

Finish and cure concrete

What you will learn

When you have finished this section, you should be able to:

- Finish your concrete to the type of surface you need
- Put joints in the concrete if needed
- Cure the concrete before use



Things you need before you start

Materials

Poured and levelled concrete

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Tools

A long straight piece of timber for screeding

A wooden float

A large brush

A metal finishing trowel

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Introduction

To complete your concrete, you need to

- finish the surface to the type of surface you need
- make any joints
- allow the concrete to cure.

Finishing

Makes the surface look the way you want.

You may want a surface that is:

Rough

This gives plenty of grip in the wet for tyres, walking or animals.

First finishing (your final screeding) will probably be enough. The surface will be slightly rough and it will have lines across it.

Finished

This is a hard, even and smooth surface. It looks good and will wear well.

Second finishing with a wooden float will be enough.

Polished

This is a hard, very fine surface that almost shines. Good for floor slabs inside buildings. It can be very slippery outside in the wet.

Final finish with a metal finishing trowel.

Jointing

Jointing concrete helps to control cracking as the concrete dries out, or the ground settles.

Curing

Keeps the concrete wet or damp while the cement chemical reaction makes the concrete harder.

Finishing concrete

Finishing does two things:

- It levels and compacts the surface of the concrete
- It makes the surface look the way you want.

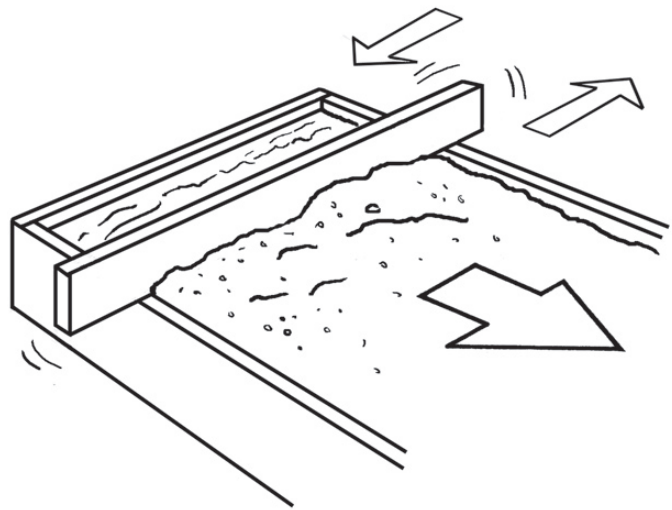
Finishing is done in stages:

The first finishing

This is what you did in “levelling”.

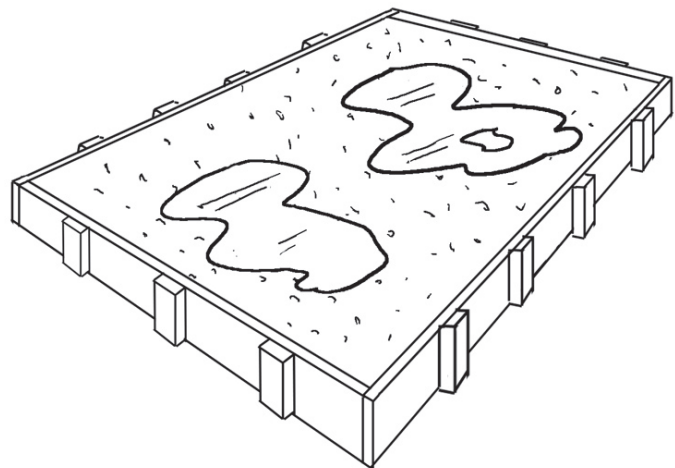
Screeding the concrete may give a good enough finish for rough work or paths

It will have lines left by the screed



After screeding, water will come to the surface.

This is called “bleed water”.



Wait until the bleed water has dried before you do any more finishing.

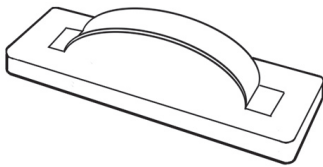
Second finishing

The second finish stage is called “floating”

This helps

- close up any cracks
- push the larger bits of rock below the surface
- level the surface to a smooth finish.

Float the surface when the bleed water has gone and the surface is hardening — but is still slightly soft.



A float — is usually made of wood.

Move the float all over the surface in big sweeps.

The concrete surface should now be level and smooth.



You can make a good non-slip surface at this stage by dragging a brush very gently across the surface.

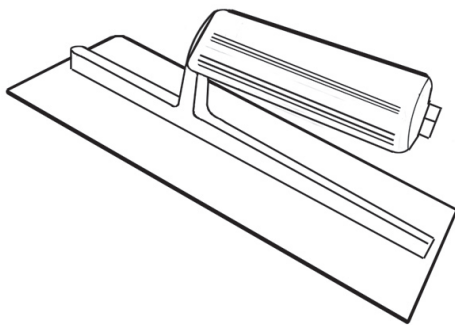
Final finishing

This stage is called ‘**Trowelling**’.

It is done when the concrete surface just starts to set hard.

It gives a fine smooth finish that is good for inside work but you do not need it for many jobs. Outside, it can be too slippery when it gets wet.

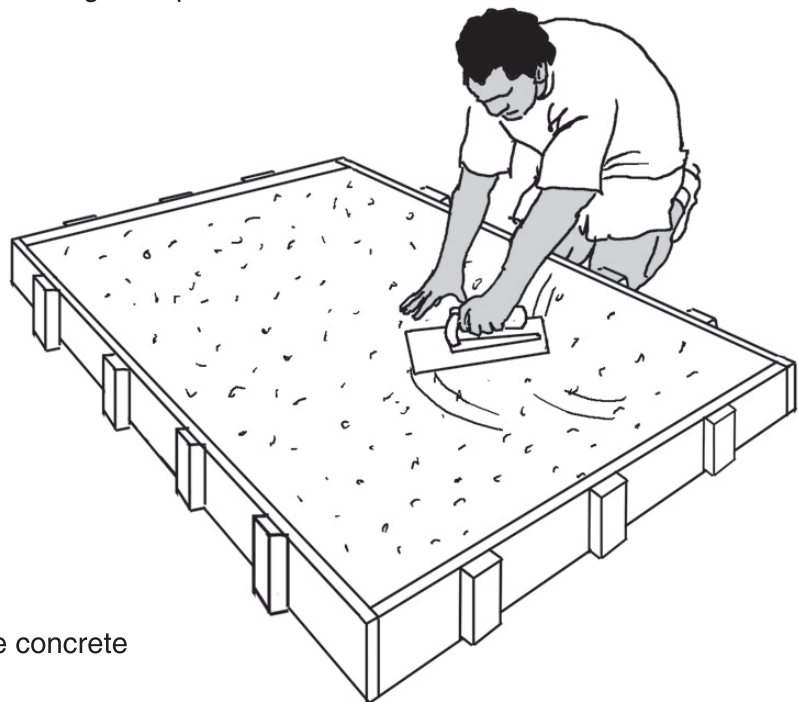
Trowelling makes the surface smooth and almost makes it shine. It also makes the concrete harder wearing.



A metal finishing trowel

Move the trowel all over the surface in big sweeps.

Each sweep overlaps.

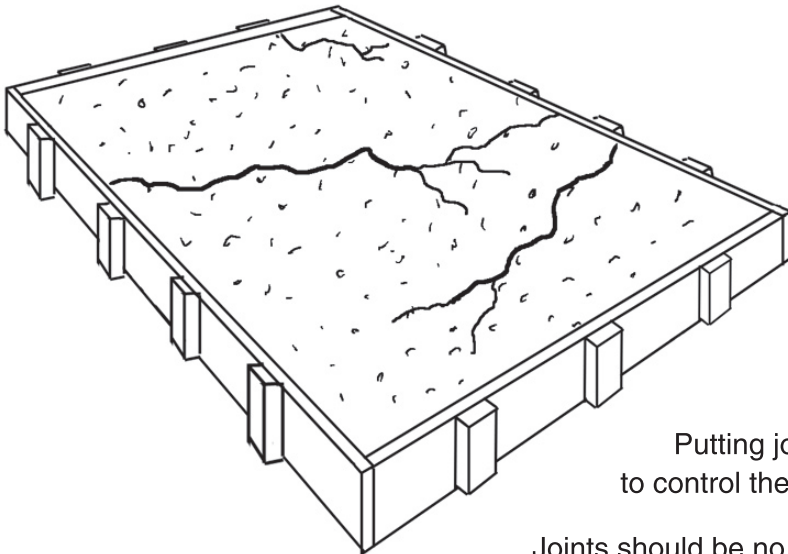


For a really hard and fine surface:

- trowel a second time when the concrete has hardened more.

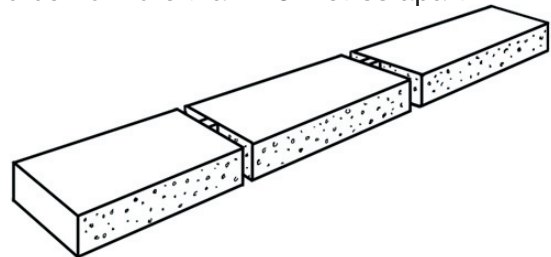
Grooving or Jointing

Concrete shrinks as it dries and this can cause cracks.



Putting joints in the concrete slab can help to control these cracks.

Joints should be no more than 2.5 metres apart.



There are two ways to make joints:

Put in thin strips of timber — or plywood — between the sides of the formwork as the concrete is poured

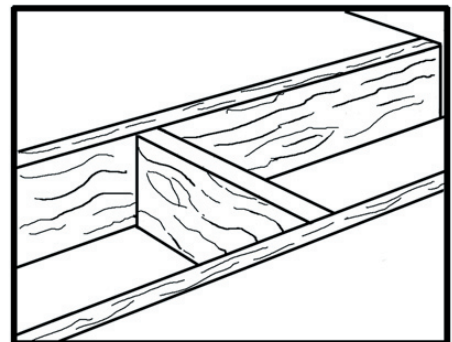
or

Pull a thin piece of metal across the concrete as it starts to set.

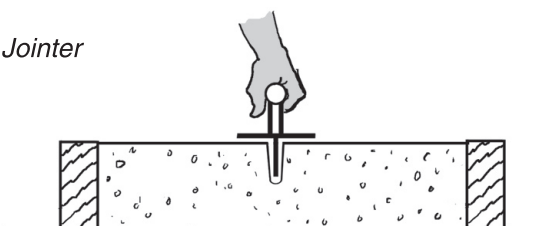
Make a groove about half the depth of the concrete.

Round off the edges for a neat joint.

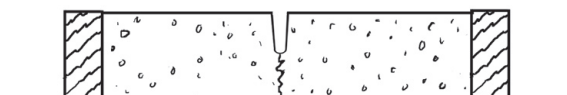
If you have one, use a grooving tool like this



Jointer



If the concrete does crack later — the cracks will be at the bottom of the grooves



Protect the surface

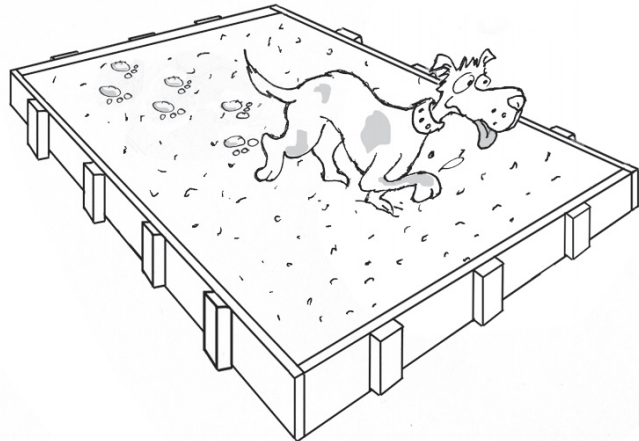
The surface will be hard enough to walk on after a few hours — or overnight.

Until the concrete is hard:

Cover the surface if rain is likely. Better still, **don't** pour concrete if it is going to rain!



Keep children and animals off !!!



Curing concrete

Concrete may be hard enough to walk on after a few hours — or by next morning. But the chemical reaction that makes cement strong will keep going for days — or even months.

If concrete dries out too quickly, it can be weak and not harden properly. This can be a big problem in hot weather.

Curing keeps the concrete damp while it gets hard and strong.

Concrete that is cured properly is less likely to crack. It will wear better and will be much stronger.



When?

Start curing soon after finishing the surface — as soon as the surface is hard enough to not be damaged.

How long for?

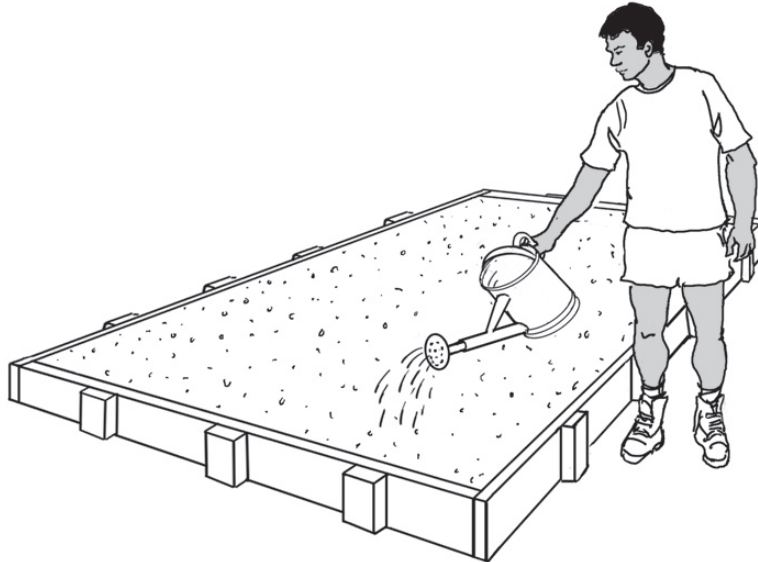
Cure concrete to keep it moist for:

- at least 3 days for common jobs, and
- 7 days for better strength and wear.

There are two ways to cure:

Cure by applying water

Use a fine spray of water over the concrete — but not too much or the surface could be damaged.



but

- the concrete must be moist **all** of the time. Hosing it once or twice a day and letting it dry in between is **no good**
- this way can use a lot of water.

Cure by keeping the moisture in

Keep the formwork/boxing in place as long as possible — it helps keep in moisture.

Cover the concrete with plastic sheets to slow down water loss

— but avoid black sheets — they can make things hotter!

Overlap the sheets and hold them down with sand, rocks or timber

Regularly check that the concrete is still moist under the sheets. If it's dry, lift the sheets, add water and replace.



Curing compounds

Curing compounds can be applied to concrete soon after finishing.

They are sprayed or painted on the surface and help slow the loss of water. They are effective — but very expensive.

Activity

Work with other students on your project.

- 1. Decide what type of surface, or level of finish, you need. Finish your concrete to that standard.
- 2. Make joints/grooves as required.
- 3. Clean up tools and equipment.
- 4. Cure the concrete for at least three days.

Finally

- 5. Remove formwork and clean-up the site.
- 6. Stand back and enjoy looking at your finished job!

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