When you purchase Allan Block, you can feel confident that the Allan Block family of products have been created and engineered to deliver complete landscape solutions.

Available At:

allanblock.com

PLAN, DESIGN & BUILD

Allan Block Landscape Walls up to 6 feet high. (1.8 m)

allanblock.com

LANDSCAPE WALLS
by Allan Block®

A Complete Guide to Plan, Design and Build Landscape Walls

Allan Block® Makes It Easy!

*Our block **"Collections"** give you a choice of styles.*

Ashlar - Classic Cut Stone

AB® - Professional & Rugged

Europa® - Old World Antique

Choose the Right Block.

Allan Block units are available in a variety of sizes, weights, setbacks and finishes to meet differing aesthetic and performance needs. Refer to the chart below to help make the right choice for your project.

Table1

AB® COLLECTION *Available in Solid Colors*

ASHLAR COLLECTION™ *Available in Marbled Colors*

Style & Performance

Name	Setback	Coverage	Weight	Approximate Dimensions
AB Stones *Best Single Block Choice*	12°	1 sq ft. approx.	75 lbs	8 in. H x 12 in. D x 18 in. L
		11 blk per m²	34 kg	200mm H x 300mm D x 460mm L
AB Jumbo Jr	6°	0.5 sq ft. approx.	35 lbs	8 in. H x 9.5 in. D x 9 in. L
		22 blk per m²	16 kg	200mm H x 240mm D x 230mm L
AB Lite Stone	6°	0.5 sq ft. approx.	35 lbs	4 in. H x 12 in. D x 18 in. L
		22 blk per m²	16 kg	100mm H x 300mm D x 460mm L
AB Junior Lite	6°	0.5 sq ft. approx.	18 lbs	4 in. H x 12 in. D x 9 in. L
		22 blk per m²	8 kg	100mm H x 300mm D x 230mm
AB Classic	6°	1 sq ft. approx.	75 lbs	8 in. H x 12 in. D x 18 in. L
		11 blk per m²	34 kg	200mm H x 300mm D x 460mm L

EUROPA® COLLECTION *Available in Marbled Colors*

Old World Antique

Name	Setback	Coverage	Weight	Approximate Dimensions
AB Dover	6°	1 sq ft. approx.	80 lbs	8 in. H x 10.5 in. D x 18 in. L
		12 blk per m²	36 kg	200mm H x 265mm D x 460mm L
AB Palermo	6°	0.5 sq ft. approx.	35 lbs	8 in. H x 9.5 in. D x 9 in. L
		22 blk per m²	16 kg	200mm H x 240mm D x 230mm L
AB Barcelona	6°	0.5 sq ft. approx.	40 lbs	4 in. H x 10.5 in. D x 18 in. L
		23 blk per m²	18 kg	100mm H x 265mm D x 460mm L
AB Bordeaux	6°	0.25 sq ft. approx.	20 lbs	4 in. H x 10.5 in. D x 9 in. L
		45 blk per m²	9 kg	100mm H x 265mm D x 230mm L

Actual dimensions, weights and setbacks will vary by manufacturer. Check with your local Allan Block Dealer for exact specifications and color availability. Caps and corner blocks are also available for each of the collections.

Table of Contents

For over 15 years Allan Block® has been helping landscape professionals and homeowners realize the landscape of their dreams.

Allan Block® Advantages

Allan Block walls require no foundation and lock together without pins, clips or mortar. The front lip creates a built-in setback and the hollow core makes them easy to handle, easy to stack and promotes built-in drainage.

Allan Block® Performance

The Allan Block family of products have been developed and engineered to deliver creative landscape solutions. With over 100 million Allan Block units installed worldwide, you can feel confident you are making the right choice.

Allan Block® Supporting Materials

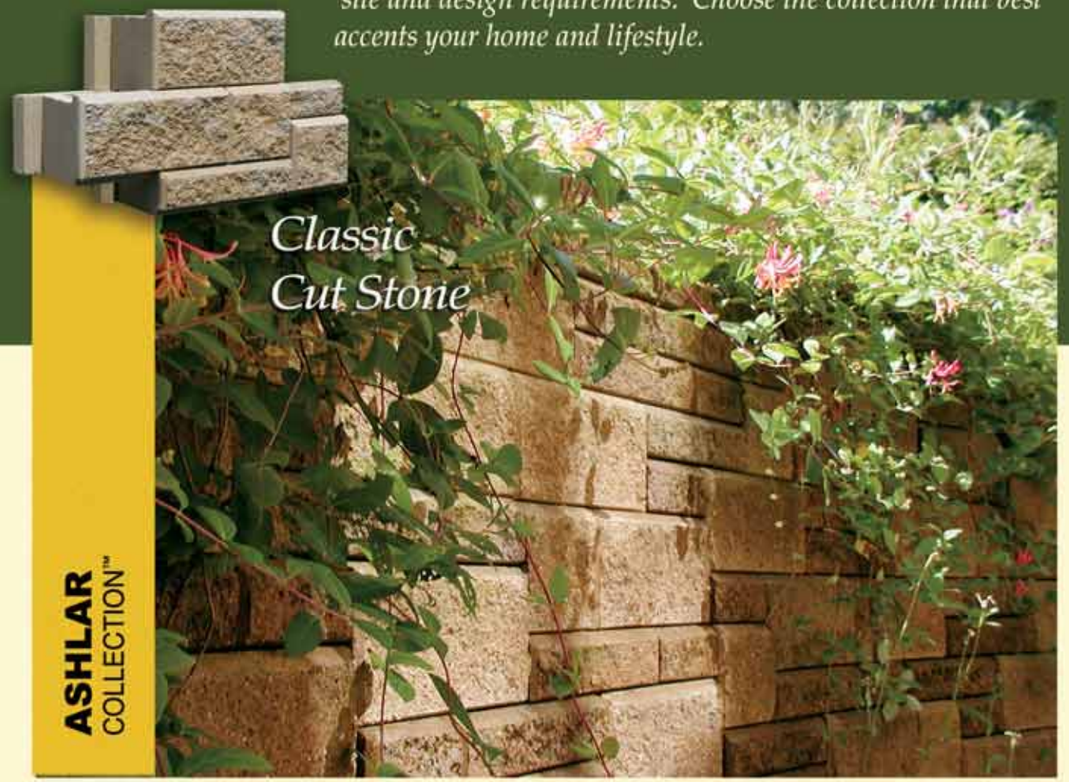
Ask your local AB Dealer about the **HOW TO INSTALL DVD** for Landscape Walls up to 6 ft. (1.8 m) high. The dvd features animation and videos demonstrating step-by-step instructions for building landscape walls. For taller walls check out our AB Installation Guide. Visit our web site at allanblock.com for additional information.

AB Collection

Europa Collection

Choose the Look you want from our Collections of Products.

The Allan Block Collections give you a choice of styles to meet your site and design requirements. Choose the collection that best accents your home and lifestyle.



With the Ashlar Collection you can create a landscape masterpiece. Add a graceful definition to your home with the look and feel of classic cut stone. With a varied combination of shapes, textures and colors building impressive landscape walls is easy.

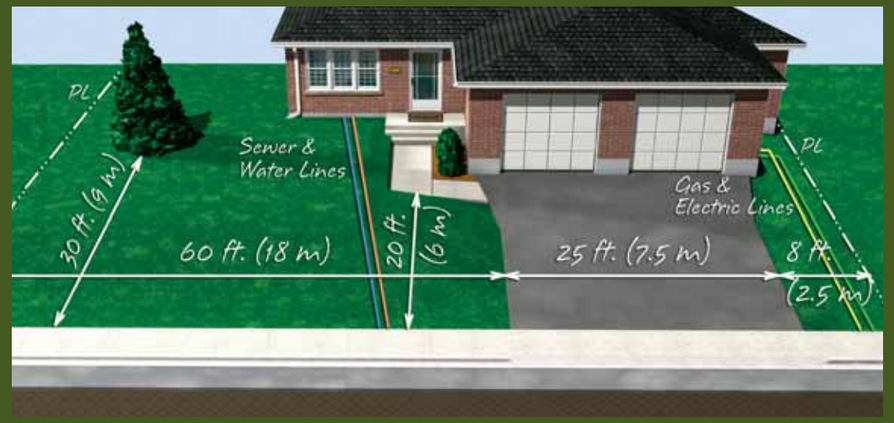
The design possibilities are endless. Use the blocks individually or blend them together to create stunning landscapes. The interlocking blocks of the Ashlar and Europa Collections easily fit together without any materials or tools. Simplicity, quality and lasting value is what you get with the Collections from Allan Block.

Allan Block units are available in a number of solid and blended color options. Check with your local AB Dealer for availability and choose the color most complementary to your landscape.

If your looking for the perfect blend of performance and style, choose the AB Collection. A favorite for years, it stacks beautifully and creates a smooth, fluid finish for every wall and promises to deliver maximum performance.

The Europa Collection offers an infinite variety of ways to successfully capture the rich, hand-laid stone effect. Use one block or a combination of the blocks to bring Old World charm and distinction to any landscape project.

Plan *for Potential*



A detailed site plan drawn to scale will help foresee design and construction challenges and provide an accurate reference for estimating. This will become your working or approved plans for the project.

Job Site Considerations

Lot Lines

Your city hall will have a copy of your lot survey on file. The survey will not only identify property lines, but will provide an accurate scaled template of your site to help with planning.

Utilities

Buried utility lines are not only dangerous, they may prevent you from locating your landscape project where you want. Call the local utility companies and have these lines marked.

Permits

Building permits may be required if the wall is above a certain height. Check to see what your local city code requires. An approved engineered wall design or an Allan Block pre-engineered solution may be needed in order to get a building permit. Contact your local AB Dealer for more details.

Neighbors

It's always nice (and smart too) to let your neighbors know about your project before you begin.

Soils

Clay soils put more pressure on a wall than sandy soils because they hold moisture. Identify the soils at your site.

To identify the soils, a good test is to pick up a small handful of the soil in the palm of your hand and squeeze it to form a ball. Take a sample from at least 12 in. (300 mm) below the surface.

Clay Soils

Clay soil will stick together to form a ball. Clay soils retain moisture which will add pressure behind the walls. Typically most soils will be classified as clay and can be used in your project. However, they may require additional reinforcement.

Sandy Soils

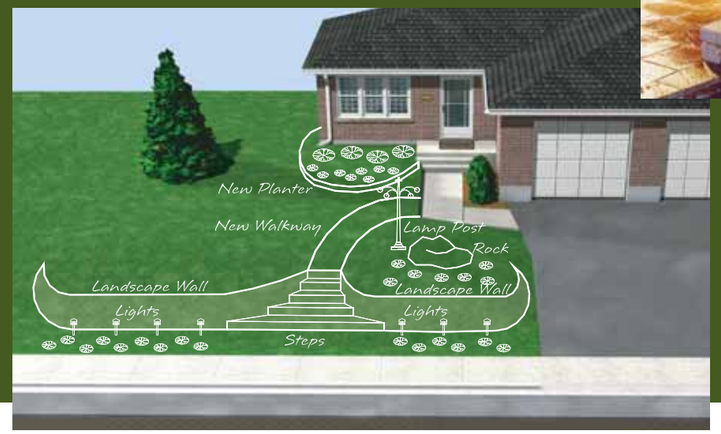
Sandy soil, will not stick together because they are granular with no silty fine particles. These soils allow for good drainage and are ideal for building walls.

Organic Soils

Organic soils will stick together but will not hold once the pressure is released. They should only be used to finish off the top 8 in. (200 mm) of a wall. ***NEVER use organic soils to build the wall.***

What affects wall design? Consider the possibilities.

Sketch out your ideas.

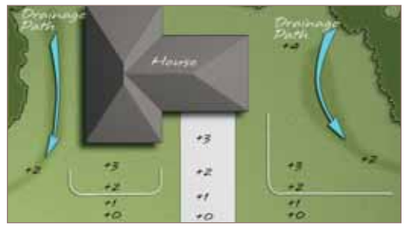


Vegetation and the Environment

Existing trees and other vegetation can be designed into the wall layout as needed. New plantings can be added to enhance the total landscape. Any plantings directly behind the wall need to be done carefully as not to disturb any reinforcement that may have been added when the wall was built.

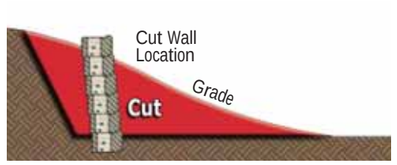
The Base or Foundation

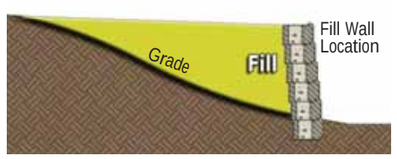
You must build on solid ground. If your site has soft, wet soils, or if the area was previously excavated, the foundation's soil may need to be replaced with good base materials and firmly compacted.



Determining Wall Height

A detailed understanding of the site elevations and grade changes are needed to determine wall heights. Starting at the lowest point, mark your grade changes in 1 ft. (25 mm) increments on the plan. Sketch in the drainage patterns.





Cut and Fill

If building on a hill or a slope, the placement of your wall will determine how much soil will need to be removed or brought onto the site.

A "cut" site is where you cut into the hillside and remove the soil. You will need to decide ahead of time what will be done with the excess soil.

A "fill" site is where you will need extra soils to fill in behind the entire wall. You will need to plan ahead to have good backfill materials brought onto the site.

Reasons for Landscaping

Create Curb Appeal

Add an Outdoor Patio or New Living Area

Build a Raised Garden

Increase Your Usable Space

Feature Water Accents

Beautify Your Entryway

Correct a Drainage Problem

Enhance Your Landscape with Flowing Curves, Stairways or Planters

Imagine the Possibilities

ALLAN BLOCK

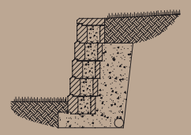
Designing a Landscape Wall

The first step is to determine if you need a Gravity or Reinforced Wall.

ALLAN BLOCK

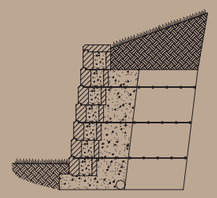
Gravity Walls

Gravity walls rely on their own weight and setback to hold up the soil behind them.



Reinforced Walls

Reinforced walls use layers of geogrid to combine the soil and block together to form a reinforced soil mass.



Without exception your wall and landscape will come together with a detailed design.

Use the chart below to find the maximum height that the wall can be built before reinforcement is required. Typically most soils will be considered clay. For sand conditions outlined in the table the soil must be a clean, granular material. See page 5 for information on soil types and descriptions.

Table 2

Maximum Wall Heights - AB Gravity Walls - Residential Appl.

Condition above landscape wall	Soil Type	AB Stones from the AB and Ashlar Collection only	AB and Ashlar Collection (except AB Stones) and the Europa Collection
Level	Clay	3.25 ft	3.0 ft
		1.0 m	0.9 m
	Sand/Gravel	5.50 ft	4.00 ft
		1.7 m	1.2 m
Surcharge 125 psf	Clay	1.75 ft	2.0 ft
		0.55 m	0.6 m
	Sand/Gravel	4.0 ft	3.0 ft
		1.2 m	0.9 m
Slope 3:1 (3 over 1)	Clay	2.75 ft	2.5 ft
		0.8 m	0.8 m
	Sand/Gravel	5.0 ft	3.75 ft
		1.5 m	1.1 m

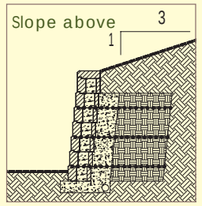
Example:
A 5 ft. (1.5 m) tall wall in sandy soil with a level surface above can be built with the AB Stones of the AB and Ashlar Collection and will not require reinforcement. Using any other block from the Ashlar or Europa Collection, will require reinforcement.

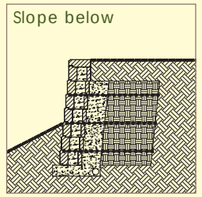
The gravity wall heights shown above do not account for seismic loading. Check with a local engineer for assistance if you are in a seismic area.

Conditions above and behind the wall will determine how tall the wall can be before reinforcement is needed.

Slopes

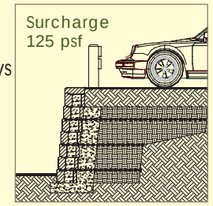
A slope above the wall will add more pressure and weight. Your design should not have a slope above the wall greater than 3 to 1. A slope below the wall may make the wall unstable due to sliding or erosion and may require some engineering assistance. Contact your local Allan Block Dealer for more information.





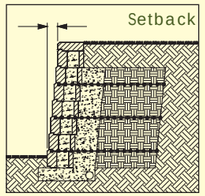
Surcharges

Any added weight above your wall is called a “surcharge”. Patios, swimming pools and driveways are common residential surcharges. Your wall may need additional support if a surcharge is present. For commercial applications contact an engineer. *See the Soil Reinforcement Chart on page 20.*



Setback

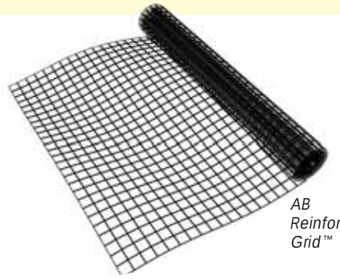
The amount your wall leans into the hill is called “setback”. AB blocks come in approximate setbacks of 6° and 12°. The 12° setback will provide better leverage and require less reinforcement.



When the wall needs Reinforcement

Under certain conditions, the block weight and setback alone do not provide enough structural support. Allan Block’s Reinforcement Grid provides a simple solution by creating a solid structure with more resistance to soil pressure and surcharges. AB Reinforcement Grid™ is simple to install; just roll it out along the wall on the appropriate courses for residential walls under 6 ft. (1.8 m) tall.

Contact your local Allan Block Dealer for AB Reinforcement Grid and detailed installation instructions.



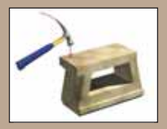
AB Reinforcement Grid™

AB Reinforcement Grid is bi-axial (strong in both directions) and can be simply rolled out along the wall. Other geogrids are uni-axial (strong in only one direction) and must be installed running from the front of the block to the back of the excavated area.

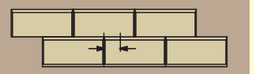
AB Reinforcement Grid™ is available in 2 sizes: 3 ft. and 4 ft. rolls that are 50 ft. long (0.9 m and 1.2 m by 15 m). *Use the chart on page 20* to find which size you need and how many layers your wall requires.

Design for Style

Flowing inside curves are achieved by a consistent spacing between the backs of the blocks as you build.

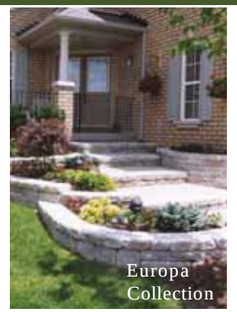


To build smooth outside curves, remove one or both of the wings on the back of the blocks.



Try to maintain at least 1/4 of the block length offset from the block below as you build curves. Perfect "running bond" is not necessary with Allan Block.

Should you choose soft curved walls or classic straight walls, Allan Block has the system to satisfy every design.

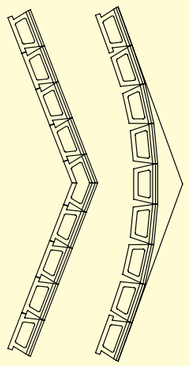


Curves accent any landscape, are simple to design and easy to build. Consider how tight or gentle you want the curves to be and choose the block or combination of blocks that are best suited for your design. *See the radius chart on page 26 for more information.*

Give your landscape a dramatic effect with the Ashlar or Abbey Blend patterned walls from the Ashlar and Europa Collections.

Corners & Angles

Angles

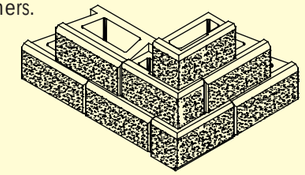


Angle Soft Curve

Angles typically require custom cutting of the blocks. Try to design curves instead. Angled walls are not as stable as curved walls.

Outside Corners

Outside corners are constructed using Allan Block Corner units and take more time and skill. See page 37 for information on building with corners.



Helpful Hints

Try to build away from corners and avoid small cut blocks at the corners.

Soft curves are easier to build than angles.

Inside Corners

Inside corners are easily constructed using standard Allan Block units. By removing part of the lip with a chisel or saw, the blocks can be overlapped for a strong interlock. *See page 37 for more information.*

Add a whole new dimension to your landscape! Blend the different sized blocks together into your wall and capture the look of hand-laid stone.

Two Course Pattern

Three Course Pattern

Two Course Lite Pattern

Three Course Lite Pattern

Choose from one of our pre-set patterns to build your wall, or create your own. Walls with curves or requiring reinforcement must be constructed with a two course pattern.
See page 21 for more information.

Unlimited Design Options

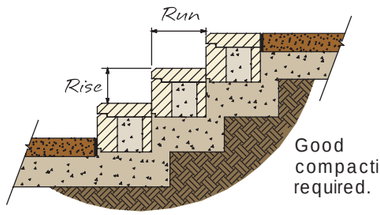

AB Collection

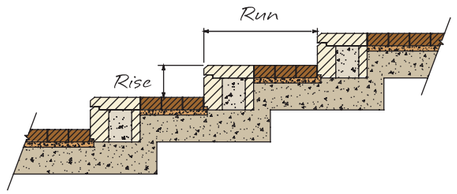
Stair Design

Stairs can be easily designed with flowing curves or with right angles. The simplest stair designs are built using curves. Allow for extra time for laying out and building your stairs. *See page 29 for more information.*

Stair Building Basics

Many stair design variations are possible. Stair layout for rise and run needs to be calculated with consideration to the stair tread that best suits your application.






Europa Collection


Europa Collection

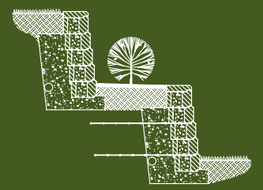
Allan Blocks patented front lip provides a built-in edging that not only works with Allan Block Capstones but also pavers, poured concrete, crushed rock, mulches and flagstones. Ensure stair treads are secured in place for safe use. In colder climates, salt **CANNOT** be used on the blocks or AB Capstones as it will cause them to deteriorate.


AB Collection

Create Lasting Value

In-Wall Planters and Terracing

Terraced walls can create more usable space, tame slopes, build raised gardens and will give your yard a more aesthetic look. *See page 33 for more information.*




AB Collection


Ashlar Collection

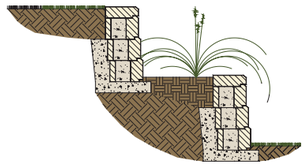
Planters

Bring the ground to the gardener! Create easy garden beds that are easy to access and maintain.


AB Collection

Green Walls

Plantable walls - also known as “green walls” - can be easily incorporated into your design. Planting areas are formed by simply stepping back the wall and planting in the exposed area. Ivy can also be planted at the bottom of the wall to grow up and cover the blocks.




Ashlar Collection

Functionality

Design walls that work with your landscape and add value. Low profile planters can make perfect seating or provide for easy access to gardening.

When designing terraces for planting, it is important to provide enough depth and area to sustain plant growth between the walls. This may require additional blocks to be buried on the upper wall.

Water Management

AB Collection

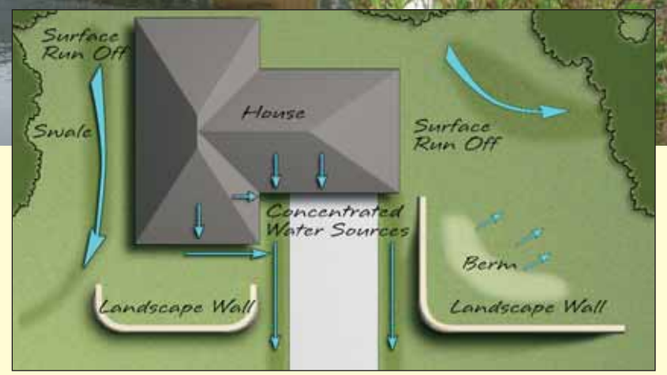
Design for Water

The design and performance of most landscape walls are based on keeping the area behind the wall relatively dry. To ensure a quality project, the soils used must not become saturated during construction and the final design must route water away from the back of the wall. Incorporating berms and swales into the final design is an easy way to direct surface water away.

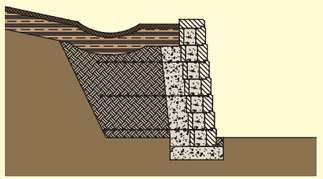
During the design process, develope a thorough understanding of the site and determine where water will come from and how it will be properly managed.

During the building process, stage your materials so surface runoff is not directed improperly. It is also a good practice to cover the infill soils and the entire wall project at the end of each day to prevent water saturation if rain is in the forecast.

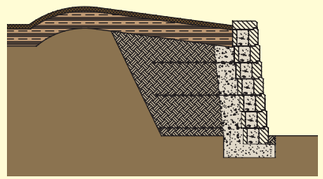
Any reinforced wall or walls over 4 ft. (1.2 m) in height or with slopes or other surcharges above the wall will need a toe drain. In all cases wall rock is located within the cores of the block and a minimum of 12 in. (300 mm) behind the block. The toe drain and the wall rock is designed to remove incidental water from behind the wall and is not meant as primary drainage path for above or below grade water management.



Swales



Berms



Grading

During wall layout it is important to evaluate the entire site to determine if water will drain into the area where the wall will be constructed. Temporary grading may be needed to ensure water will not drain towards the construction area.

Ground Water

Ground water can be defined as water that occurs within the soil. Sources include surface infiltration, water table fluctuation and layers of permeable soils. Ground water movement must be prevented from coming in contact with the wall structure, including the soils behind the wall.

If subsurface or ground water is encountered during construction, consult an engineer to ensure that the water has been accounted for in your design.

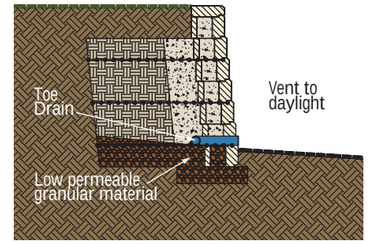
Drain Pipes

Sites with poor draining soils or walls over 4 ft. (1.2 m) tall will require a toe drain.

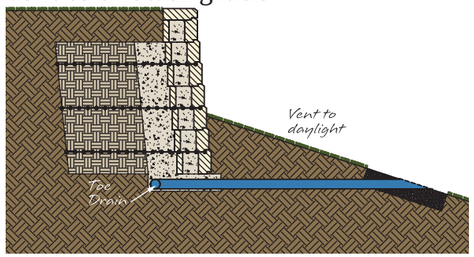
Drain pipes used in toe drain applications must be properly vented a minimum of every 50 ft. (15 m). To accomplish this, vent the drain pipe to daylight or a lower elevation on the site.

When venting to a lower elevation, it is important that all drain locations are properly marked and protected to ensure that the drain pipe is not damaged or plugged. Rodent screens can be used to allow the water to flow through the outlet pipes and keep the pathway clear of debris.

Vent thru the block face



Vent to a lower grade



When do I need Drain Pipes?

Follow these rules of thumb:

- **All walls taller than 4 ft (1.2 m)**
- **Sites with poorly draining soils**
- **Alongside paved areas**
- **With slopes above the wall**
- **On multi-tiered and terraced walls**
- **All commercial and municipal projects**

Concentrated Water Sources

Prior to constructing the wall, review drainage plans and details to identify all potential sources of concentrated water.

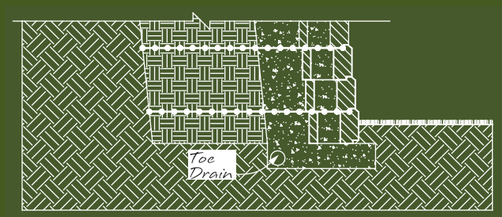
Examples that must be accounted for are:

- **Driveways**
- **Slopes above walls**
- **Grading of site**
- **Water lines, mains or fire hydrants**
- **Roof down spouts**
- **Sump pump outlets**
- **Irrigation systems**

ALLAN BLOCK

Typical Drain

Drains must be vented to daylight or connected to a storm sewer system and must be protected from migration of fine material.



Use a drain pipe to route water from behind the wall. Attach tee fittings at 30 ft. to 50 ft. (9 to 15 m) intervals and direct the drains out through the wall face.

Getting Ready

Remember

Safety always comes first.

Job Site Considerations

Site Access

When planning your project, make sure you can access your wall site with construction equipment and materials. For sites with restricted access, plan out where you will stage and store your block, wall rock and other materials.

Rental Equipment

Plate compactors, concrete saws, skid loaders and transit levels are very useful when building a landscape wall. These are available at most equipment rental centers.

Wall Rock

To build a quality wall, use a clean, granular rock underneath the base course to create a firm foundation for your project.

Good drainage and compaction will add to the quality and performance of your finished wall.

We refer to the material used for the base, within and behind the block as "Wall Rock". Crushed or smooth stone, well graded, compactable, ranging in size from 0.25 in. to 1.5 in. (6 to 38 mm) is ideal. Your AB Dealer will have what you need.

Tools & Equipment you may need

HAND TOOLS Safety glasses, gloves, dust mask, ear protection, knee pads, 4' level, torpedo level, tape measure, string line, chisel, hand tamper, dead blow hammer, shims, broom, round and square shovel.

POWER TOOLS Plate compactor, concrete saw with diamond blade, skid loader, transit/site level.

Soils

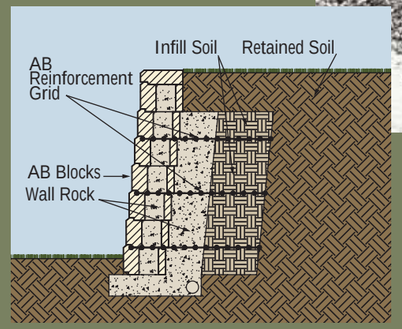

Preferred Granular Infill Material

Working with Soils

The soils used below and behind the wall are a critical part of the total wall structure. A reinforced landscape wall contains three basic building materials - the AB blocks, the geogrid reinforcement, and the infill soils surrounding the geogrid layers.

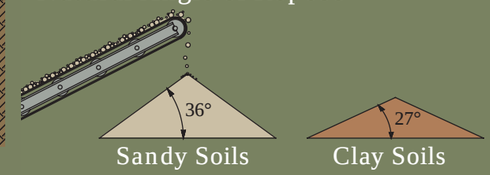
Soils

Understanding the property and characteristics of soils is key to building better walls. Different soil types will dictate the amount of time needed for compaction, the amount of reinforcement required, and potentially the cost of the wall.



Granular soils are better to build with than clay soils. Sand and gravel will compact better, drain better, and often will need less reinforcement. Soils are typically defined by a friction angle or measurement of the internal strength of the soil. This angle is approximately the natural angle of repose. As soil falls off a conveyor to make a pile, the angle it creates represents the natural angle of repose. Check with a qualified geotechnical engineer to obtain an accurate soil classification.

Natural Angle of Repose



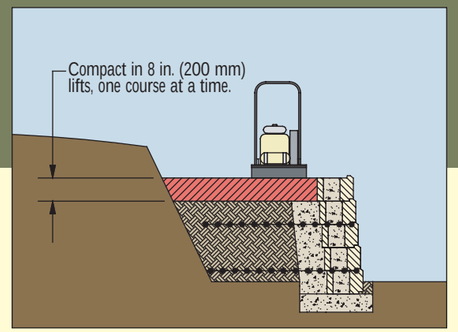
Soil Selection

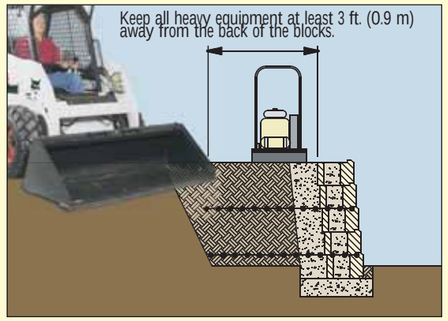
If the on-site soils are of a very low quality under or behind the wall, you should remove and replace them with stronger soils. Using stronger soils will reduce reinforcement, allow faster compaction and have better long-term performance. Heavy clays and organic soils are both unsuitable in the reinforced zone and should be removed and replaced. Silty sands and sand with clay will require additional care, and attention to water management when placed and compacted.

Compaction

Proper placement and compaction of the infill soils is critical.
The most important step in getting proper compaction is the placement of the soil in "lifts". Compacting in lifts, or layers, of less than 8 in. (200 mm) will facilitate quality compaction. Placement and compaction in lifts that exceed 8 in. (200 mm) will result in less than adequate soil strength. Compaction equipment must be sized according to the type of material being compacted. Always backfill and compact after each course of block is placed. Consult with a local equipment supplier to ensure that proper compaction equipment is used.

The consolidation zone runs from the back of the block back 3 ft. (0.9 m) into the infill soil. Only walk behind plate compaction equipment is allowed within the consolidation zone. A minimum of two passes with a walk behind plate compactor is required, starting on top of the block and compacting in paths that run parallel with the wall to the back of the excavated area.

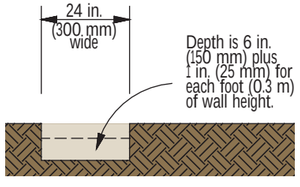




Basic Installation

Base Preparation

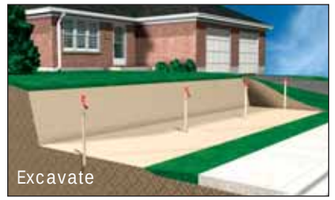
- To start your layout, place stakes to represent the location of the front of the wall. Using a string line or paint, mark out the entire length. A garden hose is an excellent tool to use when laying out curved walls.
- Excavate the area by removing all surface vegetation and organic materials from the area. **These cannot be used as backfill material**.
- If reinforcement is needed excavate behind the wall to accommodate the design length of the geogrid. Refer to your approved plans for exact length.
- Starting at the lowest point, dig a base trench the length of the wall. *For walls where the base trench steps up a slope see page 24 for more information.*
- Dig a base trench 24 in. (600 mm) wide the length of the wall.
- The depth of the trench will be 6 in. (150 mm) plus an additional 1 in. (25 mm) for each 1 ft. (300 mm) of wall height for the amount or buried block that is needed.
- Compact the base trench making a minimum of two passes with a walk behind plate compactor.
- **Foundation soils at the bottom of the base trench must be firm and solid.** If the soils are made up of heavy clay or wet soils, or the areas have been previously excavated, remove this material and replace with a granular material, compacting in 8 in. (200 mm) lifts or less.

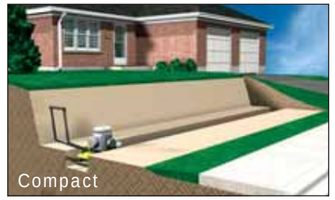


Base Material

- A drain pipe is required for any reinforced wall or any wall over 4 ft. (1.2 m) tall. Place the drain pipe at the lowest possible point toward the back of the trench and vent to daylight every 50 ft. (15 m). *See page 14 for more information.*
- Place a minimum of 6 in. (150 mm) of wall rock in the base trench and rake smooth.
- Compact the wall rock making a minimum of two passes with a plate compactor.
- Check the entire length for level, and adjust as needed.

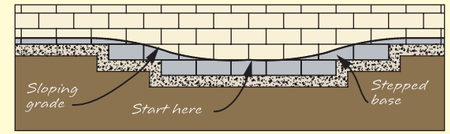

Mark area


Excavate


Compact


Install drain pipe, wall rock and level

Install Base Course



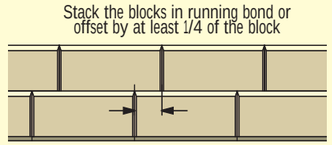
- Begin the base course at the lowest wall elevation. *For more information on stepping up the base course see page 24.*
- Place all blocks with the raised front lip facing up and forward on the base material near the front of the base trench.
- Check and adjust each block for level and alignment as it is installed. Check the blocks for level frequently from side-to-side and front-to-back. Verify the proper position of all the AB blocks by examining a string line across the back of the blocks or by sighting down the back of the raised front lip.
- Make minor adjustments by tapping the AB blocks with a dead blow hammer or by placing up to 0.5 in. (13 mm) of coarse sand under the blocks.
- Irregularities in the base course become larger as the wall stacks up. Careful attention to a straight and level base course will ensure a quality finished wall.

Backfilling and Compaction

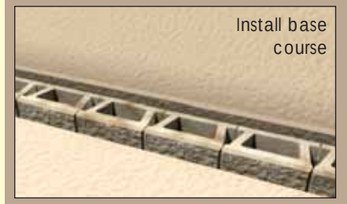
- Fill in the area in front of the blocks with on-site soils. This will keep the base course blocks from shifting while filling and compacting.
- Fill the hollow cores of the base course and 12 in. (300 mm) behind the block with wall rock to the height of the block.
- Use infill or approved on-site soils to backfill behind the wall rock in lifts of no more than 8 in. (200 mm).
- Use a plate compactor to consolidate the wall rock directly behind the block then compact in a path parallel to the wall, working from the back of the block to the back of the excavated area with a minimum of 2 passes. *See page 16 for additional details on compaction.*
- Check the base course for level and adjust as necessary.
- Every course after the first course requires compaction starting on the block.

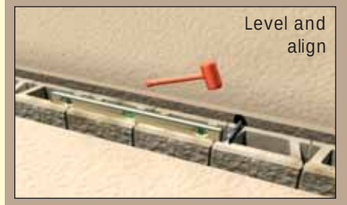
Additional Courses

- Remove all excess material from the top surface of all blocks. This prepares a clean, smooth surface for placement of the next course.
- ***If reinforcement is needed go to page 19 to continue the installation process.***
- Stack the next course of blocks so that the vertical seams are offset from the blocks below by at least 1/4 the length of the block.
- Check each block for level and alignment and make adjustments as needed.
- Fill the hollow cores and 12 in. (300 mm) behind the block with wall rock to the height of the block.
- Use infill or approved onsite soils to backfill behind the wall rock in lifts of no more than 8 in. (200 mm).



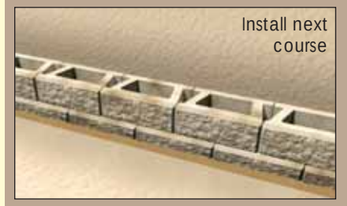
- From the 2nd course and above use a plate compactor to compact directly on the blocks as well as the area behind the blocks. Compact in lifts of 8 in. (200 mm) or less.
- Repeating these steps, complete the wall to the desired height. On the last course, fill behind the blocks with organic soils in place of infill or approved on-site soils. This will assist in any plantings above the wall and also to direct water from running behind the blocks. *See page 39 for information on finishing wall options.*

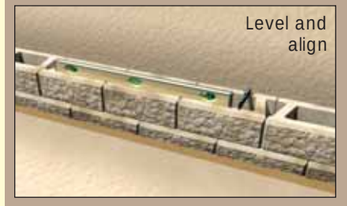

Install base course


Level and align


Backfill wall rock and infill soils


Compact


Install next course


Level and align


Backfill and compact

Geogrid Installation

Install Reinforcement

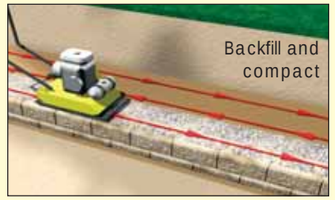
- Once the base course is complete, begin installing the first layer of AB Reinforcement Grid by placing the edge of the geogrid against the back of the raised front lip and rolling it out along the wall. Refer to your approved plans for exact size and location.
- Stack the next course of blocks so that the vertical seams are offset from the blocks below by at least 1/4 the length of the block.
- Sight down the wall line to check for alignment. Blocks may be adjusted slightly to form straight lines or smooth flowing curves.
- Pull on the back of the geogrid to remove any slack. If necessary, stake it in place. Never drive or compact directly on the geogrid. This will cause damage to the geogrid.

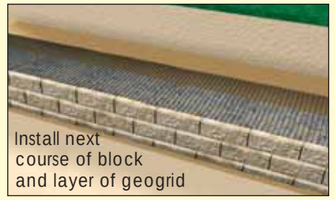
Backfilling and Compaction

- Install wall rock in the block cores and 12 in. (300 mm) behind the block. Use infill or approved on-site soils to backfill behind the wall rock to the height of the block.
- The wall rock and infill soils behind the wall must be properly compacted using a plate compactor. Compact in lifts of 8 in. (200 mm) or less, this time starting on the block and working in a path that runs parallel to the block and towards the back of the excavated area. **Always make a minimum of two passes with a plate compactor. Compaction should be continued to achieve solid, movement-free soil.**
- Remove all excess material from the top surface of all blocks. This prepares a clean, smooth surface for placement of the next course.

Additional Courses

- Continue installing your next courses of block using the steps shown above. Per your approved plans, install geogrid on every other course of the wall.
- Using these steps complete the wall to the desired height. On the last course, fill behind the blocks with organic soils in place of infill or approved on-site soils. This will assist in any plantings above the wall and also to direct water from running behind the blocks. *See page 39 for information on finishing wall options.*





Reinforcement Chart

Match your wall to the conditions below to find which width and the number of layers of AB Reinforcement Grid you will need. To determine the number of rolls needed, multiply the length of your wall (in feet) by the number of layers needed, and then divide by 50 (the length of a roll of geogrid). Typically most soils will be considered clay, for sand conditions outlined in the table the soil must be a clean, granular material.
See page 5 for information on soil types and descriptions.

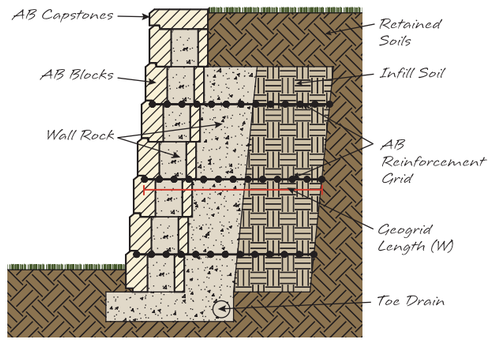
Table 3

Soil Reinforcement Chart for Residential Wall Applications

CONDITION ABOVE WALL	WALL HEIGHT	AB Stones of the AB Collection				Ashlar and Europa Collection			
		CLAY SOIL		SANDY SOIL		CLAY SOIL		SANDY SOIL	
		No. of Layers	Width (W)	No. of Layers	Width (W)	No. of Layers	Width (W)	No. of Layers	Width (W)
Level	**3ft** (0.9 m)	**0**	0	**0**	0	**0**	0	**0**	0
	4ft (1.2 m)	**2**	3 ft	**0**	0	**2**	3 ft	**0**	0
	5ft (1.5 m)	**3**	3 ft	**0**	0	**3**	3 ft	**3**	3 ft
	6ft (1.8 m)	**4**	4 ft	**4**	4 ft	**4**	4 ft	**4**	4 ft
Surcharge* 125 psf	**2ft** (0.6 m)	**0**	0	**0**	0	**0**	0	**0**	0
	3ft (0.9 m)	**2**	3 ft	**0**	0	**2**	3 ft	**0**	0
	4ft (1.2 m)	**2**	3 ft	**0**	0	**2**	3 ft	**2**	3 ft
	5ft (1.5 m)	**3**	3 ft	**3**	3 ft	**3**	3 ft	**3**	3 ft
	6ft (1.8 m)	**4**	4 ft	**4**	4 ft	**4**	4 ft	**4**	4 ft
Slope 3:1	**3ft** (0.9 m)	**2**	3 ft	**0**	0	**2**	3 ft	**0**	0
	4ft (1.2 m)	**2**	3 ft	**0**	0	**2**	3 ft	**2**	3 ft
	5ft (1.5 m)	**3**	4 ft	**0**	0	**3**	4 ft	**3**	3 ft
	6ft (1.8 m)	**4**	4 ft	**4**	4 ft	**4**	4 ft	**4**	4 ft

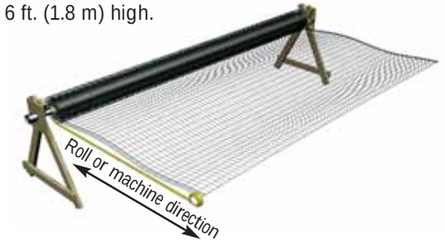
Soil reinforcement increases the strength of the wall by creating a reinforced mass of soil behind the blocks. The weight of the reinforced soil mass combines with the blocks for a heavier, stronger wall. The above chart is for estimating geogrid quantities only.
*For walls with driveways above, on the last layer of geogrid, it will need to be extended back 7 ft (2.1 m). The geogrid must be installed perpendicular to the wall (rolled out from the front of the block to the back of the excavated area).

Reinforced Wall Cross Section



Larger Geogrid Rolls

Large roll geogrids are strongest along the roll or machine direction and are cut to the design length. They are best suited for walls over 6 ft. (1.8 m) high.

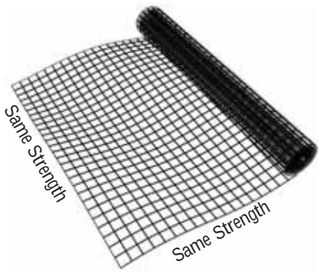


Example

Using a block from the Ashlar Collection, a 5 ft high wall (1.5 m) built in sandy soil with a level surface above the wall requires three layers of geogrid, 3 ft wide (0.9 m).

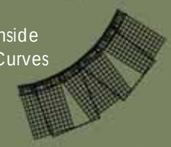
AB Reinforcement Grid™

AB Reinforcement Grid is biaxial which means it has the same strength in both directions and can be simply rolled out along the wall. It is available in 3 ft. and 4 ft. rolls and is 50 ft. long (0.9 m and 1.2 m by 15 m) and is best used for residential walls under 6 ft. (1.8 m) tall as outlined in the table above.



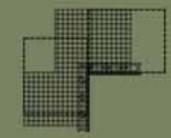
Outside Curves

Inside Curves



When placing geogrid along curving walls, the geogrid should follow the back of the lip. Simply slit the geogrid with a utility knife and either feather out or overlap to follow the curve.
See page 27 for more information.

Inside Corners



Outside Corners

When placing geogrid at corners, simply lay the geogrid into the corner and cut to fit with a utility knife. *See page 28 for more information.*

Patterned Walls

Add distinction to your landscape.

Ashlar Collection

Europa Collection

Excavate and Install Base Course

The base course should always use a full course of full-sized blocks. This will speed the leveling and installation of the first course.

- *Refer to page 17* for a detailed description on how to install the base course. Basic steps include: site prep and excavation, installing base material, base course, wall rock, backfill materials and compacting.

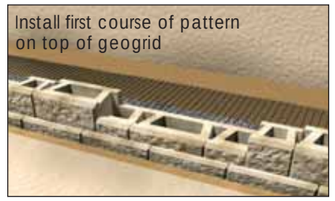
Install Reinforcement

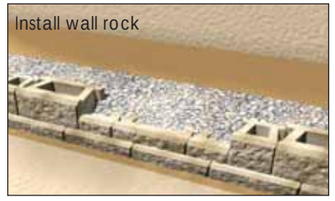
- Check your approved plans for exact size and course location for the AB Reinforcement Grid.
- Install the first layer of geogrid by placing the edge of the geogrid against the back of the raised front lip and rolling it out along the wall.

Bi-Axial AB Reinforcement Grid™

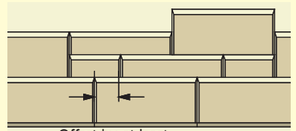
Install the Multiple-Course Pattern

- The example shown here uses a 2 course pattern. *See page 23 for more information on pattern options.*
- Stack the first course of the pattern on top of the geogrid and the base course.
- Check blocks for level, and make adjustments as needed. Pull on the back of the geogrid to remove any slack. If necessary, stake in place.
- Install the wall rock in the block cores and 12 in. (300 mm) behind the blocks to the height of the blocks.
- Compact inside the block cores using a shovel handle. Check blocks for level. *See page 22 for more information on compaction in the block cores.*
- Use infill or approved on-site soils to backfill behind the wall rock in 8 in. (200 mm) lifts or less. The top of the blocks will not always match up with each lift of soil. Check blocks for level.





- Using a plate compactor, compact the wall rock and infill materials behind the block in 8 in. (200 mm) lifts or less. Compact directly behind the blocks in a path parallel to the wall, working from the back of the wall to the back of the excavated area. Always make a minimum of two passes with a plate compactor.
- Install the remainder of the 2 course pattern. Install wall rock in the block cores and behind the blocks as before so they are level with the top course of the blocks. Use infill or approved on-soils to backfill behind wall rock. Check blocks for level. If using a custom pattern, remember to offset the vertical seams by at least 1/4 of the block whenever possible.

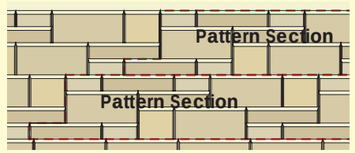


- With the first multiple-course pattern completed, use a plate compactor to compact the wall rock in the block cores and directly behind the blocks. The first pass of the plate compactor should be directly over the top of the block cores.
- Compact in a path parallel to the wall, working from the front of the block to the back of the excavated area. Make a minimum of two passes with a plate compactor. Check blocks for level.

NOTE: Keep all heavy equipment at least 3 ft. (0.9 m) away from the back of the wall.

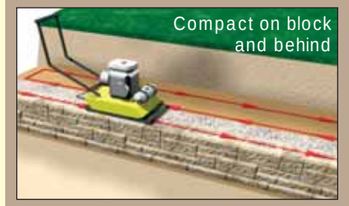
Install the Second Multiple-Course Pattern

- Refer to your approved plans to determine if reinforcement will be required. If so, repeat the previous process to install geogrid between the patterns.
- Install the next pattern section as done in the previous steps. Each additional pattern will need to be offset from the pattern below to avoid a repetitive look. Remember to offset the vertical seams by at least 1/4 of the block whenever possible.
- Two course patterns should be selected for most projects. Three course patterns can be used for gravity walls or to top off a reinforced wall where geogrid is not required within the top three courses.



Ending and Topping off the Wall

- Finishing a patterned wall is the same as finishing a standard wall. *See page 39 for finishing wall options.* The only requirement is that a multiple course pattern must be completed so that the top course of the blocks forms a level surface.
- On the last course, fill behind the blocks with organic soils in place of infill or approved on-site soils. This will assist in any plantings above the wall and also to direct water from running behind the blocks.

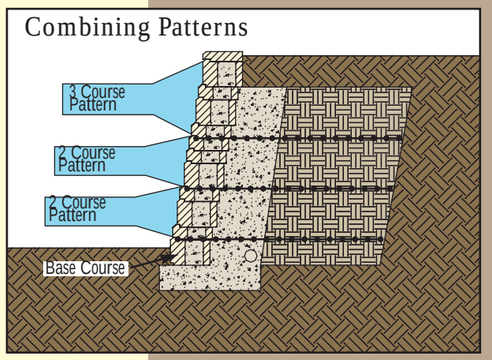


Compacting Patterned Walls

Compaction in the block cores needs to be done regularly when working with patterned walls. This can be done by using the end of a shovel to compact the wall rock, adding additional rock if necessary.

At each 8 in. (200 mm) lift, compact the block cores with the end of a shovel, and the area directly behind the block with a plate compactor per the procedures described in this guide.

At the conclusion of each pattern, the top of the wall will be level. Run the plate compactor over the top of the blocks to consolidate the wall rock. Place geogrid if required, and begin the next pattern.



Patterned Walls Cont.

Tips for Building Patterned Walls

Patterned walls resemble hand-laid stone walls, and will require a certain level of detail and craftsmanship to construct. Some custom fitting of blocks will be required. Plan on taking a little extra time to build, particularly when building one for the first time.

Ending Patterned Walls

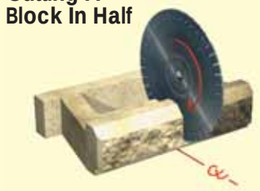
Patterned walls may be ended with step-down or turn-ins. When ending a patterned wall you will need to modify the pattern and randomly adjust as necessary to create the look desired.

Ending Patterned Walls

Curves

When building curves, the 2 course pattern is easier to work with than the 3 course pattern. To build tighter inside or outside curves see page 26.

Cutting A Block In Half



Additional Construction Tips

- When building an Ashlar Blend wall, if an AB Junior Lite is not available, the AB Lite Stones must be cut to produce 2 AB Half Lites. Pre-cut the desired number of blocks to help speed installation.
- Offset each new pattern from the pattern below to maintain the "random" appearance.
- With walls that have numerous inside and outside curves, use a 2 course pattern to ease the installation process.

Wall Patterns

Both the Ashlar and Europa Collections can be used to create a variety of pre-set and random patterns. A pre-set pattern is repeated every two or three courses of block. A single course consists of a full size block, approximately 8 in. (200 mm) high. Random patterns used on a reinforced wall require a level surface every 2 courses for proper installation of geogrid. Check your approved plans for geogrid placement.

Note: Walls with curves should always use the 2 course pattern to minimize cutting and fitting.
For walls requiring geogrid use the 2 course pattern to allow for proper geogrid placement.

Standard Patterns - Uses all blocks in the collection.

Patterns are 10 ft. sections (3 m)

2 course

Blocks Required	Europa Collection	AB or Ashlar Collection
6	AB Dover	AB Classic
4	AB Palermo	AB Jumbo Junior
8	AB Barcelona	AB Lite Stone
8	AB Bordeaux	AB Junior Lite*

*Use an AB Lite Stone cut in half to create an AB Half Lite if AB Junior Lite is not available.

3 course For straight walls only or walls with no geogrid

Blocks Required	Europa Collection	AB or Ashlar Collection
10	AB Dover	AB Classic
10	AB Palermo	AB Jumbo Junior
10	AB Barcelona	AB Lite Stone
4	AB Bordeaux	AB Junior Lite*

Lite Patterns - Uses the small blocks in the collection.

Patterns are 10 ft. sections (3 m)

2 course

Blocks Required	Europa Collection	AB or Ashlar Collection
7	AB Palermo	AB Jumbo Junior
15	AB Barcelona	AB Lite Stone
12	AB Bordeaux	AB Junior Lite*

*Use an AB Lite Stone cut in half to create an AB Half Lite if AB Junior Lite is not available.

3 course

Blocks Required	Europa Collection	AB or Ashlar Collection
14	AB Palermo	AB Jumbo Junior
19	AB Barcelona	AB Lite Stone
18	AB Bordeaux	AB Junior Lite*

Note: Maximum recommended gravity wall height for Lite Patterns is 3 ft.

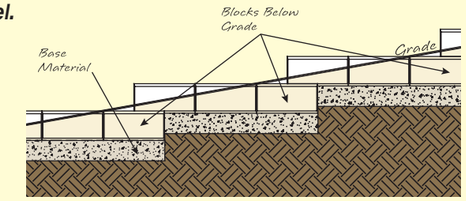
Note: A base course of full size blocks (AB Classic or AB Dover) needs to be included. For each 10 ft. (3.0 m) of wall length you will need 7 full size blocks. For 10 ft. (3.0 m) of wall length for AB Capstones, you will need 7 AB Caps.

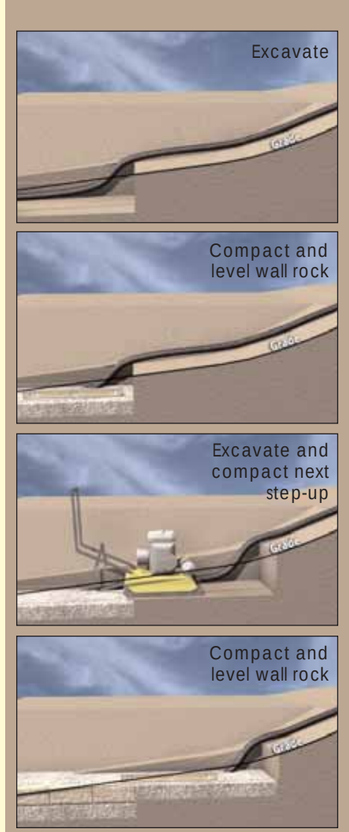
Stepping up the Base

Allan Block walls are versatile with proven performance.

Building Step-ups into the Slope

- When building step-ups, begin the base course at the lowest wall elevation.
- Dig a base trench that is 24 in. (600 mm) wide.
- The depth of the trench is determined by allowing for 6 in. (150 mm) plus an additional 1 in. (25 mm) for each 1 ft. (300 mm) of wall height for the amount or buried block that is needed. The trench also needs to extend into the slope far enough to bury one full block.
- If a slope is present below the wall, contact a local engineer for assistance.
- Compact and level the base trench making a minimum of 2 passes with a plate compactor.
- Place the drain pipe at the lowest possible point toward the back of the trench.
- Place a minimum of 6 in. (150 mm) of wall rock in the base trench and check for level. Compact the base material, making a minimum of two passes with a plate compactor.
- Excavate the second step up making sure to accommodate for the base material and buried block. Compact and level the step-up area.
- Place the base course of blocks on the base material and check for level.
- Fill the hollow cores and 12 in. (300 mm) behind the block as well as the base area of the next step up with wall rock then backfill with infill or approved on-site soils. ***Make sure that the blocks and the base of the next step-up are level.***
- Compact the wall rock directly behind the block and the next step up area a minimum of two passes with a plate compactor.
- Repeat these steps to the top of the grade.
- Keep in mind the block at each step-up must be completely buried to maintain the proper base depth and to prevent wall failure due to erosion.



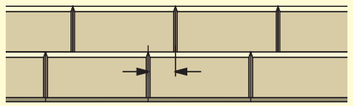


Curved Walls

Building Curves

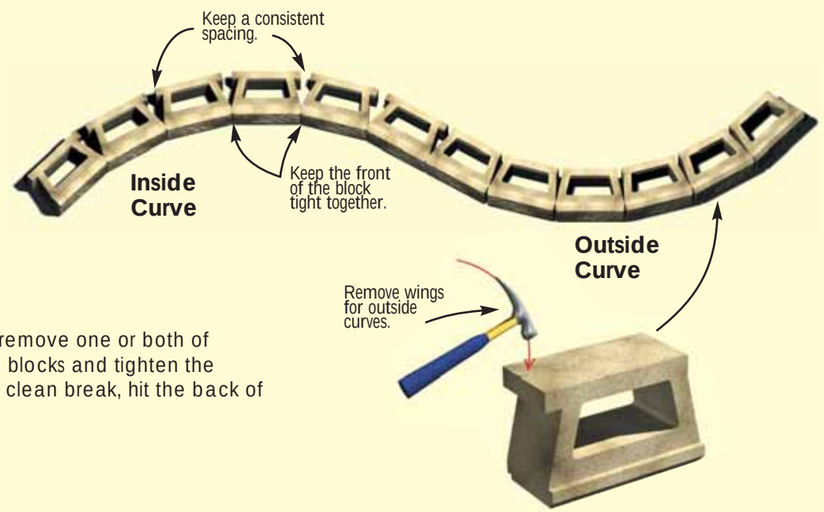
Curved and serpentine walls are simple to build. AB's patented design allows for easy installation of both inside and outside curves. **Most curves can be built with no cutting involved.**

- Try to maintain an offset of the vertical seams by at least ¼ of the block length from the courses below. Cutting a block in half or using the AB Jumbo Junior or the AB Palermo, will assist in creating a proper offset.
- Before constructing your wall, layout the design using a garden hose or paint. Measure the radius of each curve and refer to the radius chart. Select blocks that will fit your design or adjust your design to fit the blocks you have selected. As a rule, gentle sweeping curves produce more aesthetically pleasing walls.


Offset by at least 1/4 of the block

Inside Curves

- To build a flowing inside curve, keep the front of the blocks tight together and fan out the blocks keeping the space consistent between the backs of the blocks.



Outside Curves

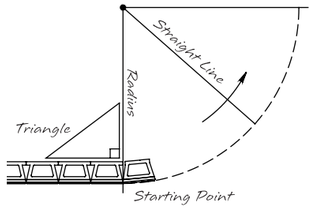
- To build smooth outside curves, remove one or both of the "wings" from the back of the blocks and tighten the radius of the curve. To obtain a clean break, hit the back of the wing with a hammer.

Determining the Radius

- The tightest or smallest radius at the top of any AB wall using the full size block is 4 ft. (1.2 m), and 2.5 ft. (0.8 m) using the half width blocks.
- Curved walls have a greater setback which causes a coning effect to occur which in turn creates the need for a larger radius at the base course. The final height of the wall will determine what the minimum radius at the base course must be. Use the **Radius Chart** to determine what the radius of the base course of the wall needs to be, so the top course of the wall will not be less than 4 ft. (1.2 m).

Starting the Curve

From the point of where the curve will start, measure straight back from the wall the required amount (shown in the Radius Chart) and drive a stake into the ground. This will be the center of the curve. Attach a string line to the stake the length of the radius and rotate it around to mark the location of the base course. Install the blocks with the front of the blocks lining up with the mark.



- To transition the curve back into a straight wall or another curve, lay out the curve and the first couple blocks of the next section. Adjusting 1 or 2 of the blocks will help in the transition of the next section of wall.

For a tighter, smooth curve, use the AB Jumbo Junior or the AB Palermo blocks to help build the curve.


AB Collection

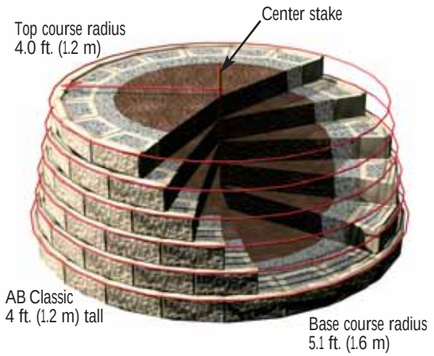


Table 5

AB Radius Chart for Base Course

Setback	Wall Height			
	3 ft 0.9 m	4 ft 1.2 m	5 ft 1.5 m	6 ft 1.8 m
AB Stones (Approx. 12°)	5.25 ft 1.6 m	5.5 ft 1.7 m	5.75 ft 1.75 m	6.0 ft 1.8 m
AB Classic, AB Rocks, AB Lite Stone, AB Dover and AB Barcelona (Approx. 6°)	4.9 ft 1.5 m	5.1 ft 1.55 m	5.3 ft 1.62 m	5.5 ft 1.68 m
	3 ft 0.9 m	**4 ft 1.2 m**	**5 ft 1.5 m**	**6 ft 1.8 m**
AB Jumbo Junior, AB Palermo, AB Junior Lite and AB Bordeaux (Approx. 6°)	3.4 ft 1.0 m	3.8 ft 1.16 m	4.2 ft 1.28 m	4.6 ft 1.40 m

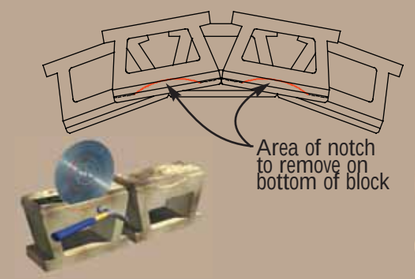
Use this chart to find the minimum recommended radius at base of the wall.

Building Tighter Curves

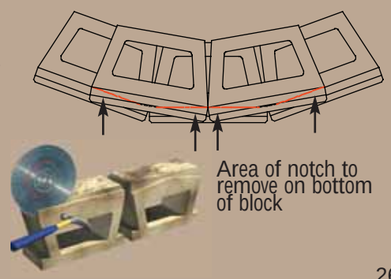
- Use the AB Jumbo Junior or the AB Palermo whenever possible to build tighter curves within the wall.
- When using full size blocks, it may be necessary to remove parts of the bottom notch to fit the blocks closer together.

See allanblock.com for more details on building tighter curves.

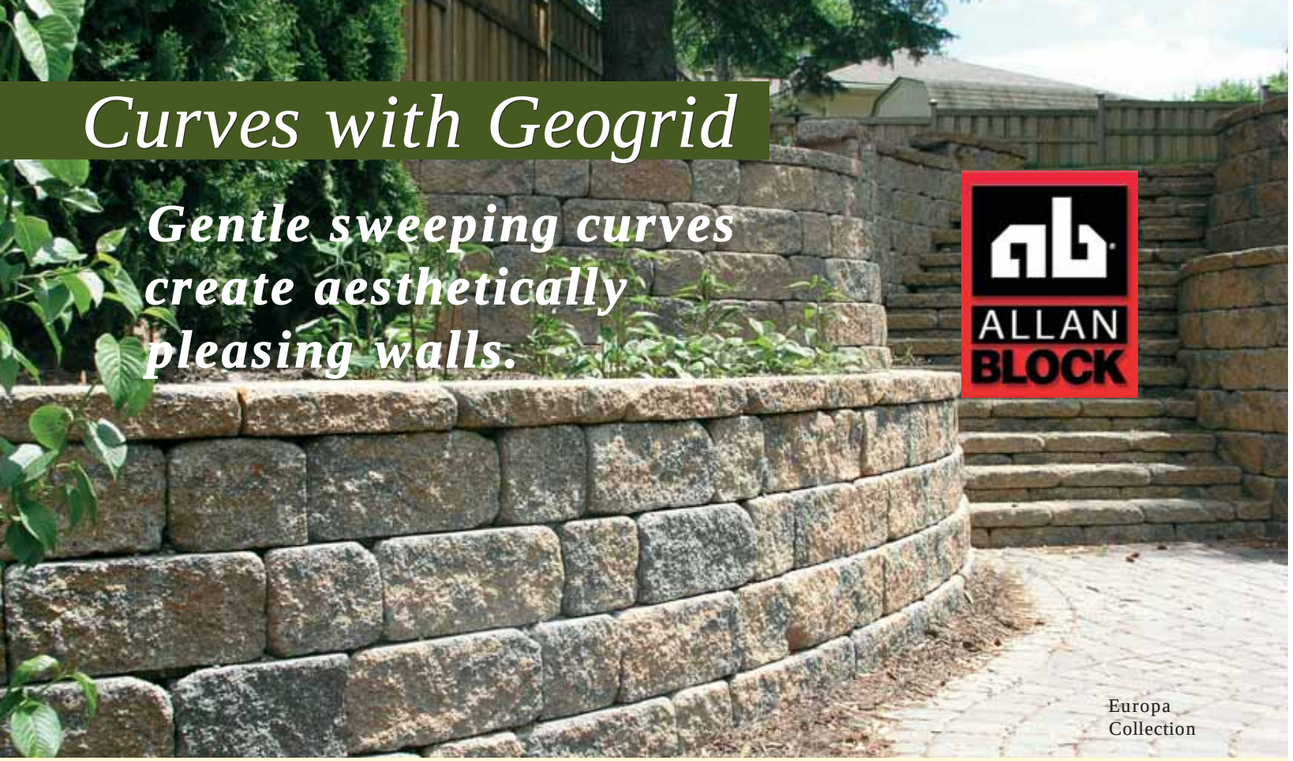
Cutting The Bottom Notch For Tighter Inside Curves



Cutting The Bottom Notch For Tighter Outside Curves



Curves with Geogrid



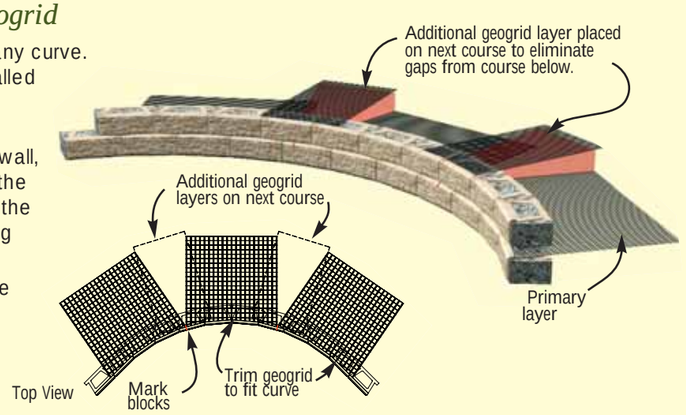
Gentle sweeping curves create aesthetically pleasing walls.

Europa Collection

Working With Inside Curves and Geogrid

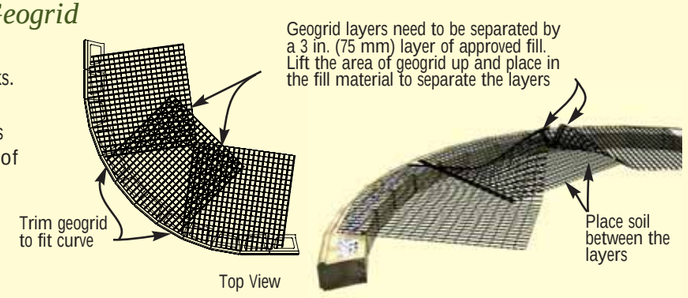
Geogrid needs to have 100% coverage around any curve. To achieve this, additional layers need to be installed above the course where the geogrid is required to fill voids that are created.

- Roll out the AB Reinforcement Grid behind the wall, keeping the edge of the geogrid tight against the front of the blocks. Voids will appear between the pieces at the back. Trim the geogrid to fit along the front lip of the blocks.
- Mark the blocks or take note of the areas where the voids are in the geogrid placement.
- On the next course of block, **place geogrid over the marked areas covering the voids**.
- On patterned walls, fit the grid through the coursing as best as possible to fill the void from the course below.



Working With Outside Curves and Geogrid

- Roll out the AB Reinforcement Grid around the curve. Trim to fit along the front lip of the blocks.
- Lift the section of geogrid that overlaps and place infill material to separate. Geogrid layers need to be separated by a 3 in. (75 mm) layer of infill or approved on-site soils.
- **Never compact directly on the geogrid**.
- Geogrid must cover the entire curved area.



Corners with Geogrid

Installing Geogrid on Inside 90° Corners

On inside corners additional geogrid is required to extend past the end of the wall 25% of the completed wall height.

- Roll out the AB Reinforcement Grid behind the blocks, keeping the edge of the geogrid tight against the front lip of the blocks. Extend the geogrid past the inside corner by at least 25% of the wall height in one direction.
- On the next course of block where geogrid is required extend the geogrid past the inside corner in the opposite direction. Never place geogrid directly on top of another layer of geogrid.

EXAMPLE:
Finished wall height is 6 ft. (1.8 m), divide by 4 which equals 1.5 ft. (0.45 m).
The length the geogrid will need to extend past the corner is 1.5 ft. (0.45 m).

Installing Geogrid on Outside 90° Corners

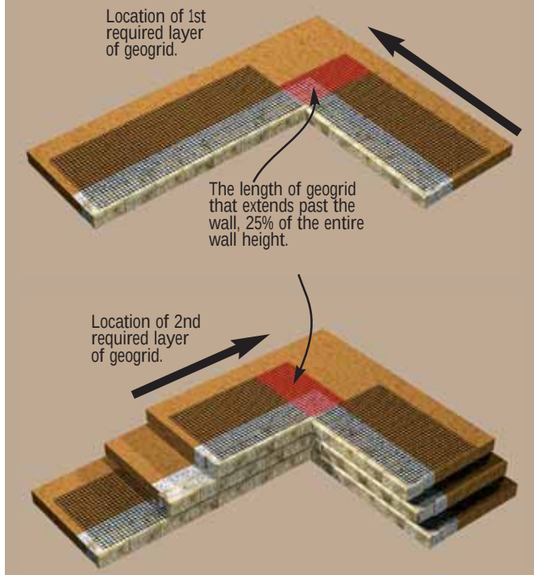
Each side of the corner must be reinforced independently from each other.

- Roll out the AB Reinforcement Grid to the outside corner in one direction. Never place geogrid directly on top of another layer of geogrid.
- On the next course of block where geogrid is required, lay the next layer of geogrid perpendicular to the previous layer. Using AB Reinforcement Grid you will not need a layer of geogrid on every course due to its bi-axial strength.

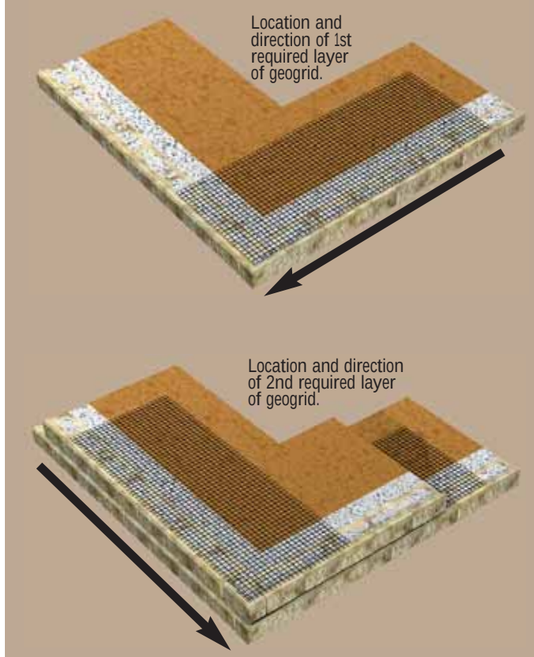
For more information on corner construction see page 37.

Ashlar Collection

Geogrid with Inside 90° Corners



Geogrid with Outside 90° Corners



Stairways

Plan, design and build steps into your wall.

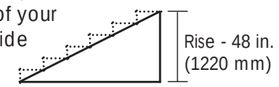
AB Collection

Allan Block Wall Systems offer a variety of options for stairways.

Stairs can be designed with flowing curves or straight lines. Curved sidewalls create a softer, natural look. Straight sidewalls and corners offer a crisp, traditional style; however they require AB Corner Blocks and take more time and custom cutting to build.

How Many Steps?

To find the number of steps needed, measure the total rise of your slope in inches and divide by 8 in. (200 mm) - the approximate height of a block.

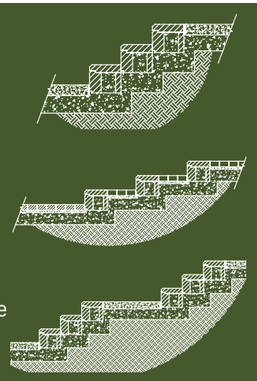


AB Collection

Tackle Your Slope

Match your stairway design to the natural grade of your slope.

- On steep slopes, keep the blocks tight together. With Allan Block, you get an 8 in. rise and a 12 in. run. (200 mm rise and a 300 mm run).
- On gentle slopes, add pavers or other materials to increase the depth of the tread and length of the run.
- Landings can soften a long stairway and provide an easy way to tie sets of steps together.



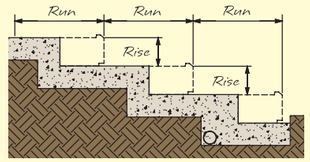
Take Time to Build In Quality

Building stairs and steps requires careful planning, flexibility on the job site and an eye for detail. Be sure to allow adequate time for layout and building of stairs.

Determine Stair Riser Locations

Once the number of steps has been determined and the type of stair tread has been selected, excavate the stair location based on the rise and run.

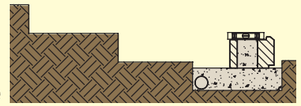
- Mark the center of the stairway where the base stair riser will be placed. In this example the first stair riser is the continuation of the base course of the wall that the stairs are being built into.
- Each stair riser will need a minimum of 6 in. (150 mm) of base material under it that extends a minimum of 6 in. (150 mm) behind the AB block.
- **Make adjustment as needed so that the first riser is not more than 8 in. (200 mm) high with stair tread material and final grading in place.**



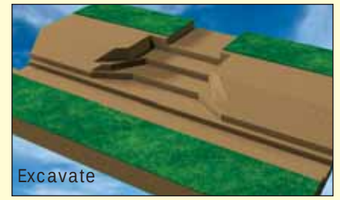
Excavate the Base Trench and Stair Location

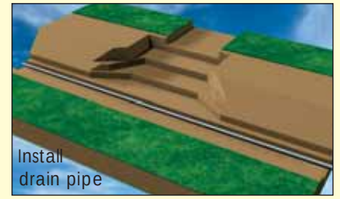
- From the base stair riser location mark the remainder of the stair risers and remove the soil to meet the base material requirements. If more soil was removed than necessary during excavation, replace it with wall rock during the building process. Any excavated soils that are replaced will need to be properly compacted. ***If organic or wet soils are present in the base trench they must be removed and replaced with granular material.***
- After the stair location has been excavated, you will prepare your base and base course just like any other wall. *Use the information on page 17* to dig a base trench to the appropriate size.
- Compact the base trench making a minimum of two passes with a plate compactor.
- If a drain pipe is required in your project, continue the placement of the pipe in the trench for the base course. *See page 17 for more information on placement.*
- Place a minimum of 6 in. (150 mm) of wall rock in the base trench and rake smooth.
- Compact the wall rock making a minimum of two passes with a plate compactor.
- Check for level, and adjust as needed. *See page 17 for more information.*

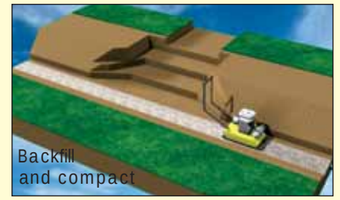
Install the Base Course

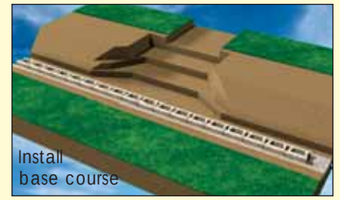


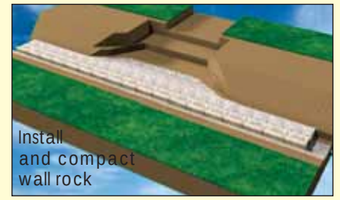
- Place the blocks with the raised front lip facing up and near the front of the trench.
- Check each block for level from side-to-side and front-to-back. Verify the proper position of the base course by examining a string line across the back of the blocks. Make adjustments as necessary.
- Fill in the area in front of the blocks with on-site soils. This will keep the base course blocks from shifting while filling and compacting.
- Fill the hollow cores and at least 12 in. (300 mm) behind the blocks or more to accommodate the next stair riser with wall rock.


Excavate


Install drain pipe


Backfill and compact


Install base course


Install and compact wall rock

Always check local code requirements before building any type of stair application.

The steps shown here are general guidelines for building stairways. By understanding the basic installation elements, stairways can be easily incorporated into the wall installation.

AB Collection

Salt for Ice Removal

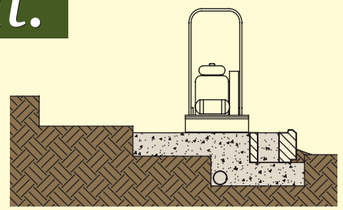
In northern climates the use of salt on stair tread materials made of concrete is NOT recommended as the salt will cause the block to deteriorate. Use sand instead.

Drain Pipe

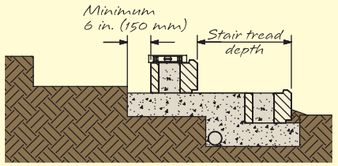
If drain pipe is being used on your project, continue it behind the stairs at the lowest point of elevation. Do not interrupt the drain pipe at stair locations.

Stairways Cont.

- Use infill or approved on-site soils to fill in any additional areas behind the wall rock. The stair tread area must be level with the top of the base course of blocks.
- Use a plate compactor to compact the wall rock starting directly behind the block and working in a path parallel to the wall, working from the back of the block, over the stair tread area, to the back of the excavated area. Always compact in 8 in. (200 mm) lifts or less. *See page 16 for details on compaction.*



Install First Stair Riser



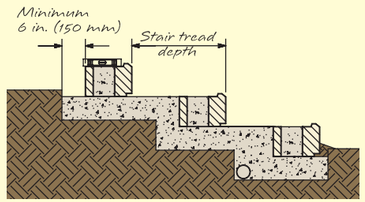
- Measure the distance for the placement of the first stair riser making sure that the blocks are parallel with the base course in front. Place the blocks on top of the compacted stair tread area making sure to allow for 6 in. (150 mm) of wall rock behind the blocks.
- To ensure the blocks will be level with the corresponding wall, place a block on the wall as a reference point and level from that block to the blocks being used for the stair treads.
- Level and adjust as necessary.
- To curve the wall out from the stair location, break the wings off the backs of the blocks and place then tight together, following the layout on your approved plans.

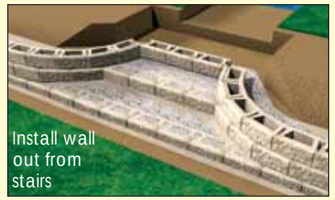
Backfill and Compact

- Fill in the area in front of the first stair riser with a small amount of wall rock. This will keep the blocks from shifting while filling and compacting.
- Fill the hollow cores and at least 12 in. (300 mm) behind the blocks or enough to accommodate the next stair riser with wall rock.
- Then compact and level the wall rock as previously done.

Additional Steps

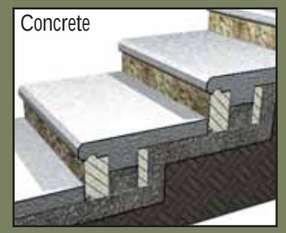
- Repeat these steps for each stair riser.
- Once all the steps are in place, install the selected stair tread material to finish your stairway.





Stair Tread Options

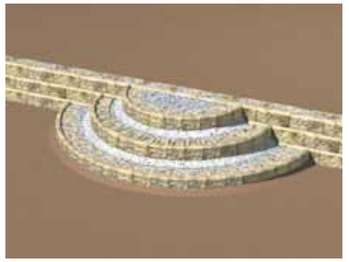
- Allan Blocks patented front lip provides a built-in edging that works well with AB Capstones, pavers and poured concrete.
- When using a rigid dimension tread material such as AB Capstones or landscape pavers, carefully plan the stair dimensions to reduce the amount of cutting required. Ensure stair treads are secured in place with a high strength construction adhesive for safe use.

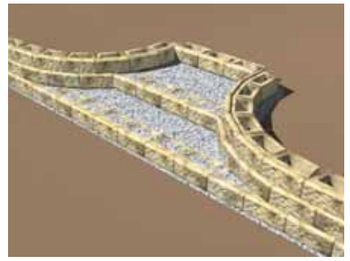


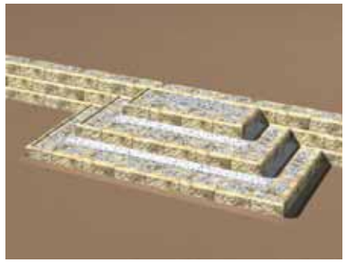
Stair Applications

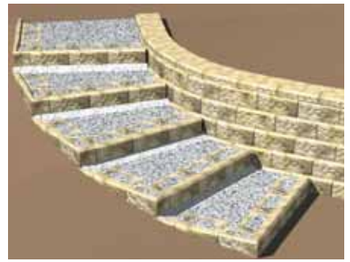
Additional stair designs and technical information explaining the construction process is available on our website at allanblock.com or from your local Allan Block Dealer.

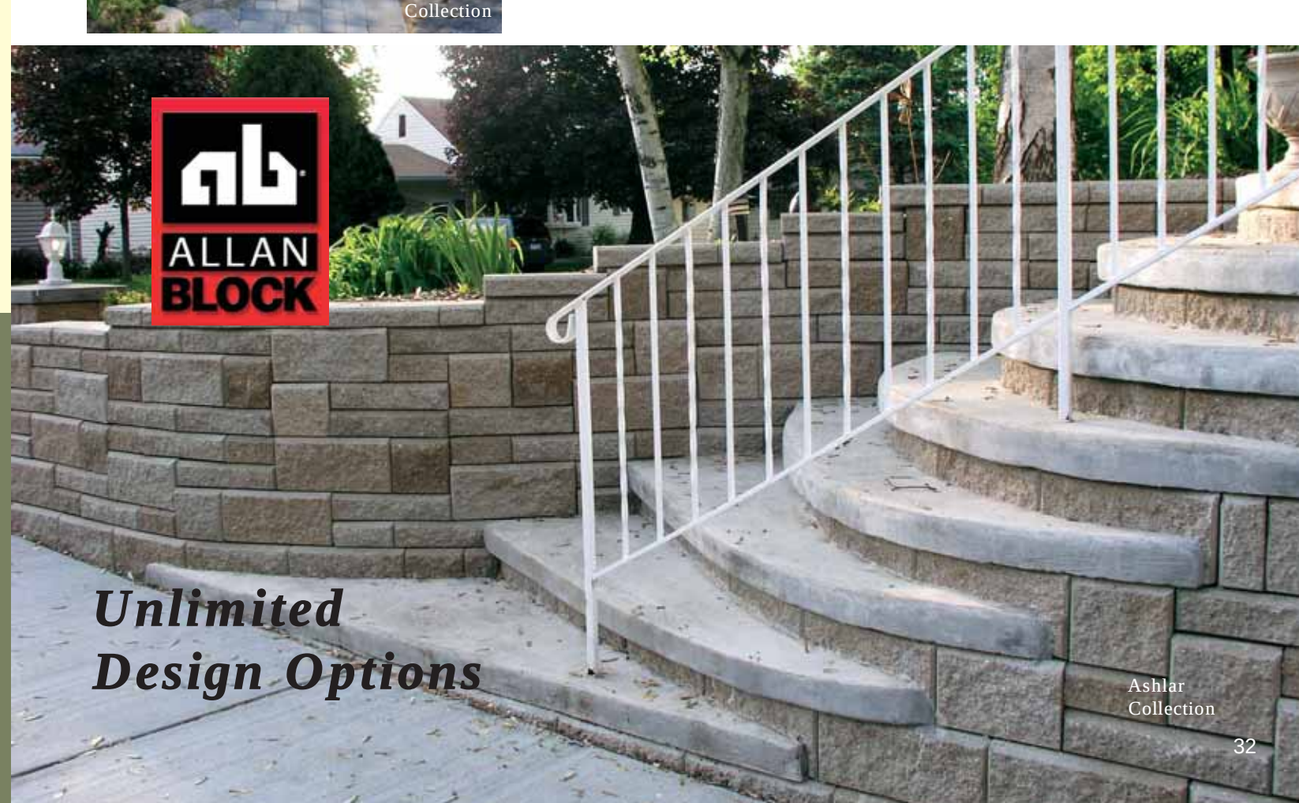
Remember to always check the local building codes before construction.











In-Wall Planters/Terraces

Design the Shape for Beauty and Function

Consider what will fill the space between terraced walls. Will it be used for plantings, filled with decorative rock or covered with sod? Terraced walls provide built-in edging that minimizes trimming and maintenance. Design the shape of terraced walls to compliment the surrounding architecture and landscape.

Landscape designs are often more attractive when they include smaller, terraced, or in-wall planters rather than one large wall. Terraced walls can create more usable space, build raised gardens, help prevent erosion and add interest to your landscape.

Straight walls create a formal, structured look.

Flowing curves have a more natural feel, provide planting areas and create a softer look.

Irrigation is often included when incorporating a planter. Ensure that your plan includes provisions for water management.

Always Build on Solid Ground

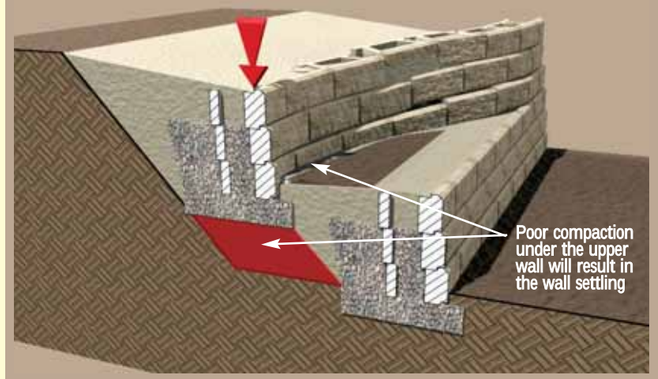
- The most important element in building terraces is soil compaction. Building on poor, uncompacted soil will result in settling of the upper walls. Although lower terraced walls are typically built on solid ground, upper walls are often built on soils that have been disturbed in the construction process. To ensure the stability of these soils, they should be removed down to solid ground and carefully reinstalled and compacted.

- To achieve proper compaction there are two different methods that work well. One way is to remove soft or poor soil and replace them with wall rock and compact in 8 in. (200 mm) lifts. Another way is to compact the soils in shorter lifts. When using infill or approved on-site soils, we recommend no more than a 4 in. (100 mm) lift. Good compaction is the key to minimizing settlement over time.

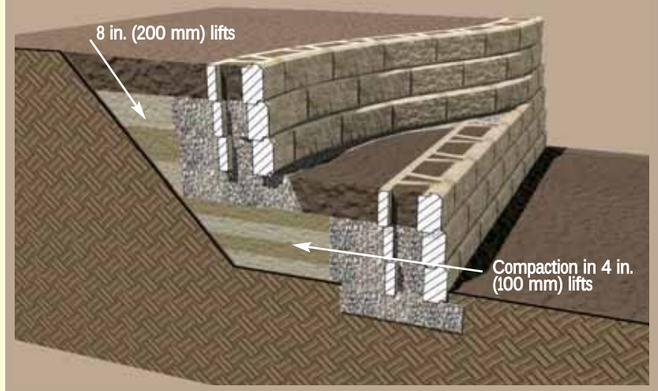
Other areas that will require engineering are:

- **Slopes above or below the walls**
- **Walls closer than 2 times the height of the lower wall.**
- **Presence of ground water**
- **Surcharges**
- **Bad soils**

Improper Compaction - Upper Wall Settles



Proper Compaction - Upper Wall Performs

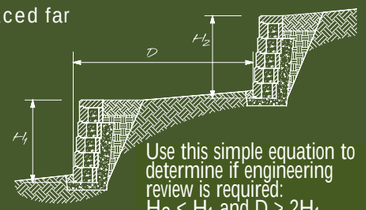


ALLAN BLOCK

Terraces and Structure

Building a series of walls on a slope requires careful planning. Follow this simple set of rules:

When the walls are spaced far enough apart they are engineered as two independent walls.

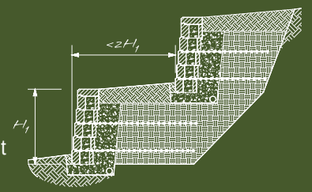


Use this simple equation to determine if engineering review is required:
$H_2 \leq H_1$ and $D > 2H_1$

- The height of the upper wall should be less than or equal to the height of the lower wall.
- The distance between the walls must be at least twice the height of the lower wall.

As the upper wall moves closer to the lower wall, it adds pressure (surcharge) to the lower wall.

The lower wall will need to be engineered to account for the added weight and pressure, and extra reinforcement may be required.



Water Features

Beautiful landscapes made easy by design.

Ashlar Collection

Water in the Landscape

Water features turn an ordinary landscape into a peaceful oasis

They can provide a soothing retreat and a beautiful focal point within your overall landscape. Water features can attract birds and other wildlife. The sound of trickling water creates a place of quiet serenity and a sense of privacy.

Ponds and Fountains Bring the Landscape to Life

Landscape water features can also be active and exciting, like a waterfall cascading over a natural rock formation. The sight and sounds of water-in-motion, flowing, spilling or cascading, can be a dramatic landscape enhancement. Splashing fountains... shimmering pools... no matter how simple or elaborate, water features can add a new dimension to your landscape.

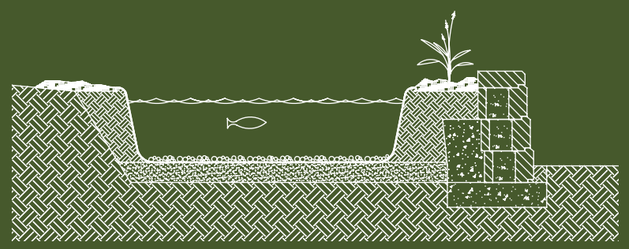
Installation Notes

- Flexible plastic liners provide built-in support for ponds.
- Plastic liners can be used for free-form ponds and water features. However, these features will transfer water pressure to the surrounding walls. Your landscape wall design must account for the added pressure.

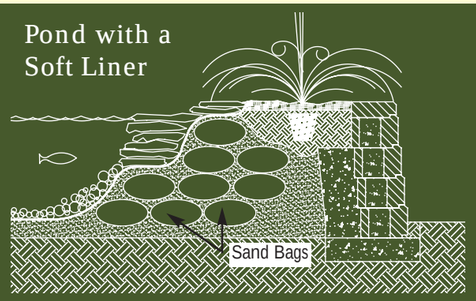
AB Collection

Europa Collection

Pond with a Hard Liner



Pond with a Soft Liner



Lighting

Accent your landscape with distinction.

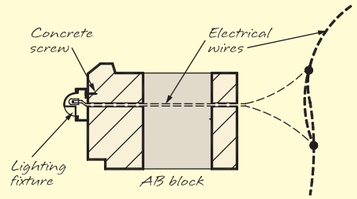
Europa Collection

Lighting

Lighting Adds a Dramatic Effect to Allan Block Walls

Lighting brings new possibilities to any landscape. Add a dramatic look with ground mounted lighting or illuminate stairways and pathways with recessed lighting. Allan Block walls with decorative lighting fixtures provide not only a distinctive design, but adds safety and security to the landscape.

Allan Block's patented hollow core design makes it easy to add lighting into any wall. Simply run the wiring directly behind the AB blocks (follow local electrical codes) to the light locations. Use a masonry saw to cut out sections of the block to accommodate the lighting fixture and run the wiring through the blocks out to the light fixture.



Europa Collection

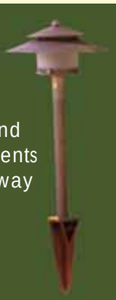
Europa Collection

Lighting Options

Cast a soft pool of light with a wall mounted light fixture.

Add soft general lighting with a recessed light fixture.

Illuminate pathways and garden accents with a pathway light fixture.



Silhouette accented landscape features with a bullet light fixture.

Corners

Europa Collection

Gain usable space and create new living areas.

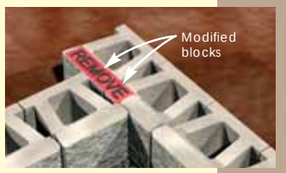
Corner Details

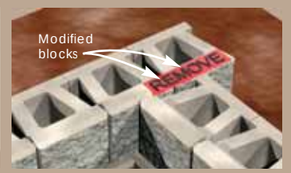
Whenever possible we recommend using curves instead of corners for a smooth flowing look to your landscape. Our example uses an AB Jumbo Junior, but can be used with any block.

Inside Corners

Standard blocks are easily modified to build inside corners. You will need a concrete saw with a masonry blade to make the necessary cuts (a good chisel will work too).

- Using your saw or chisel, remove the raised lip from one block, and the left third from another. Set them in place at the beginning of the base course.
- Locate the adjoining wall so that the raised lip on the modified block is lined up with the raised lips on the opposite wall. Finish installing the entire base course in both directions.
- Modify two more blocks, this time remove the raised lip from one block, and the right third from another. Use these blocks to start the second course.
- Continue the process to the top of the wall, alternating as you go.
- Cut caps at 45 degree angles to complete the inside corner and give the wall a custom finished look.

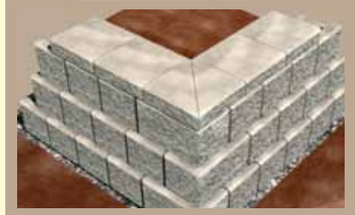




Outside Corners

AB Corner Blocks are all you need to make an outside corner. Always build your walls by starting at the corners and working out.

- Set the first corner block in place and install the two perpendicular base courses. Level, backfill and compact.
- Place an alternating corner block on the second course and set the entire second course of block in both directions. Level, backfill and compact again.
- Repeat as often as needed to the top of the wall.
- Cut caps at 45 degree angles to complete the outside corner and give the wall a custom finished look.



Step Downs

End your wall with ease.

AB Collection

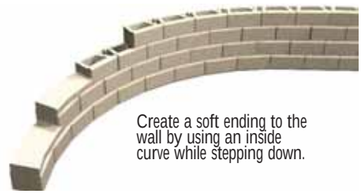
Stepping Down

One of the unique benefits that sets Allan Block apart from other wall systems is a great variety of options for ending and stepping down walls. With Allan Block, you can turn wall ends into the hillside with smooth flowing curves, corners or simple step-downs. No other wall system gives you as many choices for finishing off your wall project.

For a gradual step-down, use half-high blocks either the AB Lite Stone or AB Barcelona.

For a full course step-down, use the AB Corner Block.

For a step-down that doubles as a planter, turn the wall in 2 or 3 blocks after the AB Corner Block.



Create a soft ending to the wall by using an inside curve while stepping down.

Tip:
Walls with ends that turn back into the hillside help prevent erosion behind the wall.

Turn-ins

The simplest and easiest method of ending an Allan Block wall is to use smooth flowing curves that turn back into the hillside.

For a graceful, flowing end to the wall, curve the wall to create a plantable area that can soften the look of the wall.

For a natural flow into the landscape curve the wall back into the hillside.

Tip:
The benefits of curving the wall back into the hillside include:

- less time & expense to build
- no corner blocks
- superior erosion control
- attractive design

For a dramatic end to the wall, use the AB Corner Block to turn the wall back into the hillside. See page 24 for information on stepping up the wall.

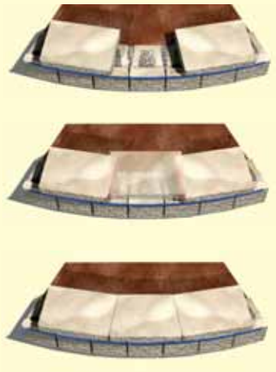
Finishing Options

Capping Walls

Allan Block Capstones are available to finish the top of the wall. The raised front-lip provides a perfect built-in edging where you can simply use rock, mulch, grass or planting soil to complete the wall with an attractive, natural look.

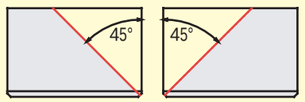
Capping Curves

- Place two caps on top of the wall, spaced so a third cap will fit tightly between their widest point.
- Set another cap on top of the first two caps and mark where they overlap on the bottom of the center cap.
- Remove the center cap and cut along the marks.
- Set the middle cap back in place so the three fit tightly together.
- Repeat as often as needed to cap the entire curve.
- It's a good idea to secure caps with a high strength construction adhesive once they are all cut.

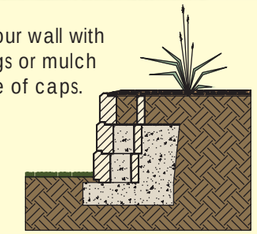


Capping Corners

- Cut caps at 45° angles to complete the outside corner.
- It's a good idea to secure caps with a high strength construction adhesive once they are all cut.

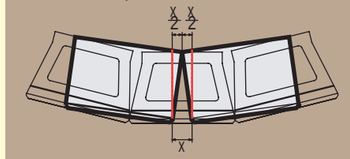


Finish your wall with plantings or mulch in place of caps.



Tighter Curves

- Place two caps on the wall with the back of each cap tight together. A gap will appear in the front.
- Measure the distance of the gap between the 2 caps (x) at the front of the wall.
- Measure out this distance (x/2) on the back of each of the cap and mark.
- Draw a line from the mark to the front corner.
- Use a masonry saw to cut each cap.



Estimating the Number of Blocks Needed

Allan Block makes it easy to estimate materials. Use the **Estimating Charts** below to quickly estimate the amount of block and capstones that will be needed for your landscape walls up to 6 ft. (1.8 m) high.

You can also use the ***Estimating Wheel*** or the ***Estimating Software*** to calculate the block as well as the amount of base materials, drain pipe and AB Reinforcement Grid needed to complete the project. Call or visit your local Allan Block Dealer for this handy Estimating Wheel or go to allanblock.com to ***download the FREE Estimating Software***.

AB Wheel

AB Estimating Software

For information on estimating patterned walls from the Ashlar and Europa Collections see page 23 .

AB® Collection | Ashlar Collection™

Number of AB Stone or AB Classic blocks needed

Wall Height / **Wall Length**

	5 ft (1.5m)	10 ft (3.0m)	20 ft (6.0m)	30 ft (9.0m)	40 ft (12.0m)	50 ft (15.0m)
1 course 8 in. (200 mm)	4	7	14	21	28	35
2 course 16 in. (400 mm)	7	14	28	41	55	69
3 course 24 in. (600 mm)	11	21	41	62	82	103
4 course 32 in. (800 mm)	14	28	55	82	109	137
5 course 40 in. (1.0 m)	18	35	69	103	137	171
6 course 48 in. (1.2 m)	21	41	82	123	164	205
To switch to AB Jumbo Junior blocks, simply double the numbers shown above.						
Capstones	4	7	14	21	28	35
Corner Blocks	1 for each course that steps down. 1 for each course with a corner.					

Note: Capstones add 4 in. (100 mm) to your total wall height. Corners should alternate with left and right hand blocks.

Number of AB Lite Stone Blocks needed

Wall Height / **Wall Length**

	5 ft (1.5m)	10 ft (3.0m)	20 ft (6.0m)	30 ft (9.0m)	40 ft (12.0m)	50 ft (15.0m)
2 courses 8 in. (200 mm)	7	14	28	41	55	69
3 courses 12 in. (300 mm)	11	21	41	62	82	103
4 courses 16 in. (400 mm)	14	28	55	82	109	137
5 courses 20 in. (500 mm)	18	35	69	103	137	171
6 courses 24 in. (600 mm)	21	41	82	123	164	205
7 courses 28 in. (700 mm)	24	48	96	143	191	239
To switch to AB Junior Lite blocks, simply double the numbers shown above.						
Capstones	4	7	14	21	28	35

Note: Capstones add 4 in. (100 mm) to your total wall height.

Europa® Collection

Number of AB Dover blocks needed

Wall Height / **Wall Length**

	5 ft (1.5m)	10 ft (3.0m)	20 ft (6.0m)	30 ft (9.0m)	40 ft (12.0m)	50 ft (15.0m)
1 course 8 in. (200 mm)	4	7	14	21	28	35
2 course 16 in. (400 mm)	7	14	28	41	55	69
3 course 24 in. (600 mm)	11	21	41	62	82	103
4 course 32 in. (800 mm)	14	28	55	82	109	137
5 course 40 in. (1.0 m)	18	35	69	103	137	171
6 course 48 in. (1.2 m)	21	41	82	123	164	205
To switch to AB Palermo blocks, simply double the numbers shown above.						
Capstones	4	7	14	21	28	35
Corner Blocks	1 for each course that steps down. 1 for each course with a corner.					

Note: Capstones add 4 in. (100 mm) to your total wall height. Corners should alternate with left and right hand blocks.

Number of AB Barcelona blocks needed

Wall Height / **Wall Length**

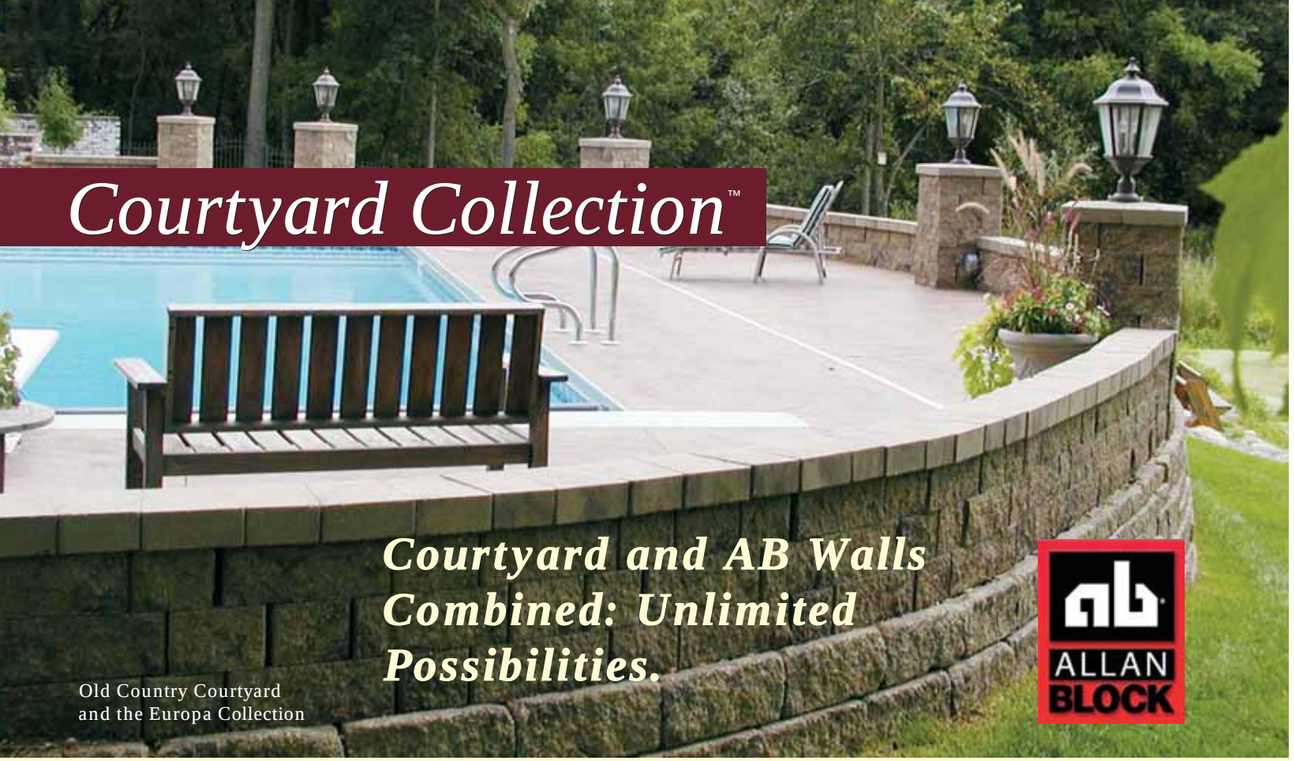
	5 ft (1.5m)	10 ft (3.0m)	20 ft (6.0m)	30 ft (9.0m)	40 ft (12.0m)	50 ft (15.0m)
2 courses 8 in. (200 mm)	7	14	28	41	55	69
3 courses 12 in. (300 mm)	11	21	41	62	82	103
4 courses 16 in. (400 mm)	14	28	55	82	109	137
5 courses 20 in. (500 mm)	18	35	69	103	137	171
6 courses 24 in. (600 mm)	21	41	82	123	164	205
7 courses 28 in. (700 mm)	24	48	96	143	191	239
To switch to AB Bordeaux blocks, simply double the numbers shown above.						
Capstones	4	7	14	21	28	35

Note: Capstones add 4 in. (100 mm) to your total wall height.

Most municipalities require permits for walls over 4 ft. (1.2 m). Contact your local AB Dealer, city building official or a local engineer for assistance.

For walls over 3 ft. (0.9 m) tall, we typically recommend that you use the largest blocks within the collections.

Courtyard Collection™



Courtyard and AB Walls Combined: Unlimited Possibilities.

Old Country Courtyard
and the Europa Collection

Create Elegant, Beautifully Textured Walls

Frame your patio. Create a seating wall, pool surround or entry monument. The design possibilities are endless. Combine AB Courtyard walls and Allan Block landscape walls to create stunning landscapes. The interlocking blocks easily fit together without mortar or pins. Simplicity, quality and lasting value. You get it all with the AB Courtyard Collection.

Old Country Courtyard

Old Country Courtyard

From elaborate patio enclosures to simple weekend projects, the AB Courtyard Collection allows you to easily create beautiful and durable stone-like structures. This versatile system can meet any design need. Create elegant and stylish surrounds with old world charm for any landscape.

- Expand your home to the outdoors
- Enhance the beauty and value of your home
- Make a design statement

See allanblock.com for information.

Expand Your Outdoor Living Room

Enhance the beauty of your home with Allan Block. From elaborate designs to simple garden wall projects the possibilities are endless. Whether you are building your dream home or improving your current surrounds, you can trust Allan Block. Our distinctive products and experienced people can make your vision a reality.

Europa Collection

AB Collection

The Possibilities are Endless

Allan Block has been used in thousands of unique applications throughout the world. For more information visit our web site at allanblock.com for a full library of photos and instructional materials. Contact your local AB Dealer for product availability.

Allan Block® has the system to satisfy every design.

Ashlar Collection