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Grandwall Retaining Walls

Installation Guide | March 2022

Installation
–
The step-by-step guide to build a Grandwall retaining wall.

Simple steps

1

Permits
Before you begin, check with your local council to ensure all local Building Codes are complied with.

2

Foundation
Compact foundation material with several passes of a mechanical plate vibrator. If any significant variations of foundation material, compaction, soft spots, or ponding of ground water is present, the material should be removed, replaced and compacted in layers not exceeding 150mm.

Trenches need to be de watered and cleaned prior to construction, so no softened or loosened material remains.

3

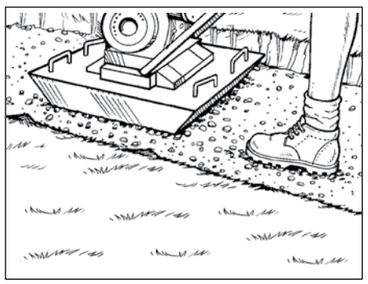
Levelling Pad (footing)
Build facing on a levelling pad, no less than 150mm thick and 300–600mm wide. It should consist of one of the following options:

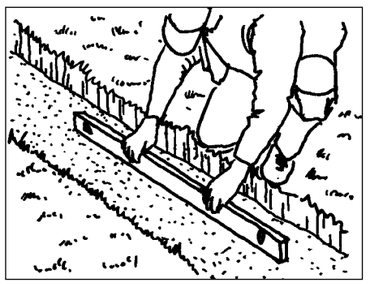
- Compacted road base;
- Compacted crushed rock, well-graded and of low plasticity (without clay content), compacted by a plate vibrator;
- Cement-stabilized crushed rock, with an additional 5% by mass of cement thoroughly mixed, moistened and compacted by a plate vibrator;
- Lean-mix concrete with a compressive strength, at least 15 MPa.

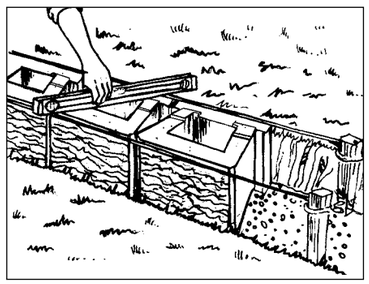
4

First Course
Place the first course on levelling pad and tap into place ensuring blocks are level, front to back and side to side (check with a spirit level). The use of a level and string line is recommended to ensure the first course is laid correctly.

For walls up to 1 metre high, make sure at least 100mm of the first course blocks are buried below the finished ground level. Allow 200mm for walls over 1 metre high and up to 3 metres high. These walls will need to be engineered.



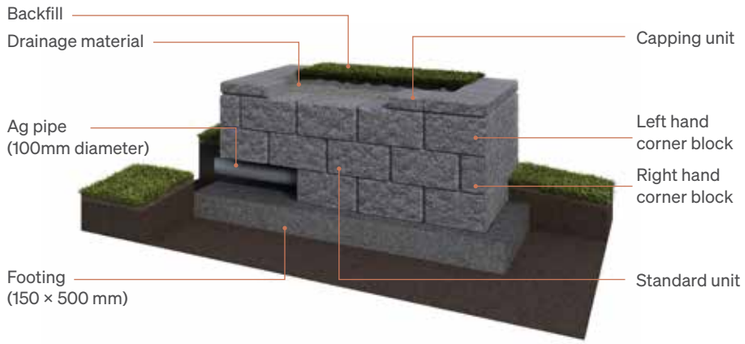




Your tool checklist

- ☐ String line
- ☐ Tape measure
- ☐ Walling units
- ☐ Compaction tool
- ☐ Shovel
- ☐ Spirit level
- ☐ Wheelbarrow
- ☐ Agriculture drain pipe
- ☐ Pegs or stakes
- ☐ Broom
- ☐ Gloves and eye protection
- ☐ Saw (to cut blocks if required)
- ☐ 10–20mm crushed stone
- ☐ Crushed rock (for base)

Retaining wall elements



5

Drainage and Backfill
Place 100mm diameter agricultural pipe with geo textile sock behind the wall, with a 1 in 100 fall. Backfill behind block courses to a width of 300mm using 10-20mm free draining material (eg. crushed rock aggregate / blue metal). Ensure each block is also well filled with free-draining material.

Backfill behind the drainage layer with selected backfill material in a maximum of 200mm layers. Compaction rate of 95% must be achieved (use only hand operated plate compactors within 1 metre from the back of the wall). Do not use expansive clays to backfill. Be careful not to mechanically compact too close to the wall.

6

Laying Additional Courses
Clean any debris from the top of the wall to ensure the next block sits perfectly. Ensure each block is filled with free draining material, and place next course on top.

Place the drainage material behind the blocks to 300mm. Stack units, placing drainage aggregate and compact backfill for each block layer until the wall is complete.

When using no fines concrete for Grandwall walls it is recommended that you break 20–30% of the back 'wings' off to allow backfill material to lock into the block wall.

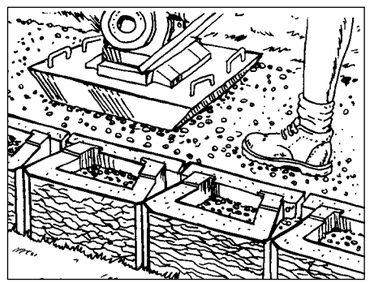
7

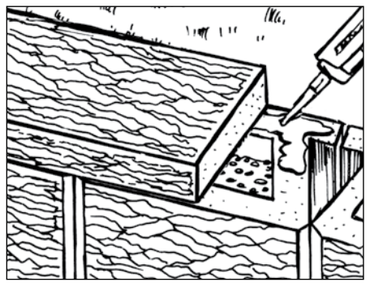
Capping Units
Once backfilling and cleaning is completed as per Step 5 and Step 6 fix the purpose made Capping Blocks with a flexible adhesive.

8

Maximum Wall Height
This information should be viewed as a guide only. The particular circumstances of retaining wall projects vary significantly in ways that often dictate the use of particular materials and techniques to address challenges presented by those circumstances.

Austral Masonry recommends you obtain appropriate professional advice tailored to your circumstances before commencing retaining wall projects.

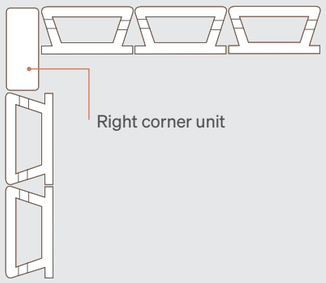




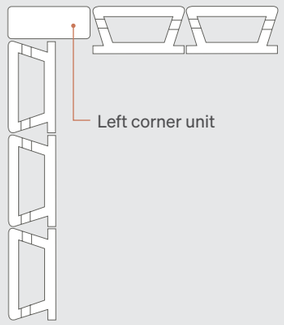
Installing corners

External corners

Even corners

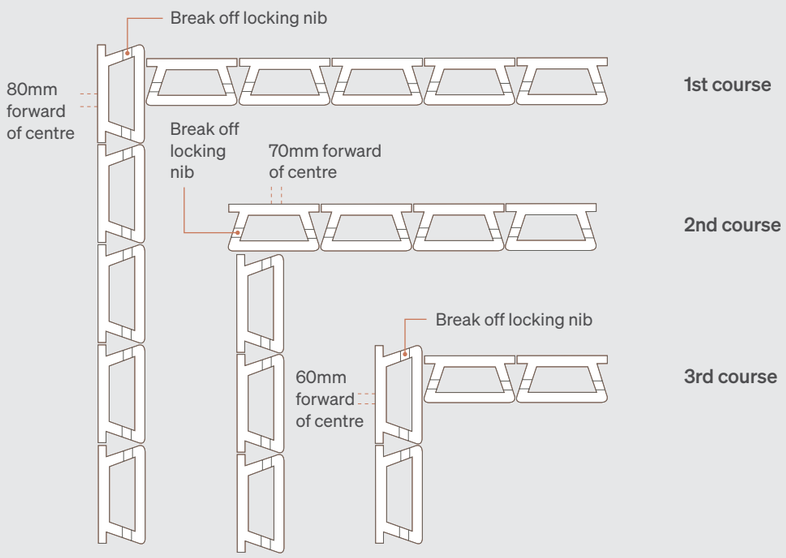


Odd corners



When creating a corner
Locking nib on top of each block to be chipped off at wall block next to external corner to fit next course corner unit.

Internal corners



Installing curved walls

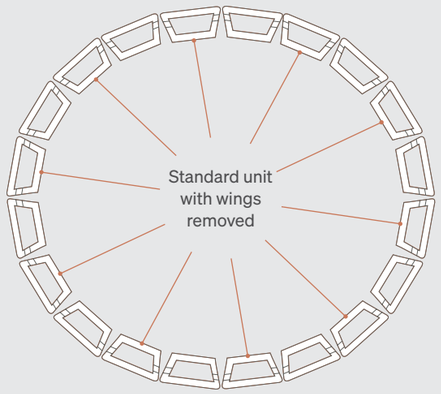
Circular walls

These blocks can be used to create circular walls with ease. Make sure to plan out the laying of the blocks by plotting the first course before getting started. Pay careful attention to spacing of the blocks as you lay them to ensure the circles angle allows full blocks to be laid around the circumference of the wall.

When creating a circular wall

- The smallest circle achievable should be composed of 20 blocks giving a 1.250m radius. This is for the top course.
- If there are two courses below the top course the first course of a three course wall needs 8mm gaps between blocks which will act as weep holes.
- The middle course needs a 4mm gap between each block.
- Where a 12mm set back can be achieved the radius decreases by 24mm and circumference by 76mm for the course above.
- The 10mm set back between each course increases as curves get tighter. Tight curves will need nibs and cores trimmed for 12mm set back.
- The wall circumference will be larger at its base compared to the top.

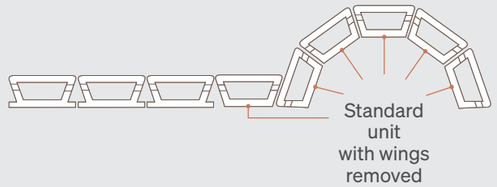
Circular wall layout



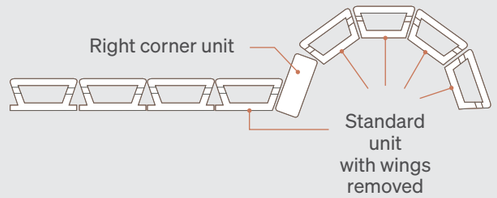
Straight walls with curved sections

Grandwall blocks can be used to create circular walls with ease. Make sure to plan out the laying of the blocks by plotting the first course before getting started. Pay careful attention to spacing of the blocks as you lay them to ensure the circles angle allows full blocks to be laid around the circumference of the wall.

1st course



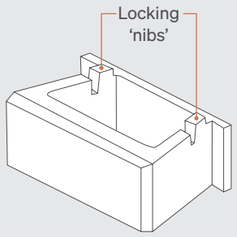
2nd course



Block Details

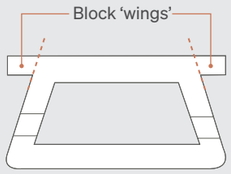
Removing block ‘nibs’ on corners

Using a hammer or mallet, knock off one concrete nib to fit next course corner unit.



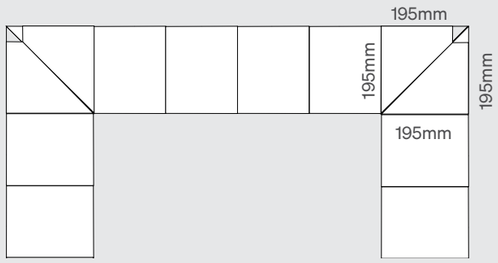
Removing block ‘wings’ on curves

The Grandwall blocks have been designed with ‘wings’ on either side that can be removed when constructing curved walls. Simply use a hammer or mallet to knock these off as required.



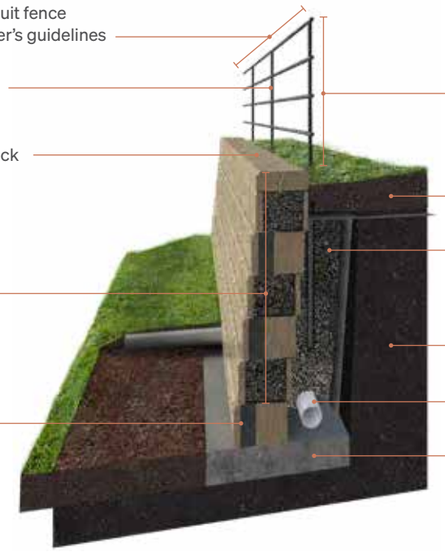
Capping layout

90° Corners



Fences

Typical cross section

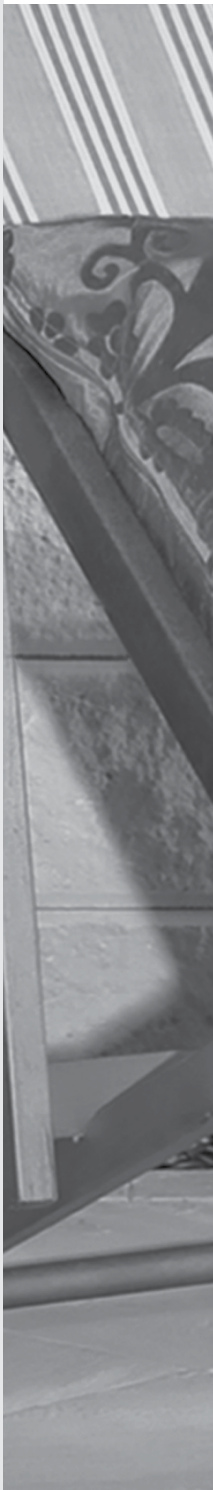


When installing a fence

- Fence posts should be embedded a minimum of 800mm from top of cap, and post encased with concrete. All other cores to be filled with gravel for drainage, or ‘no fines’ concrete as required. This embedment depth is for open fences only, where no wind loading is imposed on the wall and no impact loading is applied.
- Walls must be suitably designed to accommodate additional wind loading imposed on all types of closed fences; for example, increasing the embedment for the posts.
- When incorporating fences into the Grandwall Retaining wall system, the fence posts are to be placed behind the wall as shown.

Need more help?

Visit. australmasonry.com.au
Call. 1300 Masonry



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