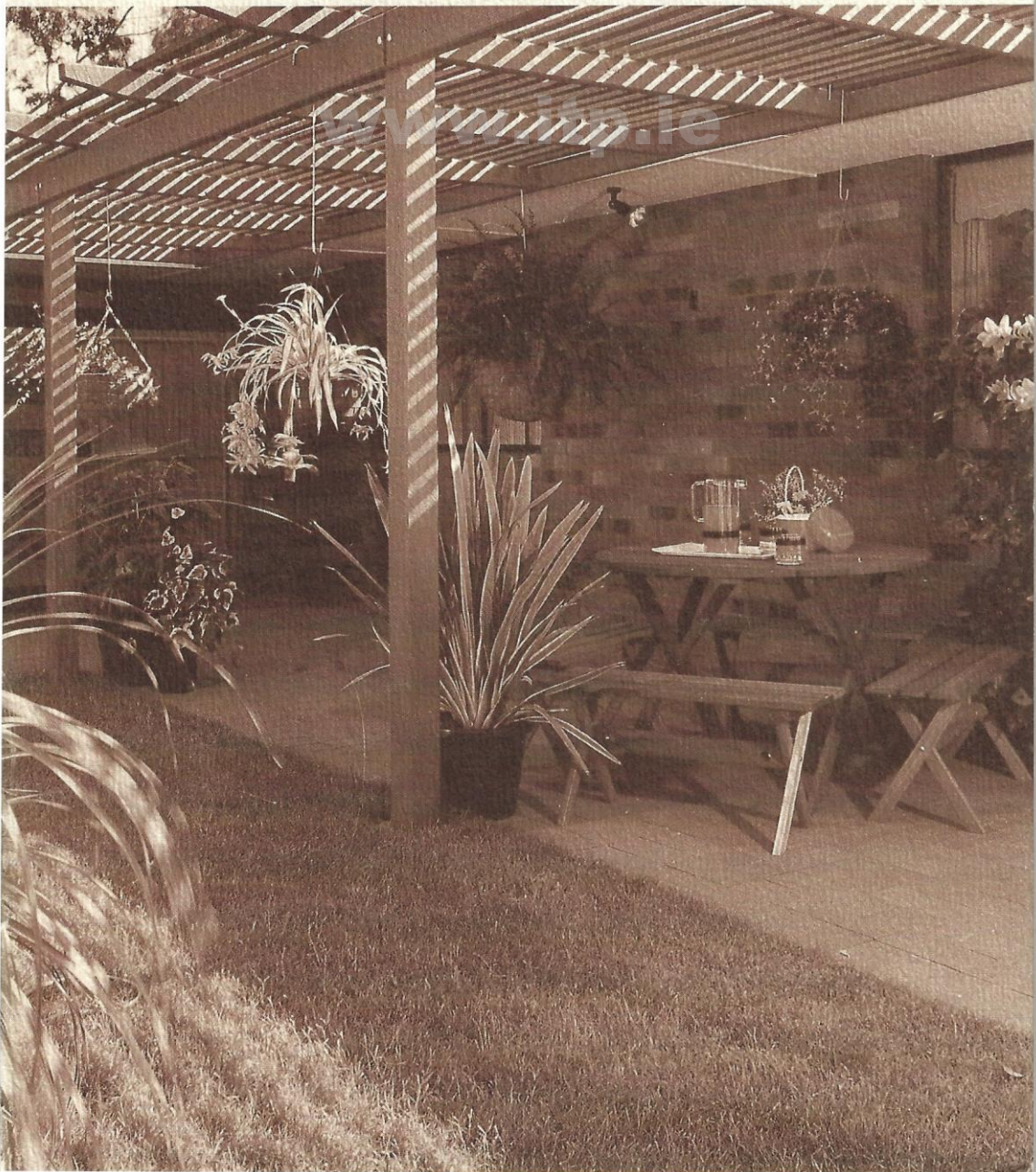


Building Instructions - Pergola



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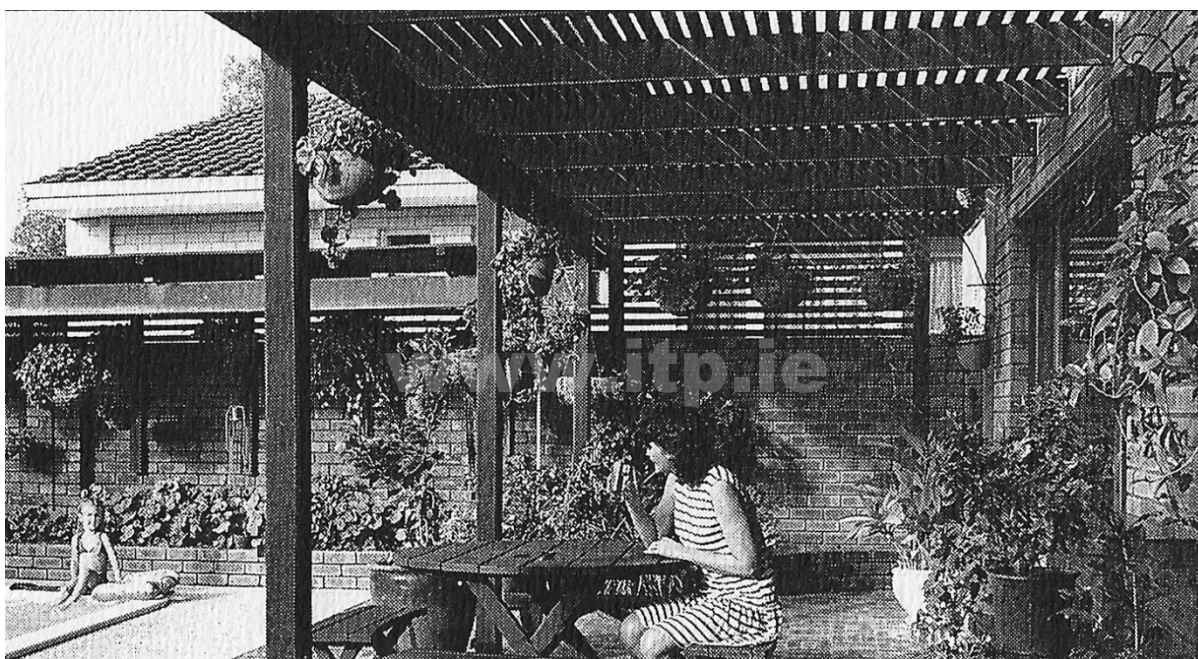
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Timber, the natural choice for a pergola.

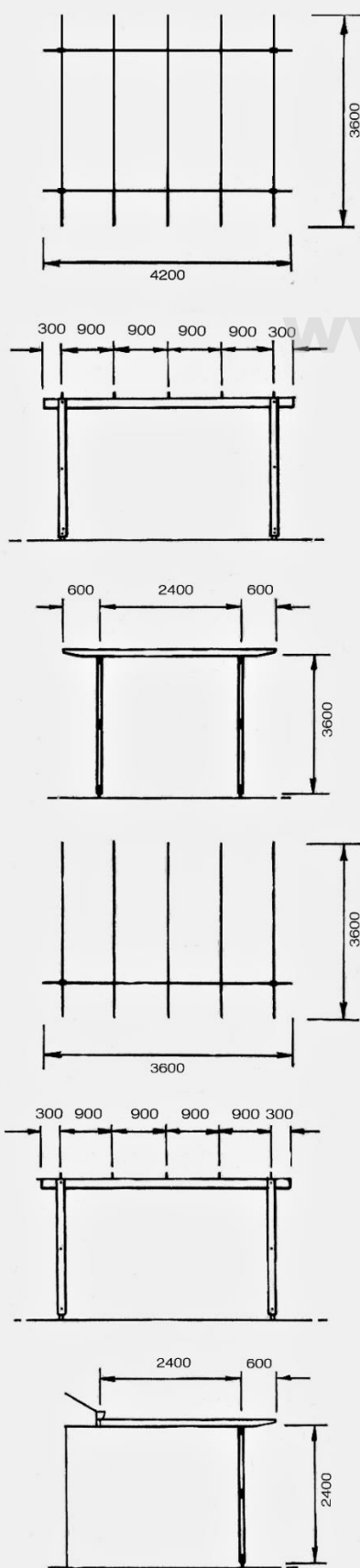
Putting up a timber pergola is one of the nicest things you can do for your yard.

As well as looking great, a timber pergola makes everything cool and shady for you and your plants.

There is a range of timber suitable for building a pergola, including local and imported hardwoods and treated pine.

Larch is the most popular, This booklet describes the building of a pergola with Larch timber,

The general principles can be applied to any timber but you will need to talk to the Irish Timber Products expert about variations-in strength and the appropriate sizes required,



Designing your pergola

First, an explanation of the function of each component.

POSTS:

These provide the height and support of the entire structure. They also determine the area of the pergola.

BEAMS:

These are usually positioned on a long side of the pergola, tying two or more posts together. They provide strength to support the rafters and battens. They are therefore of a heavier timber section.

RAFTERS:

These provide the spans to carry the battens and shade cloth. They also enable you to hang plant baskets and furniture, however care must be taken not to overload the rafters and the pergola.

Where possible, beams should be one piece over two or more posts. If they need joining, make a halved joint at a post and bolt together through the post.

DESIGN:

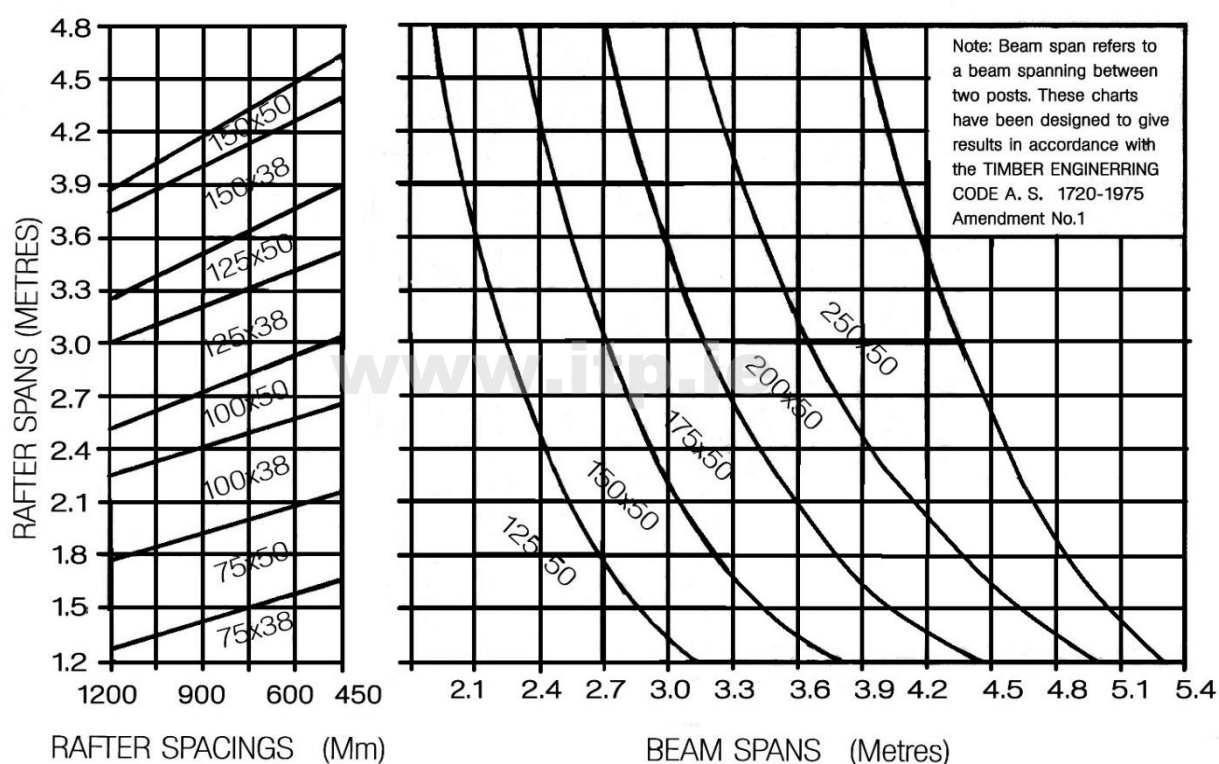
1. Obtain the relevant details for the erection of a pergola from your local Council Office.
2. Appraise the site. Decide on the function of the pergola, either for shading of plants or as a shelter for the family. In either case note should be taken of the position of the sun and the location of the proposed pergola. Beware of underground tanks and drains.

a minimum height of 2000mm under the lowest point of a pergola is desirable, so careful design of the posts is necessary.

3. By now you will have decided on the style of pergola, either free-standing or connected to the house. If it is free-standing, make sure that its height is not greater than its width, otherwise it will appear taller than it really is.

4. Using the graph on page 7, layout the pergola. Draw a plan, elevation and section. Also check the available height. Fill in the details in the appropriate boxes on page 6:

5. Refer now to the range of accessories on page 6. Select the items required and fill in the shopping list. If you have any problems, the staff at Irish Timber Products will be happy to help.



Rafter sizing

1. Select a uniform spacing for rafters between 1200 and 450 mm.
2. On the chart find the rafter span and read the rafter size corresponding to the rafter spacings.

Beam Sizing

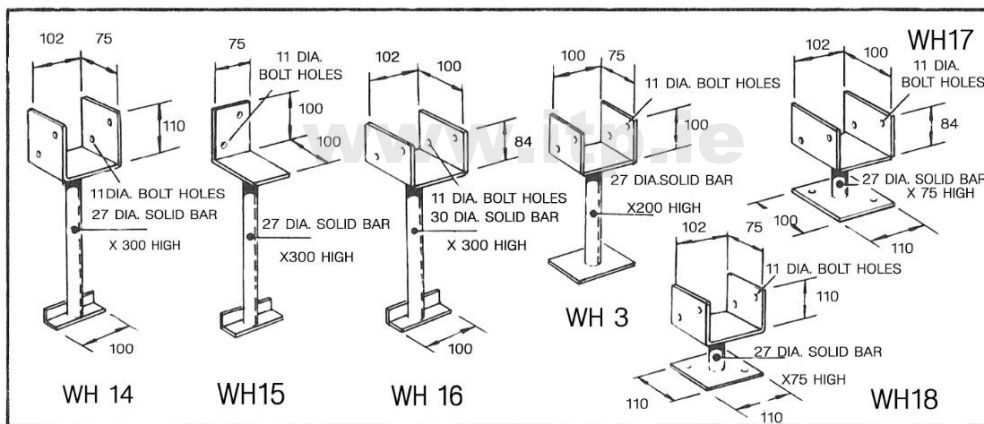
3. Extend a horizontal line from rafter span through Beam sizing chart.
4. On the chart find the selected beam span, extend vertically to rafter span line and read beam size required.

Sizing your posts

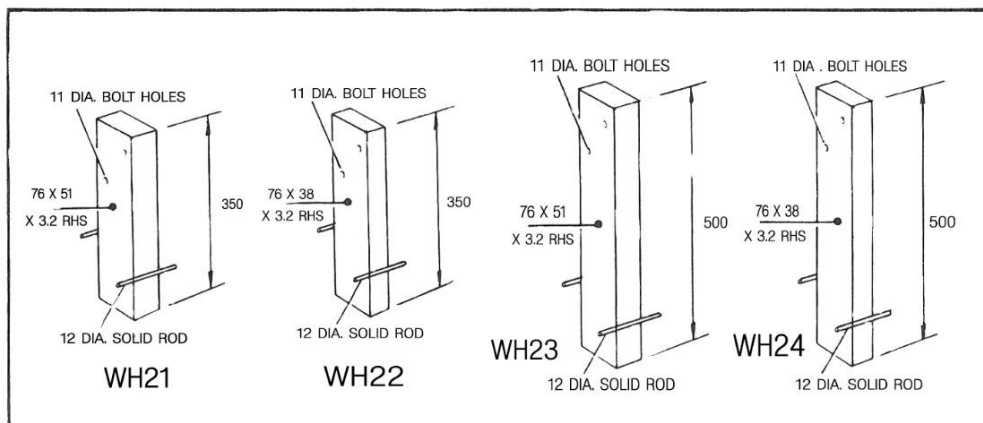
1. Calculate overall area of pergola in square metres including overhangs.
2. Divide overall area by number of posts including "ghost posts". (Ghost post means fixing to a wall in lieu of a post.)
3. Refer to chart. Select a post type for the post height and area per post.

Post Height	Max area per post		
2.4	8	10	12
2.7	6	9	10
3.0	5	7	8
Post size	100 x 100 solid	100 x 38 twin	100 x 5 twin

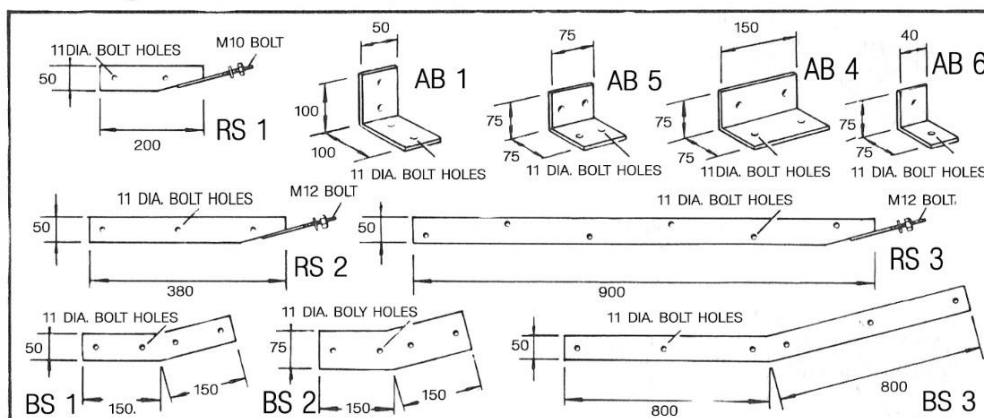
Pergola Accessories



Post Stirrups

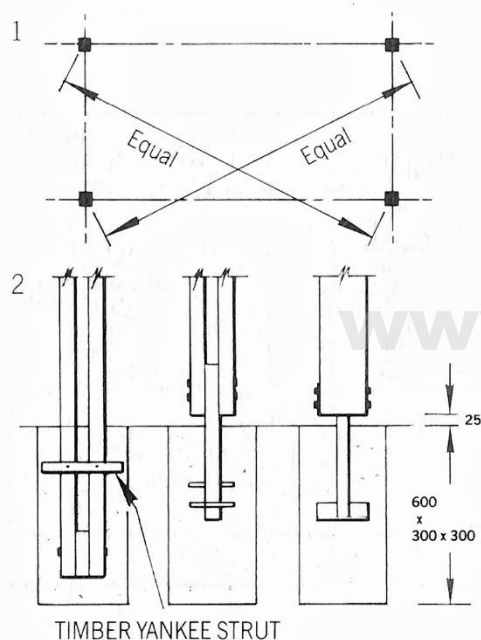


Post Footings

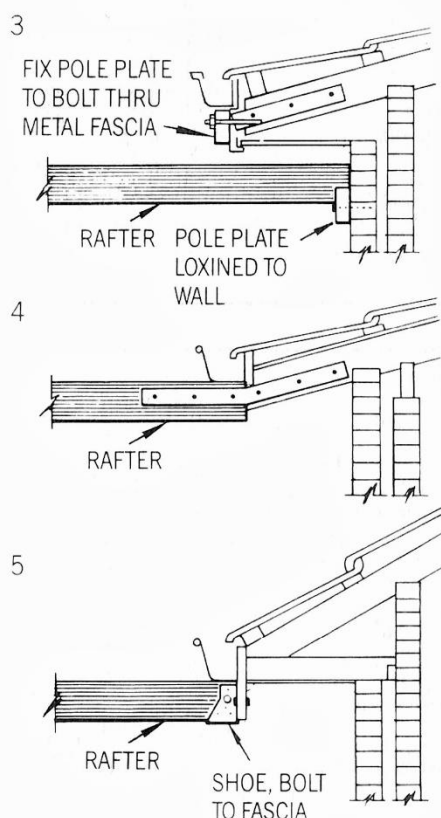


Beam and Rafter Brackets

Erecting the Pergola



(ALTERNATE USES OF POLE PLATE)



Prepare the site:

1. Locate the position on the ground with stakes and check the diagonal dimensions as shown in Sketch 1 as an initial check.

2. Preferably the site should be level. If the pergola is a connected type then it is an easy matter to work out from the brick wall using the lowest mortar line as a datum.

1. Prepare the Components:

2. Post, beams, rafters and pole plates can all be prepared on the ground.

3. Posts: Adjust the height to suit your design. Remember the post only goes as high as the bottom of the rafter (or top of the beam) therefore the depth of rafter should be noted.

4. Check if the post is to be imbedded in the ground, or are you using stirrups or footings? If steel accessories are used, then temporarily fit the fitting to the post and mark the respective matching items.

5. Beams: Cut to length. Lay posts on the ground and locate beams in posts, drill through for bolts. Mark respective items. Positions of rafters should be marked on the beams while they are on the ground.

6. Rafters: If you are using pole plates to attach the pergola to the wall of the house, cut the rafters to length and notch the ends. For extra strength, rafters should also be notched where they sit over the beams.

7. Erecting the Pergola:

5. Dig post holes to required depths at staked positions.

6. Locate footing, stirrup or post in the hole and pack up to the correct height level. See sketch 2. Gently fill in the hole with concrete checking position of accessory as you go. Allow concrete 2-3 days to cure.

7. Fit posts to accessory. Use a spirit level to check for vertical alignment, tighten bolts. (You may find it easier to fit the accessory to the post and stand the complete unit in the hole as this allows you to prop up the post in the vertical position while pouring the concrete.)

8. Locate the beams in posts and fix with bolts to pre-drilled holes. Check for horizontal level.

9. Using the method of rafter to house connection as selected from sketches 3, 4 or 5, position brackets or pole plates. Check for level.

10. Position the rafters and skew nail to beam and pole plate.

11. Once the rafters are in place and nailed you can proceed to attach the finished cover of battens, shade cloth or plastic roofing.

Your shopping list

ITEM	Item No. or size	LENGTH	No. OFF	UNIT PRICE	COST
1 POSTS					
2 RAFTERS					
3 BEAMS					
4 POLE PLATE (for connected style Pergola)					
5 POST STIRRUPS					
6 POST FOOTING					
7 BATTENS					
8 SPACERS FOR TWIN POSTS					
9 BOLTS, NUTS AND WASHERS (for beams thru posts)					
10 BOLTS, NUTS AND WASHERS (for posts thru footings)					
11 BULLET HEAD NAILS (galv for rafters)					
12 FLAT HEAD NAILS (galv for battens)					
13 RAFTER SHOES					
14 BEAM SHOES					
15 RAFTER BRACKETS					
16 RAFTER BRACKETS					
17 FASCIA BRACKETS					
18 CONCRETE PRE-MIX PACKS (1 ½ per footing)					
19 SHADE CLOTH					
20 SHADE CLOTH FASTENERS					
21 CREOSOTE (if timber post is set in ground)					
22 LOXINS (for pole plate to wall)					

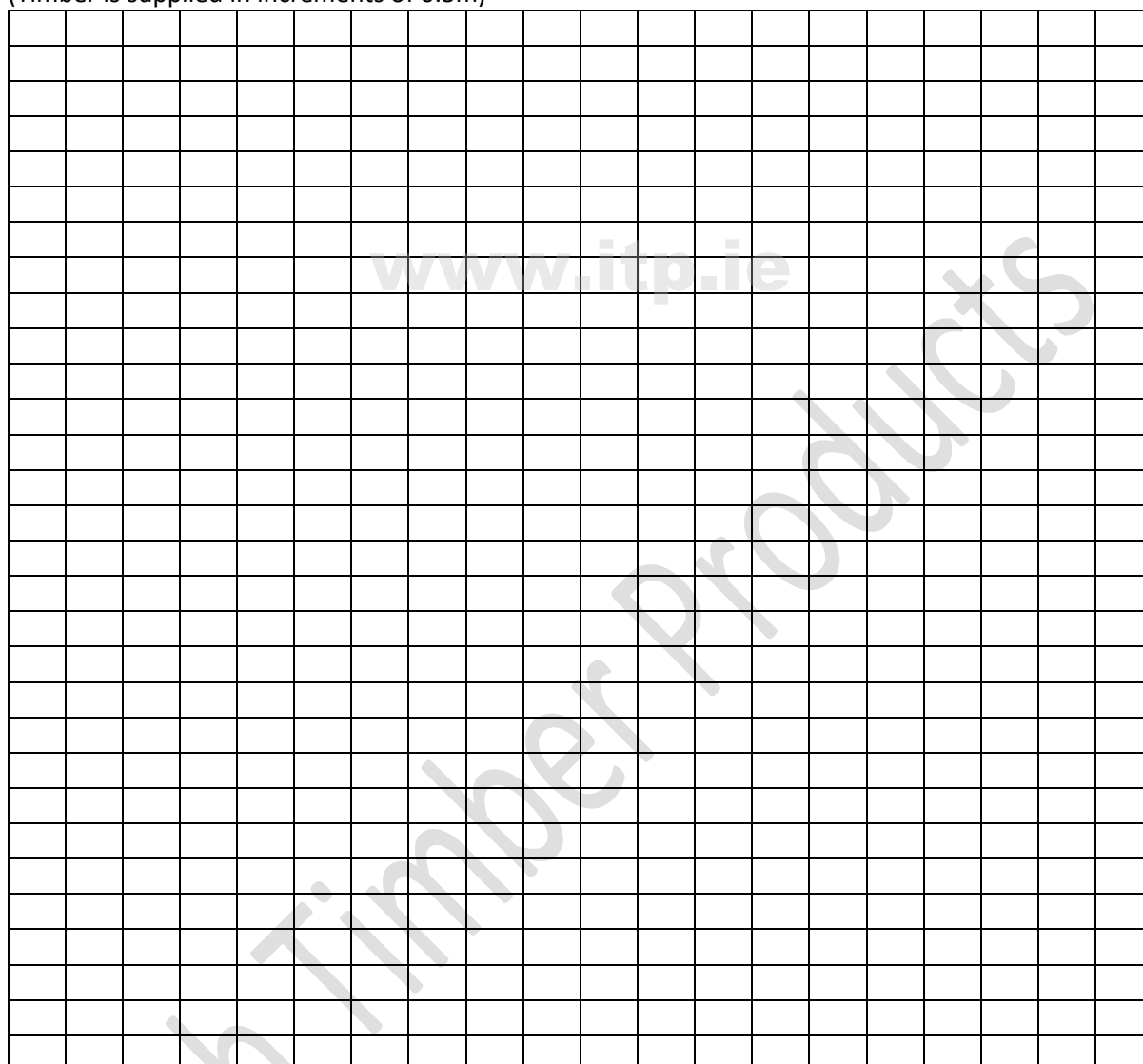
Note: For long life, all metal components should be made of galvanised steel, Visit your Irish Timber Products for advice on exterior paint.

TOOLS I WILL NEED				SUB-TOTAL	
23 SPIRIT LEVEL OR LINE LEVEL					
24 CLAW HAMMER					
25 CHISEL 25mm					
26 ADJUSTABLE SPANNER					
27 SAW, ELECTRIC OR HAND					
28 ELECTRIC DRILL AND BITS					
29 LADDER					
30 SAW HORSES OR STEP-UPS					
31 SHOVEL OR SPADE					
				TOTAL	

Sketch your pergola

Each square represents 0.3m x 0.3m.

(Timber is supplied in increments of 0.3m)



Here are the recommended sizes for pergola timbers.

Posts

100
x 100 Solid,
100 x 38 Twin,
100 x 50 Twin

Rafters

75 x 38,
75 x 50,
100 x 38,
100 x 50.
125 x 50,
150 x 38,
150 x 50

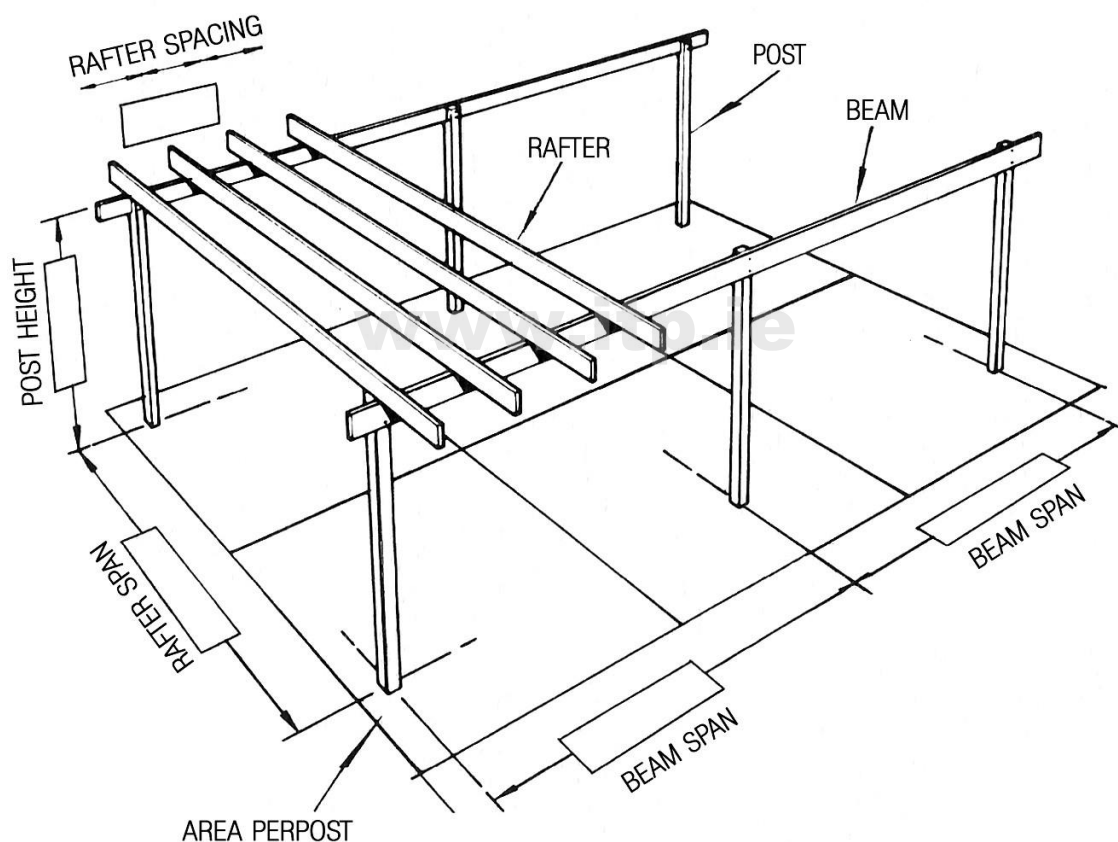
Battens

25 x 50,
38 x 50,
38 x 38,
38 x 75

Beams

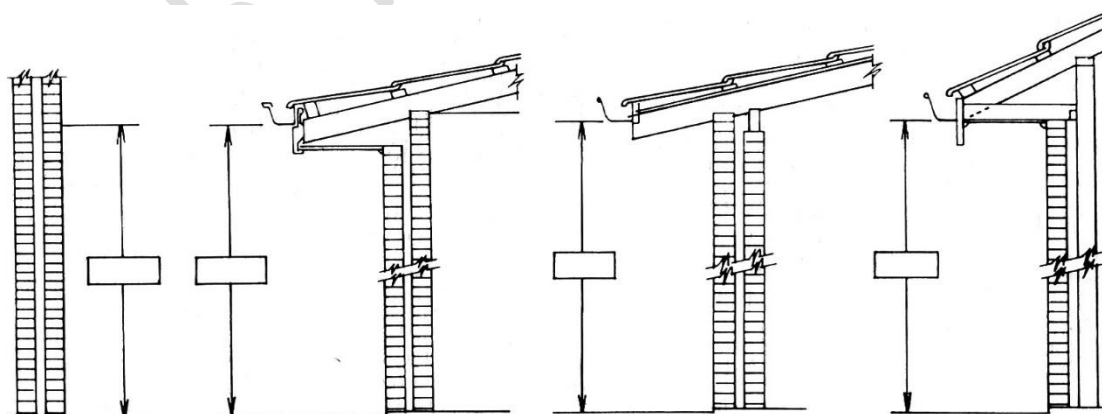
125 x 50.
150 x 50,
175 x 50,
200 x 50.

AREA PER POST



Shown below are four typical sections of houses likely to be encountered. When measuring the vertical height note must be made of the thickness of the beams and rafters as most a minimum height of 2000mm under the lowest point of the pergola.

If you have a metal fascia it will be necessary to remove the eaves lining or tiles to gain access to the house rafters. Attach the rafter bracket with the holding bolt protruding through the metal fascia. Attach the pole plate to the holding bolts.



PLAIN WALL

METAL FASCIA

EXPOSED RAFTERS

BOXED EAVES

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