
Free Pergola Plan How to Build a Pergola

Build the arbor/trellis shown on the right with just a few tools and a small investment in materials!



Introduction: The measurements for the Trellis in this plan are:

44" Wide Opening x 84" High Opening x 26" Deep

Of course, you can adjust these measurements to suit your requirements.

Materials for the Trellis; Use Cedar, treated wood, or any other wood suitable for outdoors and galvanized screws/bolts/nails for all requirements:

2 x 6 x 8 ft: 2 for upper, front/back Top Rails

2 x 4 x 8 ft: 5 for side Lattice Frames

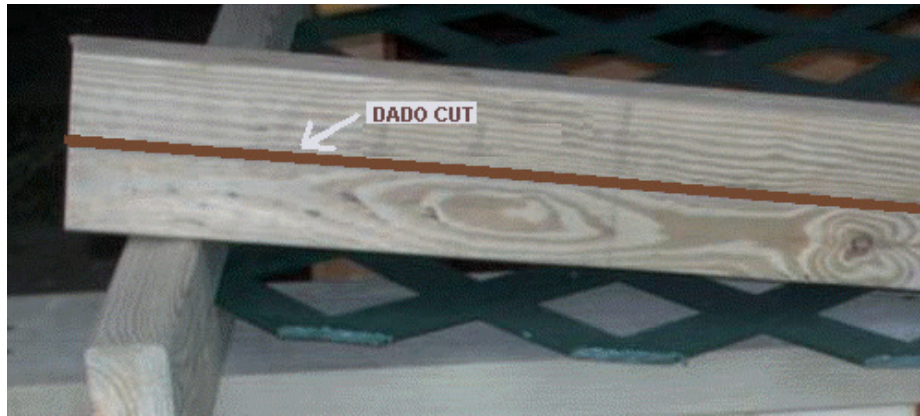
2 x 2 x 4 ft: 11 for top Cross Rails and angled Support Brackets

Plastic lattice (available in various colors), 4 ft x 8 ft: 1

1 x 3 x 10 ft: 1 for support/transport Support Rails

Galvanized nails, 3": 60 (Optional: use deck screws and/or carriage bolts.)

4' long metal support posts: Four for Post Anchors



Step One, Build left/right Lattice Frames

Select **four** of the **2 x 4 x 8'** stock and cut them to a length of 84"; these will become the **four support posts** (used as the side posts for the frames of the plastic lattice).

Select **one** other piece of **2 x 4 x 8'** stock for the top and bottom rails of the lattice frames. Cut this into four pieces: each piece is 23" long.

Check the thickness of the plastic lattice; set up your dado blade to accept this width; should be 3/16". Set the depth for 9/16". Make your dado cut in the center on one side of each of all of the selected 2 x 4 pieces in this step (four @ 84"; four @ 23"); top to bottom, lengthwise as shown above.

You now have four Posts and four Rails with dado cuts required to build the left and right Lattice Frames.

Select the 4 x 8 Plastic Lattice; crosscut it to 72 1/2".

Rip the 72 1/2" piece down the middle forming two approx 24" wide pieces; one half for each side panel.

Assemble the Trellis side panels:

Select the **four, 84" Side Posts** with the dado cuts facing you, measure five inches from the bottom end and using a speed square, mark a pencil line across the posts, five inches from the bottom; across the dado cuts.

Select **two, 84" Side Posts**; lay them on edge with the dado facing each other. Select **two, 23" rails** for the top and bottom rails; lay them on edge with the dado cut facing each other; using the guide marks on the bottom of the Side Posts as shown above, place one rail on the bottom and mark the piece as the bottom.

Select four, 3" nails; drive two nails on each side; drive them through the posts into the Bottom Rail (ensure that you do not nail into the dado groove).

Insert one of the lattice panels into the dado cut of the two sides and bottom rail of the frame.

Place the Top Rail in place (ensure the measurement from the top edge of the post on each side are equal, 4 1/2") and secure with nails; two on each side.

One Side Panel is now complete; repeat this same process for the other side panel.



Step Two, Layout the markings for the Crossbars on the top edge of the 2 x 6 x 8' Front and Back Top Rails

Select the two, 2 x 6 x 8' pieces that will become the Front/Back Top Rails.

Lay them on edge across your saw horses and clamp them together as shown above with the all edges flush. The edges you will mark will become the top edges.

Measure in six inches from each end and, using a speed square, make a mark across both pieces; measure 1 1/2" and make another mark; between these two marks is where the crossbars will be placed. Repeat this process at the other end.

Locate and mark the center of the two Top Rails; measure and mark 3/4" on each side of this mark; this will become the placement for the center Crossbar. With the center and two ends marked; layout the remaining six marks by measuring equal distances, on-center; the measurement for all crossbars is 10 1/2" on center.



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Step Three, Make 45 degree Cut on Top Rails

Measure down two inches from the top edge of each Top Rail and make a 45 degree cut at each of the four ends as shown.



Step Four, Attach the Side Panels to the Top Rails.

Lay one Top Rail on the ground as shown above. Locate the center of the 2 x 6 x 8' Top Rail; measure 22" to each side of the center and make a mark; add 3 1/2" and make another mark; this space will mark the guidelines for the placement of the Side Panel. Repeat this process for the other Top Rail (mark both Top Rails at this time).

Within the guidelines, place the top edge of one Side Panel perpendicular to the top edge of the Top Rail and secure with four nails. Without moving the structure, repeat this process for the other Side Panel; the two Top Rails are now attached to the two Side Panels.



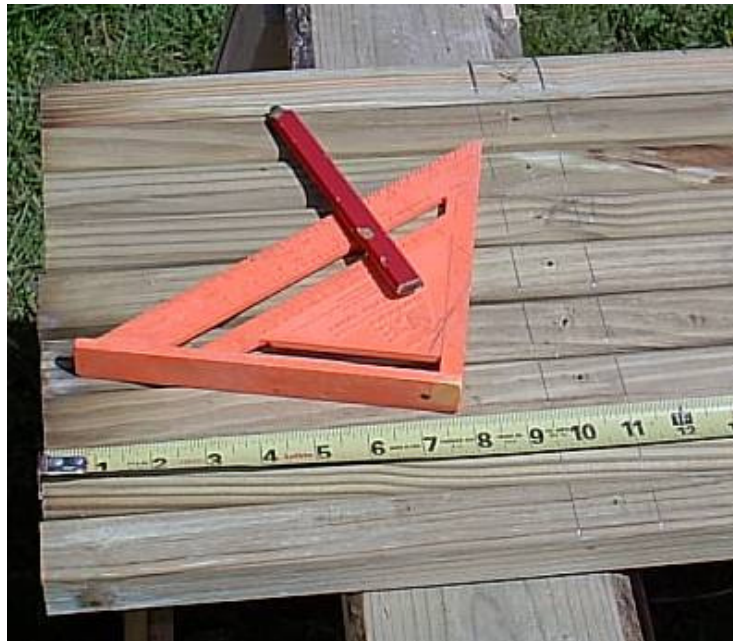
Step Five, Attach the Support and Corner Bracing

Near the top edge where the Side Panels meet the Top Rail measure the outside distance of one Side Panel to the other outside edge, 51". Select the 1 x 3 x 10' and cut two Temporary Support Rails to this exact measurement, 51".

On each Side Post measure up from the bottom 16" and place a mark. Take one, 51" Temporary Support Rail and lay it across the Trellis opening connecting the two side panels using the 16" mark as a guide. And with the outer edges touching, place one nail (do not drive it all the way in as this Support Rail is for temporary support purposes only) at each end and secure it to both Side Panels as shown above.

Select four, 2 x 2 x 4' and cut them to 19" so you have four equal pieces 19" long used as Corner Bracing. Cut a 45 degree angle on each end and secure two in place as shown above (pre-drill the holes with a 1/16" drill bit).

Flip your Trellis over and repeat Step Five for the other side.



Step Six, Layout & Fasten Top Crossbars

Set Trellis upright and select one of the nine Crossbars used for the top of the Trellis; center it across the Top Rails; make a pencil mark on the Crossbar where it makes contact with the two Top Rails (should start at 9 1/2" from the edge). Using a speed square, transfer these marks to the other eight Crossbars on both ends as shown above. This will insure that all crossbars are evenly centered.

Using a 1/16" drill bit, pre-drill a hole in the center of each of the marked areas.



Step Seven, Attach Top Crossbars

Using the markings on the top edge of the Top Rails and the markings on the Crossbars, line up the markings and

attach the Crossbars.

Move your trellis to the desired area; ensure it is level and plumb; using metal fence post supports, drive the supports at least three feet into the ground and attach them to the four posts so the trellis will not topple in high winds. Remove the temporary Support Rails, plant some climbing vines, and enjoy your new Trellis.
