

As with all buildings, garden sheds require a firm, level base if they are to remain sound and serviceable. Without the correct base, a garden shed will quickly deteriorate. The walls and roof will sag and the door and windows jam. The lower timbers in the wall will remain wet, while the floor will rot through because it is in permanent contact with the ground. Not only will the shed always smell unpleasant, but tools will quickly rust and other materials will grow mould.

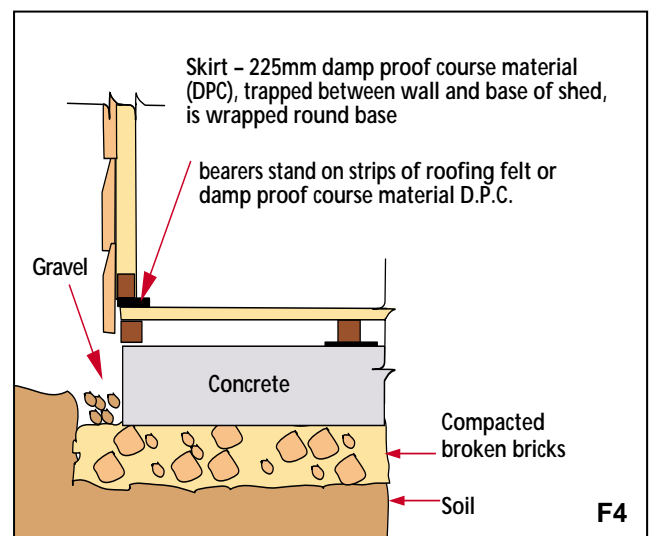
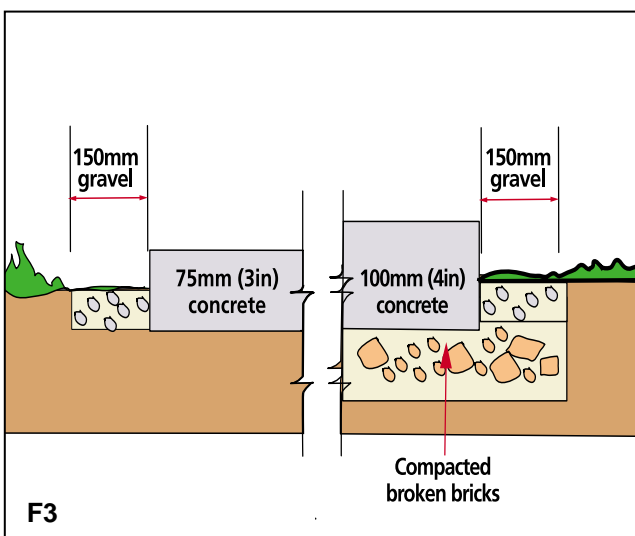
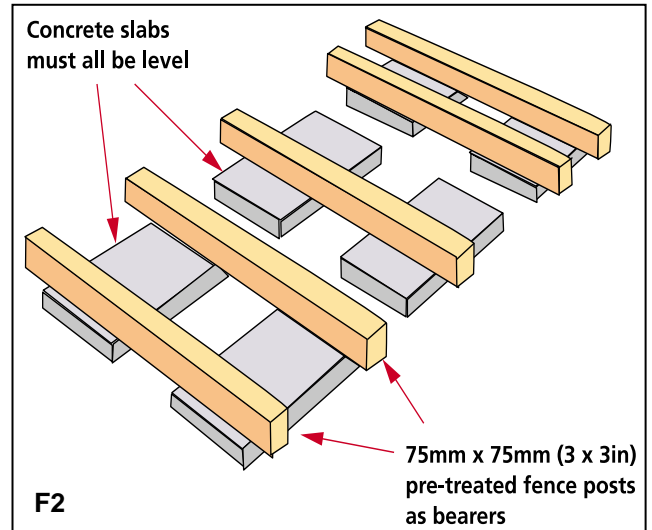
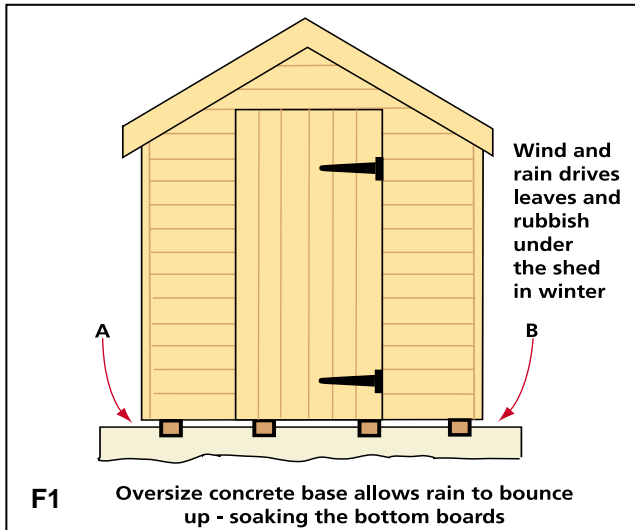
This **How-To** guide explains how to prepare a suitable base, including how to make formwork and how to prepare and lay concrete.

MATERIALS

- Cement
- Ballast
- Timber for formwork, 25mm (See page 3, no.3)
- Softwood, 50mm x 100mm, to use as a tamping beam
- Wire nails, 50mm
- 8 nails, 150mm, to use as pegs
- Softwood pegs, 50mm x 50mm
- String
- Polythene sheeting

TOOLS YOU MAY NEED

- Spade
- Wheelbarrow
- Handsaw
- Sledgehammer
- Claw hammer
- Handsaw
- Spirit level
- Tape measure
- Wooden float
- Wooden straight edge
- 2 buckets, 3 gallon
- Hardboard try square
- Gardening gloves/knee pads
- Safety glasses
- Steel toe-capped boots for safety



SELECTING THE SITE

Try to visualise what the shed will look like in the position selected. Make sure that access is going to be adequate for the intended use of the shed. Once the base has been laid, it is very difficult to change the site.

DESIGN A BASE

If the base for the shed is too big, rainwater will form puddles at A and B (F1). It then flows under the shed and the floor timbers will remain permanently wet and eventually rot.

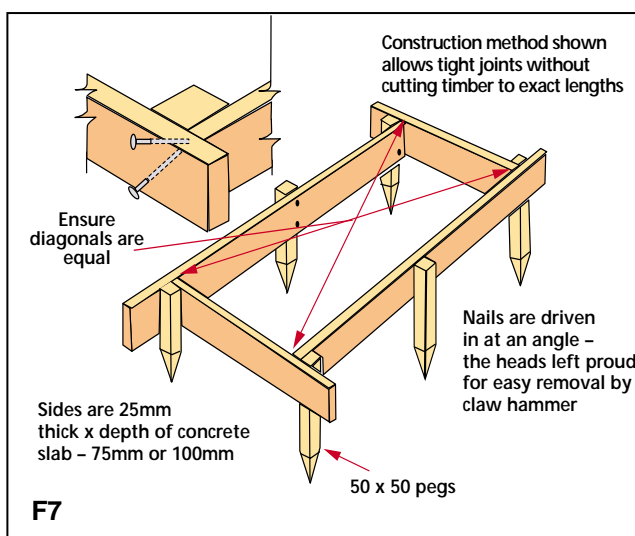
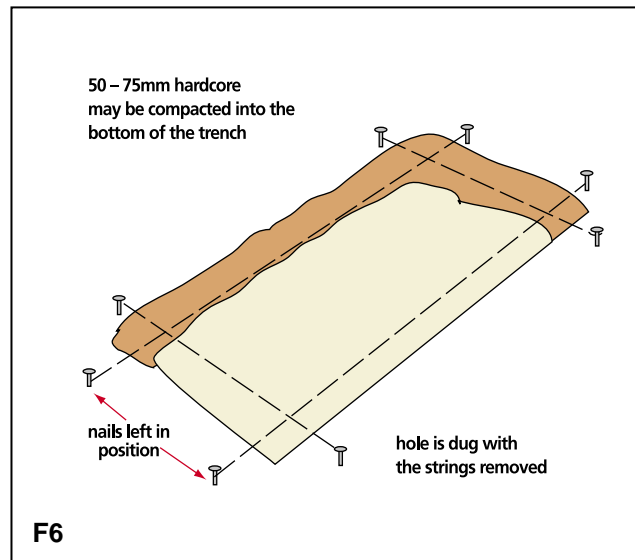
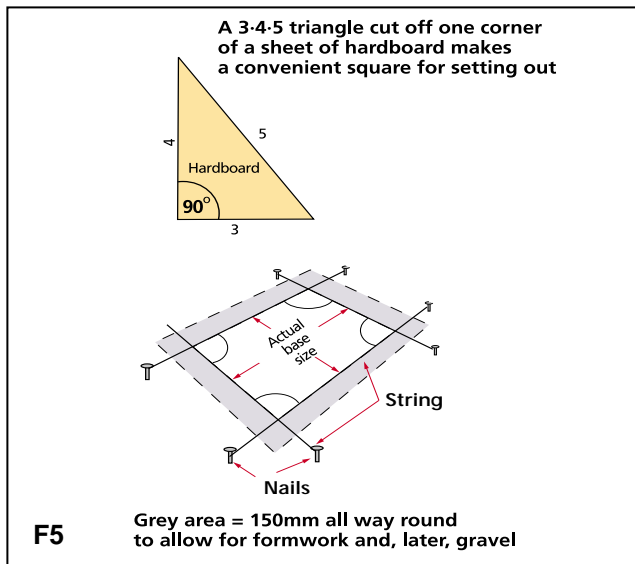
When slabs are used to make a base, these must be spaced out to suit the floor size. They must be laid on a firm sub-base and bedded onto a sand/cement mix. The slabs must be level over the whole site. Wooden bearers placed across the slabs lift the floor clear of the ground (F2).

DESIGN OF A CONCRETE BASE

The most satisfactory solution is to make a solid base. The base must be firm and level and designed to suit the floor size of the selected shed. Obtain the exact size of the shed floor, deduct 20mm from the length and width and use these dimensions to set out the base. For ordinary garden sheds, a thickness of 75mm is sufficient in most situations. On soft soils, increase the thickness to 100mm (F3).

Around half the thickness of the slab base should be above ground level.

A roofing felt 'skirt' incorporated into the base of the shed while it is being erected makes a damp-proof course. This helps to keep the bottom timbers dry and prevent leaves from accumulating under the floor (F4).



PREPARING THE SITE

1. Mark out the size of the base using nails and string (**F5**). Mark 150mm all round the outside of this area for the overall size of the 'dig'. Then remove the setting-out strings, but leave the nails in place for later use.
2. Clear all vegetation and remove the topsoil to the depth required. Compact the site by ramming. On very soft sub-soils, remove enough soil to accommodate a 50mm layer of finely broken and well-compacted hardcore, as well as the concrete slab (**F3**).
3. Replace the setting-out strings onto the nails and check the original measurements. These strings are used for positioning the concrete formwork. This is made from 25mm thick timber, which should be as wide as the thickness of the slab. Alternatively, strips of 18mm shuttering may be used. In which case you will need to use more pegs to stop warping. Homebase can supply plywood cut to size.
4. Use a tape measure, spirit level and try square to set out the formwork accurately.
5. This is nailed onto pegs driven into the ground (**F7**). Use this construction to avoid the need to cut the timbers accurately. It is important that the pegs do not protrude above the formwork, as this will make levelling off the concrete very difficult. The top edge of the formwork must be checked carefully using a long spirit level, so that it is horizontal all round.

PREPARING CONCRETE

Concrete is a mixture of all-in-ballast, Portland cement and water. For a shed base of this type, they are mixed in the ratio of 1 part cement to 5 parts all-in-ballast.

BALLAST

All-in-ballast and Portland cement are both sold in 25kg bags at Homebase.

The following table and example will help you to estimate quantities for a concrete mix:

Portland cement	1kg	25kg	2.8 bags	5.6 bags	8.4 bags	11.2 bags
All-in-ballast	6.8kg	170kg	18.5 bags	37.7 bags	56.55 bags	75.4 bags
Yeild	0.0036m ³	0.089m ³	0.25m ³	0.5m ³	0.75m ³	1.0m ³

IMPORTANT

To allow for irregularities in the excavation and compacting, always increase the quantity you need by one third.

Example

To lay 1:5 concrete slab measuring 2.440m x 1.220m x 75mm thick

Multiply $2.44 \times 1.22 \times 0.075 = 0.2233\text{m}^3$ (volume of concrete)

Add one third extra $+ 0.0744 = 0.2977\text{m}^3$ (total volume of concrete required)

To calculate quantity of cement required

Divide total volume of concrete by 0.0036 (yeild per kg cement, see column one above)

Example

0.2977 (volume of concrete) divided by 0.0036 (yeild/kg cement) = 8269

Divide 8269 by 25 (kg/bag) = 3.3 bags of cement required

To calculate quantity of all-in-ballast

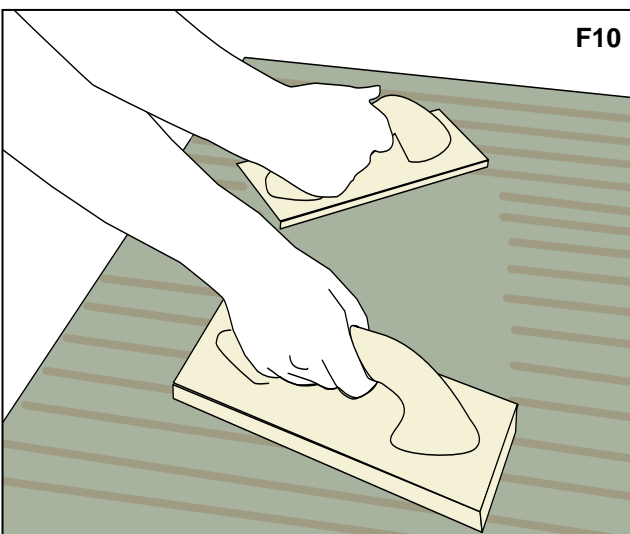
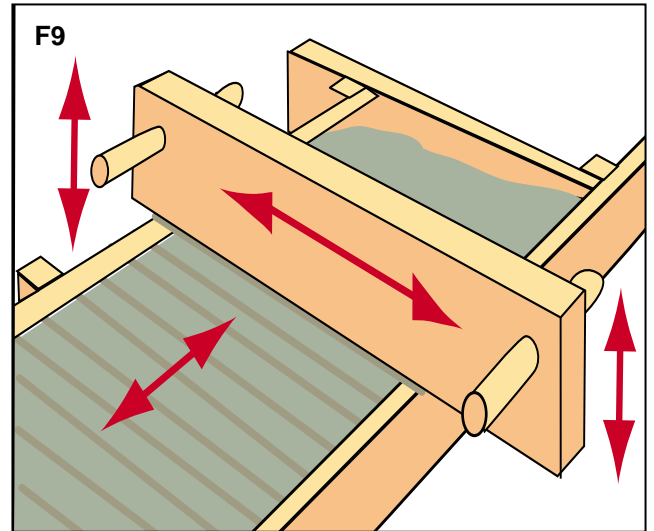
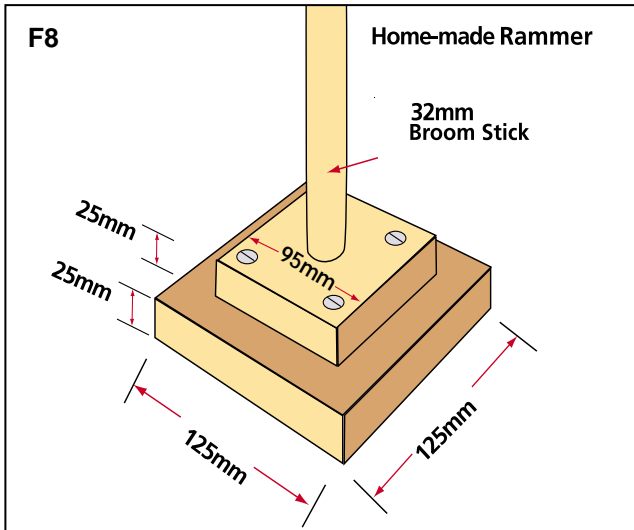
Multiply no. of bags of cement by 6.8 (see column one above)

Example

3.3 (bags of cement) x 6.8 (all-in-ballast) = 22.5 bags of all-in-ballast required

MIXING

- 1 Try to mix alongside the base site, so that the concrete can be placed by shovel. Otherwise use a wheelbarrow.
- 2 Use a plastic bucket (3 gallon) for accurately measuring materials. Use another bucket for measuring water.
- 3 Mix well in proportions of 1 bucket of cement to 5 buckets of 20mm all-in-ballast.
- 4 Add water gradually to the mix, chopping and turning the mix until the whole pile is uniform in colour and sufficiently workable to use. Do not make the mix too wet, as this weakens the concrete. Note how much water has been used and use the same quantity for each mix. You may wish to hire a mixer for making large quantities of concrete.



LAYING CONCRETE

1. Place a layer of concrete into the formwork and compact this down with a rammer (**F8**), taking particular care to push the concrete into the corners and edges.
2. Tap the sides of the formwork with a hammer to help produce a solid edge to the slab. Continue placing layers of concrete into the formwork and compacting until full.
3. Use the tamping beam with a chopping and sawing motion across the slab (**F9**), working from one end to the other. This will level off the concrete, leaving it flush with the top edge of the formwork. The concrete must be tamped flat as it is poured.
4. After tamping, the concrete should be smoothed out with a wooden or plastic float (**F10**). This allows the bearers to sit evenly.
5. Concrete must not be allowed to dry out too quickly or be damaged by frost while it is wet. Cover with plastic sheeting until the concrete is hard and spray with water for several days to allow it to dry out slowly.
6. Remove the formwork, leaving the base ready for use.