

Free-Standing Carport PLANS AND INSTRUCTIONS



Examples

WHEREAS, The City of Lyons has no guidelines for the construction of carports within the City of Lyons, and

WHEREAS, the City of Lyons has carports listed as a minimum requirement for single family residential dwellings,

BE IT THEREFORE RESOLVED THAT;

Definition: A carport is a covered motor vehicle parking structure accessory to a single family dwelling. It may be free standing or attached to another structure dependent upon the circumstances. A carport cannot exceed 1,000 square feet in area or one story in height and must be entirely open on two or more sides except for structural supports. There can be no enclosed use above a carport. Any structure which does not meet the above definition must comply with all regulations relating to a garage.

For carports proposed to be located within 6' of a dwelling, include a floor plan showing the use and dimensions of all rooms adjacent to the carport, and size and type of all windows and doors from those rooms.

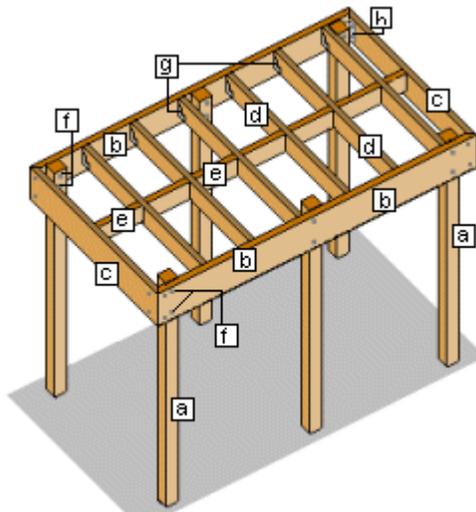
Free-standing flat roof carport.

Site built awnings and carports (a) shall be self supported, free standing structures, (b) shall not be supported by or bear any weight on a manufactured dwelling, (c) may be attached to a manufactured dwelling only with flashing, roofing materials, or other sealing materials to provide a weather seal and (d) shall be constructed according to plans approved by the City of Lyons and Linn County Planning and Building.

This single carport is 20ft long by 10ft 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. Check with City of Lyons for the associated building permit.

Identifying the members

- (a) Posts 4x4
- (b) Beams 2x8
- (c) End rafters 2x8
- (d) Rafters / Purlins 2x6
- (e) Noggings 2x6
- (f) Galvanized bolts
- (g) Joist Hangers
- (h) Galvanized Angle Bracket



The timber

The timber for this project can be either sawn (rough sawn) or dressed (gauged, smooth finish). The measurements used in this project are for sawn timber. If dressed timber is preferred, make allowances for the difference in timber thickness and width.

Use a timber suitable for in-ground applications for the posts and use a timber suitable for exterior applications for the rest of the carport structure.

Any timber merchant or supplier will be able to advise on the timber most suitable.

The height

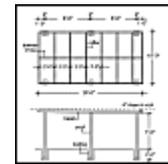
A tall person should be able to walk comfortably under the lowest end of the carport. 7ft from the finished ground to the underside of the lowest end rafter, is a good average height.

The slope

The roof slope (fall) should be at least 2". In this project the slope is 4". If using a clear PVC roof, then a steeper slope is advisable, as a steeper fall (say 6") 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.



attached

Setting out

Mark out the carport (20ft x 10ft 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 2'-0" from the building line (carport perimeter) to allow room for hole digging etc. For instructions on making timber profiles see attached. Attach string-lines to indicate the centers of the six posts 4" in from the side edges and 13" in from the front and back edges.

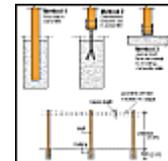
INSTALLING THE POSTS

Method 1. Post set in concrete.

Dig post holes 1'-0" square by 2'-0" deep. Place 4" 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 2" 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.



attached

Method 2. Galvanized post brackets set in concrete.

Dig post holes 1'-0" square by 2'-0" 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. Galvanized post brackets bolted to existing concrete slab.

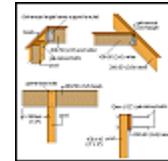
Fix the brackets to the slab, in position with masonry bolts or anchors. Install the posts plumb (vertical) in the brackets and hold in place with temporary bracing.

TRIMMING THE POSTS

Mark the rear posts a minimum of 7'-8" above the slab, or finished ground level. Ensure the height marks on both rear posts are level. Use a spirit-level on a straight edge to achieve this or the **water level method**. Mark the front two posts 4" higher than the rear posts. Fix a string-line between the front and back posts to mark the height of the middle posts. Cut the tops of the posts off at these marks.

THE BEAMS AND RAFTERS

Cut the two beams 20ft 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 1'-0". Drill and bolt the beams to the posts with 1/2" Galvanized bolts, (two at each meeting).



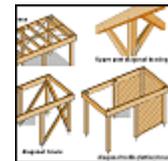
Cut the two end rafters 10ft long with 45degree angle cuts each end and fix in place to the beams with 3" jolthead Galvanized nails and then with Galvanized angle brackets, each bracket fixed with four 1/2" Galvanized bolts, two through the beam and two through the rafter. (See diagram).

Cut the six intermediate rafters 9'-8" long and fix in place to the beams with Galvanized metal joist hangers. Space the rafters at 3'-0" centers.

Finish off with a longitudinal row of trimmers (noggings) 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 Galvanized post brackets, then additional bracing is required. One option is to fix upper post diagonal bracing, two to each post, each about 3'-0" long (more or less), and fixed to the post with nail-plates and fixed to the beam/rafter with bolts.



Another option is to fix full 4"x4" diagonal braces running from the bottoms of the middle posts to the tops of the end posts and secure with bolts, nail plates or Galvanized brackets at each end. A similar diagonal brace is also required between the two rear (end) posts. With this latter option, 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 option also require roof plane bracing to ensure the front of the carport is rigid. This can be 1" wide flat Galvanized metal strapping stretched from corner to corner and fixed with Galvanized nails to the top of each rafter.

THE ROOF

You can now apply your chosen roof.

Glossary of terms used in this project

BEAM: A supporting member.

BRACE: To make rigid

BUILDING LINE: The outline of a building.

CENTERS: Crs; O.C; *Term used for spacing;*

The measurement of spacing for studs, rafters, and joists in a building from the center of one member to the center of the next.

CRS: See centers.

CURE: Mature; Harden; Set.

DIMENSIONS: Any of the three linear measurements, length, breadth, and depth.

DRESSED: *Relating to timber.* Planed;

Smooth, even surface; gauged.

ELEVATION: Side view of a building.

END RAFTER: Rafter each end of the roof frame.

FALL: *Of roof.* Pitch; The incline angle of a roof surface.

FLUSH: being even with

Galvanized: Covered with a protective coating of zinc.

GAUGED: See dressed

JOIST HANGER: U shaped metal hanger attached to a bearer or beam, into which a joist or rafter is fitted.

JOLTHEAD: General purpose nail. Small round head.

LONGITUDINAL: Running the length of the building.

MASONRY: Stone, brick, concrete, hollow-tile, concrete block, or other similar building units or materials.

MASONRY BOLT/ANCHOR: Special screw or bolt for masonry that expands when tightened.

MEETING: Where two members meet.

MEMBER: Piece of timber that is part of a frame or structure.

NAIL PLATE: *Gang nail plate;* Metal plate with rows of sharp points that are hammered into butt-jointed timber to secure the join.

NOGGING: *Trimmer;* A short piece of timber set between two studs, joists, rafters or purlins to keep them rigid.

O.C.: On center; (See centers)

PERIMETER: boundary.

PLANE BRACE: A diagonal brace running along the plane of a roof.

PLANED: See dressed.

PLUMB: Vertical; Upright.

PURLIN: Timber used to support roofing sheets. Usually fixed on top of rafters, but in this case the purlins are the rafters.

PROFILES: *Timber profiles;* Horizontal boards attached level to stakes, used to mark out the boundary of a construction and establish the levels.

PVC: Plastic type roof, spouting and downpipe.

RAFTER: Parallel members of a roof that support battens/purlins and roofing materials.

RECTANGLE: Four sided figure with four right angles.

ROOF PLANE BRACE: See plane brace.

SAWN: *Rough sawn;* Not gauged, planed or dressed.

SLAB: *Of concrete;* pavement, i.e. driveways, garages, and basement floors.

SLOPE: See fall.

SPIRIT LEVEL: Tool used to ensure surfaces are level or plumb by means of a bubble in a tube of liquid fitted to the level.

STRINGLINE: A slightly elastic string stretched between two pegs and used as a guideline. Determines the building line.

TIMBER PROFILE: See profiles.

TRIMMER: See noggings

VERTICAL: See plumb.

The City Council for the City of Lyons does hereby agree to adopt these specifications as set forth for carports built within the city limits of the City of Lyons.

Approved and passed by the City Council for the City of Lyons this _____ day of _____, 2006.

Approved and signed by the Mayor this _____ day of _____, 2006.

Melford D. Rolow, Mayor

ATTEST:

Mary Mitchell, City Recorder