

Constructing a lean-to/Pergola

Step 1

THE FOOTINGS AND POSTS.

Dig five footing holes 350x350 and 450 deep. Refer to flat plan for hole positions. (max span between any two posts must be no more than 2400mm)

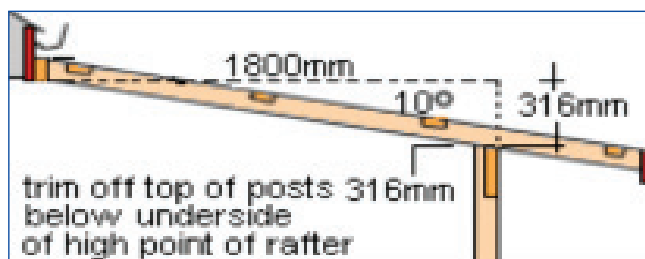
The footing holes will have to be inspected by a building inspector before the posts can be concreted in. This is to ensure the base of the footing holes are firm, are not on top of any underground pipes, and are as shown on the plan in relation to boundary. Building inspections usually require 24 hours notice.

After the inspection, place at least 100mm thick pad of concrete at the bottom of the footing holes, place the posts (100x100 h5) in position and fill the footing holes up with concrete. Check the posts for plumb (vertical), brace if necessary and leave till concrete sets.

Step 2

TRIM THE POSTS

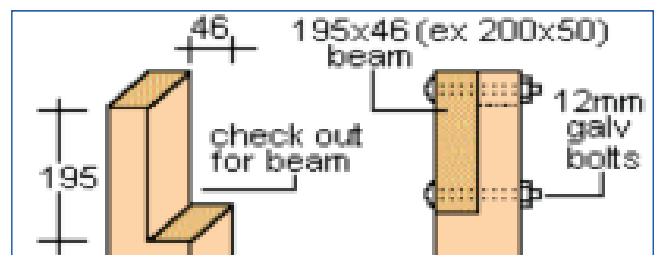
- Trim the top of the 5 posts at the desired height. Refer to the cross-section plan.
- Work out the height of the top of the posts in relation to the required rafter fall.
- The fall should be at least 10 degrees (1 in 5.7) if possible. In this example, trim the top of the posts off 316mm below the highest point of the underside of the rafter. (see drawing).



Step 3

THE BEAM

- Check out the top of each post for the beam by marking a horizontal line 195mm down from the top outside edge of each post.
- Cut along the pencil mark with a power saw to a depth of 46mm (the thickness of the beam) Do this to all posts. Scribe a line 46mm in from the outside edge of each post from the top, down 195mm. Cut down that line using a sharp handsaw.
- Bolt the 200x50 (finished size 195x46) beam to the posts using m12 galvanised bolts and washers. (see diagram). Ensure all posts are plumb (vertical) and parallel



Step 4

THE LEDGER PLATE

In this example the ledger plate is bolted to the fascia board just below the spouting. Sometimes this is not possible due to lack of free fascia board or fixing area below the spouting in which case the ledger plate will have to be fixed to the house wall beneath

Scenario (1) fixing to the fascia board

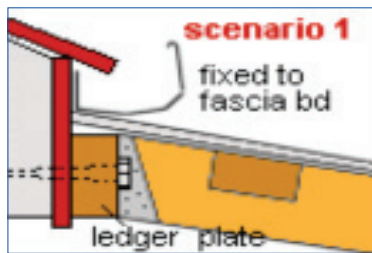
Mark a level line just below the spouting. Use a spirit level or a water level. Fix the ledger plate (100x50 h3) to the level line on the fascia board



handy tip

Paint or varnish your wooden structure before you install your Modek roof sheeting

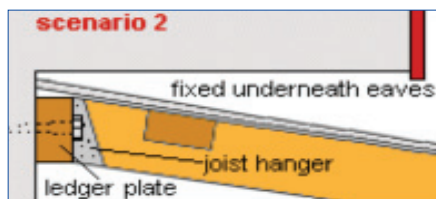
using coach screw at least every 1200mm apart, penetrating through the fascia board and into solid timber, usually the end of a roof rafter or eaves sprocket.



Scenario (2) fixing to the house wall.

Mark a level line just below the eaves. Use a spirit level or a water level. Fix the ledger plate (100x50 h3) to the level line with coach screws penetrating through the cladding and into the studs (house frame uprights) or lintels (beams above windows and doors). In most modern homes, studs are at 600mm centres. Seal around coach screws with weatherproof silicone sealant.

If the wall is masonry (concrete, brick, block) fix the ledger plate to the wall using masonry anchors every 1200mm. Before fixing, place DPC (Damp Proof Course) between the ledger plate and the wall.



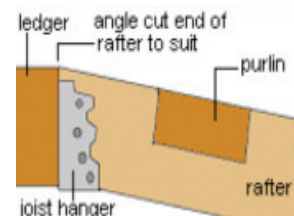
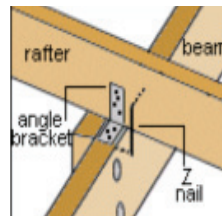
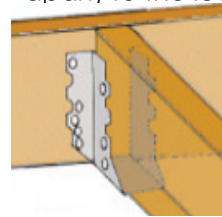
Step 5

RAFTERS, PURLINS, FASCIA AND BRACE

Cut the rafters to length and angle cut each end to suit. Work out the rafter length to suit the roof sheets if possible (so as the roof sheets wont need

cutting). In this example cut the rafters 2284mm long for 2400 roof sheets. (ledger 46mm + rafter 2284mm + fascia 20mm + roof overhang 50mm = 2400mm). Refer to flat plan and cross-section plan, for reference if necessary.

- Fix the rafters @ 750crs (spaced every 750mm apart) to the ledger with joist hangers and to the beam with skew nails and angle clips or Z nails. Ensure the rafters are square to the building.



- Fix four rows of 100x50 purlins on edge in between the rafters as in flat plan. These are the purlins that the roofing is fixed to.
- Fix the top row of purlins 100mm down from the top of the rafters and fix the bottom row of purlins 100mm up from the end of the rafters.
- Fix the other two rows of purlins equal distance apart.

Alternatively the purlins can be fixed on top of the rafters if there is enough room between the top of the rafters and the eaves.

- Fix fascia board along the end of the rafters and also up the sides of the two end rafters (barge board).
- Brace on top of the frame diagonally from corner to corner with metal strap brace.