How to Calculate Concrete for a Garden Foundation

Planning a garden project often means building something solid: a new shed base, a patio, a greenhouse slab, or a path. The biggest question when you get to that stage is how much concrete you need. Getting the volume wrong can mean running short halfway through the pour or paying for a load you do not use. Both are frustrating and avoidable.

This article walks through the steps to work out the right amount of concrete for a garden foundation, with practical things to watch at each stage. The process is the same whether the job is a small DIY slab or a larger domestic project, and the tips here will help you order with confidence.

Step 1: Measure the Foundation Area

The starting point is the shape of the foundation. Most garden foundations are rectangles, but you may also have square, circular, or irregular shapes. For a rectangle, measure the length and the width in metres. Use a tape measure and take the reading at the widest points, not the inner edges. If the ground is uneven, measure along the top of the planned slab. Write both numbers down.

For a circular base, measure the radius (half the diameter) from the centre to the outer edge. For an irregular shape, break it into smaller rectangles or triangles, measure each separately, and add the areas together. A sketch on paper helps avoid missed sections.

What to watch: do not round measurements up or down too early. Keep them to two decimal places until the final calculation. A small error in length or width can multiply into a noticeable difference in volume when you multiply by depth.

Step 2: Decide the Depth

The depth of the concrete depends on what the foundation will carry. A garden path or a lightweight greenhouse needs less thickness than a shed full of heavy equipment or a patio that takes foot traffic and furniture. Typical depths for garden foundations range from 75 mm to 150 mm. Check the guidance for the specific structure you are building; manufacturers of sheds and greenhouses often recommend a minimum slab thickness in their installation instructions.



For a general rule: paths and light structures work at 75 mm to 100 mm. Sheds and greenhouses suit 100 mm to 125 mm. A driveway or area that will support a vehicle needs more, usually 150 mm or thicker, and may also require reinforcement with steel mesh or fibres.

What to watch: depth is the most common source of error. People measure the length and width carefully but guess the depth. A 10 mm difference in depth across a 3 m by 2 m slab changes the volume by about 0.06 cubic metres, which can be half a bag of ready-mix. Measure the formwork height or the planned excavation depth with a ruler, not by eye.

Step 3: Calculate the Volume

With length, width, and depth in metres, multiply them together. The result is the volume in cubic metres. For a rectangular slab: length x width x depth. For a circle: pi (roughly 3.14) x radius squared x depth.

An example: a shed base 3 metres long, 2.5 metres wide, and 0.1 metres deep gives 3 x 2.5 x 0.1 = 0.75 cubic metres. That is the volume of concrete needed before any allowance for waste or compaction.

What to watch: double-check your units. Depth is often given in millimetres, but volume calculations need metres. Convert millimetres to metres by dividing by 1,000. So 100 mm becomes 0.1 m. Forgetting this step will make the volume ten times too large or too small.

Step 4: Add a Waste Allowance

Concrete does not always go exactly where you plan. Some is lost when you level the surface, spill a little during the pour, or need extra to fill low spots in the ground. A standard waste allowance is 5% to 10% of the calculated volume. For a 0.75 cubic metre slab, adding 10% gives 0.825 cubic metres. This small extra amount prevents a frantic trip to buy more concrete halfway through the job.

What to watch: do not over-allow. Adding 20% or more means ordering too much, and the leftover concrete must be disposed of properly. It cannot go down drains or into the garden. A sensible 5% to 10% covers most domestic pours.

Step 5: Choose the Right Strength Grade

Concrete is not all the same. The strength grade, usually given as a C number such as C20 or C25, tells you the compressive strength of the hardened concrete. For garden foundations, a C20 mix (often called GEN3) is common for paths, patios, and shed bases. C25 is stronger and suits heavier loads or thinner sections. C30 and above are used where extra durability is needed, such as for vehicle access or exposed areas.



The strength grade affects the mix proportions of cement, aggregate, and water content. A higher grade typically uses more cement and less water. The supplier can advise on the standard mix for your job if you tell them the use.

What to watch: do not assume a higher grade is always better. Stronger concrete can be harder to work with and more expensive. It may also shrink more as it cures, leading to cracks if the slab is not properly reinforced or cured. Choose the grade that matches the load, not the strongest available.

Step 6: Decide Between Ready-Mix and Bagged Concrete

For garden projects, you can buy concrete as ready-mix delivered by a truck or as bagged mix from a builders' merchant. The choice depends on the volume, access, and your schedule. Ready-mix is efficient for larger pours: the truck arrives, the concrete is already mixed, and you pour it directly into the formwork. For smaller jobs, a cubic metre or less, bagged mix can be more practical because you mix it on site with a mixer or by hand. Bagged mix also allows you to work at your own pace.

What to watch: delivery access matters. A ready-mix truck is large and needs a clear path to within a few metres of the pour site. If the garden is behind a house with narrow gates or steps, the truck cannot get close. In that case, bagged mix or a smaller concrete pump may be options. Check the access before you order. A supplier like Stacey Concrete can help you think through the delivery logistics for your site, though the final decision depends on your specific layout.

Also consider the load size. A ready-mix truck carries a minimum volume, often around 0.5 to 1 cubic metre. If your calculated volume is below that, bagged mix or sharing a load with a neighbour may work better.

Step 7: Order and Prepare the Site

Once you have the volume, strength grade, and delivery method, place the order. Give the supplier the volume including the waste allowance, the strength grade, and the date and time you need it. If using ready-mix, confirm the delivery access: the driver needs to know if there are low-hanging branches, narrow gates, or soft ground.

Before the concrete arrives, prepare the site. The ground should be excavated to the correct depth, compacted, and lined with a sub-base of hardcore or MOT type 1 if the ground is soft. Formwork (wooden boards) should be in place to hold the concrete at the right shape and level. Have tools ready: a shovel, a straight edge for levelling, a float for finishing, and a wheelbarrow if you need to move concrete from the truck to the formwork. A helper makes the pour much easier.

What to watch: timing. Ready-mix concrete starts to set within a couple of hours, especially in warm weather. Have everything ready before the truck arrives. If you are mixing bagged concrete, work in batches and keep the mix consistent. Do not add extra water to make it easier to work; that weakens the concrete and increases the risk of cracking.



Step 8: Pour, Level, and Cure

Pour the concrete into the formwork and spread it evenly. Use a straight piece of timber or a screed board to level the surface, moving it across the formwork in a sawing motion. Fill any low spots as you go. After levelling, use a float or trowel to smooth the surface. For a non-slip finish, you can brush the surface lightly with a stiff broom before it sets completely.

Once the concrete has stiffened enough (usually after a few hours), cover it with plastic sheeting or damp hessian to stop it drying too fast. Curing takes at least a few days, and the concrete gains strength over weeks. Keep it moist and protected from direct sun and wind during the first week.

What to watch: do not walk on the slab too soon. Concrete can look set on the surface but still be soft underneath. Wait at least 24 hours before light foot traffic, and longer for heavy loads.

Check the curing guidance from the supplier for the specific mix you used.

Calculating concrete for a garden foundation does not need to be complicated. Measure carefully, allow for waste, choose the right strength grade, and prepare the site properly. A supplier that knows domestic projects, such as **Stacey Concrete**, can help you confirm the details before you order. With the right volume and a solid plan, the pour goes smoothly and the foundation lasts.