

BORAL CEMENT
Build something great™



Blue Circle®
PACKAGED CEMENT
Handy Hints



Do-it-yourself Handy Hints has been designed to provide the home handyman with easy to follow, step by step instructions to help achieve a professional result on your next home project.

Create or Repair – its easy!

Have fun! Save money! Create or repair.
Work alone or include the whole family.

Home projects built with the flexibility and strength of cement based products are fun, easy and long-lasting.

Whether it's a repair or a home improvement, preparation is easy, the application is simple and the clean up is straight forward. Most importantly, the results are yours to enjoy for years to come.

A few basic tools, some simple safety tips, care in measurement. Then create your own projects!

Concrete has played a major role in building for centuries. Primarily made with gravel, sand, cement and water, concrete creates structures from highways, bridges, tunnels, buildings and houses to simple home repairs and decorative projects.

Boral Cement products help any apprentice home handyperson handle cement work like a real professional.

- Urban, suburban or farming communities
- Beginners or seasoned professionals
- Everyone benefits from the Boral Cement range of handy products

Note: This book is designed to get you started on exciting home projects with cement. While every effort has been made to ensure instructions are accurate and easy to follow, additional professional advice – available from most hardware retailers – is recommended, especially for larger jobs. Boral Cement cannot be held responsible for any mishap arising from the construction of any structures contained within.



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Product Range

Boral Cement's Blue Circle® products used in the projects in this booklet



Concrete Mix



Brickies Mortar



Sand & Cement



Off White Cement



Hydrated Lime



Cemcryn

Boral Cement produce a large suite of cement, drymix and handyman products. For the full range please refer to our website www.boral.com.au/cement or call and speak to a customer service representative on 1800 721 258.

Ready Reckoner

MIX DESIGN & CALCULATION CHART



MORTAR

- Laying BRICKS and BLOCKS
- Building STONE walls
- POINTING existing brickwork
- RENDERING
- REPAIRING concrete



SAND-CEMENT

- RENDERING walls
- TOPPING or CAPPING on walls
- Brickwork BELOW GROUND level
- REPAIRING concrete
- SCREED for ceramic tiles



CONCRETE

- Laying PATHS
- Setting POSTS
- Creating MOWING STRIPS
- Light-duty FOUNDATIONS



Ready Reckoner – Concrete

The Ready Reckoner for concrete is a general guide only. For specific engineering properties refer to AS3600 (Concrete Structures) or consult a professional engineer.

MIXING RAW MATERIALS

Suggested mix proportions by volume

Materials	Foundations & large masses	General use, paths, floors etc	General use, higher strength
cement	1	1	1
sand	3	2.5	2
stone or gravel	5	4	3

FOR RECTANGULAR SLABS, PATHS AND DRIVEWAYS

1. First calculate the area:

$$\text{Area square metres (m}^2\text{)} = \text{length} \times \text{width (metres)}$$

2. Then use the following table:

Area (m ²)	Volume of concrete in cubic metres (m ³) rounded up to the nearest 0.1				
	50	75	100	125	150
5	0.3	0.4	0.5	0.7	0.8
10	0.5	0.8	1.0	1.3	1.5
15	0.8	1.2	1.5	1.9	2.3
20	1.0	1.5	2.0	2.5	3.0
25	1.3	1.9	2.5	3.2	3.8
30	1.5	2.3	3.0	3.8	4.5
35	1.8	2.7	3.5	4.4	5.3
40	2.0	3.0	4.0	5.0	6.0
45	2.3	3.4	4.5	5.7	6.8
50	2.5	3.8	5.0	6.3	7.5

Slab thickness in mm.

3. Decide whether to use:

- Premix concrete from a readymix supplier
- Bagged cement, sand and stone
- Bagged concrete

Estimating how much cement, sand and stone to order

Mix (as per concrete use)			No. 20kg bags of cement	cubic metres (m ³) of sand	cubic metres (m ³) of stone
cement	sand	stone			
1	2	3	16	0.5	0.8
1	2.5	4	13	0.5	0.8
1	3	5	11	0.5	0.9

Estimating how many 20kg bags of premix concrete to order

Volume Cubic Metre* (m ³)	0.02	0.04	0.06	0.08	0.10
No of bags	3	5	7	9	11

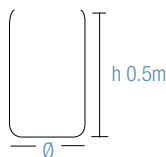
* 108 x 20kg bags of Boral Cement Concrete Mix will fill 1 cubic metre (m³).

POST CALCULATIONS

Example below based on the dimension given in the two diagrams

Step 1. Calculate entire hole volume.

Formula: $\pi r^2 h$
 $= 3.14 \times (0.15\text{m} \times 0.15\text{m}) \times 0.5\text{m}$
 $= 3.14 \times 0.0225 \times 0.5$
 Volume = 0.0353m³

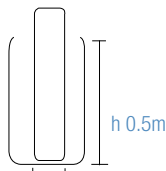


Step 2. Calculate Post Area

Formula: $\pi r^2 h$
 $= 3.14 \times (0.075 \times 0.075) \times 0.5\text{m}$
 Volume = 0.00884m³

Hole diameter (Ø) = 0.3m
 Hole radius (r) = 0.15m

Step 3. = Volume Step 1 – Volume Step 2
 $= 0.0353\text{m}^3 - 0.0088\text{m}^3$
 $= 0.0265\text{m}^3$



Step 4. = Multiply by number of 20 kg bags per m³ (108 bags)
 $= 0.0265\text{m}^3 \times 108$
 Therefore = 2.86 bags of 20kg Concrete Mix, required to fix post in hole.

Post diameter (Ø) = 0.15m
 Post radius (r) = 0.075m

FOR FENCE POSTS AND OTHER ROUND EXCAVATIONS

Volume of excavation rounded up to the nearest 0.01 cubic metres (m³) is given below.

Depth of hole (mm)	Cubic metres(m ³) needed. Hole diameter (mm)				
	300mm	400mm	500mm	600mm	700mm
200	0.02	0.03	0.04	0.06	0.08
400	0.03	0.05	0.08	0.12	0.16
600	0.05	0.08	0.12	0.17	0.24
800	0.06	0.10	0.16	0.23	0.31
1000 (1m)	0.08	0.13	0.20	0.29	0.39

Ready Reckoner – Mortar

The Ready Reckoner for mortar is a general guide only. For specific engineering properties refer to AS3700 (Masonry Structures) or consult a professional engineer.

MIXING RAW MATERIALS

Suggested mix proportions by volume

Materials	General brick and block construction	Marine and aggressive environments
cement	1	1
sand	6	4.5
hydrated lime	1	0.5

Laying Bricks – Estimating How Much to Order

For every 1000 bricks			Bricks without frog		
cement	sand	hydrated lime	No. 20kg bags of cement	cubic metres (m ³) of sand	No. 20kg bags of hydrated lime
1	6	1	8	0.65	3
1	4.5	0.5	11	0.65	2
1	3	–	16	0.65	–

BUYING PREMIX BAGS

Using Brickies Mortar to lay bricks – Estimating bags by brick number

No. bricks	200	400	600	800	1000
No. 20kg bags	12	24	36	48	60

WHICH CEMENT FOR WHAT CONDITIONS?

Condition	General Purpose Cement	Builders Cement	Off-White Cement	High Early Strength Cement	Special Purpose Cement
General no specific requirements	✓	✓	✓		
Expose to sulphates (SO₄) <600mg/litre 600-3000mg/litre >3000mg/litre	✓	✓			✓ ✓ ✓
Marine Environment		✓			✓
Early age strength required	✓		✓	✓	
Mass concrete where rapid heat evolution is to be avoided					✓



Concrete Tips

INTRODUCTION

Quality concrete relies on quality materials. Sand must be clean and free of any clay. Gravel should also be clean and well graded. Water should be of drinking quality. When planning your next home project, contact your nearest supplier for size and types of material available. If the job is not very big, try Boral Cement's Blue Circle® range of pre packaged dry mixes. They are already in the correct proportions and will help you complete any project successfully.

When dealing with concrete it is important to plan the job out prior to commencing and there are a few important points to consider:



HANDY HINT:

1. When setting up formwork, run string lines first to the desired level, then simply put the formwork up to the line and peg as you go.
2. For rounded bends, use strips of flexible ply. To increase the flex either soak in water overnight or pour hot water on the ply as you bend it.

FORMWORK

Formwork acts as a mould for the concrete and is commonly made from 25mm thick timber. Timber should be clean, smooth and not flex under the weight of the concrete. Use a builder's square to ensure that corners are at right angles. Lightly oil the inside of the boards before laying the concrete and make sure the formwork is clean, and don't step on or run wheelbarrows over the boards. Remember this is the level that you are working to. Most pathways will need a fall to let the water drain. To do this, lower the formwork on one side.

REINFORCING

Reinforcing steel or mesh may be required for concrete that supports heavy loads and traffic. The right amount and type of "reo" must be used. As a guide, the steel should have reasonable coverage of cover of concrete over it.

HANDY HINT:

1. It is worthwhile consulting your local council before tackling major concreting jobs as they have provisions on the size and type of steel that can be used.
2. When reinforcing is to be cut and joined always overlap the join and secure with tie wire, so that a continuous piece is formed.
3. Bar chairs will help keep the reo off the ground while you pour the concrete.



MIXING

You can either use a wheelbarrow or a mixer available from most hire companies. Once you have decided on your mix (see Ready Reckoner) keep it consistent by using a bucket or gauge box to ensure that the same amount of material is going into every mix.

Mix the products thoroughly so that the cement paste is distributed evenly. Aim to add half as much water as there is cement. The secret to good concrete is to use as little water as is possible to make a workable mix.

HANDY HINT:

1. Keep a little bit of the water out of the mix and add it gradually until you are happy with the workability. Remember, you can put water in but you can't take it out.
2. If you are using oxides to colour the concrete, mix dry with the cement and then add the sand and gravel. Always refer to the manufacturers dose rates prior to commencing.
3. **IMPORTANT:** Cement is an alkali product and can cause irritation. Always wear rubber gloves, rubber boots, safety glasses and a dust mask.

Concrete Tips

PLACING

Make sure you lay your concrete on a firm compacted base of either crushed rock or sand. As a guide the base should be about 50mm thick. Vibrating plates are available from most hire companies. Prior to placing lightly soak the base with water to prevent excessive moisture loss. Place the concrete into the formed area, ensuring that it gets into all the corners. For small jobs a shovel will suffice, but for larger jobs a poker vibrator will ensure that air is not trapped within the concrete.

Use a straight edge or screed to level off the concrete to the edge of the formwork. Float or trowel the concrete as soon as possible after screeding but don't overwork the surface. Now is a good time for a coffee break. Let the concrete bleed. That is get rid of any water that is doesn't need to harden. Don't touch the concrete again until all the bleed water has disappeared.



Handy hint:

1. Keep a bucket of water close to the job and regularly clean your tools as you go.
2. Start at the furthest point and work your way out of the job, so that you are not walking over or around fresh concrete.
3. Using plastic on the base will ensure that water is not absorbed by the ground.

FINISHING

It is a good idea to cut joints in concrete, so that any cracks that appear go where you want them. Use a jointing tool to cut some joints every 1-2 meters. Cut joints toward posts and pipework, as this is where concrete is most likely to crack. Use an edging tool to smooth the edges and prevent them chipping.

You are now ready to finish the concrete. You should be able to walk on the concrete and leave only a slight indentation. But remember, every mark you put in is one that you have to rub out, so tread carefully.

There are different types of finishes, but the most common are smooth and non-slip. A smooth surface is best achieved by a steel trowel.

A non-slip surface can be achieved using a shelling trowel, which gives a swirl finish or a broom finish.

To finish, work the concrete up with a float or trowel and then applying a steady pressure, make a pass with the finishing trowel of your choice. Once you are happy with the finish, move on, as you don't want to over work the surface.



Handy hint:

1. Use the screed to guide your jointing tool for nice straight cuts.
2. If you can't work from the edge of the job, use pieces of timber as "duck boards" to kneel on.
3. When broom finishing, lean out and pull the broom back toward you in one direction only. Use a thick stiff bristled broom.

Concrete Tips

HOT WEATHER

When the temperature reaches 32 degrees or higher, it is advisable to delay concreting until the weather cools down.

High temperatures can dramatically affect the properties of the concrete by drying it out too quickly. If the job cannot be delayed:



Handy hint:

1. Start work early in the morning (or the coolest part of the day) so the concrete can be laid before it gets too hot.
2. Keep the work area, tools and materials shaded. Keep mixing time to a minimum, carefully checking consistency. If windy, erect windshields to prevent air movement.
3. Keep concrete moist by covering with plastic sheeting or consult your supplier on formulated sprays that help prevent moisture loss.

CURING

Fresh concrete must be protected from loss of moisture, as soon as the surface is firm. Plastic sheeting laid over the concrete will prevent moisture loss. Another method is ponding, which is achieved by building up the edges with sand and then gently filling with water. Hessian may be used but must be kept damp at all times. There are also chemical curing compounds available, and you should consult your supplier as to their suitability.

Curing should be for a minimum of seven days and longer under some conditions. Keep formwork in place whilst curing to protect the edges of the concrete.

Brick and Mortar Tips



The most important aspect of quality brickwork is the mortar between them. The quality of mortar can affect the overall performance of the finished job and may result in expensive repointing work if not carried out properly.

Of course for a small home project you may use Blue Circle® Ready mixed Brickies Mortar. Just add water and mix, making sure the mix is not too wet. Remember to mix only enough mortar that can be used within one hour.

Mortar may be coloured with a Blue Circle® iron oxide to match existing mortars if repointing or building a new wall. A range of colours are available from your nearest Boral Cement reseller in colours ranging from black, brown, red and yellow. Off-White cement is often used to obtain a new look with earth toned bricks. Blue Circle® oxides are available in pack sizes from 500g through to 25kg.

Brick and Mortar Tips

HOW MANY BRICKS WILL I REQUIRE? (SEE READY RECKONER)

It is a good idea to lay the bricks out in the area that your project requires. This assists in getting a good start and don't forget the 10mm gap for the mortar! The indent side of the brick is known as the "frog" and should be placed downwards. With your brickies trowel, lay enough mortar to cover two bricks using a stepping action through the middle and enough to make a 10mm joint. Tap the brick into place with the trowel handle or mallet. Using the trowel, smooth some mortar onto the end of the brick to give you a 10mm vertical joint.

This is known as "buttering". Again tap into place and continue on your way, remembering to keep each course of bricks straight by using a string line and spirit level at regular intervals.

Half bricks can be cut using a brick bolster or a wide cold chisel and hammer. Mark the brick across the face and by placing on a soft base you should be able to break cleanly with one heavy blow.



CLEANING UP

You should rake all joints with the appropriate tool to match existing joint or as required, vertical joints first. For the best results clean off all excess mortar as you go and wipe with a damp cloth. You should allow the mortar to set for 5-7 days. If you need to clean the brickwork further, use a brush or high pressure cleaner.

Safe Work Practices



SAFETY ADVICE FOR CEMENTITIOUS PRODUCTS

Skin/Eye Irritation

- Freshly mixed concrete, mortar, grout and slurry may cause skin irritation including alkaline burning and dermatitis.
- Avoid contact with skin by wearing suitable clothing and PVC gloves.
- In the event of contact, wash skin immediately with clean water to help minimise possible irritation.
- If any material gets into the eyes, wash immediately and repeatedly with eyewash solution or clear water.
- If irritation persists seek medical attention.

Respiratory Irritation

- Material may contain a quantity of crystalline silica and suitable respiratory equipment should be used when handling.
- When cutting or abrading concrete keep it wetted with water to avoid creation of hazardous dust. Always wear suitable protective clothing and use respiratory equipment.

Manual Handling

- Manual handling of this bag without due care and attention could result in personal injury.
- Unless you have been trained in manual handling heavy loads, it is recommended that you share the load with another person.

Fish Pond

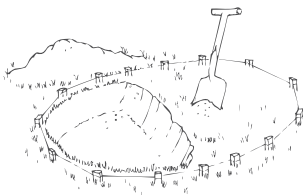
Fishponds are a wonderful addition to your garden – even more so when it's your own work

YOU WILL NEED:

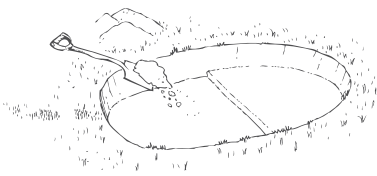
- Concrete Mix
- chicken wire
- sheet of builders plastic (larger than desired pond)
- heavy bristled broom
- string
- shovel
- trowel
- house bricks or heavy rocks



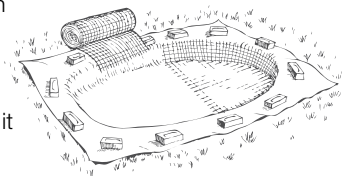
1 Consider the size, shape and depth of the pond. Select a smooth and level ground site. Lay string on ground to the desired shape and secure with pegs.



2 Dig a hole to the desired depth. Be sure the sides slope inwards and the bottom is even. Cover the pond floor with 50mm of building sand to provide a bed for the lining.



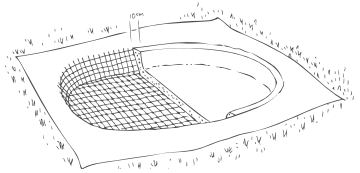
3 Cut plastic lining larger than pond and cover the pond area. Secure plastic with bricks on the outer edges of the pond.



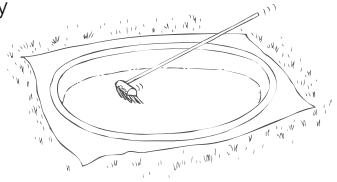
Note: Use builders plastic as it is more durable.



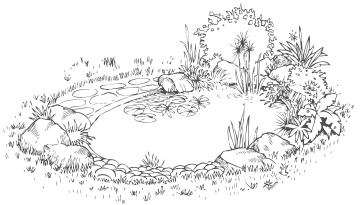
4 Mould chicken wire on top of plastic to the shape of the pond including the sides. Be sure not to pierce the plastic, if you do, use duct tape to cover piercing.



5 Mix Concrete to a smooth consistency with minimal water. Lay concrete approximately 100mm thick and ensure the chicken wire is positioned in the middle of the concrete. Compact firmly for water tightness. Leave to cure for 7 days. Protect from moisture loss.



6 Once the concrete has cured, fill the pond with water to minimize shrinkage and cracking. Leave for a fortnight then empty the pond, scrubbing hard with a broom to 'season' it, clean out and refill with clean water. Now your pond is ready to enjoy. Just add your personal choice of rocks, fish and water plants for a look that will transform your outdoor area.



Brick Walls

Walls are a popular feature in any house or garden and are easy to build. Below are easy to follow instructions for brick garden walls.

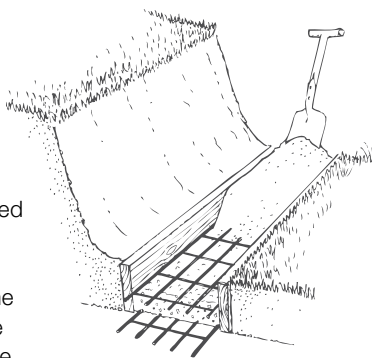
YOU WILL NEED:

- Concrete Mix
- Bricks Mortar
- house bricks
- timber boards
- timber for framework
- reinforcing mesh
- ag-pipe
- spirit level
- gravel
- shovel
- trowel



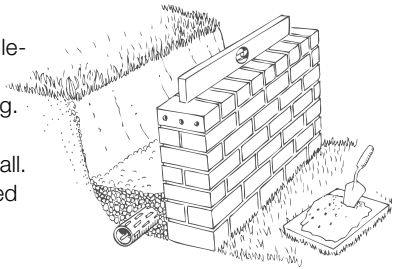
Bricks Mortar is a pre mixed trade quality mortar, suitable for use in all brick and block work.

1 Laying a strong footing for a retaining wall is vital as the wall must support the slope behind it. Dig a trench 500mm wide and 500mm deep for the length of your wall. Place reinforcing mesh inside at least 50mm off the ground. Mix a batch of Concrete and half fill the boxed trench. For extra support, place an additional layer of reinforcing mesh on top of the fresh concrete, then fill to the top. At least 5 days should be left for curing, before laying brickwork. To avoid cracking keep moist.

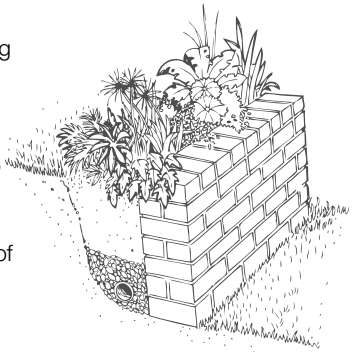




2 When seeking bricks for your retaining wall it is important to remember that a double-brick wall provides double the strength of a single-brick wall. Mix and spread Brickies Mortar on the footing. Then place a double row of bricks for the length of the wall. Build up to the height required checking accuracy with the spirit level as you progress. Between the first and second layer of bricks leave some vertical mortar gaps for any excess seepage. Complete the wall by laying the last row of brick on edge.



3 When building a retaining wall you need to allow for drainage. Place gravel behind the wall to a depth of 15cm. Lay the ag-pipe on top and cover with the remaining gravel. It is important that the pipe is exposed at each end of the wall. Once the remaining gravel is in place, backfill with soil.



Garden Edges

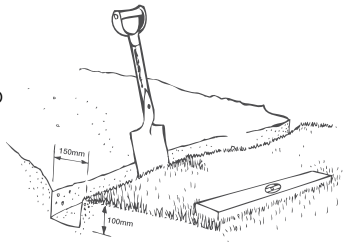
For a tidy and finished look to your garden, concrete garden edges are the answer. They can be made to suit any garden shape and to any width. The most common sizes range from 100mm - 150mm. Just define the area with either string or chalk and you're ready to start.

YOU WILL NEED:

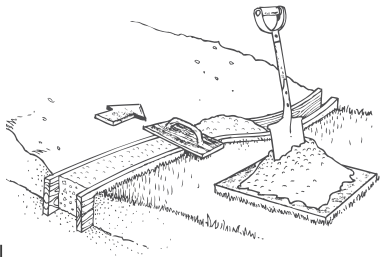
- Concrete Mix
- string or chalk
- wooden pegs
- shovel
- metal sheeting for formwork (if garden has curves)
- spirit level
- trowel
- wooden float
- steel float



1 Dig a trench approx 100mm deep and 150mm wide to the desired length of the garden and level by using a spirit level. Note: Dig trench wide enough to allow for formwork. Remember, concrete should finish approx 100mm wide. Next, box the area with formwork. For curves, use flexible material the same size as the formwork to box in the curves. Make sure the desired height of the garden edge is the same height as the formwork. Soak the trench with water to minimize the soil drawing water from the fresh concrete.



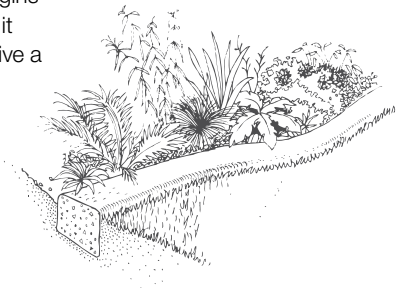
2 Mix Concrete and fill the boxed area to the top of the formwork. Lightly pre wet the area, prior to placing concrete. To rid the concrete of any air bubbles, tightly compact the area using a shovel. Level surface by using a wooden float. For larger garden areas, it is easier to work in small sections.





3 Once the concrete begins to become firm, finish it with a steel float. This will give a smooth finish.

4 Allow 24 hours before removing formwork. Allow to cure for 1 week.



Alternative: Instead of using concrete, you can use bricks or pavers. Prepare the trench as in Step 1 and fill with enough concrete to allow you to sit a brick or paver on top so that it finishes flush with the formwork. Lay the concrete first and allow it to partially set, then lightly tap the bricks/pavers in place. "Butter" the ends prior to laying with Brickers Mortar to fill the gaps or joints between the bricks. Use a spirit level to keep the bricks at the same height.

Stone Pathways – Sand

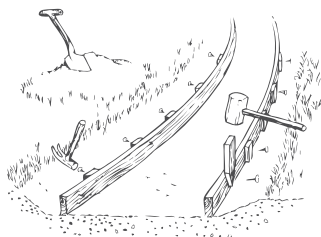
Create your own authentic cottage garden pathway, with the natural beauty of stone.

YOU WILL NEED:

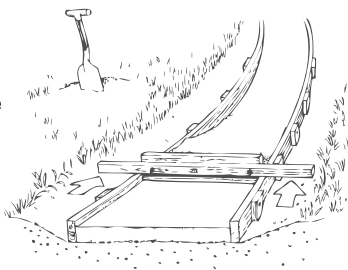
- Sand & Cement
- paving sand
- paving stones
- shovel
- spade
- wheelbarrow
- pointed trowel
- timber guides and screed board
- rubber mallet
- sponge
- bucket
- wooden pegs
- nails and hammer



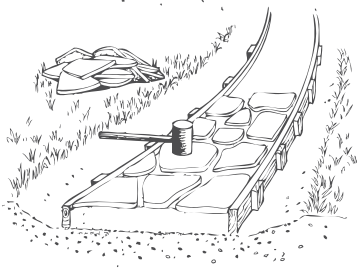
1 Dig out path profile. Position 50mm timber guides along each side.



2 Fill with paving sand and compact. Level sand with a straight piece of timber screeding back along the timber guides.



3 Position paving stones on sand to desired pattern, leaving spaces for Sand & Cement joints. Carefully tap paving stones with a rubber mallet.

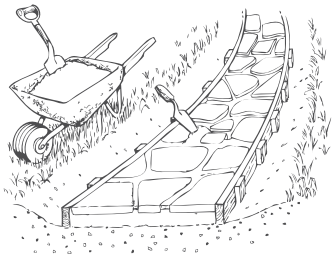




4 Mix Sand & Cement and work into joints between paving stones with a small pointed trowel. Gently tap Paving Stones again with rubber mallet to ensure Sand & Cement fills all voids.

5 Wait until Sand & Cement has started to set before using a damp sponge to clean paving stones and finish off Sand & Cement surfaces.

6 As with all cement based products keep Sand & Cement moist for seven days to allow proper curing of product.



7 Remove timber guides and edge sides with Sand & Cement.

Stone Pathways – Concrete

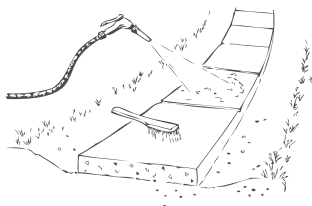
Rejuvenate your old concrete paths and create your own authentic cottage garden pathway with the natural beauty of stone.

YOU WILL NEED:

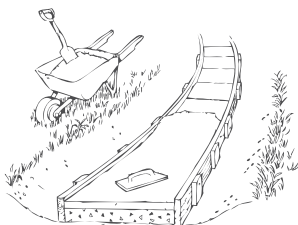
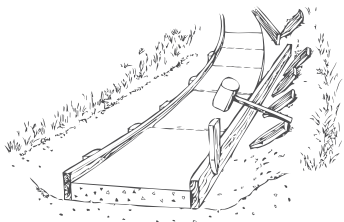
- Sand & Cement
- Cemcryn
- paving sand
- paving stones
- shovel
- spade
- wheelbarrow
- pointed trowel
- timber guides and screed board
- rubber mallet
- sponge
- bucket
- wooden pegs
- nails and hammer



1 Ensure existing concrete is clean. Roughen surface with a wire brush and sweep/hose off dust.

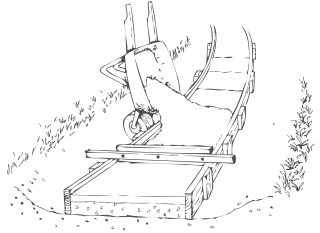


2 Create a 30mm to 50mm Sand & Cement bed for paving stones by mixing Sand & Cement with a suitable bonding agent Cemcryn to ensure that the Sand & Cement bonds to existing concrete base, Don't make mix too wet as it needs to be of a consistency that will support the weight of the paving stones.

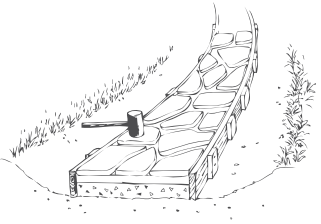




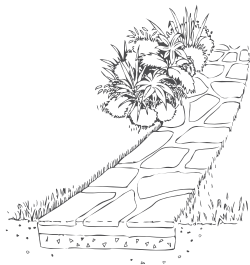
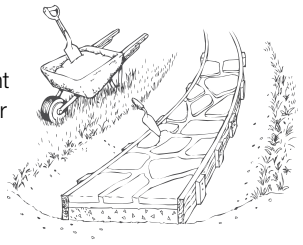
3 Immediately lay paving stones on top of Sand & Cement bed, gently tapping paving stones with rubber mallet so that they become embedded into the Sand & Cement. Top up gaps between paving stones with more Sand & Cement using a pointed trowel.



4 Wait until Sand & Cement has started to set before using a damp sponge to clean paving stones and finish off Sand & Cement surface. If used, remove timber guides and edge sides with Sand & Cement.



5 As with all cement based products keep Sand & Cement moist for seven days to allow proper curing of product.



Concrete Pathways

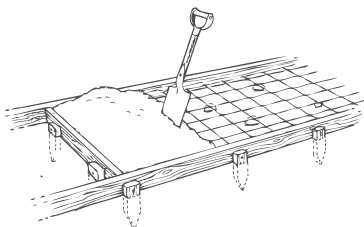
Open up your garden by eliminating those bare wet areas with a solid, long lasting pathway.

YOU WILL NEED:

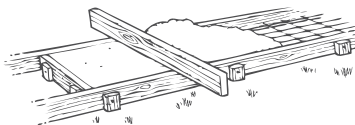
- Concrete
- shovel
- spade
- wheelbarrow
- timber formwork
- screed board
- pegs
- garden hose
- steel trowel
- wooden float
- edging tool
- nails and hammer



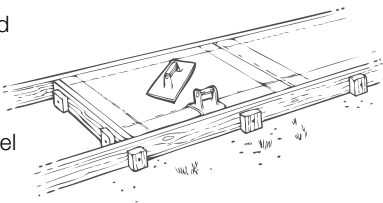
1 Creating the shape of your pathway is the first critical step. Plan your pathway by using a brickies string line tied to wooden pegs for straight paths, or a garden hose to create curved paths.



2 Next prepare your pathway by removing grass and excavating, to a minimum depth of 125mm. If the pathway is close to your dwelling, allow a slight fall so water can run away.



3 Fix timber formwork to wooden pegs at regular intervals with the pegs situated on the outside and lower than the timber. The formwork, is the final height and shape of your pathway. Appropriate steel reinforcement mesh may be required.





4 On an uneven or clay base, place a 50mm layer of sand or road base to form an even bedding for concrete. This will also reduce the likelihood of cracking as the concrete has a firm base on which to rest.

5 Mix and place Concrete within the formwork, spreading and compacting as you go. Level concrete by using a smooth straight piece of timber, pulling back along the formwork with a side to side sawing action with the leading edge slightly raised. Lightly tap formwork edges on the outside with a hammer to vibrate concrete in against formwork.

6 Wait until concrete is firm to touch before finishing off the surface with a wooden float for a non-slip finish, or a steel trowel for a smooth finish. Edges should be finished off using a steel edging tool to round the edges, which also reduces chipping and provides the final professional finish.

7 Do not walk on concrete for 24 hours.

8 For the next seven days keep the concrete moist. This is known as curing and assists the concrete to reach its designed strength and durability.

Log Retaining Walls

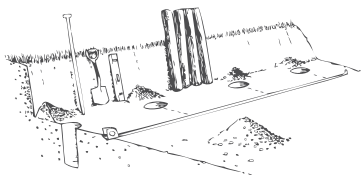
Log retaining walls used for terracing add a natural soft touch to sloping sites while performing an essential functional purpose.

YOU WILL NEED:

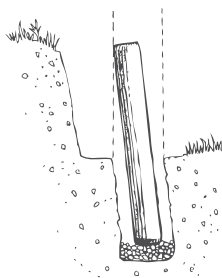
- concrete
- posts and logs
- 10mm gravel
- post hole digger or steel bar
- wheelbarrow
- string line
- tape measure
- spirit level
- saw
- agricultural drainage pipe
- nails and hammer



1 Retaining wall designs are dependant upon soil type, height of wall, load to be retained, and local government authority requirements. Please consult your supplier and local council.



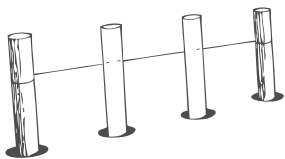
2 Work out correct spacing for upright posts by determining the location of both ends of the wall and appropriate spaces in between.



3 Dig holes to a depth that enables half the upright log to be concreted into the ground, with the remaining half above ground level to be used for retaining soil.

4 Holes should be dug at a slight angle leaning back into the area to be retained.

5 Hole diameter should allow a minimum 75mm concrete thickness surrounding the post for its entire depth.





6 Place 10mm gravel to cover the bottom 50mm of the hole for drainage and to reduce possible rotting of the post over time. Position post in center of the hole sitting on gravel base.

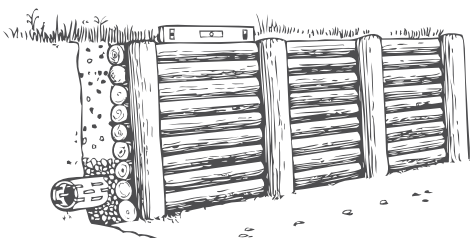
7 Mix Concrete to a stiff consistency. This will assist in holding the post in position. Ensure post lays back towards area to be retained. This is known as battering.

8 Concrete in upright posts at either end first. As a guide to the positioning of remaining posts, use a brickies string line tied to the inside face (side to be retained) or both end posts.

9 After all posts are concreted in, leave for 24 hours. Next day, fix all horizontal logs to upright posts ensuring that they are level.

10 Backfill base of wall with gravel. Place agricultural drainage pipe on gravel at back of wall and backfill with more gravel to totally encase drainage pipe by at least 100mm.

11 Backfill remainder with soil to appropriate level.



Brick Letterbox

Create a letterbox with style and flair to compliment your home.

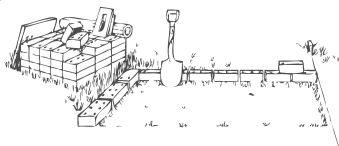
YOU WILL NEED:

- Concrete
- Bricks Mortar
- bricks
- sandstone capping
- timber formwork
- screed board
- nails & hammer
- spirit level
- shovel & spade
- wheelbarrow
- pointed trowel
- letter box
- newspaper holder (clay pipe)
- timber marked with brick and mortar spacings
- brush
- wooden float

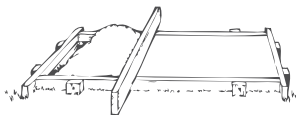


Brickies Mortar is a pre mixed trade quality mortar, suitable for use in all brick and block work.

1 Place loose bricks in shape of letterbox design on selected site to determine area to be excavated. It is advisable at this stage to have already purchased your letterbox and newspaper holder (clay pipe) so that the correct width of your brick letterbox can be determined. Nail together timber formwork and place in excavated area for concrete slab.



2 Mix, place and finish Concrete. Leave concrete for 24 hours before laying bricks for letterbox.

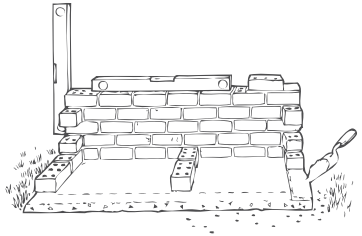


3 Mix Brickies Mortar and spread evenly over slab where first layer of bricks are to be laid. Lay first course of bricks onto the mortar bed, ensuring a 10mm vertical joint and a 10mm horizontal joint.

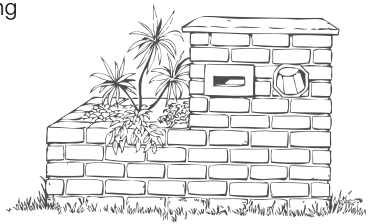
4 Use a spirit level to ensure each brick course is straight and level. Lay additional courses of bricks until you reach a height to position letterbox and newspaper holder.



5 To ensure 10mm mortar joints are maintained between each course, mark on a straight piece of timber the brick height and mortar joint width, and use regularly to check correct vertical spacing is maintained.



6 Place letterbox and newspaper holder on bed of mortar and continue bricking until desired finished height is reached.



7 Mortar joints can be left flush, or raked. To create a raked finish, hammer a nail through a small piece of timber (protruding about 5mm) and scrape along the mortar joint before it has finally set. Smooth 're'o' bar slightly curved at one end can be used to give rolled joints.

8 Next day, place mortar on top layer of bricks and position sandstone capping as the finishing touch.

9 Brush off all excess mortar at end of each day.

Brick Coatings

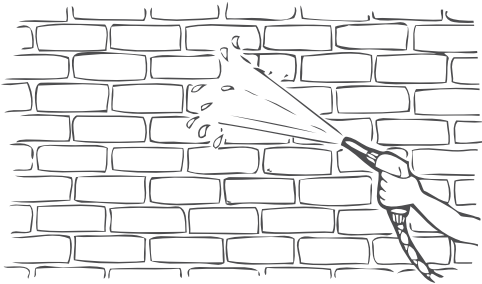
To rejuvenate old brickwork and create a new stylish Mediterranean finish.

YOU WILL NEED:

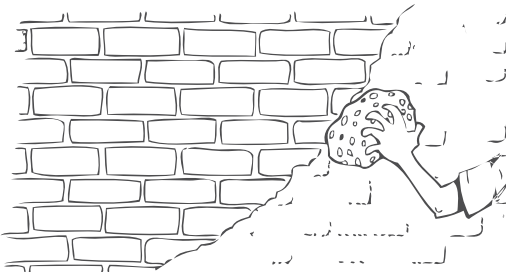
- Off white Cement
- Hydrated Lime
- Cemcryn
- clean fine sand
- shovel
- wheelbarrow
- sponge



1 Clean existing brickwork removing any grease, oil or paint.



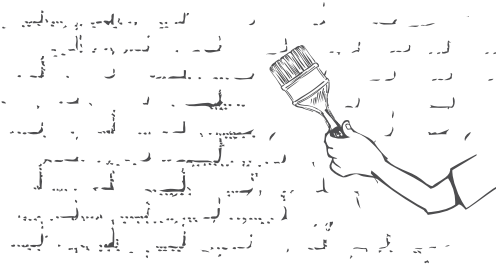
2 Dampen brickwork with clean water to reduce the possibility of the bricks sucking out the water from the cement render. This will prevent the cement render drying out too quickly and reducing its bond strength.





3 By volume, mix 3 parts clean fine sand, 1 part Off White Cement and 0.5 part Hydrated Lime with clean water and Cemcryn into a fluid creamy mix. Always add the same amount of water to each mix so as to maintain a consistent colour.

4 Apply evenly with a damp, dense sponge over brickwork.



5 Leave for 24 hours and apply a second coat. If applying over dark coloured bricks a third coating may be required.

6 Leave for 7 days before painting with appropriate paint for desired colour, or leave as is.

Barbeque

Cook up a storm on this wood fired brick barbeque and enjoy outdoor living at its finest.

YOU WILL NEED:

- Concrete Mix
- Bricks Mortar
- bricks
- timber for formwork
- screed board
- spirit level
- shovel & spade
- nails & hammer
- wheelbarrow
- pointed trowel
- lintels
- timber marked with brick & mortar spacings
- brush
- fire grill
- hot plate
- wooden float

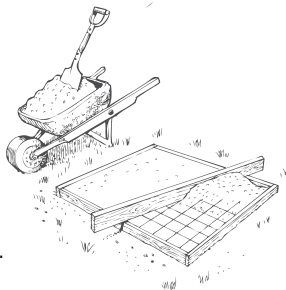
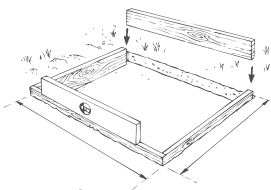


1 Place loose bricks in shape of barbeque design on selected site to determine size of area to be excavated. It is advisable to already know the size of your fire grill and hot plate, so the design can accommodate these items.

2 Nail together formwork for concrete slab, and place in prepared area.

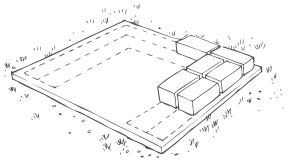
3 Mix, place and finish concrete and leave to cure for 24 hours.

4 Mix Bricks Mortar and spread evenly over slab where first layer of bricks are to be laid. Lay first course of bricks onto the mortar bed, with a 10mm vertical joint and a 10mm horizontal joint. To ensure 10mm mortar joints are maintained between each course, mark on a straight piece of timber the brick height and mortar joint width, and use regularly to check correct vertical spacing is maintained.

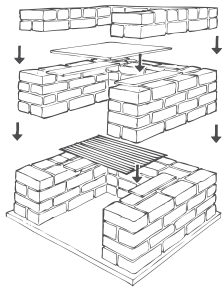




5 Use a spirit level to ensure each brick course is straight and level. Lay additional courses of bricks until you reach a height that is suitable for a fire grill. Insert lintels into mortar joints to sit fire grill on.

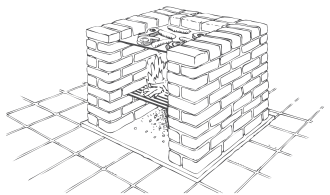


6 Add a further 3 or 4 courses of bricks then insert lintels into mortar joint on which the barbecue cooking plate will be positioned after the project is finished. A further 2 courses of bricks will complete the barbecue.



7 Mortar joints can be left flush or raked.

8 To create a raked joint finish, hammer a nail through a small piece of timber (protruding by about 5mm) and scrape along all mortar joints before it has totally set.



9 Clean all brickwork with a stiff brush.

Bush Rock Edges

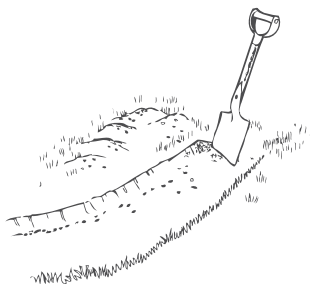
Create and define pathways in the garden with natural rock and stone.

YOU WILL NEED:

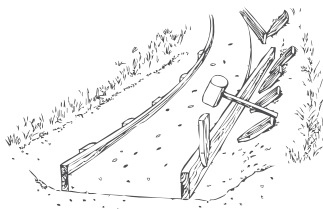
- Concrete Mix
- Sand & Cement
- bush rock
- shovel
- spade
- wheelbarrow
- nail & hammer
- pointed trowel
- edging tool
- sponge
- brush
- tape measure
- wooden float



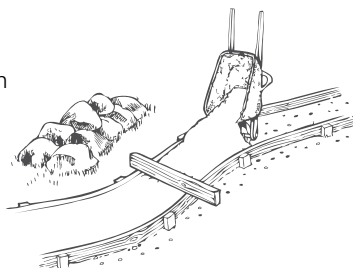
- 1 Excavate trench to desired profile for concrete base. Depth should be a minimum 75mm, width is dependant on shape and size of bush rock.



- 2 Form face edge with flexible formwork.

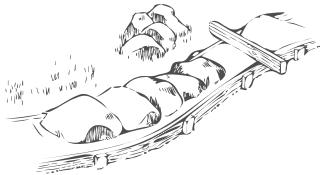


- 3 Mix Concrete and fill trench level to formwork.

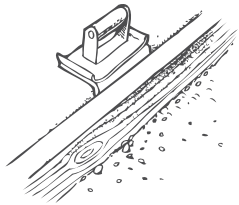




4 While concrete is still wet, position bush rock into the concrete, using your hands in a rocking motion to get the bush rock slightly submerged into the concrete.



5 Finish face edge along formwork using an edging tool and pointed trowel.



6 Leave for 24 hours.

7 Sand & Cement may be used with coloured oxides to fill gaps between bush rocks. When Sand & Cement is starting to set, use a damp sponge to finish off Sand & Cement surface and clean bush rock.



Repointing Brick or Blockwork

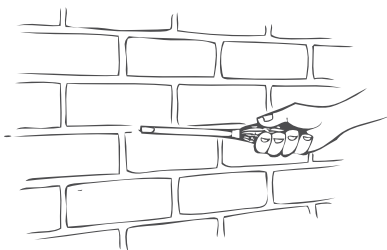
Follow the easy steps below to repoint old and weathered brick or blockwork.

YOU WILL NEED:

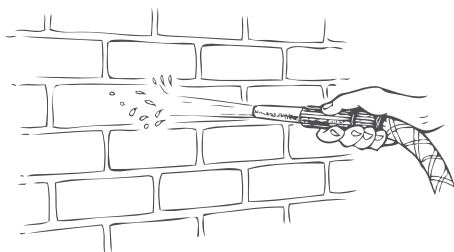
- Brickies Mortar
- pointed trowel
- raking tool
- damp cloth



1 Repointing brick or blockwork can be a drawn out process but a worthy one to minimize more damage to the mortar joint. Rake out the loose mortar with a raking tool or screwdriver. A minimum of 10mm measured from the face brick should be raked out. This will depend on the condition of the mortar. You should not be required to rake out any more than 20mm. Clean the area to be repointed by removing any mortar dust from the joint.

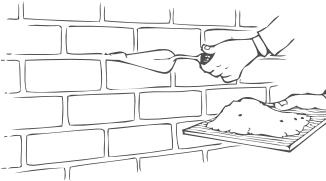


2 Using a small paint brush, wet joint with water to eliminate water being absorbed from the new mortar being placed.





3 Continue by mixing up the required amount of mortar mix to a consistent mix (not too wet) and enough that it can be used within one hour. Work the new mortar into the joint with a small pointing trowel. You may need to have a drop sheet to reduce the amount of cleaning up.



4 Clean off excess immediately and wipe the brick face with a damp cloth and rake joint to match existing groove or as required.

5 Allow the mortar to dry for 5-7 days before cleaning any stains with a brick cleaner product and high pressure washer. Clean tools with water immediately.



Hydrated Lime

DISINFECT AND DEODORISE

Hydrated Lime is a quick, low-cost remedy for unpleasant odours anywhere, including garbage bins and animal surrounds. To use, clean area of dust and debris and freely sprinkle dry Hydrated Lime. For problem areas such as toilets and drains, mix approx 100g of Hydrated Lime with a litre of water and pour down the sink or toilet; leave for 1 hour and flush. For best results, repeat every fortnight.

WHITEWASH

Whitewash is a cheap alternative to paint and is commonly applied as a protective coating to houses, garages and other related buildings. Whitewash is also used for a wide range of purposes. Prepare area to be whitewashed by cleaning the surface thoroughly. Next, dissolve 1kg salt in 12 litres of clean water in a clean garbage bin. Gradually stir 6kg Hydrated Lime into mixture. Allow to stand overnight. Stir to a milk consistency before applying with a spray or brush. For best results, apply whitewash in thin coats, spreading evenly as quickly as possible. Carefully wash and dry brushes immediately after use.

REMOVE STAINS

To remove unsightly grease and oil stains from driveways, carports or garages, simply sprinkle area with dry Hydrated Lime and leave for 48 hours. Using a stiff brush, scrub area before rinsing.

IMPROVE PLANT GROWTH

Lime acts as nourishment for most plants and crops and is commonly used to improve acid levels in plant and crop growth. Tell-tale signs of lime deficiency in soil include under developed roots and plants, seedlings dying and discoloured leaves. To correct lime levels in acid soil, simply sprinkle Hydrated Lime evenly to the surface and rake into the soil. For best results, apply Hydrated Lime after rain and repeat at least once a year. Check ph level.

CAUTION: Hydrated Lime benefits most plants, but do not use on: Andromedas, Azaleas, Camellias, Ferns, Gardenias, Orchids and Rhododendrons. It is advisable to have the soil tested before applying lime as it may cause other problems in certain situations. Home kits are available from leading garden suppliers. Please wear gloves.

General Information

COLOURING

Before the fresh base concrete dries, the coloured topping mix should be applied. Mix 1 part cement-oxide : 3 parts aggregate to a trowelling consistency and place as a topping (approximately 25mm thick) over the still wet concrete.

The surface is then finished and cured using good concrete practices (see following pages).

BRICKWORK MORTAR

There are several types of mortar that are suitable for bricklaying work, the most common being lime mortar, cement mortar and lime-cement mortar.

LIME MORTAR

Lime mortar develops strength slowly and is ideal for areas such as barbecues and incinerators. It is easy to mix, has good workability and minimises shrinkage cracking. The mix consists of 1 part Plaster Lime : 3 parts sand, by volume.

CEMENT MORTAR

This mortar is perfect for areas where early strength is important such as piers and walls subject to heavy loads. Unlike lime mortar, cement mortar is more difficult to mix, is prone to shrinkage cracking and should be used within one hour of mixing. The mix consists of 1 part cement : 3 parts sand, by volume.

LIME-CEMENT MORTAR

This mix has great characteristics from both lime and cement; good workability and early strength. Depending on the type of work, the standard mix is 1 part Plaster Lime : 1 part cement : 6 parts sand, by volume. To increase mortar workability, just add more lime. However, too much lime will make mix sticky.



How to Make Good Concrete

Quality concrete needs clean, good quality sand, quality gravel and drinkable water measured accurately. When planning your next home project, contact your nearest supplier for advice on size and type of materials to use.

FORMWORK

Formwork acts as a mould for fresh concrete and is commonly made from 25mm thick timber cut to the desired size of the foundation. The timber should be clean, smooth and strong enough to support the weight of the concrete without bending.

Using a builder's square, check the corners are at perfect right-angles. Lightly oil the inside of the formwork before laying concrete. Formwork will then be easier to remove after the concrete has set. If a drainage slope is required, lower the formwork slightly on one side hammering the formwork deeper into the ground so that concrete will have a slight gradient. Timber screeds used to level concrete must also be clean.



REINFORCED CONCRETE

Reinforcing steel or mesh may be required for concrete that supports heavy loads and traffic. It is vital that the correct amount of steel is used, and placement is equally important. As a rule, the steel should have at least 50mm depth of concrete over it and be placed with two thirds of the thickness of the concrete below and one third on top.

For advice on reinforced concrete, telephone a Boral Concrete representative on 1300 552 555 from Monday to Friday between 9am and 5pm.

MIXING

Mixing can be done successfully without a mixer – just use existing tools such as a wheelbarrow, bucket and shovel. Mixers are available through most hire companies for larger jobs. Concrete and mortar quantities used in the featured projects depend on the planned size and shape. If in doubt, contact your nearest reputable supplier.

Concrete should not be mixed with too much water as it weakens the finished concrete. Lay the concrete and, using a screed board or a shovel, thoroughly compact the concrete to remove any bubbles. Smooth the surface with a float or trowel as quickly as possible. The secret to strong, workable concrete is in the mix. Do not use more water than required and always add a little at a time until the consistency is correct.

COLOURED CONCRETE

For that special touch, why not consider colouring your concrete? Concrete can be coloured in two ways: by using pigments in the mix or by painting the existing concrete surface.

PIGMENT/OXIDES

For a longer, truer colour, metallic oxides are the preferred option. Mix oxide (no more than 10 per cent of the cement weight) thoroughly through the cement. Once the mixture is consistent, add sand and gravel. Varying colours can be achieved by using Grey Cement, Off White Cement or White Cement.



How to Make Good Concrete

CONCRETING IN HOT WEATHER

When the temperature reaches 32 degrees or higher, it is advisable to delay concreting until the weather cools down. High temperatures can dramatically affect the quality of the concrete by drying it out too quickly. If the job cannot be delayed, here are some helpful tips to minimise the effect of the heat on concrete:

1. Start work early in the morning (or the coolest part of the day) so the concrete can be laid before the day gets too hot.
2. Keep work area, tools and materials shaded. Keep mixing time to an absolute minimum, carefully checking consistency. If windy, erect wind shields to prevent air movement.
3. Keep concrete mix moist by covering with plastic sheeting. If you are unable to cover the job with plastic sheeting, your Boral Cement supplier can recommend a suitable spray formulated to prevent rapid loss of moisture.

CURING

Fresh concrete must be well protected from loss of moisture as soon as the surface is firm, this is known as curing. Placing heavy plastic sheeting on top of the surface and securing the edges with bricks or stones, will prevent premature drying and spoilage.

Ensure the plastic is in contact with the fresh concrete leaving no air pockets. Should the concrete start to dry out during curing, dampen with water (a fine soaking spray) and replace the plastic immediately after wetting. The curing period is approximately 7 days in normal weather (up to ten days in colder conditions).

Curing time also depends on the size of the project. Keep the formwork in place during the curing period to protect the concrete, particularly the edges, against damage.





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