

HOW-TO Timber Walls

This guide has been written and compiled for the home handyperson. Following these instructions will help you achieve an excellent result that you will be proud of. This is by no means the only way to construct a timber retaining wall. For a truly professional finish, we suggest you contract a professional landscaper to do the job for you.

When working with CCA treated timber as well as using power tools and equipment, always take appropriate safety precautions such as wearing a respiratory mask, safety glasses, steel cap enclosed footwear and heavy duty gloves. Always wash your hands and clothing after handling CCA treated timbers.

DISCLAIMER:

The contents of this publication are intended as a general guidance only. Specifications are subject to change without notice. Centenary Outlet cannot accept any liability whatsoever in respect to the content of this publication or the work performed using these methods. If you are unsure always seek the advise of professionals.

Building retaining walls using treated pine and hardwood sleepers or logs provides a natural and attractive way to retain and develop your property. They provide an excellent combination of strength, ease of installation, cost and long term maintenance.

Here's a few considerations before commencing your retaining wall project:

- You may need to seek council approval for retaining walls over a certain height. All councils have different regulations. In Brisbane, you can build your retaining wall without council approval provided it meets a couple of criteria outlined on the Brisbane City Council Website including being under 1 metre in height and more than 1.5 metres away from another building or structure. Refer to your local council for further advice.
- If your wall is to be built on a boundary, talk to your neighbours about your plans. There are regulations around boundary fences and walls in Brisbane and you should conduct further research with your council before undertaking a boundary line project.
- Large retaining walls over 1 metre in height should be left to the experts. Likewise, if your wall is close to the house, pool or boundary we recommend seeking professional advice.
- The timber variety you choose will not only impact the visual appeal of your wall but also its longevity. As timber is a natural biodegradable material, it will inevitably degrade and need replacement. Hardwood is stronger than pine, so ensure you do not exceed the structural limit of a pine sleeper. This will cause it to degrade and fail faster. All landscape grade timber is treated to a H4 level. This is for continued contact with the ground and earth. But there are higher levels of treatment available for where timber will come in contact or be submerged in water or buried.

CHECK WITH YOUR COUNCIL

Low garden edging can usually be installed without council approval. However, walls over 1m will generally need to be designed and certified by a suitably qualified engineer.

Walls in locations close to buildings or driveways, in places where significant ground water or storm water build up can be expected, in steep or unstable terrain, or where there is reactive clay or fine sandy soils, may need special attention. If in doubt, please contact your local council.

Detailed herein are the recommended steps to follow in constructing your own 1 metre high by 12 metres long retaining wall and the appropriate materials to suit. You may alter the dimensions to suit your situation however this will change your materials list.

STEP ONE Materials

The construction should be conducted over two phases. The first phase involves laying out and concreting the posts in the ground and the second phase is the construction. Between phase one and two we recommend a five day break (from one weekend to another) but construction can commence 24 hours after setting the posts.

- Posts - 6 x 2.4m x 200x75mm Treated Hardwood Sleepers
- Rails - 25 x 2.4m x 200x75mm Treated Sleepers (choice of Hardwood or Pine)
- 50 x 200mm x 12mm (M12) Galvanized cup head bolts with matching nuts and washers. A quantity of 100mm nails to secure post supports while concrete sets.
- Geo-Fabric - 6 x 1.6m Lengths (available at 2m wide off the roll)
- Ag-pipe - long enough to drain water from behind the wall to a gutter, drain or discharge point.
- 1m³ (1.5 Tonne) of 20mm Drainage Gravel for drainage behind the wall and at the bottom of each post hole.
- 12 Bags of cement and 1m³ (1.8 Tonne) of Concrete Blend (a 5:1 ratio mix of blend to cement) for setting the posts.
- 12 x 2m timber brace supports for use while setting the posts. Some scrap pine fence rails or palings work perfectly.



Use a timber planer to dress the sleeper and arris the edges for a cleaner and more professional look.

Tools:

- Appropriate Safety Gear
- Circular saw or hand saw
- Tape measure
- Spirit Level
- Power drill and 12mm auger bit
- Shovel & Digging Spade
- Crow bar for use while digging
- String Line
- Wheelbarrow
- Concrete mixer
- Spanners or socket set
- Scissors of box cutter knife
- Clamps
- Carton of XXXX

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YOUR FIRST CHOICE FOR SECONDS!

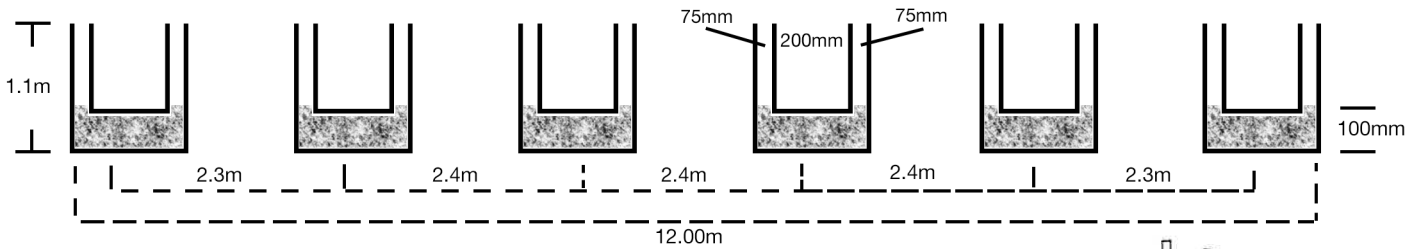
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STEP TWO Preparing the Post Holes

Using a stake at each end, lay a string line along where the front edge of the posts will be. If the retaining wall is to be built on your boundary, ensure there is no encroachment on neighbouring land when allowing for the batter (see step 3).

Mark the centre of each post hole. All posts should be 2.4m apart from centre-to-centre, except for the two end posts which should be 2.3m apart from centres (this will give a 12 metre long wall using 2.4m sleepers as rails). Each hole should be 1.1m deep and around 400mm x 400mm in width. This will be tough going with a shovel and spade. For larger jobs such as this we recommend contracting a bobcat operator with post hole attachment to dig the holes for you. This is a small job for a machine and they would charge you a minimum call out fee. But what would take you the best part of the weekend to dig by hard will take less than 20 minutes by a skilled machine operator.

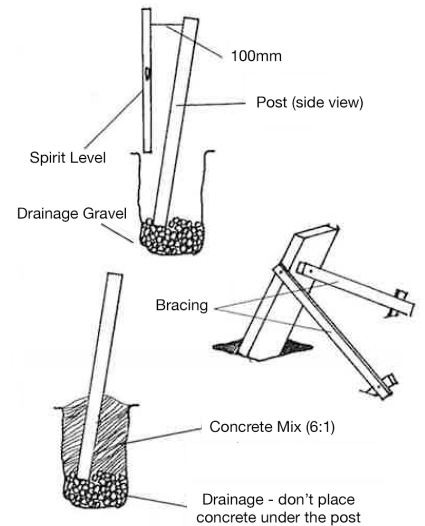
Dig all holes ensuring to check alignment after each one. When they're all dug, place 100mm of drainage gravel in each hole and tamp down. Your timber posts will rest directly on the gravel keeping water away from the timber and also gives you some finer adjustment on post height prior to setting. The width of the hole should leave around a 75mm gap between the post and the edge of the hole for concrete.



STEP THREE Setting the Posts

Place in one of the end posts and set it at the required angle (batter) by standing a spirit level upright on the side of the hole and in line with the bottom of the post. When the levels are plumb measure back 100mm and move to the top of the post to this position. Is it now at the correct angle (a one in ten slop approximately.) When the posts is at the correct batter, hold and brace the posts securely with timber supports. Complete this process at the other end of the wall and when you're done run two string lines between both the bottom and top of each post. This will give the correct line positions for the other four posts. Position and set the other posts using the string line as guides. Setting your line from the outer posts is recommended and will give a better result. It ensures your start and end point are spot on.

When all posts are in line, correctly placed and securely braced, remove the string line and concrete the posts in. Fill the holes up to ground level with a slope leading away from the posts for drainage. Now leave until the next weekend for the concrete to set (or at least 24 hours).



STEP FOUR Attaching the Rails

Once the concrete is dry, remove all the bracing. Starting at one end, measure the distance from the edge of the post to the centre of the second post. This should be 2.4 metres. Transfer the measurement on to the first rail and cut to size. Place in position (level with a spirit level) and hold it in place temporarily with clamps or nails. Continue the full length of the bottom run until all rails are in position and then come back through and bolt in place using a bolt at each end of each sleeper rail (10 bolts in total).

You may skew nail all other rails to allow for shrinkage as the timber seasons. But in most cases a bolt will give a stronger and better result. On sloping ground, the bottom rail must be kept at right angles to the posts.

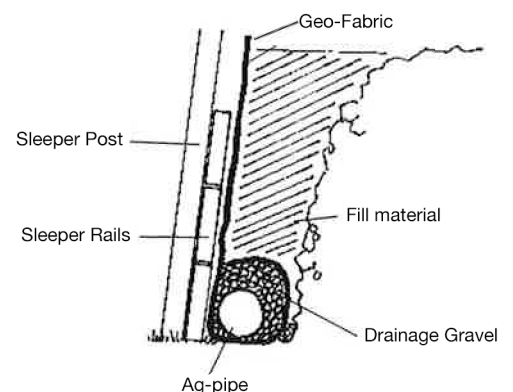
We recommend resealing any cuts made in the timber with timber preservative such as Eco Seal Timber Preservative.

STEP FIVE Drainage

Drainage is an essential component of any type of retaining wall. Without adequate drainage, the retaining wall may very well fall over with a high volume of water and weight behind it. You are really building a mini dam, so always ensure your drainage is up to scratch.

Position the geo-fabric down the inside of the wall in the shape of a well or dam. The fabric should remain in place lining the back of the sleepers and then encapsulating your drainage solution.

Position the ag-pipe at the base around 75mm from the back of the wall ensuring that there is adequate fall to allow water flow towards a discharge point and then encase in drainage gravel and wrap back over with the excess fabric. The pipe should drain away to a gutter, pit or other discharge point, not your neighbours! Do not connect it to your houses existing storm water system, because the excess flow from the house may cause it to back up and may damage the wall.



Continue to fill up the void with free draining fill material such as Ash, Gravel or Organic Dirt.