

ECS MASONRY

Erosion Control Systems Pty Ltd

Bolderstone[®]





Retaining Wall System






Details & Dimensions:

Product:	Description:	Description: H x W x D	Code:	Weight/ unit:	No/ M2:	Units/ pallet:
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Blocks

	Split face 225 unit	200 x 440 x 225	3500	28	11.35	60
	Bolstered 225 unit	200 x 440 x 225	3600	27	11.35	60
	Split face Convex 225 unit	200 x 440 x 225	3501	28	11.35	60
	Bolstered Convex 225 unit	200 x 440 x 225	3601	27	11.35	60

Cornerstones

	Left hand split cornerstone	200 x 390 x 190	3110	18.2		72
	Right hand split cornerstone	200 x 390 x 190	3120	18.2		72
	Universal Bolstered cornerstone	200 x 390 x 190	3121	18.2		72

Capping Units

	600mm capping unit	65 x 605 x 320	5136	22.70	1.6/lin m	60
	390mm capping unit	65 x 390 x 320	5133	15.50	2.5/lin m	90



Installation information

Construction guidelines....

Typical walls up to 1.0m in height

Check with your local council to see if there are any regulations relating to your proposed building works. Ensure that all relevant building codes are adhered to.

Constructing the footing:

Excavate a trench 200mm deep and 600mm in width. Fill with a well-graded crushed rock and compact with a mechanical vibrating plate to achieve footing at least 150mm thick. Ensure the footing is well compacted and level.

Laying the base course:

Use a string line when constructing a straight segment of wall. When building a curved segment of wall, use a piece of bent conduit to create the shape you desire, then mark the shape on the ground using spray paint. Placing a 10-20mm bedding layer of mortar on the crushed rock footing will make it easier to level the first course.

Beginning at the lowest point, place units and tap into position using a rubber mallet. Make sure that every block is level from front to back and side to side using a spirit level; this will give the wall a professional look.

Placing drainage material:

Place a 90-100mm drainage pipe adjacent to the back of the first course and ensure it has the required fall to carry the water away to the desired drainage point. Fill the block cavities with crushed rock (FCR Class 2), wet the block in-fill and compact after completion of each course.

Lay geotextile filter cloth to encapsulate the drainage zone. This prevents migration of retained earth into the drainage layer. Using 20mm angular clear stone, create a 300mm drainage layer behind the wall (not scoria).

Installing remaining courses:

Sweep excess crushed rock from the top of the first course of blocks. Insert the plastic keys into the square recesses on the top face of the blocks, orienting the keys as per figure 1 to achieve the desired setback. Place the next course of blocks, ensuring vertical joints are appropriately offset to the course below. Fill the block cavities in the same way as for the base course and continue creating the drainage layer behind the wall in 200mm lifts. Continue this process for all remaining courses.

Finishing off the wall:

When the last course has been installed, place capping units on the top course of blocks, affixing them in place with either masonry adhesive or mortar.

Maximum wall heights....

The maximum wall heights listed below are for gravity walls with no reinforcement. Walls can be built up to several metres if fully engineered as a geo-grid reinforced wall or a canterlevered wall incorporating steel reinforcing and concrete core infill. An engineers design is usually required for walls over 1m in height, walls on a boundary or walls with a surcharge.

Walls 1000mm & under

Gravity wall

Wall Setback:	Offset per course:	Maximum wall height:
1:40	5mm	800mm
1:8	25mm	1000mm

Walls over 1000mm (indicative)

No-fines concrete backed wall

Wall Setback:	Depth of no-fines concrete	Maximum wall height:
1:8	300mm	1200mm
1:8	350mm	1400mm
1:8	500mm	1600mm

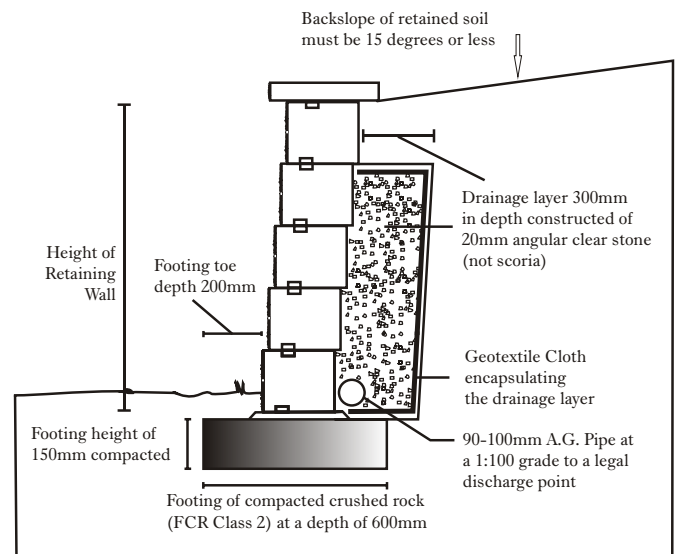
Note: This table is a guide, all retaining walls over on metre in height need to be designed by a qualified engineer.

Geo-grid reinforced walls

Contact us for further information on design and construction.

General Notes:

1. Designed in accordance with AS4678-2002 & AS4678-2002 Amdt No 1 July 2003, for a Class A retaining walls.
2. Retaining wall height is measured vertically from the base of the bottom course to the level of retained infill soil.
3. Crushed rock footing must be embedded in undisturbed natural soil of 100kPa bearing capacity, and if clay, of cohesion >15kPa.
4. No excavation is to be made within a lateral distance in-front of the wall equal to its height.
5. Bottom course is to be embedded 100mm below final ground level



Drawing not to Scale

Figure 1. -Offset Interlocking Keys:



1:40 Setback

1:8 Setback

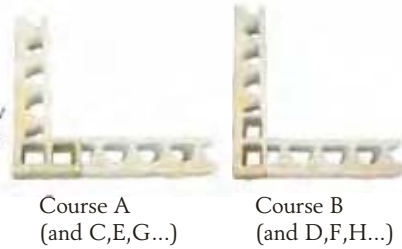
1:4.5 Setback

The orientation of the plastic key determines the setback of the wall. After reading the Bolderstone wall heights table and determining what set back is required, place the keys in the appropriate position as outlined above.

Corners:

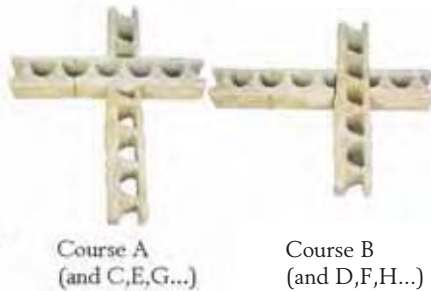
External Corners:

To build an external corner follow these diagrams. Use cornerstones alternatively as you build your wall. Depending on the setback, one block per course may need to be cut to maintain bond.



Internal Corners:

A corner structure is formed by building two walls. On any course, one wall will run through the other wall. This alternates with each course up the wall. Depending on the setback, one block per course may need to be cut to maintain bond.



Curves: (Minimum radius 1.5m)

Concave curves are easily achieved by abutting the front faces of adjacent blocks and gapping the back face.



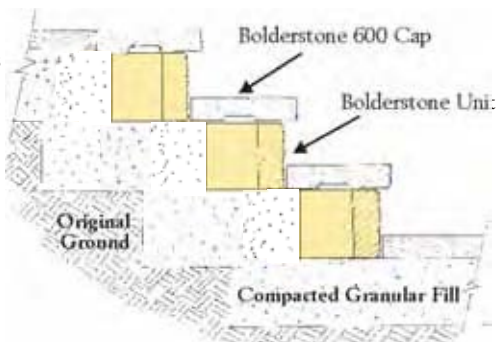
Convex curves are achieved by using the convex block. The specially designed back "wings" are easily knocked-off (on site) to achieve a minimum radius of 1.5 metres.

A Convex block is placed every second block per course. Use the following formula to work out the quantity of convex units required:

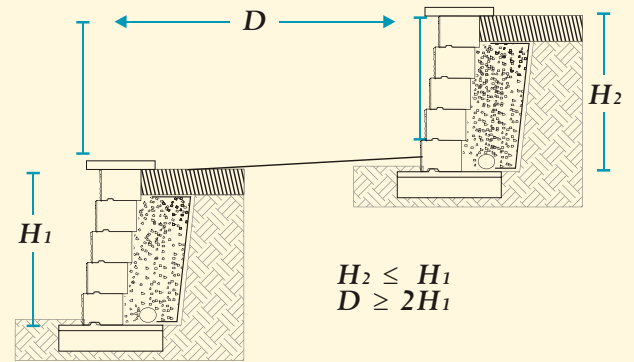
$$\text{Perimeter of Curve in metres} \times 2.3 \times \text{Number of Courses} \div 2$$

Steps:

Steps are easily created using the standard units for stair risers and either the 390 or 600 capping unit for step treads. Stair wells are often designed to be 2 capping units wide giving either an 800mm or 1220mm wide stair structure.



Bolderstone® tiered walls



$$H_2 \leq H_1$$

$$D \geq 2H_1$$

Bolderstone® notes

Colour Variation

Due to the changes in raw material, variations in colour do occur. When ordering your product, order all elements of your project together to reduce the possibility of colour variation. We do not guarantee different batches will be an exact colour match.

Efflorescence

Efflorescence (a crystalline salt deposit) is a natural occurrence in masonry products. Efflorescence does not effect the structural integrity or strength of the product. Efflorescence will usually diminish and disappear in the course of time as the product is exposed to the elements. No responsibility will be accepted for the occurrence of efflorescence.

Delivery

When placing your order please confirm delivery zone pricing and minimum free delivery quantities applicable to your area.

Claims

Claims must be reported within 48 hours of delivery. No claims will be accepted once product has been installed. Please contact the store where goods were purchased to report any concerns regarding product colour or quality.

Colour range



Ivory Autumn Gold Charlestone Bluestone Desert Sand

NOTE: These colours are an indication only, please contact your nearest distributor to view sample colours.

www.erosioncontrol.com.au

For technical assistance please call **1 300 650 195**

your stockist