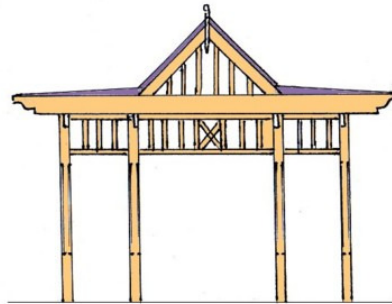


# How To Build A Federation Styled Pergola



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

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

## How To Build A Federation Styled 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. Treated Pine can be ordered raw or dressed (smooth) and primed.

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.

### Construction

The size of the pergola we are constructing measures up to 5.4 metres long by 4.8 metres wide. It is being installed at a height of 2550mm to the underside of the beams. One end of the pergola is to be fixed to an existing brick wall. These measurements can be altered to suit your area. If increasing the size of the structure, or spacing between the posts refer to the span tables for suitable timber sizes.

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.

Posts	4 @ 3.6m	115 x 115mm treated pine
Beams	4 @ 4.2m	190 x 40mm treated pine
Rafters	7 @ 5.4m, & 7 @ 3.0m	140 x 40mm treated pine
Roof Battens	14 @ 4.2m	40 x 40mm treated pine
Ridge Beam	1 @ 4.2m	140 x 20mm treated pine
Frieze	3 @ 6.0m	40 x 40mm treated pine

#### Hardware

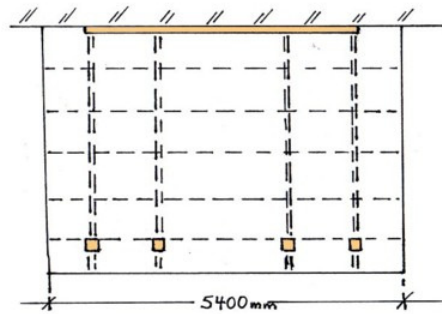
8 cuphead bolts 130mm x 10mm galvanised plus 8 nuts and 8 washers  
6, 100 x 10mm Dynabolts  
4, 20kg bags of concrete mix  
2 tubes of waterproof glue (liquid nails or similar)  
500g pack 100mm x 6mm galvanised screws

### 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.

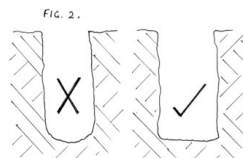
Mark out the perimeter of the proposed pergola with a string line. The rafters and beams have an overhang of 450mm on each end. Measure 450mm in from both corners and excavate a footing 450mm deep x 300mm square for each post.



### Step 2

#### Excavation.

This pergola has 4 posts as shown. As one edge is supported by the brick wall you need to excavate only four 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.



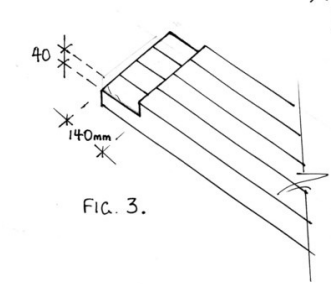
### Step 3

#### Cut the Posts.

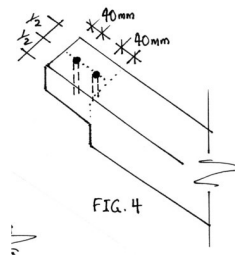
Place the four posts side by side on a pair of saw stools, even up one end and clamp them together.

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.



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



Step 4.

Cut the beams.

There is only overhang on the beams on one end. The first step is to cut the four beams. Timber has a natural curve or bend, not only to the side but also up and down.

When cutting the beams and rafters, ensure that the natural curve is facing up. Cut the four beams allowing 450mm overhang on one end of each beam. Select the design you wish to use for the end of the beams and cut using a jigsaw. These timbers are too large to fit into a band saw.

Cut the Rafters.

Cut a rafter as shown ensuring that the beams line up with the birdmouths (notches) in the rafters.



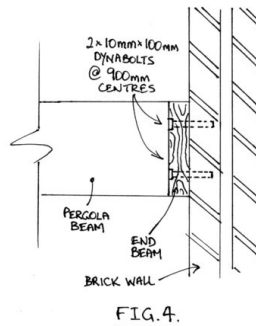
Mark the first cut rafter as a template and use this to mark the other 7 rafters.

Mark and cut the top rafters in the same manner. The size and height of this top roof can be adjusted according to requirements. The rafters have a 45 degree cut on either end. Once the rafters have been cut, its time to assemble the pergola.

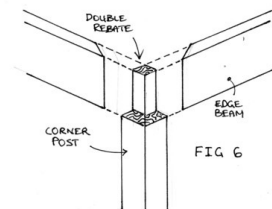
Step 5.

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.

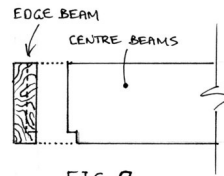


FIG 9.

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.

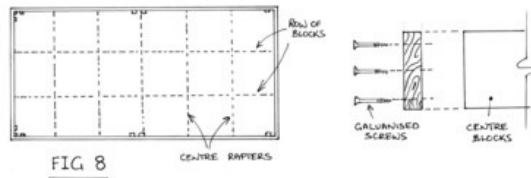
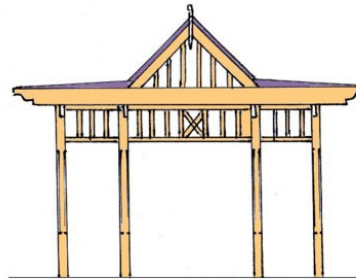


FIG 8

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



.... happy building!