

#### Modular pre-cast concrete steps and retaining wall with Terraforce 4x4 step blocks

Interlocking concrete terrace blocks are manufactured in various shapes and sizes especially for retaining walls and Terraforce blocks can easily be used to make steps too. They are simply laid on their sides to form treads, and filled with a very weak mortar mix for stability. This project combined both possibilities in the garden where a pool deck was constructed. Although the slope was not particularly steep, the earth was unstable, and building a retaining wall was the easiest way to stabilize it. In addition, blocks were laid along the 6 m long stairway, creating attractive planters. This is one of the simplest projects, and requires no special skills.

#### Preparation

1. Although it is not always necessary to throw a concrete foundation, it is essential to prepare a level, well-compacted base for low retaining walls. Establish where the wall will start and excavate a trench about 600 mm wide and 6 m long.
2. Pile the soil on one side. Unless you have clay soil which does not drain well, this can be used to backfill the wall (see step 5). If you cannot use the existing soil, you will have to bring in additional topsoil and sand for a drainage layer behind the blocks.
3. Use a spirit level to check that the foundation is level before you start laying the blocks.
4. If the ground slopes, step the trench and use an extra course of blocks on the lower levels.

#### Retaining wall

5. Start laying the blocks, leaving a gap of about 200 mm between the excavated slope and the row of blocks. Lay them as shown, so that each corner slots into the next. They must interlock to give the wall strength and stability, but since modular blocks designs vary, be sure to follow any manufacturer's instructions. The wall is backfilled with well draining sand which is then compacted. If there is a problem with water seepage or clay soil, you will need to incorporate a drainage layer of stone or coarse river sand.
6. Once you have laid a course of blocks, fill them with fertile soil.
7. Lay the second row of blocks over the first, but slightly further back, so that the holes in the bottom blocks are partly visible. Once the wall is complete, 'pockets' can be planted.
8. Use a spirit level frequently to ensure that the horizontal surface is flat and level. A builder's line will help you keep the wall straight as you work.
9. Continue laying the blocks until the required height is reached.
10. A good way to ensure proper compaction is to water the soil-filled blocks once they are in position. Any gaps can be filled with more soil.







#### Steps

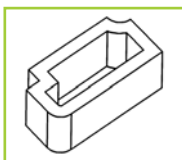
11. The steps can be as wide as you wish; four blocks in a row will result in a flight 800 mm wide. With an overlap of 50 mm, a single block tread of 350 mm and a riser of 150 mm is obtained, although a double row will work well on a gentle slope and where the steps curve. After positioning the blocks, push mortar into the hollow of each block. This is only required when the blocks are supplied without an inside web.
12. Compact the soil behind each step and ensure that the ground is absolutely level before you start laying the next row of blocks. In some instances it may be advisable to place a bedding layer of stabilized sand below the blocks (5% cement added) **Note! – Steeper slopes and seating arrangements can be built with these blocks. Check for details on [www.terraforce.com](http://www.terraforce.com)**

#### Planters

13. Lay additional blocks lengthways alongside the steps, with the hollows facing upward. Where necessary, stack them so that the blocks are higher than the treads.
14. Fill these blocks with fertile soil in order to create the planters.
15. If the steps curve, there will be gaps in some parts of the treads. Fill these gaps with mortar or plant a ground cover between the units.

#### Finishing

16. Plant the wall and the edging of the staircase with hardy creepers or climbers- and soon the structure will be covered in greenery. Where applicable refer to the **Terraflora** water-wise planting guide.



The TERRAFORCE 4x4 step block



In combination with other Terraforce blocks



Stand alone stairs