Does the concrete grade matter for footings and retaining walls?

Why concrete grade matters for structural work

When you are planning footings or a retaining wall, the type of concrete you choose is not just a detail, it is a decision that affects how long the structure lasts and whether it can handle the loads placed on it. The grade of concrete, often expressed as a strength class like C25 or C30, tells you the compressive strength the mix is designed to achieve. For footings that support a building or a wall that holds back soil, getting this right matters a great deal.

Many people assume that all ready mix concrete is basically the same, but the differences in cement content, aggregate size and water content change how the material behaves once it sets. A mix that works perfectly for a garden path may not be suitable for a foundation that has to carry several tonnes of load. Understanding what grade you need before you order a concrete mix delivery can save you from expensive problems later.

What concrete grade actually means

Concrete grade is a shorthand for its compressive strength after 28 days of curing. A C20 mix, for example, has a characteristic compressive strength of 20 newtons per square millimetre. C30 is stronger at 30 N/mm². The number tells you how much weight the concrete can bear before it starts to crack or fail. For structural elements like footings and retaining walls, the grade must match the load they will carry and the ground conditions they sit on.

The grade is determined by the proportions of cement, aggregate and water. More cement generally gives higher strength, but it also affects workability and cost. Too much water weakens the mix, which is why ready mix suppliers control water content carefully. The aggregate size also matters, larger aggregate can reduce the amount of cement needed but may make the mix harder to place in narrow trenches or around reinforcement bars.

Footings: the base of the structure

Footings transfer the weight of a building or wall to the ground below. They need to spread the load evenly so the ground does not settle unevenly, which can cause cracks in the structure above. The concrete for footings must be strong enough to carry that load without crumbling, but it does not always need to be the highest grade available.



For domestic foundations, such as those under a house extension or a garden wall, a C25 mix is commonly specified. It offers good strength for most residential loads and works well with typical reinforcement. For heavier structures, like a garage or a small commercial building, C30 or even C35 may be required. The ground type also plays a role, if the soil is weak or prone to movement, a stronger mix or deeper footings may be needed to compensate.

One thing to watch for is the depth and width of the footing. A wider footing spreads the load over a larger area, which reduces the stress on the concrete. But even with a generous footing, if the concrete grade is too low, the material itself may fail under pressure. That is why engineers specify both the dimensions and the concrete grade together.

Retaining walls: holding back the earth

Retaining walls face a different set of challenges. They must resist lateral pressure from soil and water behind them, as well as the weight of the wall itself. The concrete needs enough strength to handle bending and shear forces, not just compression. A wall that leans or cracks because the concrete was too weak is a serious safety risk.

For a typical garden retaining wall up to about one metre high, a C25 mix is often sufficient, especially if the wall is reinforced with steel bars. For taller walls or those in areas with heavy clay soil that expands when wet, a stronger mix like C30 or C35 may be necessary. The reinforcement design also depends on the concrete grade, higher strength concrete can work with less steel in some cases, but that is a decision for a structural engineer.

Water content is especially important for retaining walls. A mix that is too wet can shrink more as it cures, leading to cracks that let water seep through. Over time, water pressure behind the wall can push it forward. Using the right grade and having a proper drainage system behind the wall helps prevent these problems.

Choosing the right mix for your project

The best way to decide on concrete grade is to consult with a structural engineer or a knowledgeable builder who understands your site conditions. They will consider the load size, soil type, climate and the dimensions of the structure. For most domestic projects, a C25 or C30 mix is a safe starting point, but each site is different.



When you order from a ready mix supplier, you can specify the grade you need. Many suppliers offer standard mixes like C20, C25 and C30, and they can adjust the mix for specific requirements such as faster setting or better workability. It is important to tell them what the concrete will be used for, so they can recommend the right blend. For example, a mix with a smaller aggregate may be easier to pour into a narrow trench for a strip footing.

Another factor is delivery access. If the truck cannot get close to the pour site, you may need a pump or wheelbarrow the concrete from the road. That can affect how long you have to work with the mix before it starts to set. A supplier can advise on the right slump (how wet the mix is) to make placement easier without sacrificing strength.

Common mistakes and how to avoid them

One frequent error is assuming that a higher grade is always better. In some cases, a very strong mix can be more brittle and may crack if the ground moves. The key is to match the grade to the actual loads and conditions, not to over-specify for no reason. Over-specifying also adds cost, which is an unnecessary expense if a lower grade would have worked perfectly.

Another mistake is ignoring the curing process. Even the best concrete grade will not reach its full strength if it dries out too quickly or is exposed to frost before it has set. Curing means keeping the concrete damp and at a stable temperature for several days after pouring. This is especially important for footings and retaining walls, where the concrete is in direct contact with the ground and can lose moisture fast.

Mixing concrete on site is possible for small jobs, but for footings and retaining walls, ready mix is usually more reliable. The supplier controls the proportions precisely, so you get a consistent grade throughout the pour. With site mixing, it is easy to get the water content wrong or to have variations between batches, which can weaken the final structure.

When you arrange a concrete mix delivery for your footings or retaining wall, it helps to plan ahead. Make sure the ground is prepared, the formwork is in place and the reinforcement is tied before the truck arrives. That way you can pour the concrete as soon as it arrives and avoid delays that could cause the mix to start setting in the truck.



Working with a supplier

A good ready mix supplier will ask about your project and help you choose the right grade. They can also advise on additives, such as plasticisers to improve workability or retarders to slow the setting time in hot weather. These adjustments can make a big difference on site, especially if you are working alone or with a small team.

It is worth telling the supplier about the delivery access at your site. Narrow gates, steep slopes or soft ground can limit where the truck can park. If the pour is a long way from the road, you may need a concrete pump, which adds time and cost but can make the job much easier. The supplier can help you work out the logistics so the pour goes smoothly.

For structural work like footings and retaining walls, the concrete grade is not something to guess at. Taking the time to choose the right mix, and to cure it properly, pays off in a structure that stays sound for decades. The small extra effort at the planning stage is nothing compared to the cost of repairing a failed foundation or a leaning wall.