

Lay Concrete

- Easy to follow step-by-step guide
- Important and handy tips
- Materials check list
- Project cost estimator



Before you begin your exciting new project, please read through this entire pamphlet carefully and estimate and assemble all the materials you will need for the project and gather your tools and equipment together. Refer to the checklist and estimating form on the back panel of the pamphlet to assist in this preparation. If you require any help, please don't hesitate to speak with one of Colli's experienced trade team.

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You can lay concrete

Site preparation

Note: As concrete surfaces affect drainage, we recommend that you allow for water runoff and excavate the site while taking into account a fall of 1cm per metre. Plan for the low-end to finish on, or just above the existing ground level.

- Measure and mark out the site using a string line (Fig 1).
- Check the area is square by measuring the diagonals – they should be the same length.

Excavate the site

- Determine the depth of the concrete and dig out the topsoil to the appropriate level, ensuring that the excavation is dug to a size of at least 150mm larger all round than the finished slab to allow room for the formwork (see Fig 2).
- Ensure that the ground surface is firm and free of tree roots or other obstructions. If planning to lay the concrete on a soft surface, add an initial layer of stones or broken bricks and tamp down firmly before laying the final surface.
- Position your edging boards along the string line and drive stakes firmly into place to support the form (see Fig 4). Ensure the top of the formwork is level and that it is at the correct height for the finished slab. Align the boards so that there are no gaps that will allow concrete to seep out and nail the boards securely to the stakes.

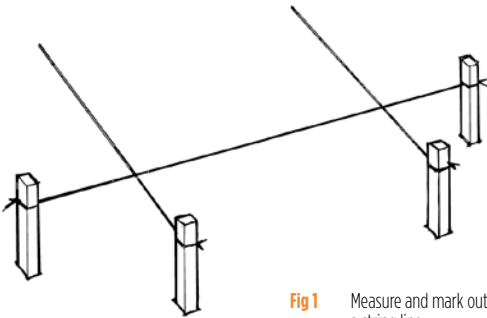


Fig 1 Measure and mark out the site with a string line.

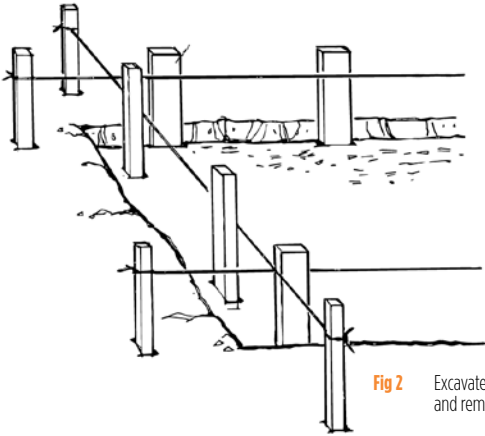


Fig 2 Excavate 150mm larger all round and remove the top soil

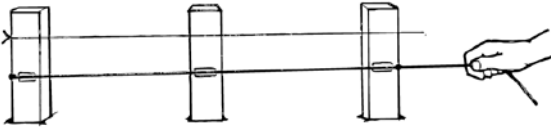


Fig 3 Set up the stakes and mark correct height for the formwork

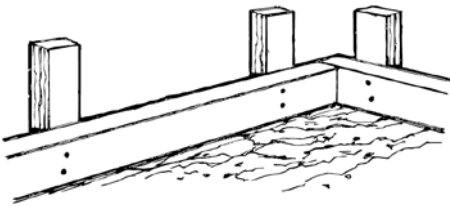


Fig 4 Nail edging boards to the stakes

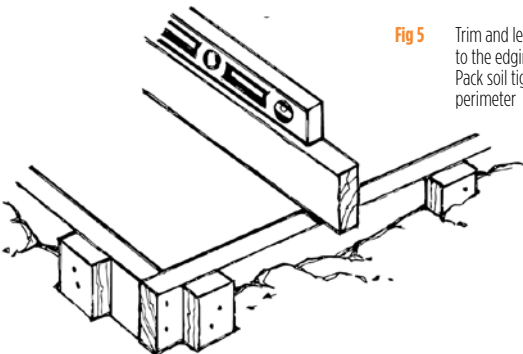


Fig 5 Trim and level off the stakes to the edging board height. Pack soil tightly around the perimeter

Reinforcing

- If the slab is large, near trees, is on unstable soil (eg. reactive clay soils) or will have heavy traffic it will need steel reinforcing.
- Cut the steel mesh to fit with a 50mm gap between the mesh and the formwork (Fig 6), support the mesh on broken bricks or steel 'bar chairs' to keep it in the middle of the slab. Trim the stakes to the top of the edging boards (Fig5), and pack soil tightly around the perimeter.

Fig 6 Set the steel reinforcing using steel bar chairs or broken bricks

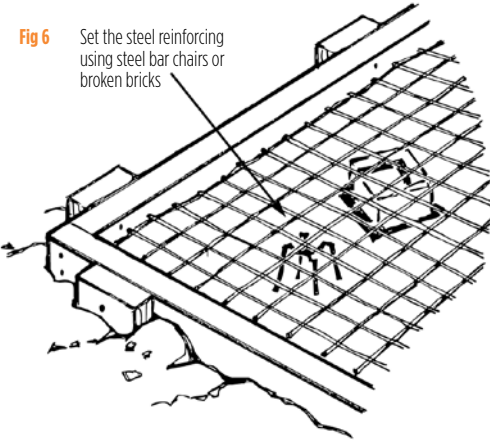
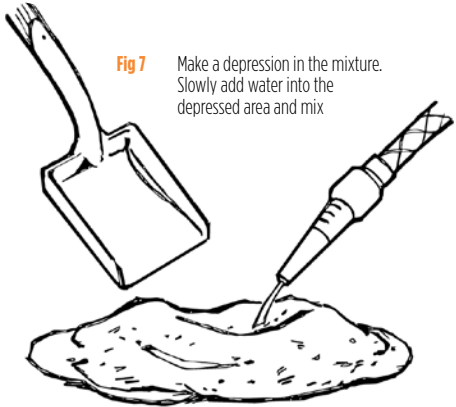


Fig 7 Make a depression in the mixture. Slowly add water into the depressed area and mix



- For small jobs, you can buy ready mixed cement, gravel and sand in 40kg bags which require you to just add water. You'll find that larger jobs will become more economical if you buy cement, sand and gravel separately and mix your own.
- Hand mixing is best done in a wheelbarrow or on a flat, smooth surface (eg. a plywood sheet), while we recommend using a power mixer for large jobs.
- To mix by hand, place the measured dry ingredients in a pile. Turn and mix until the pile is a uniform colour without streaks.

- Make a depression in the mixture and slowly add a little water, turning the dry material into the centre until the water is absorbed (see Fig 7). Turn the pile well until it is evenly moist. Make a new depression in the centre of the pile repeat the process. Continue this until a thick paste consistency is reached.
- Pour into formwork immediately.

Power mixing

A power mixer will save you lots of time and effort for larger concreting jobs, and these are available for hire. Below are the instructions of how to operate a power mixer using measured amounts of dry ingredients:

- Turn the mixer on and add the gravel, followed by the sand, then the cement and let the ingredients combine thoroughly.
- After the mix has combined for several minutes, add some water and let the water mix for another 2 – 3 minutes.
- Check the consistency and if required, add more water to make a workable mix. Continue to mix for another minute or so before tipping out.
- Remember to always wash out the mixer drum with water after each mix has been poured.
- When finished for the day, run the mixer with some gravel and water to clean the drum.

Ready mixed concrete

- This is the simplest method when you need to make a large concrete slab, as ready mix suppliers often have small trucks that can access your yard when delivering the concrete.
- When ordering your mix, you will need to tell your supplier the exact size measurements of the slab and the desired thickness. The supplier will then calculate exactly what you need and arrange with you to deliver it on the agreed date.
- When using ready mix concrete, you must ensure that you are ready to pour the concrete immediately once the truck arrives as they will not be able to delay. This means that the formwork must all be completed and we recommend that you have lots of helpers on hand as you may need to have a few wheelbarrows working together to move the concrete quickly from the truck to your site.

Pouring and screeding

- Once your concrete has been mixed to the desired consistency, you will need to pour it immediately. Start at one end and spread the mix with a shovel, ensuring that it is tamped well into corners (Fig 8).
- For large areas use an expansion joint every three metres (Fig 9). An expansion joint can be a piece of softwood or preferably, a piece of bituminous stripping. This joint must be the same height as the finished slab and will remain there to take up any excess movement.
- Use a length of flat-faced timber as a screed, laying it across the top of the edging boards (Fig 10) and working it back and forth across the surface of the concrete with a sawing action. This levels the surface of the slab.
- Once the slab is level, use the screed to firmly tamp down the surface, moving across the slab by half the screed's width with each blow.
- Screed each section of the slab as you pour each batch of concrete.

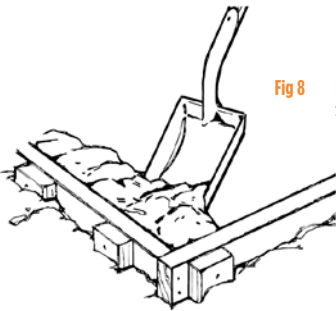


Fig 8 Pour in concrete starting with one end

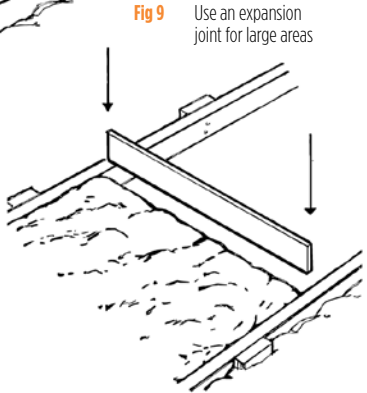


Fig 9 Use an expansion joint for large areas

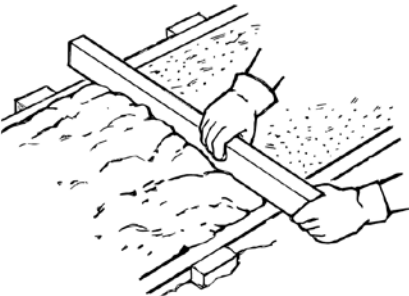


Fig 10 Use a length of timber as a screed to level the surface

Final finishing

- As soon as the water sheen has left the surface of the slab, you can commence final trowelling or floating.
- For driveways and paths a good non-slip surface finish can be achieved by simply drawing a stiff bristled broom lightly across the surface to create a pattern of small, straight ridges or lines.
- For a smooth surface, it is best to use a steel trowel (Fig 11), working the surface smooth with light sweeps of the trowel.
- For a non-skid surface use a wooden float (Fig 12), smoothing the slab with firm, circular scrubbing actions.
- Edging can be performed after floating with an edge tool (Fig 13) or the tip of your trowel.

Curing the slab

- When you have completed the surfacing and finishing of the slab, it is best to cover with plastic sheeting or used cement bags and let stand for several days. Keep the bags slightly damp during this period.
- After one week of curing you can remove the formwork edging. Congratulations, your new slab is now complete.



Fig 11 Smooth the surface with a steel trowel.



Fig 12 Use a wooden float for non-skid surface.

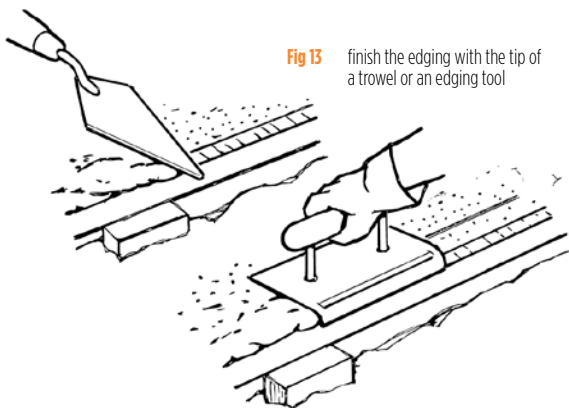


Fig 13 finish the edging with the tip of a trowel or an edging tool

Project Cost Estimator

Materials Description	Quantity	Cost
Timber edge boards and stakes		
Expansion Joints		
Sand		
Cement		
Gravel		
Nails		
Plastic Sheet		
Equipment		
Hammer		
Steel Trowel		
Wooden Float		
Edge Tool		
String Line		
Shovel		
Timber Screed		
Wheelbarrow		
Cement Mixer (optional)		
Total		

All the materials you need for this job are available at Colli, your DIY specialist.

Disclaimer: Please note that this brochure is designed as a guide only - if you have any queries, please consult one of our Colli Team Members for further assistance. The information provided in this brochure is done so on the understanding that Colli Timber and Hardware is not liable for any loss or damage which is suffered or incurred, for any personal injury or property damage as a result of using the information contained in the Colli DIY Projects brochure. Colli Timber and Hardware advises you to call in a qualified tradesperson, such as an electrician or plumber, where expert advice and services are required.

Note: Please ensure you comply with local council laws or regulations before undertaking any DIY project.

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115 Brookton Hwy
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Fax 9390 8033

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Fax 9524 6211

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