SAND AND GRAVEL SOIL		
H 	H 	H 	1.0 FT. (300mm) 	1.0 FT. (300mm) 	1.0 FT. (300mm) 	1.0 FT. (300mm) 	2.0 FT. (600mm) 	2.0 FT. (600mm) 
2.0 FT. (600mm) 	3.0 FT. (900mm) 	3.0 FT. (900mm) 	3.0 FT. (900mm) 	4.0 FT. (1200mm) 	4.0 FT. (1200mm) 	4.0 FT. (1200mm) 	5.0 FT. (1500mm) 	5.0 FT. (1500mm) 
5.0 FT. (1500mm) 	6.0 FT. (1800mm) 	6.0 FT. (1800mm) 	6.0 FT. (1800mm) 					

WALL ABUTTING A COLUMN (Continued from previous page)

Whether building a free-standing wall or a retaining wall with column accents, the wall is abutted to the column. When constructed as a pilaster at the end of a free-standing wall, cutting the wall pieces to fit against the column is the only work required. When abutting the wall in the middle of the column face, some sculpting of the units will be needed to give a clean finished look to a project. The hand-cut look of the units gives a soft, round appearance to each unit. If you butt the edge of a unit to the rounded face, gapping appears at the top and bottom of the unit. The best way to finish this is to mark or scribe the unit to fit the face of the column unit into the edge of the wall unit. This is easily achieved with a small handheld grinder with a diamond blade.

CAPPING

The double-sided cap has a right-angle side and an offset angle side. The caps can be used in any of four directions since there is no specific top or bottom. There is an arrow on the side to guide capping straight walls. Just place the arrows in the same direction and touch them together as the caps are laid. On a radius that usually requires extensive cutting, the fact that the unit can be turned any of four ways will reduce cutting dramatically. For example, on an arc of about 25 feet, a standard trapezoidal or rectangular cap would require cutting every other cap or about 10 caps. With this product, only four caps needed to be cut. This again saves time, saw wear and tear and diamond blades.

FREE-STANDING WALL

BASE COURSE

Since the 6-inch units are palletized together, it is easiest to use both the 6" x 16" and 6" x 8" units to build the base. This will help maintain the ratio of one-to-one with the units and will eliminate the need to pick around the smaller units on the pallet and save time. Flip the units over so the lug is down when building the base.

ADDITIONAL COURSES

When building additional courses, use pattern if desired. Alternate units up and down as needed to maintain vertical wall.

FREE-STANDING WALL CORNERS

A free-standing wall corner would typically be built by putting a column in the corner and building away from it. In some cases, this will not happen and a series of units needs to be mitered to create the corner. Begin with a 16-inch unit. Use a speed square to mark a 45-degree angle off the formed edge on top of the unit from the corner to the back of the unit. Make the cut and repeat.

On the second course, use an 8-inch unit to stagger the bond. Mark and cut in the same fashion. Fill in the inside corner with two 16-inch pieces by cutting the corners off to fill the inside of your corner. You may flip units over or knock off the locator if needed to fit the units. All units should be glued bottom to top.

BELAIR WALL™ ESTIMATING FORMULAS

RETAINING WALL

For project material estimating, use the formulas listed in each step. The wall product is palletized in pairs. The pallets of 6-inch-high product have an equal number of 6" x 16" and 6" x 8" units. The pallets of 3-inch-high product have an equal number of 3" x 16" and 3" x 8" units.

① BURIED BASE PALLET ESTIMATING

Build buried base course using alternating 6" x 16" and 6" x 8" units. Determine the length (L) of the base in linear feet (LF). Divide LF by 60, the linear feet on a pallet.

$$LF \div 60 = \# \text{ pallets of 6-inch-high product}$$

② EXPOSED WALL PALLET ESTIMATING

Determine the square footage of the exposed wall:

Exposed wall length (L) x height (H) = square feet (SF). Multiply SF by .022 for the number of pallets of 6-inch-high product. Multiply SF by .011 for the number of 3-inch product pallets.

$$SF \times .022 = \# \text{ pallets of 6-inch-high product}$$

$$SF \times .011 = \# \text{ pallets of 3-inch-high product}$$

③ CAP PALLET ESTIMATING

Determine the length of the wall in linear feet (LF). Divide LF by 90, the linear feet on a pallet.

For curved walls, add 10%

$$LF \div 90 = \# \text{ pallets of caps}$$

FREE-STANDING WALL

For project material estimating, use the formulas listed in each step. The pallets of 6-inch-high product have an equal number of 6" x 16" and 6" x 8" units. The pallets of 3-inch-high product have an equal number of 3" x 16" and 3" x 8" units.

① BURIED BASE UNIT ESTIMATING

Build buried base course using alternating 6" x 16" and 6" x 8" units. Determine the length (L) of the base in linear feet (LF). Divide LF by 33, the number of linear feet on a pallet of 6-inch-high product.

$$LF \div 33 = \# \text{ pallets of 6-inch-high product}$$

Add 10% for curves.

② EXPOSED WALL PALLET ESTIMATING

Straight Walls

Determine the square footage of the exposed wall: Exposed wall length (L) x height (H) = square feet (SF). Multiply the SF by .03 for the number of pallets of each height product.

Straight Walls

$$SF \times .03 = \# \text{ pallets 6-inch-high product}$$

$$SF \times .03 = \# \text{ pallets 3-inch-high product}$$

Curved Walls

$$SF \times .033 = \# \text{ pallets 6-inch-high product}$$

$$SF \times .033 = \# \text{ pallets 3-inch-high product}$$

③ COLUMN ESTIMATING

Estimate the quantity needed for a column by multiplying the height (H) in feet, including buried course, x 8.

$$H \times 8 = \# \text{ units per column}$$

④ CAP PALLET ESTIMATING

Determine the length of the wall in linear feet (LF). Divide LF by 90, the number of linear feet on a pallet.

$$LF \div 90 = \# \text{ pallets of caps}$$

Add 10% for curved walls.

PROJECT ESTIMATING EXAMPLE

The wall is 50 feet long and 2.5 feet high. There is no toe or crest slope, and the soils are clean sand and gravel.

① BURIED BASE PALLETS

$$50 \text{ LF} \div 60 = .83 \text{ pallets of 6-inch-high product}$$

③ CAP PALLETS

$$50 \text{ LF} \div 90 = .55 \text{ pallets of caps}$$

② EXPOSED WALL PALLETS

$$50' L \times 2' H = 100 \text{ SF}$$

$$100 \text{ SF} \times .022 = 2.2 \text{ pallets of 6-inch-high product}$$

$$100 \text{ SF} \times .011 = 1.1 \text{ pallets of 3-inch-high product}$$

TOTAL PALLETS OF PRODUCT REQUIRED

6-inch-high product	
Pallets for exposed wall	2.2
Pallets for base	.83
Total pallets of 6-inch-high product	3.03

3-inch-high product

Pallets	1.1
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PROJECT ESTIMATING EXAMPLE

The straight wall is 50 feet long and 2 feet high. There are 6 columns that are 3 feet high.

① BURIED BASE PALLETS

$$50 \text{ LF} \div 33 = 1.5 \text{ pallets of 6-inch-high product}$$

③ COLUMN UNITS

$$3' \times 8 = 24 \text{ column units per column}$$

Total column units needed	
per column	24
x number of columns	6
Total column units	144
144 units \div 20 = 7.2 pallets	

② EXPOSED WALL PALLETS

$$75 \text{ SF} \times .03 = 2.25 \text{ pallets of 6-inch-high product}$$

$$75 \text{ SF} \times .03 = 2.25 \text{ pallets of 3-inch-high product}$$

TOTAL PALLETS OF PRODUCT REQUIRED

6-inch-high product	
Pallets for exposed wall	2.25
Pallets for base	1.5
Total	3.75

3-inch-high product

Pallets	2.25
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④ CAP PALLETS

$$50 \text{ LF} \div 90 = .55 \text{ pallets of caps}$$

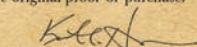
THE BELGARD GUARANTEE

BELGARD® is proud to inform you that all of its interlocking concrete pavers and retaining walls meet and exceed the requirements of ASTM C-936 and ASTM C-1372. Belgard guarantees its products against manufacturing defects for as long as you own your home. This warranty is transferable. It is recommended that a Belgard Authorized Contractor, who guarantees their workmanship for 2 years, install all of the Belgard Hardscape products.

The guarantee does not apply to splitting, chipping, or other breakage that could be caused by impact, abrasion or overloading. This warranty is only valid if the material is installed under the guidelines of ICPi (www.icpi.org), NCMA (www.ncma.org) or the Belgard installation guideline manual. This warranty is for residential construction only. Belgard's obligation is limited to the supplying of new material at no charge. Belgard will not be responsible for any replacement labor.

Belgard will honor this warranty with the original proof of purchase.

Color matching cannot be guaranteed.



Keith A. Haas
— Chief Executive Officer, Oldcastle Architectural



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