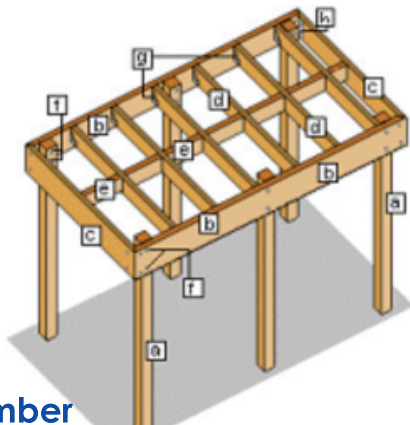


Constructing a Free- Standing Carport

This single carport is 6000 mm long by 3000 mm wide. It is the most basic of carports. Because each site is different, and individual preferences vary, we have given options for both post installation and bracing. **Please remember to have plans approved**

Identifying the members

- (a) Posts 100 x100, (b) Beams 200 x 50
(c) End rafters 200 x50, (d) Rafters / Purlins 150 x 50
(e) Noggings 150 x 50, (f) Galvanised bolts
(g) Joist Hangers, (h) Galvanised Angle Bracket



The timber

The timber for this project can be either sawn (rough sawn) or dressed (gauged, smooth finish). The timber measurements used in this project are for concept only and not to stock sizes. Please make allowances for the difference in timber thickness and width.

Use a timber suitable for in-ground applications for the posts such as pressure treated pine and use a timber suitable for exterior applications for the rest of the carport structure, again such as pressure treated pine.

The height

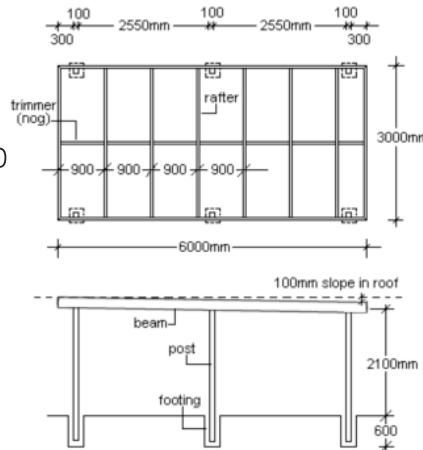
The height of a carport is in most cases, common sense. A tall person should be able to walk comfortably under the lowest end of the carport. 2100mm from the finished ground to the underside of the lowest end rafter, is a good height.

The slope

The roof slope (fall) should be at least 50mm. In this project, the slope is 100mm. If using a polycarbonate or glass fiber, then a steeper slope is advisable, as a steeper fall (say 150mm) means faster water run-off, and therefore a cleaner roof.

The plans

The plans show a flat plan "bird's-eye view" and an elevation (side) plan giving all dimensions. Refer to these plans for any required measurements throughout the project.



Setting out

Mark out the carport (6000mm x 3000mm rectangle) and erect timber profiles out from each corner and also out from the middle to take in the two center

posts. Set the timber profiles back at least 600mm from the building line (carport perimeter) to allow room for hole digging etc. Attach string lines to indicate the centers of the six posts 100mm in from the side edges and 350mm from the front and back edges.

Installing the posts

METHOD 1.

Post set in concrete.

Dig post holes 300mm square by 600mm deep. Place 100mm of concrete into the bottom of every hole. Commence putting the posts in the holes against (but not touching) the string line. Using a spirit level on both the front and side faces, check that the post is plumb (vertical) and almost, but not quite, touching the string line. Fill the hole with concrete to within 50mm of the finished ground level. Check again that the post is plumb and not quite touching the string line. Because of the depth of the hole, the concrete will support the post without the need for bracing. Continue until all posts are concreted in.

METHOD 2.

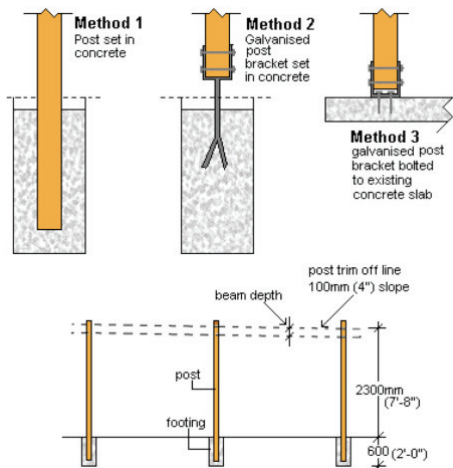
Galvanised post brackets set in concrete.

Dig post holes 300mm square by 600mm deep. Fill the holes with concrete and set the brackets

in position while the concrete is still soft. Ensure the brackets are at the right height, taking the finished slab (carport floor) into consideration. Some temporary packing, props or bracing may be needed to support the brackets until the concrete stiffens up. Wait until the concrete has cured (usually at least four days) and then install the posts plumb (vertical) in the brackets and hold in place with temporary bracing.

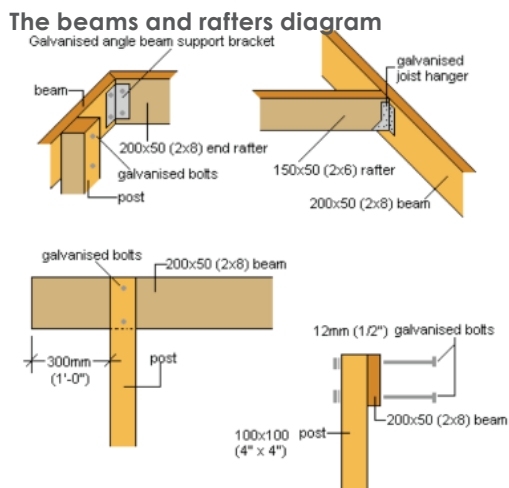
METHOD 3.
Galvanised post brackets bolted to existing concrete slab.

Fix the brackets to the slab, in position with masonry bolts or anchors. Install the posts plumb (vertical) in the brackets and hold in place with temporary bracing.



The beams and rafters

Cut the two beams 6000mm long with 45degree angle cuts each end and clamp in place to the posts so that the tops of the beams are flush with the tops of the posts and protrude past both the front and rear posts by 300mm. Drill and bolt the beams to the posts with M12 galvanised bolts, (two at each meeting).



Cut the two end rafters 3000mm long with 45degree angle cuts each end and fix in place to the beams with 75mm jolthead galvanised nails and then with galvanised angle brackets, each bracket fixed with four M12 galvanised bolts, two through the beam and two through the rafter. (See diagram)

Cut the six intermediate rafters 2900mm long and fix in place to the beams with galvanised metal joist hangers. Space the rafters at 900mm centres.

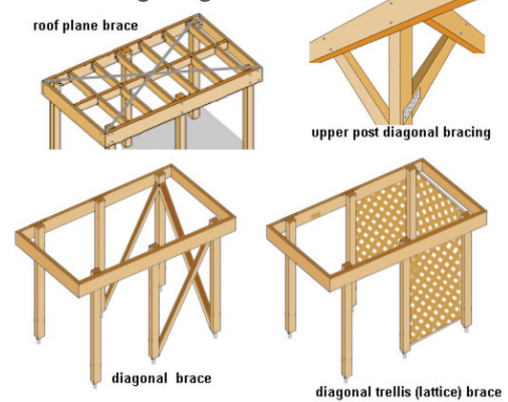
Finish off with a longitudinal row of trimmers (nog-gings) down the middle and in between the rafters.

The bracing

If the posts are concreted into the ground, and the posts are bolted to the beams with two bolts at each meeting, then no further bracing should be required. If, however, the posts are not in-ground, but supported by galvanised post brackets, then additional bracing is required. One such scenario is to fix upper post diagonal bracing, two to each post, each about 900mm long (more or less), and fixed to the post with nailplates and fixed to the beam/rafter with bolts

Another scenario is to fix full 100x100 diagonal braces running from the bottoms of the middle posts to the tops of the end posts and secure with bolts, nail plates or galvanised brackets at each end. A similar diagonal brace is also required between the two rear (end) posts. With this latter scenario, the diagonal braces could be replaced with diagonal trellis (lattice) between the two end posts and the end post and middle post each side (three panels in all). Both bracing methods mentioned in this scenario also require roof plane bracing to ensure the front of the carport is rigid. This can be 25mmx1mm flat galvanised metal strapping stretched from corner to corner and fixed with galvanised nails to the top of each rafter.

The bracing diagram



The roof

You can now apply your chosen roof material; POLYCARBONATE or GLASSFIBRE whichever Roof sheeting is best suited for your application.