

Building a Wall

Foundations for walls (level ground)

Structures of any sort need good, solid foundations to spread the load and carry it down to firm and stable earth. Only then will a freestanding wall or concrete post have enough lateral stability.

Dimensions of a foundation (depth and width) will depend on two main factors.

1. The load or weight distribution of proposed construction.
2. The prevailing ground conditions.

A concrete masonry wall, for instance, would normally require only a moderately shallow strip-footing.

General garden walling construction notes

A good rule of thumb regarding concrete strip-footings is that it should be dug to twice the width of your wall's thickness. i.e. if your wall will be 225mm (9") thick, you will want to ensure that the strip footing is at least 450mm (18") wide. This is fine for walls built on good ground, which will not exceed 750mm (30") in overall height. For a wall that will be higher than 750mm make the footing three times the thickness. All footings should be a minimum of 150mm (6") in depth, with the bottom 350 - 400mm (14-16") below ground level on most soils. For clay soil however, thicker and deeper footings should be used.

The top of the footing should be about 225mm (9") below ground-level so as to allow for plants and to reduce any risk of weakening foundations if trenches are later dug for plants.

Foundations for walls (sloped ground)

On sloping ground, footings are required to be stepped.

Overview:

1. Dig out to the required depth and width.
2. Set level pegs for the top of the footing. The simplest way to do this is to measure down from a straightedge or string line spanning between pairs of pegs straddling the foundation lines.
3. Concrete up to the top of the level pegs using a foundation mix. With a high-workability mix, little or no additional compacting will be necessary.
4. Tamp the surface so that it becomes level with the pegs. Use the tamper lengthwise in the trench. Any slight irregularities at this point will not matter, as you will be able to compensate for this during the first course of masonry.

Additional notes on soil types:

Foundations in moisture-susceptible soils

Keep in mind that some clay soil types, depending on their moisture content, can shrink or expand over time to provide foundation problems. Also vegetation i.e. trees and shrubs, can remove enough of the soil's moisture content during dry weather to cause significant shrinkage and settlement. The opposite can be true if trees and shrubs have recently been cut down. The area that will be affected is likely to be in the region of the tree's original spread of branches prior to cutting.

Foundations in aggressive soils

Some soils can contain sulphates or similar. This may be resident in ground, which is reclaimed by filling with waste. On these occasions, a special Portland cement mix containing a sulphate-resisting cement must be applied. Note: it may not be enough to simply substitute sulphate-resisting cement for ordinary cement without altering mix proportions.