Project Cost Estimator

Materials Description	Quantity	Cost
Post Stirrup		
Posts 100mm x 100mm		
Wall Plate 200mm x 50mm		
Beam(s) 150mm x 50mm		
Rafters 150mm x 50mm		
Battens (optional) 45mm x 20mm		
Concrete Mix		
Galvanised Bolts		
Galvanised Nails		
Framing Anchors		
Joist Hangers		
Timber Finish		
Equipment		
Square		
Spirit Level or Post Level		
Spade or Post Hole Digger		
Hammer		
Measuring Tape		
Drill		
Circular Saw or Hand Saw		
Shifting Spanner		
String Line		
Paint Brush		
Total		

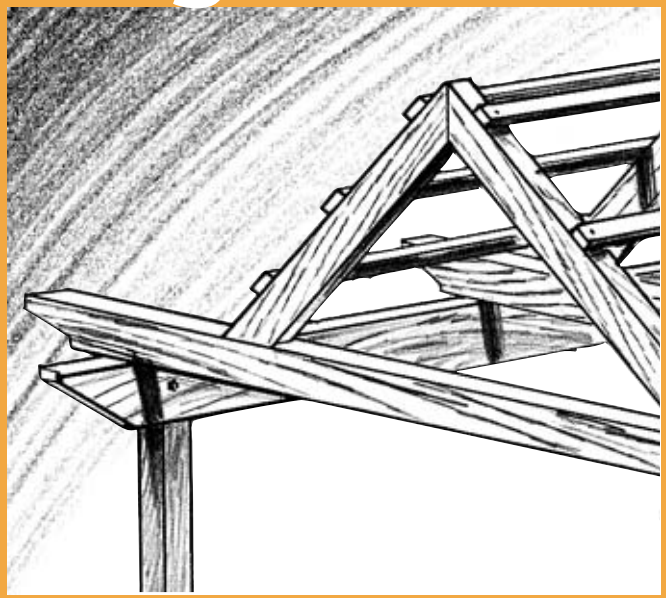
All these materials you need for this job are available at Magnet Mart, your home improvement warehouse.

Phillip Hindmarsh Dr Ph 6281 1744 Fax 6285 2493
Belconnen Lathlain St Ph 6251 4622 Fax 6253 1087
Mitchell Vicars St Ph 6241 7311 Fax 6241 7545
Gungahlin Cringan Cir Ph 6228 9300 Fax 6228 9311
Queanbeyan Yass Rd Ph 6297 8711 Fax 6299 2226
Goulburn Sloane St Ph 4821 3533 Fax 4821 7347
Bowral Bong Bong St Ph 4861 2355 Fax 4862 1066

Home Project

Magnet MART Home Warehouse

Build a Pitched Roof Pergola



- Easy to follow step-by-step guide
- Important and handy tips
- Materials check list
- Project Cost Estimator

Before you start, please read through this 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.

The Pitched Roof Pergola

The pitched roof pergola adds a touch of flair to your structure and matches modern trends in house construction. You can use the same basic construction procedures for a pitched roof pergola as used for a standard flat roofed structure requiring only basic skills and tools. Check with your local building authorities to ensure that your pergola will comply with any relevant building regulations before you commence.

Preparing the Site

Check your site plan to ensure that there are no water, gas, sewerage or drainage lines under your proposed pergola site – you may need to mark their position before you dig footings. Lay out your pergola using string lines. Check for square by measuring the diagonals.

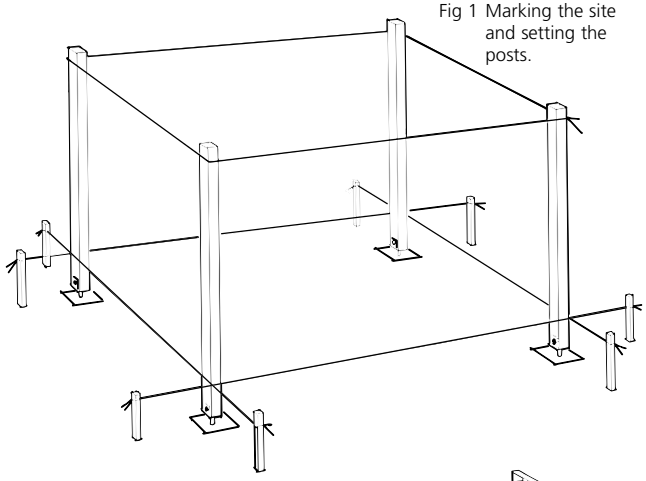


Fig 1 Marking the site and setting the posts.

If your design is house fixed, lay out the posts along the side facing the wall (see Fig 2). If free standing, lay out the posts on two sides (see Fig 1). As the pergola is a light structure, the posts may be set up to 3 metres apart.

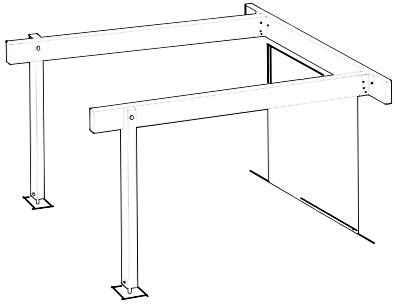


Fig 2 For house fixed pergola.

Setting the Posts

Dig post holes to allow at least a 300mm x 300mm x 450mm concrete pad to be poured for the post stirrup bracket (see Fig 3A). For free standing pergolas, dig the holes a little larger to accommodate a larger concrete pad for added stability.

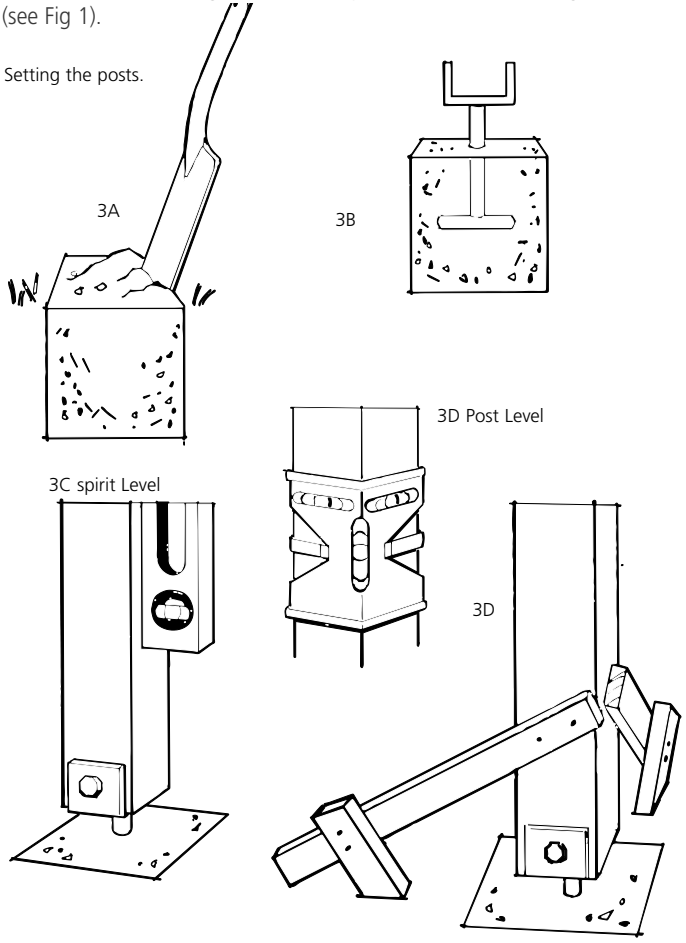
Mix concrete according to the manufacturer's instructions, allowing a generous amount for each post hole. Pour concrete into hole and set a stirrup bracket in the centre of the pad allowing around 75mm clearance between the ground and the bottom of the post (see Fig 3B).

Check the post is vertical using a spirit level (see Fig 3C) or a post level (see Fig 3D).

Temporarily brace the post (see Fig 3E) and allow to set for 48 hours. Note: fast set concrete mix is available at your Magnet Mart store, simply add water – sets in 15 minutes.

With the aid of a string line, trim the posts to the desired height (see Fig 1).

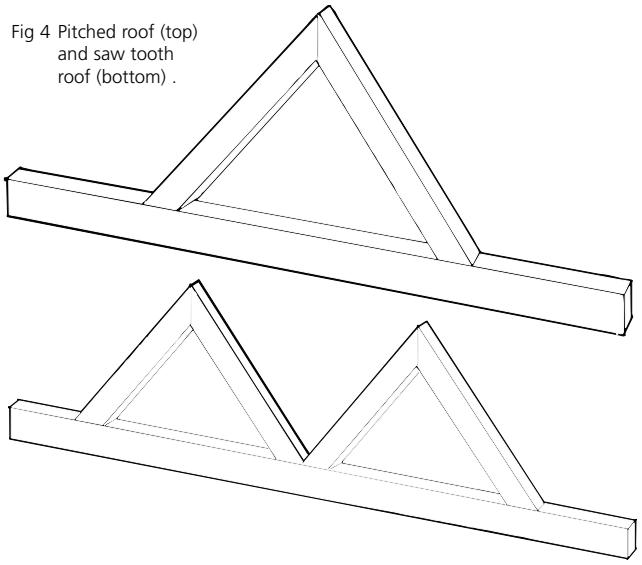
Fig 3 Setting the posts.



Select the Roof Pitch

Use the table below to calculate the length of rafters depending on the desired angle of the roof.

Fig 4 Pitched roof (top) and saw tooth roof (bottom) .



Refer to Figure 4, the 'Pitched on flat' and 'Saw Tooth' roofs are both constructed on a traditional flat roofed pergola using the rafters as the bottom chord of the truss – for an explanation of the construction refer to the calculation table below.

Pitch the Roof

- The roof frame is constructed on the ground and erected as a complete unit called a truss. Once you have constructed the first truss you have a template for the remainder.
- Lay out the truss on a level surface commencing with the bottom chord (the rafter of the traditional flat roof pergola design). Mark the width of the pitched roof on the face of the chord. Halve this measurement to find the centreline and mark on the chord.

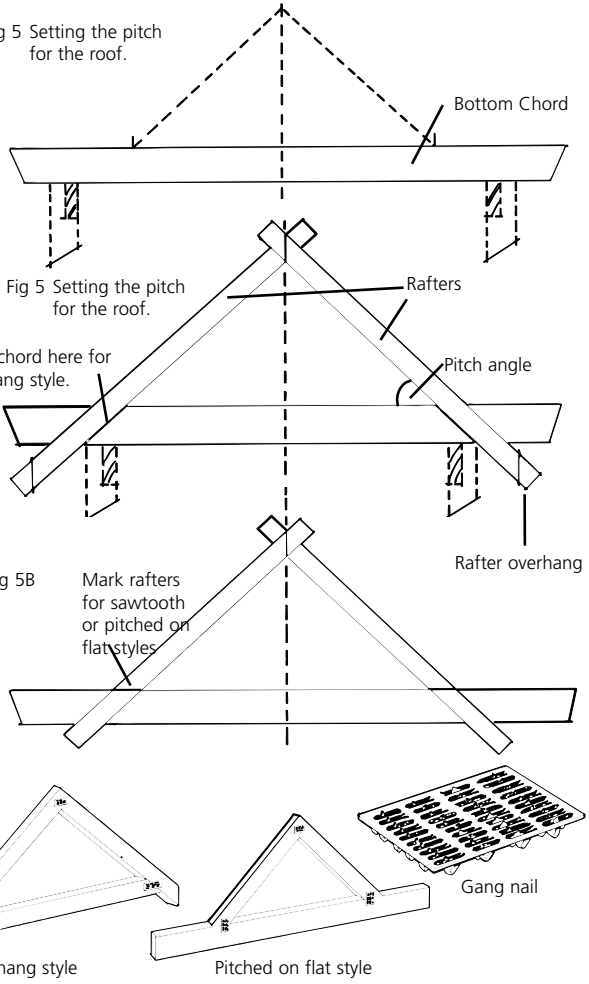
Calculation Table – per 2 metres of chord length

Pitch	Rise	Rafter	Additional Length for every 450mm overhang
24°	460mm	1100mm	Add 530mm
30°	600mm	1166mm	550mm
45°	1 metre	1414mm	640mm

NOTE: Add extra 150mm to total length to allow for angle cuts.

- Place the rafters on the chord so that they cross at the centreline at the desired pitch (the angle of the roof) (see Fig 5B). If the measurements on the chord are accurate, both rafters will be the same length and will meet exactly in the centre of the chord.
- Mark the point where the rafters cross each other and mark the chord where the rafters cross it (see Fig 5C).
- Allow for overhang and mark the rafters accordingly (see Fig 5B). For 'Pitched on Flat' and 'Saw Tooth' roofs, mark the rafter length level with the top of the chord (see Fig 5C).
- Cut the rafters and chord to length and use them as patterns for the remaining trusses.
- Lay out the components for a truss, butting them together firmly and gang nailing on both sides.

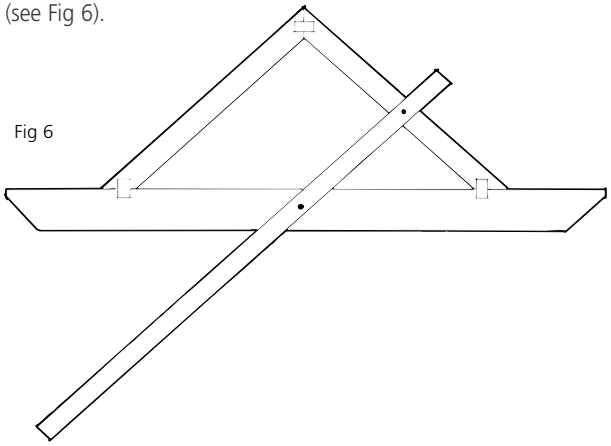
Fig 5 Setting the pitch for the roof.



Raising the Roof

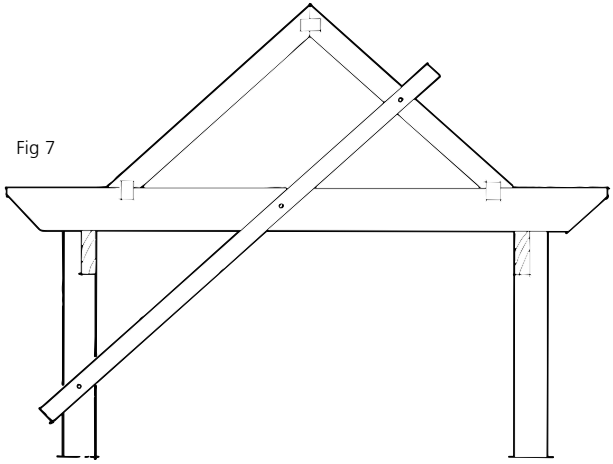
Commence with an end truss and temporarily nail a length of timber to the mid point of a rafter and the centre of the chord (see Fig 6).

Fig 6



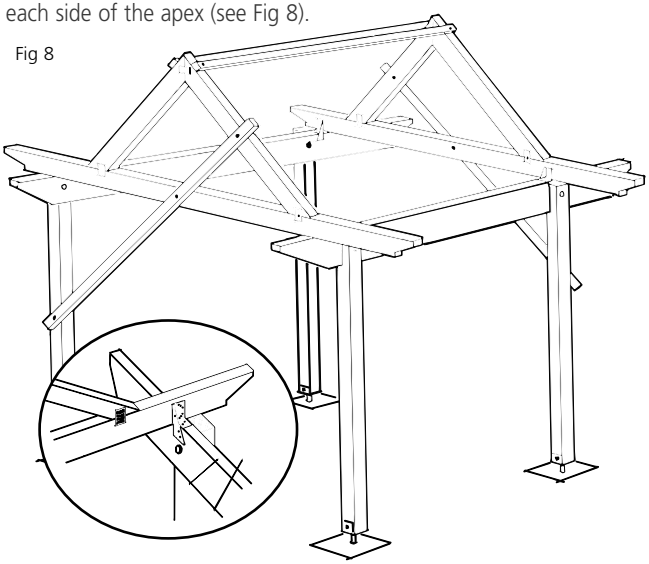
With help from an assistant, lift the truss into position on the pergola frame, nailing the timber brace to a post (see Fig 7), check that the truss is correctly positioned and plumb.

Fig 7



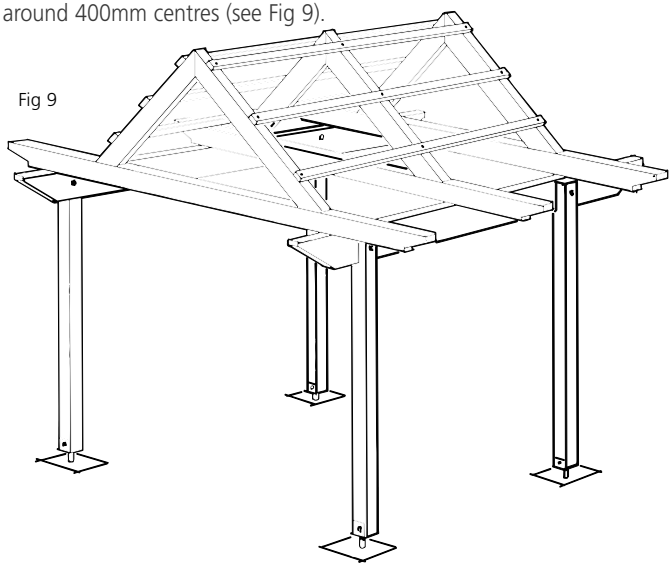
Nail the truss to the beam with joist straps at each end. Repeat this process at the other end of the roof, when the end trusses are secure, nail a batten to them about 50mm down from the top on each side of the apex (see Fig 8).

Fig 8



Fix the remaining trusses evenly between the two ends, securely nailing them to the beams and battens. Remove the temporary braces from each end truss and fit battens across the trusses at around 400mm centres (see Fig 9).

Fig 9



A wide range of timber finishes is available at Magnet Mart to protect your pergola, come on in and talk to one of our helpful Associates about your needs.