How to calculate materials for a DIY patio

A patio is four layers stacked in order, and every layer is bought in a different unit — tonnes of sub-base, tonnes of bedding sand, slabs by the piece, and jointing by area or by mix. This guide works through the order in the sequence you build it, using the same figures the paving and mortar calculators use.

What a patio is actually made of

Work from the bottom up and the shopping list writes itself. There are four layers, and only the top one is the part you see:

- **MOT Type 1 sub-base** — the structural layer. It spreads the load of the slabs into the ground. It is bought by the tonne or in 850 kg bulk bags.
- **Sharp sand bedding** — a screeded, compacted bed that lets each slab sit flat and even. Bought by the tonne or in 25 kg bags.
- **Paving slabs** — bought by the piece, and their count depends on the joint width, not just the area.
- **Jointing** — brush-in compound by area, or a sand-and-cement mortar sized from the joint volume.

Two decisions decide whether the patio is still flat in ten years: how deep the sub-base is, and whether the surface falls away from the building. Neither is expensive to get right at the start, and both are painful to fix later.

On the calculator's own defaults — a 100 mm sub-base and a 40 mm bed — the layers under the slabs are 140 mm deep before a single slab is laid. That is the part of the job the eye never sees and the invoice always notices.

Counting slabs: work on the module, not the area

Area alone undercounts. What matters is the **module**: one slab plus one joint. A 600 mm slab with a 10 mm joint effectively occupies 610 mm of the run, because a row of n slabs and n – 1 joints has to span the full length.

The paving calculator does it in three steps. It divides the patio length by the module and rounds up to get the number across; does the same for the width to get the number down; multiplies the two; then adds the waste allowance. The defaults it ships with are a 600 × 600 mm slab, a 10 mm joint, a 100 mm sub-base, a 40 mm bedding bed and a 10% waste allowance — and every one of them is a box you can change.

Joints are the quiet variable. Going from 10 mm to 15 mm joints across a wide patio can push you into an extra slab per row, which is why the calculator includes them instead of working from bare area.

Worked example: a 6 m × 4 m patio

Take a 24 m² patio in 600 × 600 mm slabs with 10 mm joints, over a 100 mm compacted sub-base and a 40 mm bedding bed, with the standard 10% waste allowance. Feeding those figures into the paving calculator returns exactly this:

Inputs and the result from the paving calculator for a 6 m × 4 m patio

ITEM	VALUE
Patio length	**6.00 m**
Patio width	**4.00 m**
Slab size	**600 × 600 mm**
Joint width	**10 mm**
Sub-base depth	**100 mm compacted**
Bedding sand depth	**40 mm**
Waste allowance	**10%**
Paving area	**24.0 m²**
Slabs per row	**10 across × 7 down**
Slabs before waste	**70**
Paving slabs needed	**77 slabs**
MOT Type 1 sub-base	**4.32 tonnes (≈ 6 × 850 kg bulk bags)**
Sharp sand bedding	**1.54 tonnes (≈ 62 × 25 kg bags, or 2 bulk bags)**

The slab count is the story: 10 × 7 = 70 slabs cover the plan, and the 10% allowance takes the order to 77. The sub-base and sand are worked out from the area and the two depths, not from the slab count, so they do not carry the 10% in the same way.

Sub-base: MOT Type 1

Depth is the number people get wrong, so use the figure the calculator prints next to its own box: **100 mm compacted** is fine for a footpath or a light patio, and you go to **150 mm** for anything a car will park on. Spread it in layers and compact each layer before the next — a thick layer compacted once from the top only consolidates the surface.

The calculator converts the depth to tonnes at **1.8 tonnes per cubic metre**, a typical compacted figure for MOT Type 1, and shows both tonnes and 850 kg bulk bags. For the 24 m² example that is 4.32 tonnes, or six bulk bags. If you are ordering loose rather than bagged, the gravel calculator in its MOT Type 1 mode adds a 10% allowance by default, which is a sensible habit when the ground is not dead flat.

Bedding: sharp sand

Sharp sand, not building sand, is what the bedding layer wants: it compacts evenly and does not shrink away from the underside of the slab. The calculator's default bed is **40 mm**, laid slightly proud and screeded to level, and it weights the material at **1.6 tonnes per cubic metre** — the same sharp-sand bedding figure the shed-base calculator reuses.

At 24 m² and 40 mm that is 1.54 tonnes: about 62 bags of 25 kg, or two bulk bags. Bulk is far cheaper per tonne if you have somewhere dry to keep it, and 62 loose bags is a lot of trips.

Jointing and pointing

The paving calculator deliberately leaves jointing as "estimate only", because the coverage depends on the product and the joint width — read the tub. A brush-in polymeric compound is sold by the area it covers, which suits a patio well.

Traditional mortar pointing is worked out differently: it is a volume of mix sitting in the joints. For the same 24 m² patio, joints occupy roughly 0.023 m³ — about 0.78 m² of joint surface at 30 mm deep, where 600 × 600 mm slabs with 10 mm joints leave about 3.3% of the plan as joint. Feed that volume into the mortar calculator in its volume mode, as a pointing job at a 1 : 4 mix, and it returns **1 × 25 kg bag of cement**, **39 kg of building sand** (2 × 25 kg bags) and about 4 litres of water. That is the whole order for the joints, which is a useful reminder of how little mortar a patio actually takes compared with the sub-base.

Where the waste allowance goes

The paving calculator applies its **10%** waste allowance to the slab count only — that is what covers cuts at the edges and the breakage you will eventually have. Change it in the waste box if your patio has more cuts than a plain rectangle, or fewer if you are laying a simple grid in a soft slab.

Sub-base and sand are calculated from the area and the depth with no allowance added, so if the ground undulates, order a little over. Spreading a bit of surplus MOT Type 1 is easy; discovering you are 200 kg short halfway through is not.

Patio materials FAQs

- **How many slabs do I need for a 6 m by 4 m patio?**
- **How much MOT Type 1 sub-base does a patio need?**
- **How deep should the sub-base be under a patio?**
- **How much sharp sand is needed for the bedding layer?**
- **Does the paving calculator add a waste allowance?**

Rules that touch a patio

A patio is a hard surface, a drainage decision and a level decision at once. Three points from the regulations library are worth knowing before you set out:

- **Planning — front hard surfaces.** There is a 5 m² permeable-surface condition where a hard surface sits between the front wall of a dwelling and a highway. Read the requirement.
- **Approved Document H — surface water.** Surface water from a paved area should discharge to a soakaway or other infiltration system where practicable, with separation rules that go with it. Read the requirement.
- **Approved Document C — ground level.** External ground level has to stay below the damp-proof course, which sits at least 150 mm above the adjoining ground. Read the requirement.

> **Guidance only.** The quantities above are planning estimates from the ProjectCalc calculators, not a quote and not a specification. Check your own measurements and your supplier's current product data before ordering. Where a job is structural, or the ground is not what you expected, take advice from a competent person.