

CONSTRUCTION DETAILS



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Expanded details on building with Allan Block.

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Finishing Walls

Ending and Topping Off Walls

Allan Block offers a great variety of finishing options for the wall.

Mulches: Allan Block's patented raised front lip provides a built-in edging for landscape rock, mulch, grass or soil.

AB Capstones: AB Capstones can be used to finish off the top of a wall. Use a high grade, waterproof flexible masonry adhesive to secure AB Capstones in place.

See allanblock.com for information on cutting AB Capstones for curves or corners.



Mulch or Soil

Building Step Downs

Walls with step downs can be easily finished by adding a AB Capstone or a half high block, or turning the ends back into the hillside. For tips with patterned wall Step Downs, see page 37.

For a gradual step-down, use additional capstones or half-high blocks.



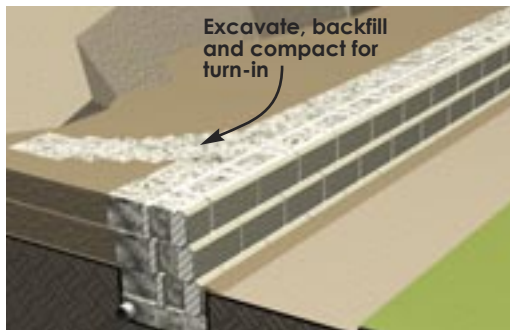
For a full course step-up, use the AB Corner Block.



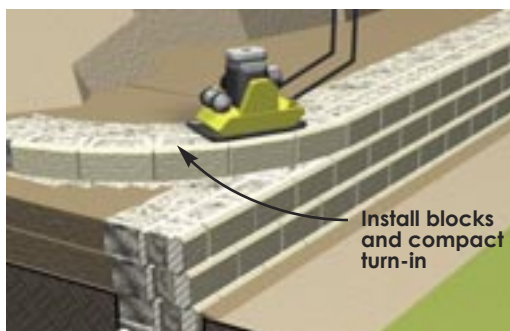
AB Capstones



AB Capstones with step ups



Building Turn-Ins



Building Turn-Ins

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

When building a turn-in, a base trench will need to be excavated, backfilled and compacted, the same as the base course of blocks.

Proper backfilling and compaction is important, where the wall turns back into the slope. To ensure the turn-in area doesn't settle differently than the rest of the wall, make sure the entire area below the new base is compacted thoroughly.

Flowing turn-in of wall



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



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



Construction Details - Curves



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Building curved and serpentine walls is simple. AB's patented design allows for easy installation of both inside and outside curves.

Most curves can be built with no cutting involved.

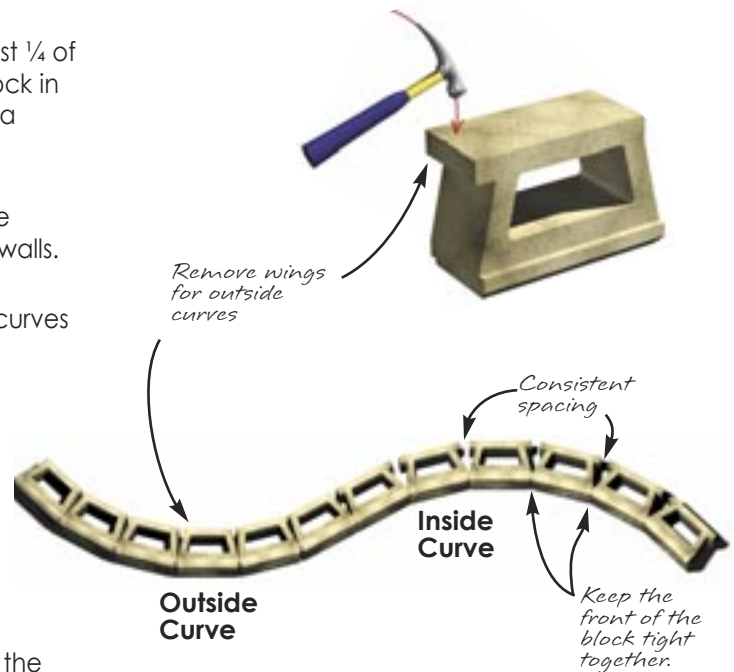
- Try to maintain an offset of the vertical seams by at least $\frac{1}{4}$ of the block length from the courses below. Cutting a block in half or using the half width blocks, will assist in creating a proper offset.
- Before beginning construction, review the plans and layout the wall to eliminate tight radii. More gentle sweeping curves produce more aesthetically pleasing walls. See page 54 for the radius chart.
- Use blocks with lower setbacks or half width blocks on curves for smoother transitions.

Inside Curves

- To build a flowing inside curve, butt the block end to end to match the smooth curve required on the project. Try to keep spacing consistent between the backs of the blocks.

Outside Curves

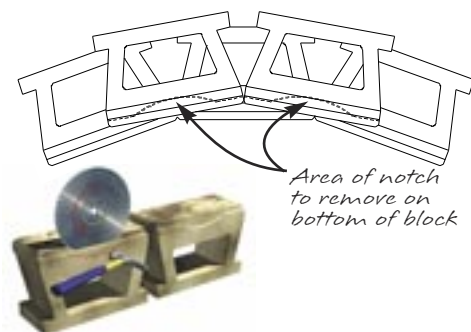
- To build smooth outside curves, remove one or both of the "wings" from the back of the blocks and tighten the radius of the curve. Break wings off by tapping on the back of the wing to obtain a clean break.



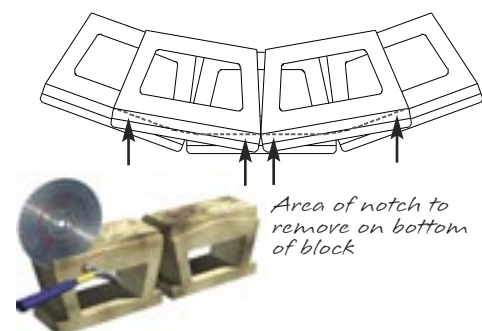
Tighter Curves

- Using full size blocks in tight curves will create a gap between the courses. For cleaner lines, it may be necessary to remove parts of the bottom notch to fit the blocks closer together.

Cutting The Bottom Notch For Tighter Inside Curves



Cutting The Bottom Notch For Tighter Outside Curves

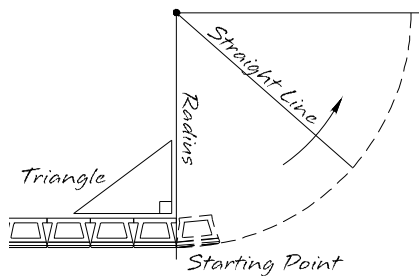


Working with Radii

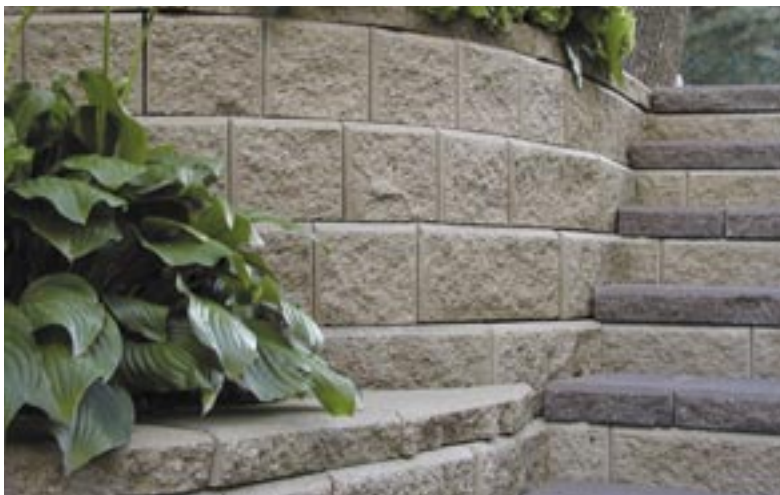
- Refer to Table 6.1 to confirm that the AB product you are using will accommodate the desired wall radius.
- The tightest or smallest radius at the top of any AB wall using full size block is 4 ft (1.2 m), and 2.5 ft (0.8 m) using the half width blocks. The final height of the wall will determine what the minimum radius at the base course must be. The wall creates a coning effect as it is stacked up, creating the need for a larger radius at the base course. 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 a Radius

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 smooth curve with less cutting, use our half width blocks to help build the curve.

Base Course Radius for an outside curve on a 4 ft tall 6° wall

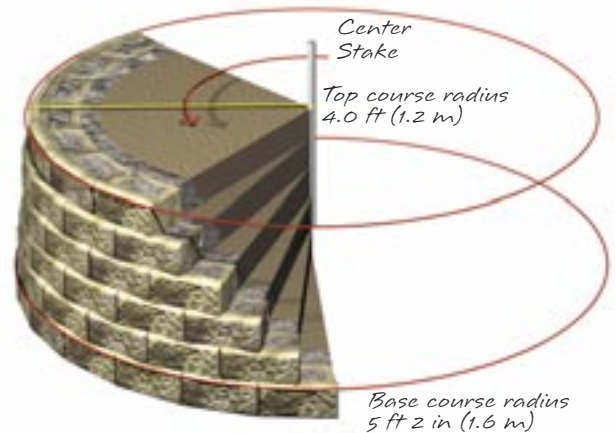


Table 6.1

Setback	AB Radius Chart for the Base Course			
	Wall Height			
AB, AB Aztec, AB Europa & AB Metropolitan Collection Full Size Blocks	4 ft 1.2 m	6 ft 1.8 m	8 ft 2.4 m	10 ft 3.0 m
3° (Ref)	4 ft 9 in 1.43 m	5.0 ft 1.52 m	5 ft 4 in 1.6 m	5 ft 8 in 1.7 m
6° (Ref)	5 ft 2 in 1.6 m	5 ft 6 in 1.7 m	5 ft 11 in 1.8 m	6 ft 4 in 1.9 m
12° (Ref)	5 ft 6 in 1.7 m	6.0 ft 1.8 m	6 ft 6 in 2.0 m	7.0 ft 2.1 m
AB Fieldstone Collection 812 facing unit w/short anchoring unit (SAU)	4 ft 1.2 m	6 ft 1.8 m	8 ft 2.4 m	10 ft 3.0 m
6° (Ref)	6 ft 7 in 2.0 m	7.0 ft 2.1 m	7 ft 5 in 2.3 m	7 ft 10 in 2.4 m
AB, AB Aztec & AB Europa Collection Half Size Blocks	2 ft 0.6 m	4 ft 1.2 m	6 ft 1.8 m	
6° (Ref)	3.0 ft 0.9 m	3 ft 5 in 1.0 m	3 ft 10 in 1.15 m	

Use this chart to find the minimum recommended radius at base of wall. Note all lengths, dimensions and setbacks are approximate.

Construction Details - Curves with Geogrid



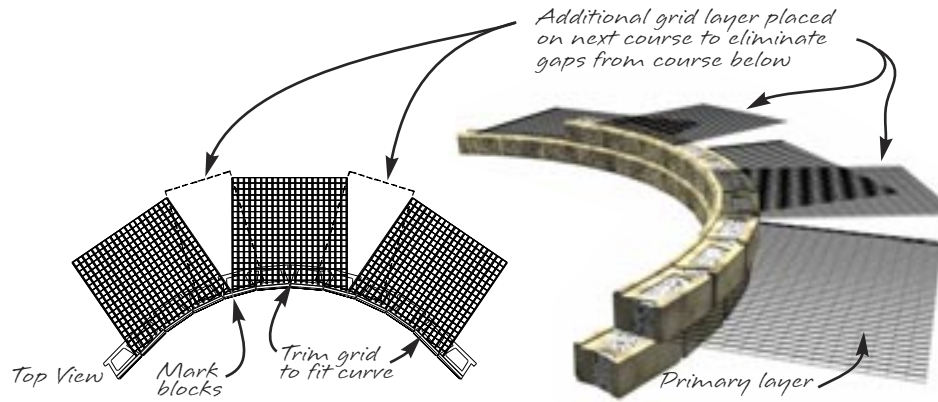
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Inside Curves

Geogrid needs to have 100% coverage around an inside curve. To achieve this, additional layers need to be installed either above or below the course where the grid is required to fill voids that are created.

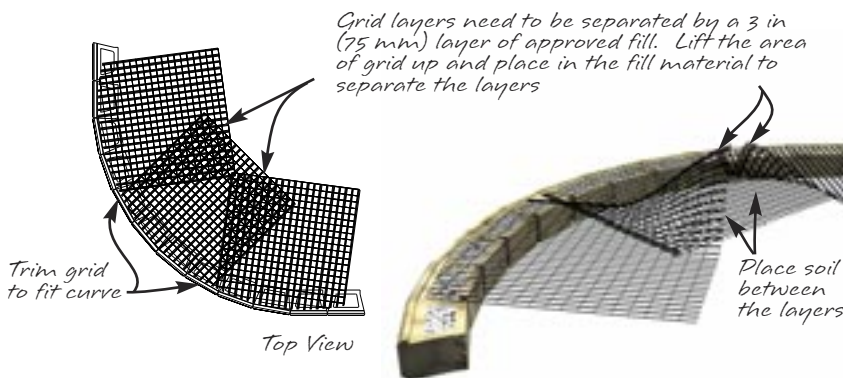
- Cut geogrid to required lengths per the approved plan.
- Lay out the primary geogrid around the curve butting front edges together. Make sure strength direction runs perpendicular to wall face. Mark the blocks or take note of the areas where there are voids in the grid placement.
- Place the filler piece of grid on the next course (or the course below) to cover the void left on the primary layer.

Note: For taller walls over, 10 ft (3 m), starting the filler piece of grid at the back of the block may eliminate the need for shimming as the wall gets taller.



Outside Curves

- Cut geogrid to required lengths per the approved plans.
- Lay out the geogrid around the curve.
- Lift the section of grid that overlaps and place the fill material to separate. Grid layers need to be separated by a 3 in (75 mm) layer of approved fill material.
- Never compact directly on the geogrid.



Construction Details - Corners

Inside Corners

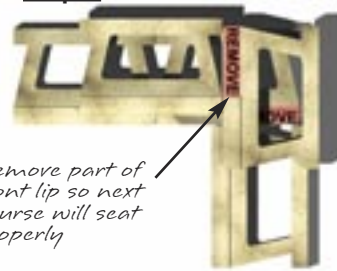
AB Blocks are easily modified to build inside corners. To construct an inside corner, you will remove part of the raised lip on one block on each course.

- Use a saw with a diamond blade or a chisel to remove half of the raised front lip. This allows the next course to be installed on a level surface (Step 1).
- Lay the modified block perpendicular to another AB unit. This creates the corner (Step 2).
- On the next course, remove *the opposite half* of the lip of an AB unit and position it over the right angle corner (Step 2).
- On each successive course, simply reverse the position of the modified block to obtain an interlocked corner.

Step 1



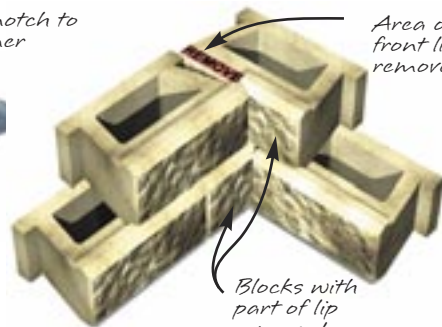
Step 2



Remove notch to form corner



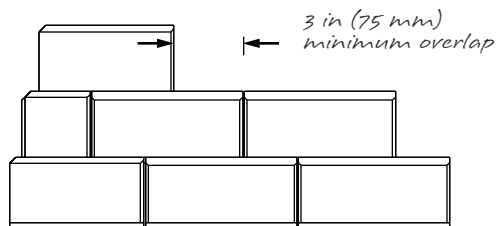
Area of front lip removed



Outside Corners

AB Corner Blocks are used to build outside 90° corners. To construct an outside corner, you will use an AB Corner Block on every course, alternating a right and left hand corner for each course. Additional corner construction information can be found at allanblock.com.

- Start construction of all walls at the corner. This will keep the block alignment within the 3 in (75 mm) overlap required.
- Place an AB Corner Block at the corner. Place AB Blocks to build the base course working out from the corner in both directions (Step 1). Level, backfill and compact.
- On the 2nd course place an alternating AB Corner Block. Again work out from the corner in both directions. Level, backfill and compact (Step 2).
- Repeat this procedure, alternating every other course with AB Corner Blocks. Leveling, backfilling, and compacting as the wall grows (Step 3).



Step 1

Ensure base is level going both directions



Step 2



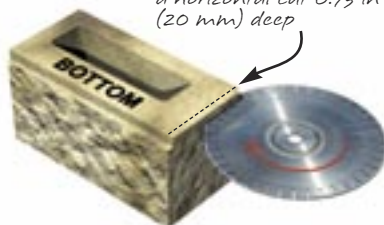
Step 3



Altering AB Corner Blocks for Different Setbacks

AB Corner Blocks are manufactured with a 12° setback. With some minor adjustments, the blocks can be modified to work with any setback. To modify the block for a 6° setback, cut a notch on the short side of the block 0.75 in (20 mm) deep.

For a 6° setback, make a horizontal cut 0.75 in (20 mm) deep



Remove this piece after cut is made

Construction Details - Corners with Geogrid



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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 ($H/4$).

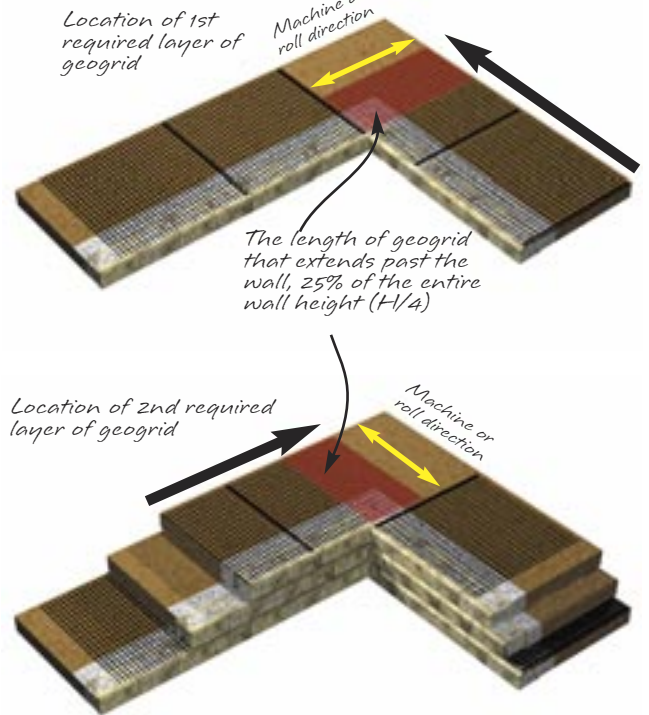
- Cut geogrid to required lengths per the approved plan. As a general rule the length of the geogrid needs to extend a minimum of 25% of the wall height past the end of the inside corner.
- Install the layer of geogrid with the geogrid extending past the inside corner.
- Alternate the next layer of geogrid to extend the past the inside corner in the opposite direction.

EXAMPLE:

Finished wall height is 12 ft (3.7 m), divide by 4 which equals 3 ft (0.9 m).

The length the grid will need to extend past the corner is 3 ft (0.9 m).

Geogrid with Inside 90° Corners

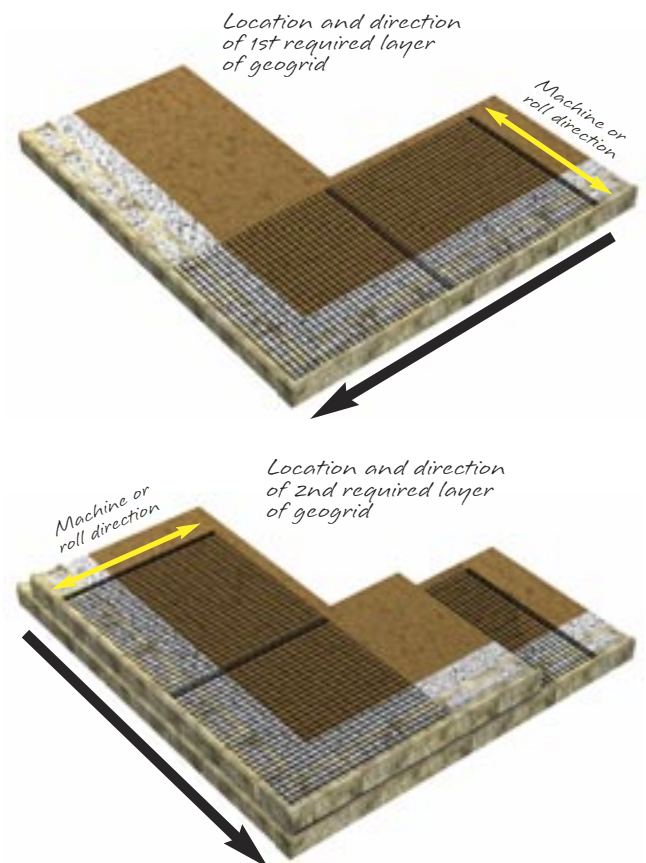


Geogrid with Outside 90° Corners

Installing Geogrid on Outside 90° Corners

Geogrid must always be installed with its strong direction perpendicular to the face of the wall. To accomplish this with 90° outside corners:

- Cut geogrid to required lengths per the approved plans.
- Install geogrid to the outside corner with the roll direction running back into the excavated site.
- On the next course of block, lay the next layer of grid perpendicular to the previous layer.



Construction Details - Stairs

Basic Stair Construction

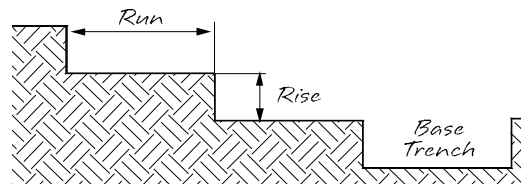
Always check local code requirements before building any type of stair application. The steps below are general guidelines for building stairways. By understanding the basic installation elements, stairways can be easily incorporated into the wall installation.

- Before excavation can begin, the rise and run of the stair treads must be determined and code requirements must be met. With that information, the entire base trench can then be excavated. Some examples of different stair tread options are illustrated below.

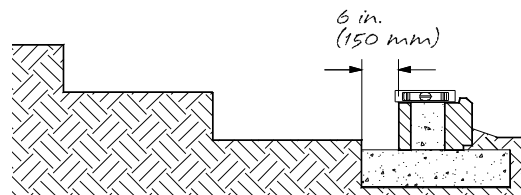
Our example here uses a base trench of 6 in (150 mm) and a stair tread of AB Capstones and pavers.

- Excavate to the necessary depth and width for each stair riser and **thoroughly compact the entire area** to 95% Standard Proctor with a mechanical plate compactor.
- Check for level.
- Starting at the first step, fill the base trench with 6 in (150 mm) of wall rock. Rake smooth.
- Compact and check for level. **Stairs need extra compaction to avoid any settling later.** Better compaction is achieved by backfilling and compacting in 4 in lifts (100 mm) or less when able.
- Install blocks on the base material. Allow for a space of at least 6 in (150 mm) behind the blocks for wall rock.
- Adjust for level and alignment of each block as it's installed.
- Install wall rock in the block cores, fill any space in front of and behind the block. When backfilling behind the blocks, fill the entire area that was earlier excavated to create the base for the next stair riser. This should produce a level base for the next set of risers. We recommend backfilling and compacting behind the block in 4 in lifts (100 mm) to achieve better compaction when able.
- Rake wall rock smooth and compact with the first pass of the compactor directly on the tops of the block and then working in a path that runs parallel to the block. Compact to 95% Standard Proctor.
- Repeat this process for each additional course of steps needed.

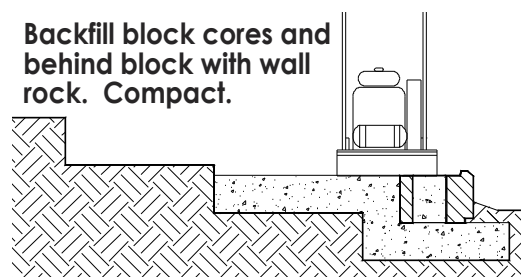
Excavate for stairs and compact.



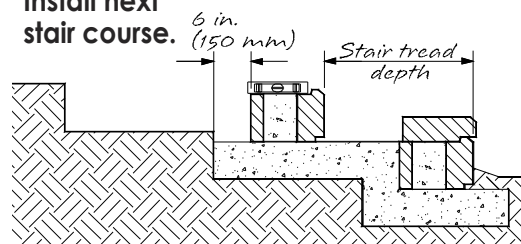
Install and level blocks on base material.



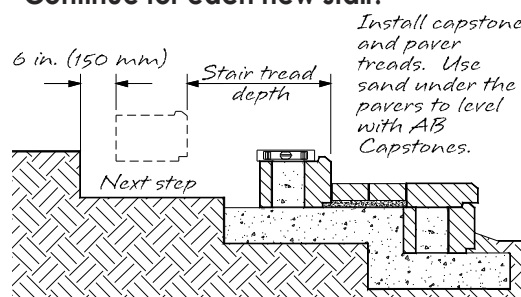
Backfill block cores and behind block with wall rock. Compact.



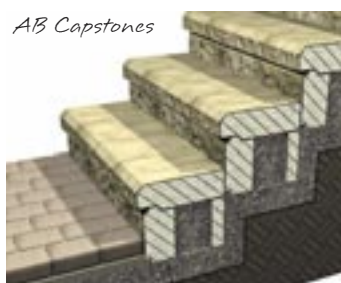
Install next stair course.



Continue for each new stair.



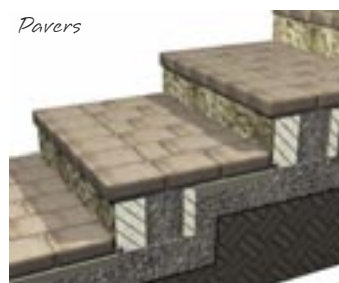
Stair Tread Options



AB Capstones



AB Capstone and Pavers



Pavers



Concrete



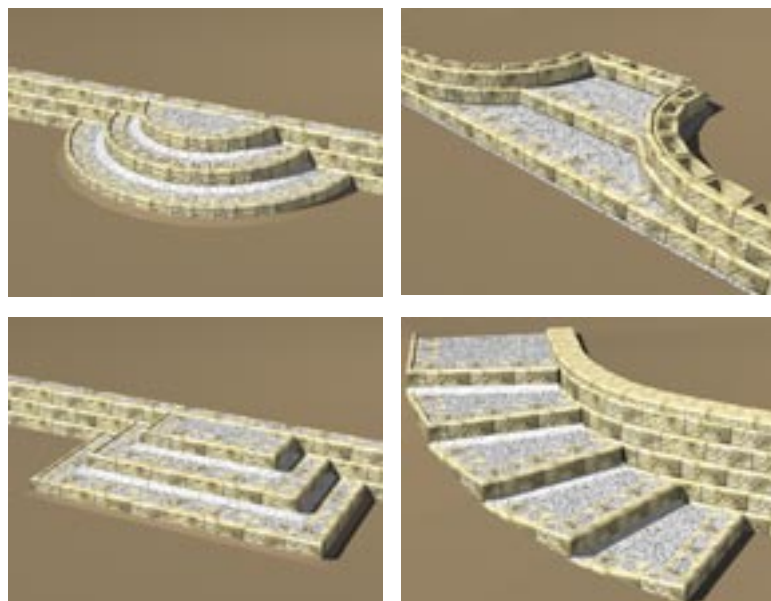
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Stairs can be designed with flowing curves or straight lines. Curved sidewalls create a softer, natural look. Straight sidewalls and corners offer a crisp, traditional style; however they require AB Corner Blocks and take more time to build.

Allan Block's patented front lip provides a built-in edging that works well when installing the stair tread material. Allan Block Capstones, pavers, poured concrete, crushed rock, mulches and flagstone are good stair tread examples. Ensure that stair treads are secured in place for safe use.

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

Remember to always check with the local codes before construction.



CONSTRUCTION DETAILS

How Many Steps?

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



Construction Details

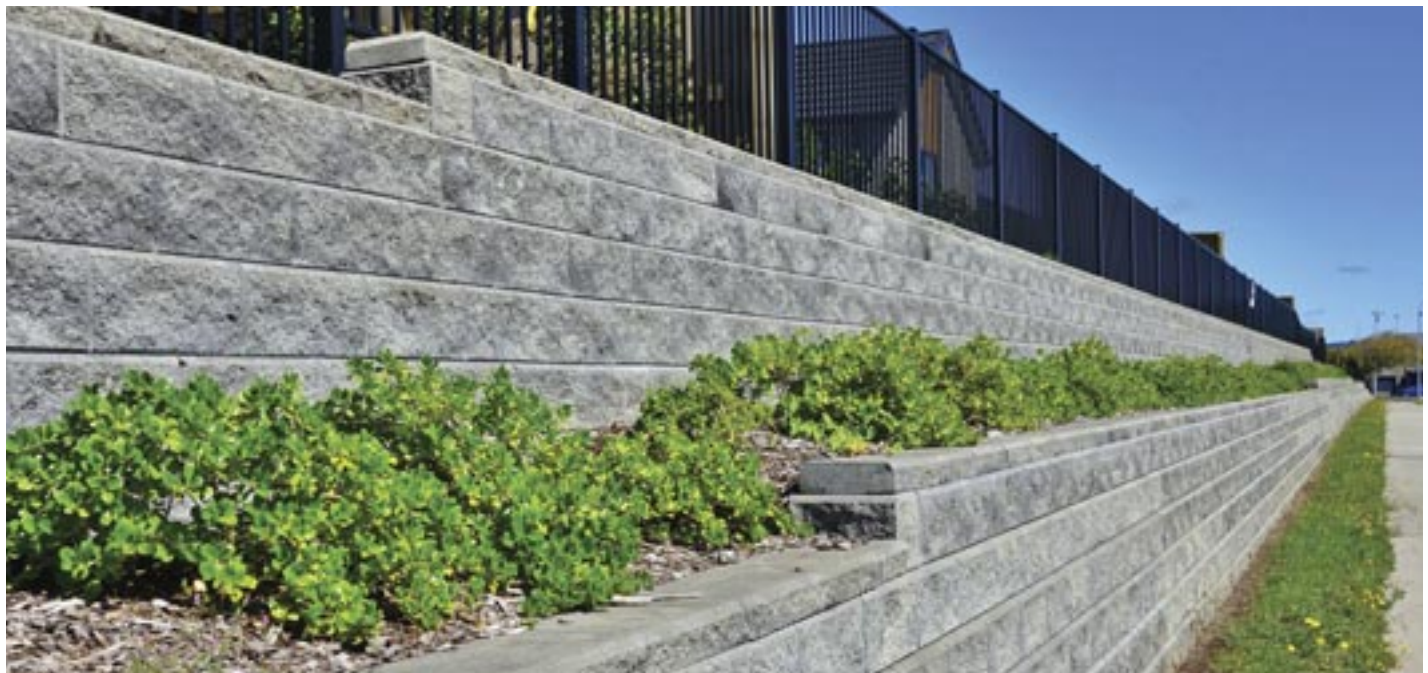
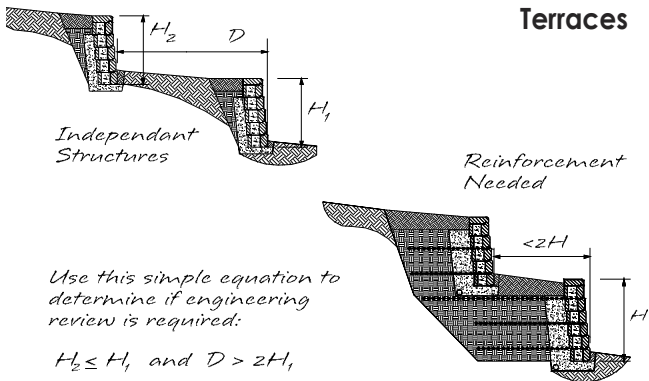
Terraces

It is often more aesthetically pleasing to replace one large retaining wall with two or more smaller terraced walls. Terraced walls can act as surcharges and may create global instability, therefore reinforcement may be necessary. Always check with a local qualified engineer when building terraces.

Walls perform **independently** and may not need engineering when the distance between gravity walls is at least two times the height of the lower wall, and the height of the upper wall is equal to or less than the height of the lower wall. Use the Gravity Wall Chart on page 13 to determine if geogrid is required or check with a local wall engineer.

Walls that must be **evaluated by an engineer** are any walls needing geogrid reinforcement, walls closer than two times the height of the lower wall, walls with more than two terraces, and terraced walls with any structures above.

Terraced walls that do not perform independently must also be evaluated for global stability, and the lower walls must be designed to resist the load of the upper walls.

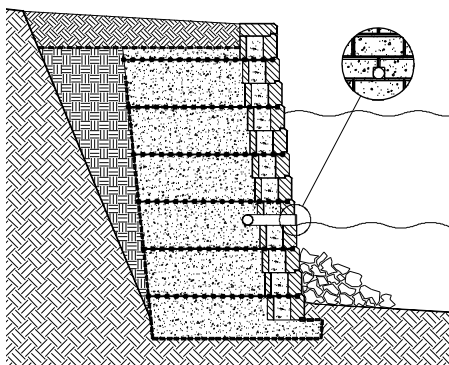


Water Applications

Retaining walls constructed in conditions where there is moving water (streams), standing water with wave action (lakes), or retention ponds are considered water applications.

Water applications must be evaluated and designed to fit the unique characteristics of the site. Consult with a local qualified engineer for design assistance.

Water Application



Fences/Guide-Rails

There are several options for installing fences and guide rails on top of an Allan Block wall. The structure and wind loads of the materials used will determine the placement of the fence relative to the AB wall and if additional reinforcement is required. Refer to the approved plans for construction details.



Lighting

Allan Block's hollow core design makes it easy to install lighting. Cut a hole in the location where the light will be to accommodate the wiring and attachment of the light to wall face. Carefully follow the manufacturer's instructions for lighting and electrical installation, as various fixtures may be assembled differently. Always check local building codes for electrical installation requirements.

