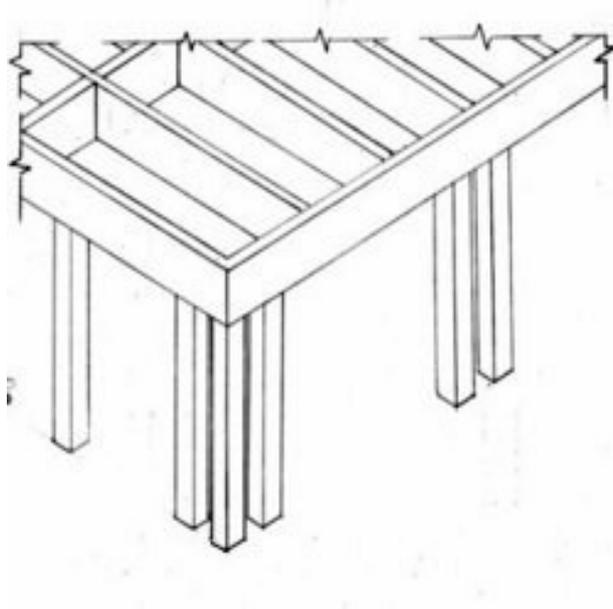


## How To Build A Pergola



**\*\*\*Safety First\*\*\***

Please read the section on workplace safety at the end of this manual before proceeding with any work.

## How To Build A Pergola

Pergolas can be built to many different shapes and sizes and can be constructed from many different materials. Whatever the design, or the materials used for its construction, pergolas are basically constructed using the same methods.

For the purpose of this manual we explain how to build a pergola constructed from treated pine.

Roof claddings are not the subject of this manual, however there are several choices depending on the slope and size of the structure. Generally lightweight iron or clear roof sheets are used. If you are intending to use a substantially heavier cladding material, (such as tiles), then the structure will have to be strong enough to carry the load. Where roof claddings are used, stormwater runoff will have to be considered. A suitable gutter and downpipe system should be installed.

If you have any questions regarding roof claddings please refer to our manual under DIY projects on our menu.

The size of the pergola we are constructing measures 6 metres long by 3 metres wide. It is being installed at a height of 2650mm to the top of the rafter. One end of the pergola is to be fixed to an existing brick wall.

Materials required;

Timber

Treated Pine can be ordered raw or primed ready for painting. You must specify which type you require at the time of ordering.

12 @ 3.0m of 115 x 115mm treated pine  
8 @ 6.0m of 190 x 40mm treated pine

Hardware

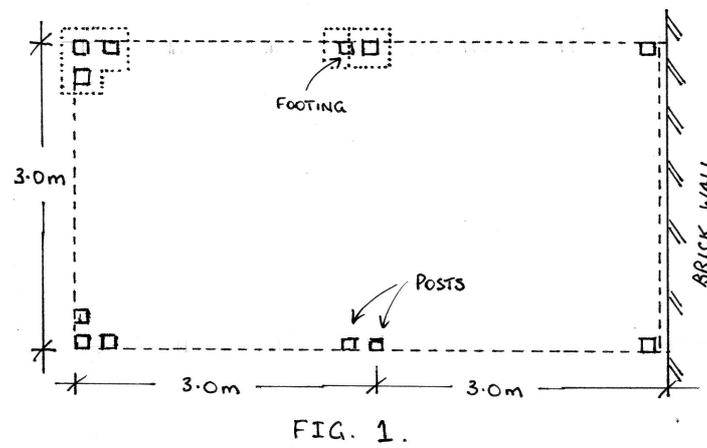
24 cuphead bolts 110mm x 10mm galvanised plus 8 nuts and 8 washers  
12 to 20, 20kg bags of concrete mix  
2 tubes of waterproof glue (liquid nails or similar)  
100mm x 6mm galvanised screws

### Step 1

#### Setting Out.

Clear the work area of all plants and vegetation and roughly level the ground. Pavers are to be installed under the pergola after installation.

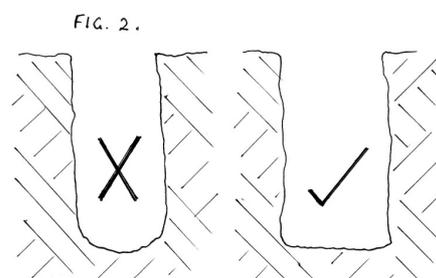
Mark out the position of the posts. For this example the posts are 3m wide (measured from the outside edges of the posts) and 6m long (from the brick wall) see Fig 1. This is a contemporary pergola with no edge overhang.



### Step 2

#### Excavation.

This pergola has 12 posts as shown. As one edge is supported by the brick wall and some of the posts grouped together we need to excavate only six holes for the posts. These holes should measure 300mm x 300mm wide by 450mm deep per post. Make sure the bottom of the footings are cut square and not rounded, see Fig 2.



### Step 3

#### Cut the Posts.

Place the four posts side by side on a pair of saw stools, even up one end and clamp them together.

Using a square mark a line across the end of the four posts. Measure down 190mm and mark another line. With the posts clamped together use a power saw set to 40mm deep and cut a row of parallel lines (around 20mm apart).

Remove the excess with a sharp chisel as shown in Fig 3.

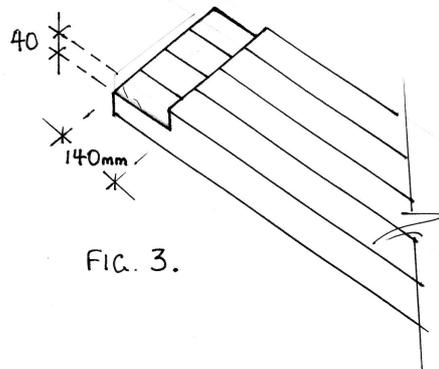


FIG. 3.

Using a 10mm drillbit, drill two evenly spaced holes through the end of the post as shown Fig 4.

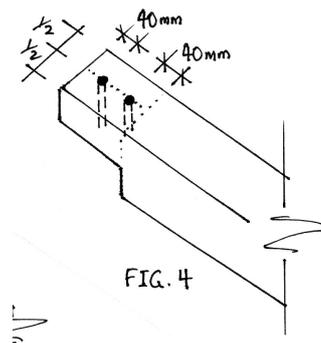


FIG. 4

Step 4.

Cut the beams.

As our pergola is a 'flush' design (no overhang) we have designed the cross beams (rafters) to be rebated into the sides of the support beams. The first step is to set out the two beams and mark the spacing for the cross beams, (rafters).

Cut a 45 degree angle across one end of the beam, (190mm x 40mm). Rebates for the centre beams can then be set out. Align both beams beside each other and mark the rebate for the centre beams. Using a powersaw and chisel remove the rebate being careful to stop 20mm from the bottom edge. This acts as a shelf for the centre beams to sit on. See Fig 5.

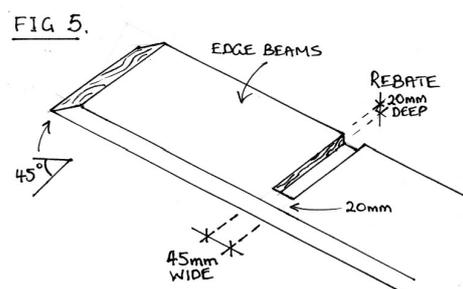
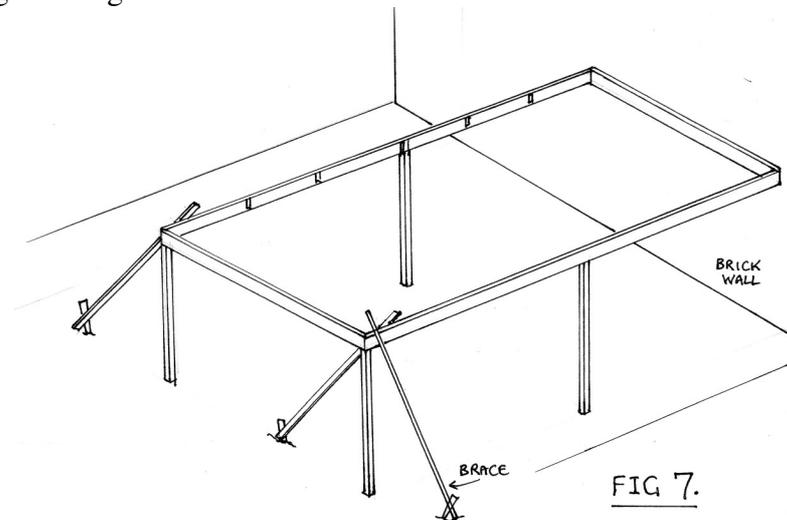


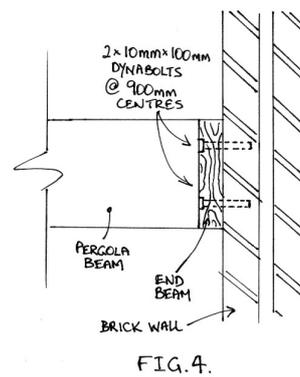
FIG. 5.

Step 5.

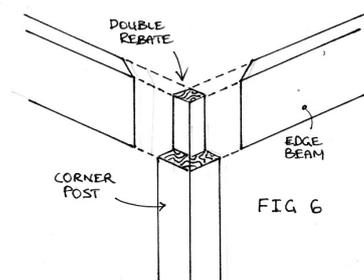
Assembling the Pergola.



1. The first step is to secure the end beam to the brickwork. Fix the beam with 100mm x 10mm galvanised dynabolts @ 900mm centres. The bolt heads should be recessed 20mm by using a 35mm speedbore drillbit.



2. Once the beam is fixed to the wall stand the two corner posts in the holes and brace into level using timber battens.
3. Install the edge beams, holding them in position with clamps. Drill the post holes and bolt the posts to the beams. Insert the remaining posts and bolt to the beams.



4. Level and prop the structure, bracing it with timber battens.
5. Insert the centre beams by sliding them down the rebate from above. Use a wooden mallet to gently tap the beams into the slot.

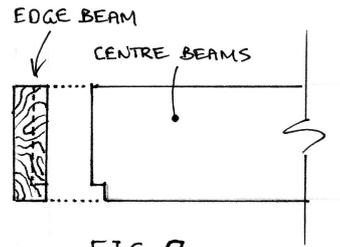
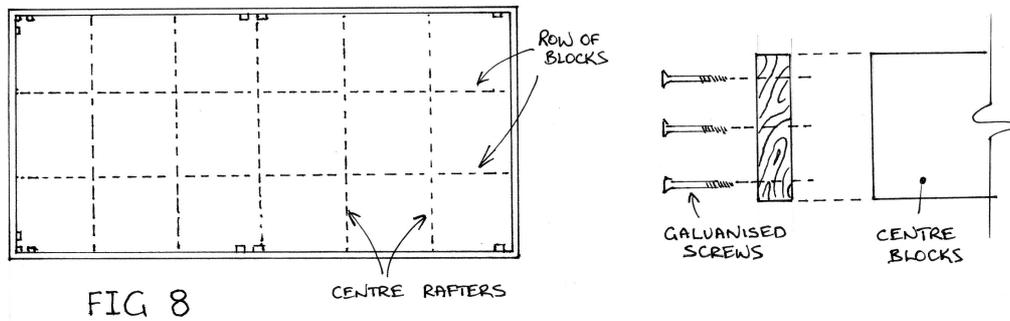
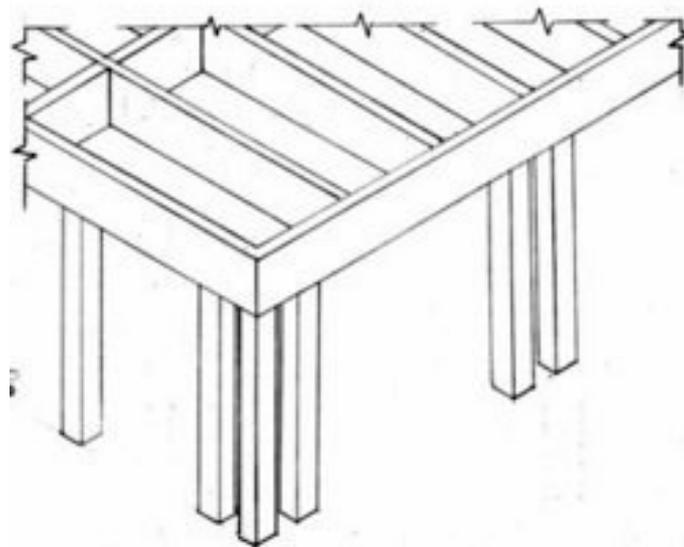


FIG 9.

6. Once the centre beams are installed, the blocks can be measured and cut. The blocks should be measured at the ends to make sure the centre beams stay straight when the blocks are installed. Screw the blocks through the end with 100mm x 6mm galvanised steel screws.



Allow the concrete to dry for at least 24 hours before removing any props or braces.



.... happy building!

# Tool Guide

*A Guide to The Right Tool For Every Job*

| Stage                     | Suggested Tools  |
|---------------------------|--|
| <b>Demolition</b>         | <p>Handtools;<br/>Sledge Hammer, Lump Hammer, Claw Hammer, Handsaw, Pinchbar, Crowbar, Screwdrivers.</p> <p>Power Tools;<br/>Demolition Hammer, Demolition saw, Jackhammer, Chainsaw, Circular Saw.</p>  |
| <b>Excavation</b>         | <p>Handtools;<br/>Trenching spade, Long handle wide mouth shovel, Long handle shovel, Mattick, Crowbar, Post hole digger, Wheelbarrow.</p> <p>Power Tools;<br/>Diesel post hole digger, Jackhammer, Core drill, Hammer drill.</p>  |
| <b>Concreting</b>         | <p>Handtools;<br/>Wide mouth shovel, short handle shovel, wheelbarrow, straight edge, timber float, timber trowel, steel trowel, broom, bucket, hose.</p> <p>Power Tools;<br/>Concrete pump, vibrator, power screed</p>  |
| <b>Carpentry</b>          | <p>Handtools;<br/>Square, pencil, saw, bevel, spirit level, claw hammer, punch, screwdrivers, shifting spanner, wood chisels, builder line, clamps, sandpaper</p> <p>Power Tools;<br/>Circular saw, jig saw, drill, hammer drill, router, orbital sander, belt sander, electric planer</p> |
| <b>Brickwork</b>          | <p>Handtools;<br/>Brick trowel, lump hammer, bolster, plugging chisel, spirit level, profiles, bricklayers line</p> <p>Power Tools;<br/>Cement mixer, angle grinder, brick saw</p>   |
| <b>Steelwork</b>          | <p>Handtools;<br/>Clamps, file, ball pen hammer, vice, boltcutters, pipe bender, hacksaw</p> <p>Power Tools;<br/>Angle grinder, drill, cut off saw, welder</p>   |
| <b>Glazing/Plastering</b> | <p>Handtools;<br/>Claw hammer, wood chisel, broad knife, steel trowel, putty knife, sanding block, sandpaper</p> <p>Power Tools;<br/>Orbital sander</p>  |

**SAFETY FIRST SAFETY FIRST SAFETY FIRST SAFETY FIRST SAFETY FIR**

Workplace safety starts with you! Below is a list of suggestions designed to comply with the workplace safety act and the relevant parts should be applied. All Day Fencing take no legal responsibility for injury or damage caused by the use of this manual.

Barricade or fence off the work area.

All excavated holes should be covered outside of work hours

Use earmuffs, safety glasses and dust masks where required

Always wear suitable clothing and safety footwear

Do not allow children inside the work area

Safety signs should be erected where the project meets public land, eg; fence work.

For more information on workplace safety visit the workplace website at  
<http://www.workcover.nsw.gov.au/WorkcoverOnline/default.htm>.