

WHAT YOU'LL NEED

Take this into store with you to make sure you get everything in one trip. For this project the following materials and equipment are required:

TOOLS:

- ☐ Two man petrol post hole borer with 350mm auger and extension (able to drill to 1.5m deep). If building a smaller wall you can use a one man post hole borer or dig the holes yourself.
- ☐ Chainsaw with petrol and bar oil
- ☐ Circular saw
- ☐ RCD
- ☐ Saw stools x2
- ☐ Concrete mixer
- ☐ Wheelbarrows
- ☐ Shovels
- ☐ Hose and attachments
- ☐ Brooms
- ☐ Dazzle
- ☐ Stringlines
- ☐ Spirit level
- ☐ Power leads
- ☐ Hammer
- ☐ Spade
- ☐ Shovel
- ☐ Sledgehammer
- ☐ Handsaw
- ☐ Pencil
- ☐ Ruler
- ☐ Tape
- ☐ Builder's line
- ☐ Utility knife



MATERIALS:

- ☐ 200 x 50 H4 rough sawn timber
- ☐ 150mm H5 posts
- ☐ 100mm galvanised flat head nails
- ☐ 1.5mpa concrete
- ☐ 100mm drain coil with filter sock
- ☐ Gap 20mm scoria

Step 3

Run string lines between the end posts at top and bottom and use these to line up the intermediate posts. Always pack the string line 10mm off the post and use a 10mm packer when positioning the intermediate posts – this stops a slightly out-of-line post affecting the string line. Once all the posts are in position, concrete them into place and allow to dry for 48 hours.

Step 4

Once the concrete has dried, remove all the bracing. Next, run a string line along the bottom of the posts to give a straight line to sit the first boards along. Place the horizontal boards on the back of the posts. Make sure the board joints are behind posts. Fix with galvanised nails at each post – 150mm nails for half round rails and 100mm nails for 50mm thick planks. Stagger the end joints in the rails so that butt joints occur on alternate posts.

Trim the top of the posts to height – this may require the use of a chainsaw. Make sure you paint some timber preservative on the top of the post once cut. It's also advisable to cut the tops of the post at an angle to prevent water sitting on the tops of them.

Step 5

When all the rails are in place, lay 100mm depth of drainage scoria along the bottom at the back of the wall. Place a filter sock over the drain coil (to prevent it silting up) and then lay the drain coil on top of the metal and lead the ends to where they can discharge into the open. Ensure the drain coil has some 'fall' (i.e. slopes down the length of the wall to allow water to run out). If possible, have the drain coil accessible at both ends so it can be flushed out. Cover the drain coil with 250mm of drainage scoria and overlay it with the geotextile fabric – this will reduce the silting up of the drain coil.

Continue to fill with drainage metal, ensuring that there is a minimum of 300mm against the wall. The rest of the gap between the wall and the bank may be filled with well-compacted excavated material. The backfill and drainage metal can be kept separated by unrolling geotextile fabric as backfilling proceeds or by a rigid sheet of metal or hardboard or plastic which is slid up as the work progresses.

Finish backfilling 100mm below the top of the wall and lay geotextile fabric across the top of the drainage gravel. The top 100mm can be covered with topsoil where plants can be grown, lawn laid or grass seed sown.

• Save effort by buying timber cut to length at the timber yard, but remember to buy longer posts if you are setting them in concrete instead of post brackets. Always remember to measure twice - cut once.

EXTERIOR DIY

HOW TO BUILD A RETAINING WALL



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Building a retaining wall is a great DIY job. It can be hard work, but it's a good, simple, satisfying job that if done properly will look good and stay strong for decades.

BEFORE YOU START

Legal/Building Requirements:

- This is how to build a timber retaining wall up to 1.5m high consisting of posts embedded in the ground and horizontal rails. It includes drainage behind the wall to prevent the build-up of water which could overload it. Suitable soil types for this type of wall are granular – such as firm gravel, stiff clay and sand or rock – or a mixture of these.
- The wall detailed is not suitable for walls higher than 1.5m or where the wall supports a driveway, parking area, the weight of a bank or building above the wall – in these cases you must have the wall designed by an engineer and a building consent obtained. It's also not suitable for soil types such as very soft clays (when they are wet you can easily squeeze the clay between your fingers), peat, made-up ground, fill or topsoil.
- For a low retaining wall, the posts must go 100mm into the ground for every 100mm retained above ground. Walls higher than 1.5m may require a building consent in some regions. Make sure you check with your local council for specific regulations.

Mitre 10 Safety Hints:

- **For retaining walls 1m or higher, the New Zealand Building Code may require a safety barrier at the top. In domestic situations this is likely to be required where the wall is beside an access path to the house.**
- Before you start digging, check with your local authorities to check the location of pipes and cables. You don't want to hit anything you shouldn't.**

Step 1

- Start by making sure you have a clean surface to work with (face of the wall). You may need to get a digger in if you're working with a large space but for a usual DIY job, a shovel will do just fine. Next, place start and finish pegs in the ground. These should be 300mm from the wall face to the centre of where the post will sit. Attach string line to the pegs and then mark where each post will sit. The spacing of vertical posts will depend on the size of post and rails used. A 150mm square post can be placed at up to 900mm apart. If 200 x 200mm square posts can be obtained, the spacing can be increased to 1200mm. The same applies for 150mm round posts.

Step 2

- Use a post hole borer to dig 300mm diameter holes so that the total depth is as deep as the wall is high. Angle the borer to allow for the slope of the poles 1:10 (so the posts lean 100mm for every 1m of height). Place about 100mm of drainage metal (scoria) in the holes and then put the two end posts in place. Brace all the posts temporarily in position so that they are vertical when viewed from the front, but slope towards the bank at 1:10.

Stay Safe:

- **Power tools make the completion of projects much easier, but appropriate safety equipment when using power tools is strongly recommended. Ear protection, eyewear and sturdy footwear should be considered the minimum requirement when using power tools and always use a residual current device when using electric power tools.**



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