



Assembly Instructions Big Kahuna Timber Frame™ Pergola Kit - Attached



Thank you for purchasing a do-it-yourself pergola kit from Pergola Depot!

Before beginning to install your new pergola, please read these instructions entirely to familiarize yourself with the complete process. In addition to these instructions, we have a variety of information and resources available on our website under the Resources menu, including [How to Measure for a Pergola](#) and [Installation Information](#).

Contact us if you have questions or need help!

Call: 1-877-563-0002

Email: info@pergoladepot.com

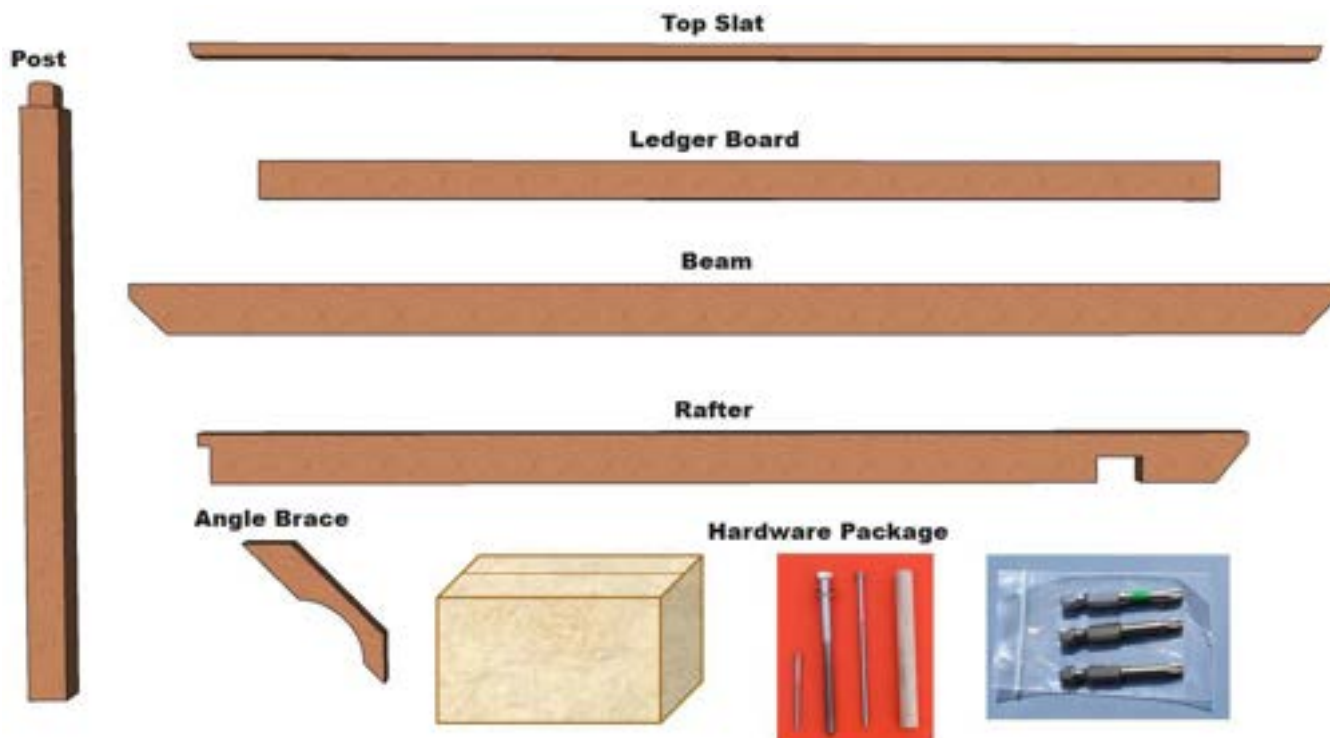
Visit: <https://pergoladepot.com/>

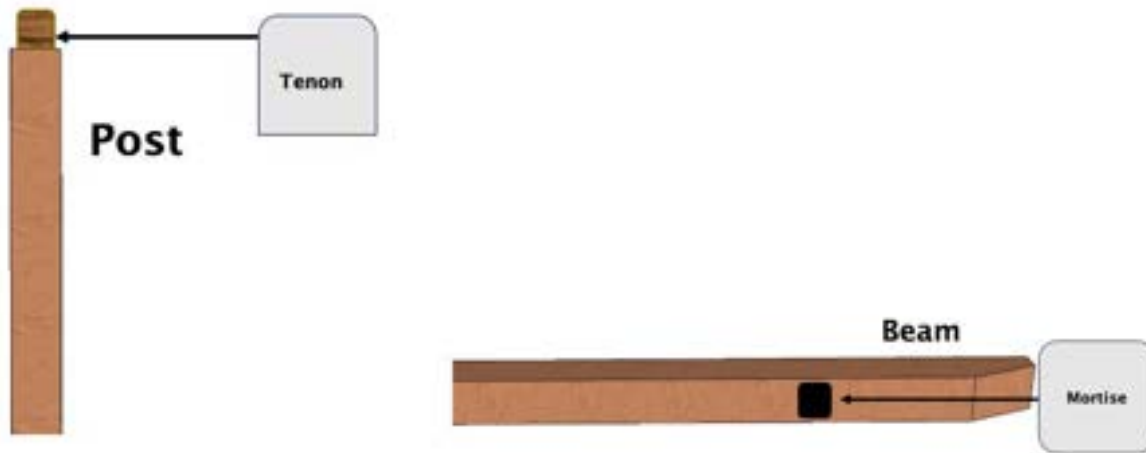
The Team at Pergola Depot

Tools and Supplies Needed

- Helpers - at least 2 (minimum 3 people in total), especially for larger kits
- Tape measure (2 better), hammer, level, leveling string and stakes, sawhorses (2) or substitute, bar/jaw clamps (4 ~12" or more), ratchet strap, small pieces of scrap wood (2x4 ~4-6"), rubber or wooden mallet for wooden peg installation
- 2x4s (4 pieces) of approximately 6 feet in length for propping up the post and beam assemblies during installation
- Stakes, flags, spray paint, chalk or other materials for marking post locations
- Minimum 2, preferably 3 step ladders (~6 feet or taller to work the top of your pergola during assembly)
- Screw gun, power drill (min. 18V fully charged cordless)
- Socket attachments, wrenches, drill bits:
 - Supplied with Kit: Two star-drive bits (T25, T27) for 3" and 6" screws
 - 3/4" socket or open-end wrench for bolts
 - 9/16" socket for angle brace lags - drill attachment preferred
 - 1/4" drill bit for pre-drilling angle brace attachment
 - 9/16" drill bit for pre-drilling wooden peg installation
 - 5/8" drill bit for installing rebar into post (if posts going into new concrete foundations)
- For all kits using post bases on concrete: 5/8" masonry drill bit; and 15/16" socket
- For new footings: post hole digger, dry concrete mix, gravel, trowel, shovel and mixing bin or wheelbarrow and concrete footing form tubes
- For Pressure Treated Pine kits using post bases on concrete: 5/32" masonry drill bit, and #2 Philips bit or #2 Philips screwdriver

Kit Components





Reference the packing list provided with your shipment confirmation for a complete list of kit components, including the piece count for each type of lumber and hardware pack components. Here is a summary of the kit components:

- 6x6 Beams (1 for standard size kits)
- 4x6 Notched Rafters (# depends upon kit size)
- 6x6 Notched Posts (2 for standard size kits)
- 2x6 Ledger Board (1)
- 4x6 Angle Braces (4 for standard size kits) - 2 shorter (post to beam), 2 longer (post to rafter)
- 2x4 Top Slats (# depends upon kit size)
- Hardware Pack (box) - see Pack List for detailed contents
- Optional:
 - Post base mounting hardware (2 for standard sizes kits) and Tapcon screws (for PT pine kits only) - for slab or footer post mounting if purchased
 - Post base trim - if purchased



Instructions

For installations on top of new footings, allow the concrete to dry before completing the rest of the pergola installation. This may require that you dig holes and pour footings a few days or more prior to assembling the pergola depending upon the concrete used and climate. Additional instructions are provided below.

For installations on top of new or existing concrete foundations, we supply post bases, anchors and Tapcon screws as part of your kit if purchased with the option to be installed "on a concrete slab or footer". These materials can also be purchased as accessories from us or from your local hardware store. Instructions for post base installation are provided below, and we have a video on the [Installation Information](#) page on our website.

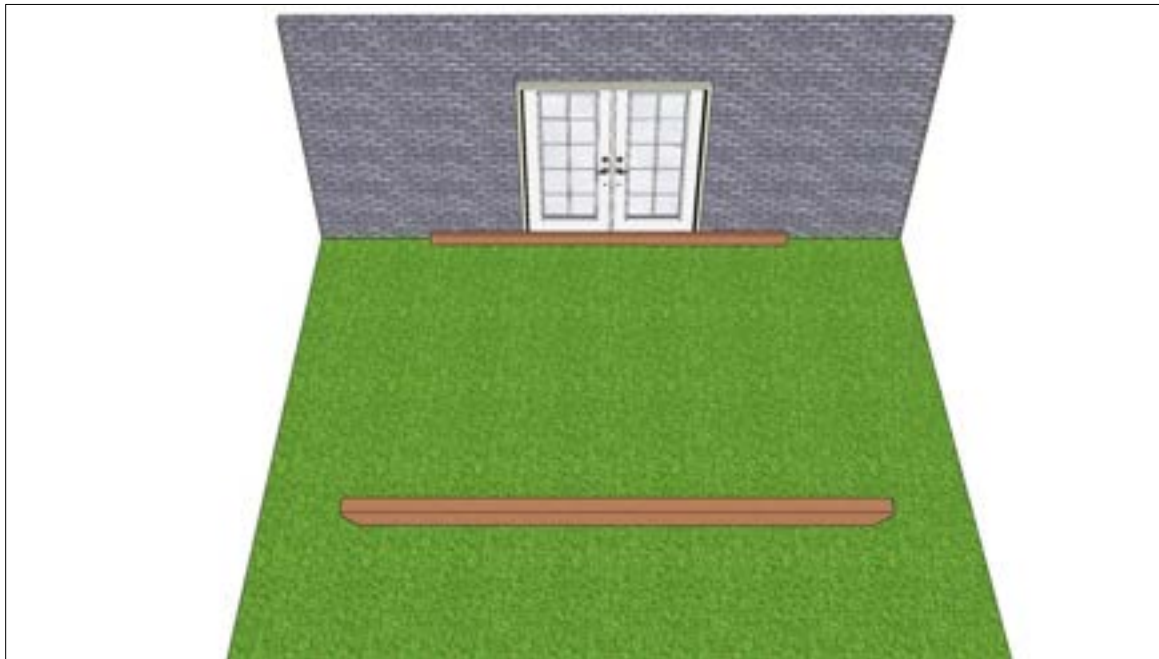
Please wait for the wood to dry completely before painting or staining a pressure treated pine kit, which may take several months or more depending upon climate and weather conditions.

Step by Step:

- **Step 1** – Move all parts close to where you will be installing the pergola for easy access during assembly.
- **Step 2** – Place the ledger board against the wall exactly where it will be installed but laying on the ground (with the x's facing up) and make a pencil mark on the wall at each end of the board. (Installed in a later step, the top of the ledger board will be the same height and level with the top of the beam. Once the ledger board is installed, we recommend having 18" to 24" of clearance above the top of the ledger board to provide adequate room for the rafters and to drill screws into the top of the rafters).

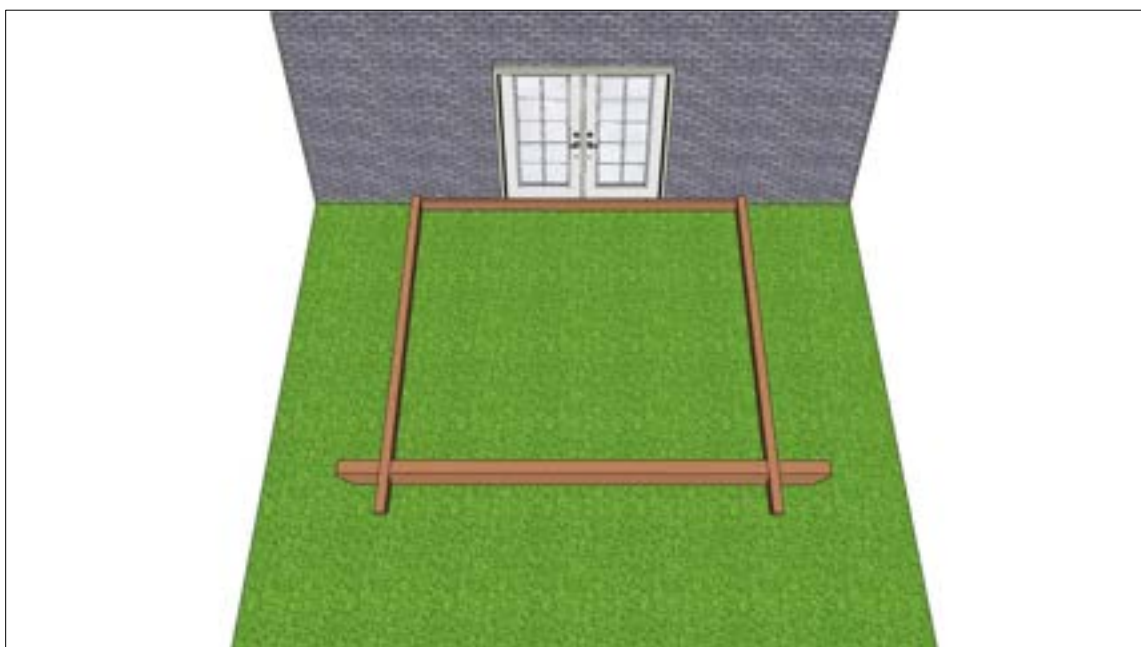


- **Step 3** - Place beam on the ground (with the x's facing up) parallel to the ledger board and approximately one rafter length away from the wall as shown in the picture below.

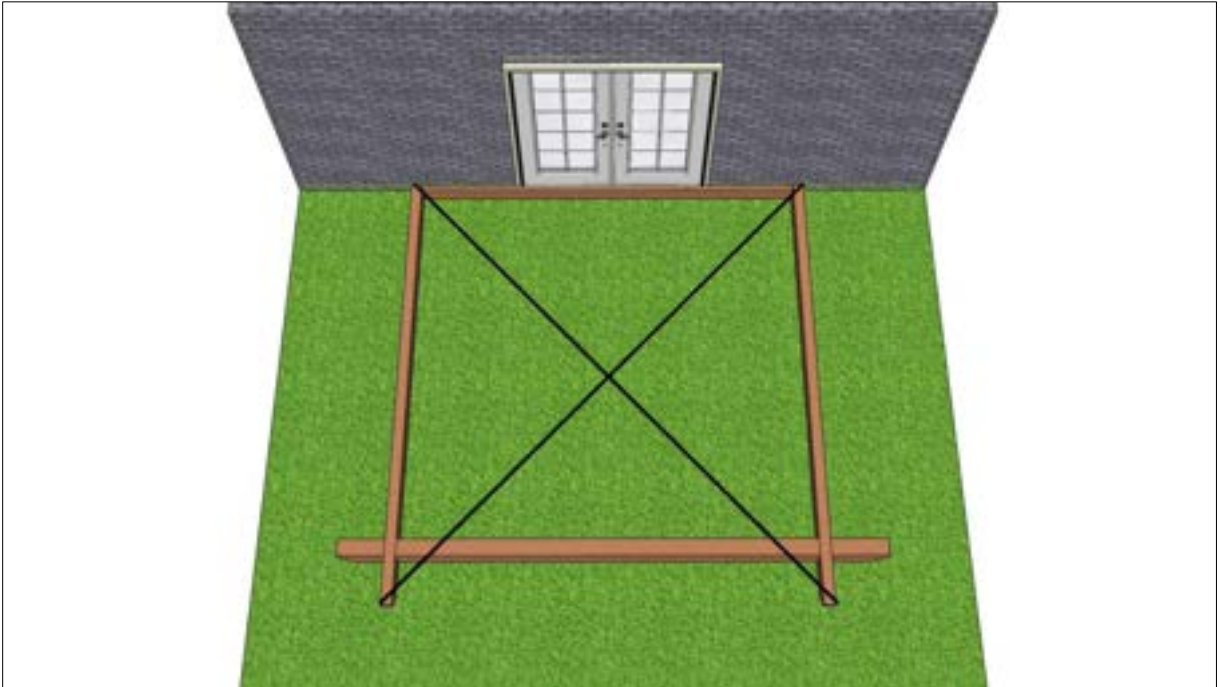


- **Step 4** - Slide two rafters over the two outermost X marks (marked like this: IXI) on the beams, positioning the notch in the rafters on top of the X on the beams and resting on the same marks on the ledger board with the flat end of the rafters against the wall. You may need to move the beams around a little to get the rafters into place.

Using 6" screws provided, temporarily screw each rafter through the predrilled holes into the beams. Screw them in just enough to hold the rafter in place.

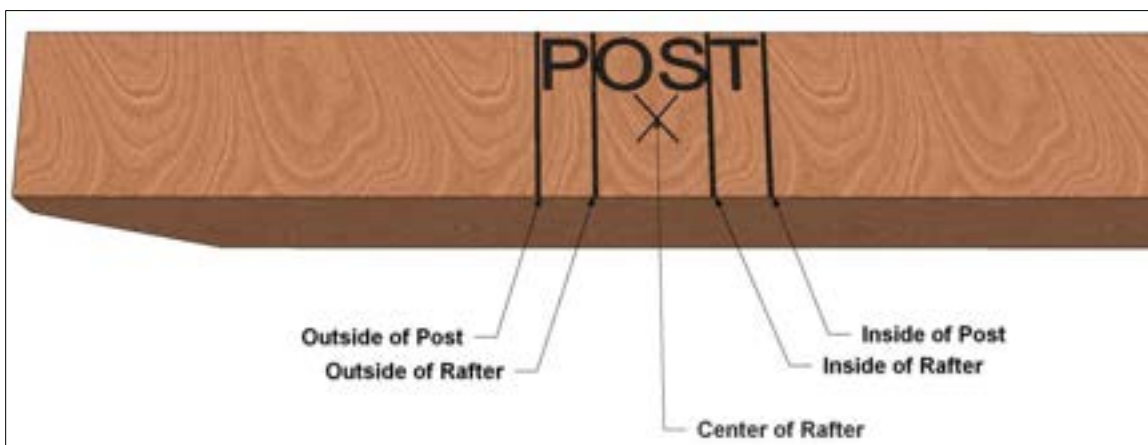


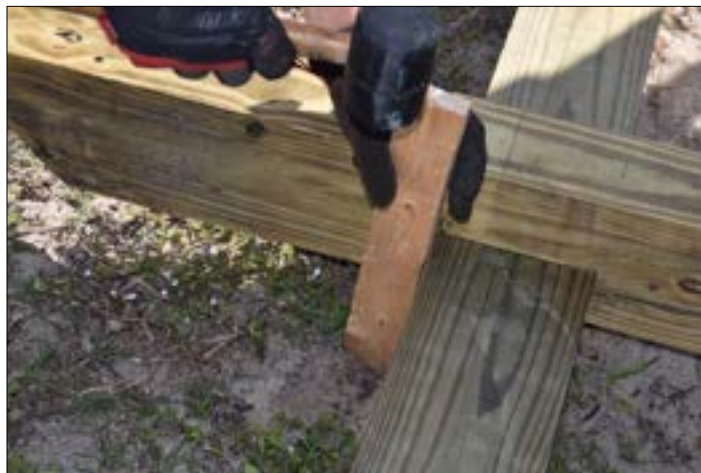
- **Step 5** - To ensure the assembly is square, hook one end of a tape measure on the outside tip of the rafters and pull the tape to the opposite corner. Write down the measurement. Then repeat for the opposite corner as shown below. This is easier if you and your helper both have a tape measure and pull them across at the same time.



Ensuring the ledger board remains in place, move the beams from side to side until you have the same measurement both ways. When you have the same measurement, it is perfectly square. Once square, make sure the assembly does not move.

- **Step 6** - To identify the location for each post hole or post base, making sure the assembly does not move, use stakes, spray paint, chalk, flags, or other material to mark the ground or concrete surface at each corner where the beam and outer rafters intersect. The post will be placed at the center of the 4 markings.





Unscrew and remove the rafters from the beams and move all the boards to the side. Now you should be left with two sets of four marks where the postholes or post bases will be located.

- **Step 7** - Post hole, footing and post base instructions:

In-Ground

If burying posts into concrete footings, dig footer holes with the center of the hole at the center of the four marks from above. Dig holes to a minimum of 2'4" deep (depending on the depth desired for frost line etc. - see our website under Resources>Pergola Post Guide) and min. 12" diameter. Adjust post depths to ensure tops of posts will be level with each other once installed. Pour in gravel to fill the first 4" of each post hole.

We recommend you install a piece of 10" rebar, supplied with the kit, into the bottom of each post. Locate and mark a spot that is approximately 10" below ground level. Using a 5/8" drill bit, drill a hole through the post at the desired mark on each post. Note that the rebar will be inserted in a later step.

New Footings

If mounting posts using post bases on top of new footings, dig footer holes with the center of the hole, where marked, from an earlier step, minimum 2' deep (depending on the depth desired for frost line etc. - see our website under Resources>Pergola Post

Guide) and min. 12" diameter. Use concrete footing form tubes and leveling line to ensure the top of each footing is level with each other.

Mix the concrete according to the directions for the concrete purchased and fill the hole to about two-thirds of the way to the top. Use a shovel or piece of rebar to eliminate air bubbles. Insert one piece of 18" rebar supplied with the kit into the wet concrete so that it sits diagonally from the bottom of one side of the hole toward the top of the other side. Pour in more concrete to cover the rebar and until the concrete is level with the top of the form tubes. Work the top portion of concrete to eliminate bubbles and smooth the top with a trowel or shovel. Repeat for each footing. Allow concrete to dry completely, which will depend upon the concrete used and weather conditions.

Post Bases

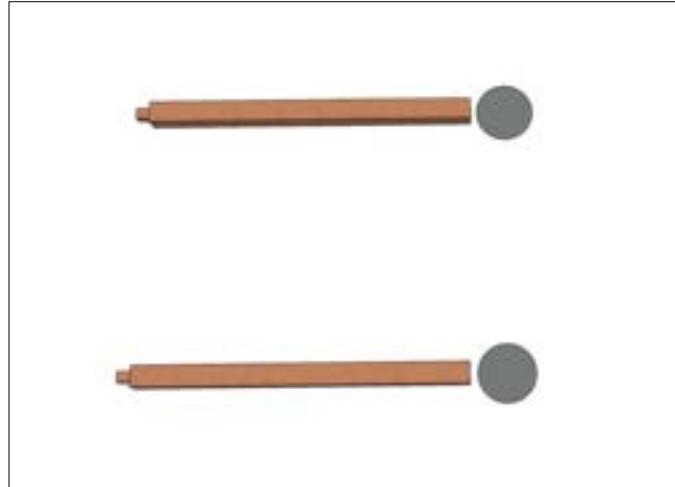
If installing using post bases on top of an existing concrete foundation or previously poured footings, the concrete must be dry before installing post bases. Place the bases on the concrete in the exact position where they will be installed at the center of your post location marks from above. Measure the distance between the center of each post base to ensure they match the prescribed distance between the center of each post for your size pergola. The center post to post measurement (for standard sizes) is 3'6" less than the overall length of each dimension. For example, a 10x12 (rafter x beam) pergola has a center post to post measurement of 6'6" (10' rafter minus 3'6") x 8'6" (12' beam minus 3'6"). Once post base placement is confirmed, mark the concrete at the center hole at the bottom of each base.

Remove the bases and drill into the concrete at each marked point with a 5/8" concrete drill bit to a depth of at least 4". Clear excess debris from the hole. Place the washer and nut on the concrete anchor, place the flared end of the anchor through the post base and into the hole in the concrete. Hammer the anchor down into the hole in the concrete until it is against the post base, but do not tighten. Repeat for each base.

Before tightening the anchor to the post base, turn the post bases so that the side walls (vertical pieces of the bases) are parallel with the direction of the rafters (once installed). This will allow for small adjustments in the placement of the post in the base on the rafter side of the structure. Then, square each base to the outside edge of the pergola footprint. To square bases, lay one of the beams or rafters (depending upon length needed) on the ground directly outside two of the post bases, then rotate the post bases until the outside edges of each base are touching and square with the board and the side walls are parallel with the rafters. Repeat this for the other bases. Tighten each anchor with a 3/4" socket or wrench until snug to the base.

If installing a pressure treated pine kit using post bases, install one Tapcon screw provided through one of the holes in the bottom of each post base and into the concrete. Using a 5/32" concrete bit, drill the Tapcon screw hole to a depth of at least 2". Once the hole is drilled, clear excess debris from the hole, and slowly screw the Tapcon through the post base using a #2 Philips head screw bit or screwdriver until snug to the base. Repeat for each base.

- **Step 8** - Lay the posts on the ground, with the bottoms at the edge of each hole or post base, the tops (tenon cut ends) facing away from the wall. Ensure the tenon at the top of the post is in the correct direction. It is rounded on two corners and must be in the proper direction to fit in the mortise on the beam. If helpful to visualize the correct direction of the tenon, lay the beam on the ground just outside the top of the posts with the mortise hole facing the posts, then align the post to ensure the tenon will fit squarely into the mortise.



- **Step 9** - If installing post base trim, slide trim over the bottom of each post and up the post so it will be out of the way for the next couple steps. For posts being installed into the ground (into concrete footings), insert the rebar through the hole at the bottom of each post. Use a hammer to move the rebar through the hole until there are approximately equal lengths of rebar on either side of the post.
- **Step 10 - Lift and drop each of the posts into the postholes, or into the post bases if on concrete. Brace the posts in place using scrap 2x4 wood pieces and clamps.** If using post bases on concrete, the bases are secured to the posts in a later step after the beam and rafters have been assembled.



- **Step 11** - Lay the beam down on the ground just outside the posts with mortise cut (square holes) in beams facing the ground and the marked spot on the beams (marked for pre-drilling for peg installation) facing away from the posts. Position ladders, one just outside each post (and one at the midpoint between the posts if available) to allow for lifting and placing the beam on top of the posts. With 2-3 healthy adults, lift the beam with the mortise side facing down while climbing the ladder to the height needed to position the beam on top of the posts and connecting the tenon into the mortise on the underside of the beam.



Now you should have this:



- **Step 12** - If posts are going into footers, fill the holes around the posts with dry concrete. **Do not mix water in the concrete yet.**

Check for level across the top of beam assembly and on the sides of the posts. If needed, adjust the amount of dry concrete under the posts by lifting-up the low post and allowing a small amount of dry concrete to fill in underneath. If installing with post bases, you may need to use a shim under one of the posts.

If installing with post bases (and as needed with in-ground installation), have your helper continue to hold the assembly or prop the assembly up (using 2x4's for example) so that it does not fall.

- **Step 13** - Level up from the marks you made on the wall earlier to the desired height. (We recommend leaving 18" to 24" of clearance above the top of the ledger board to provide adequate room to drill screws into the top of the rafters). The top of the ledger board must be the same height as, and level with the top of the front beam. Holding the ledger board in place exactly where it will be installed, ensuring that the board is level, mark with a pencil through the pre-drilled holes in the ledger board.

If installing on a concrete wall, using a 5/8" masonry drill bit, pre-drill holes in the masonry wall to a depth of at least 4 1/2". Clear excess debris from the holes. Having your helper hold the ledger board in place, insert the 5/8" anchor bolts supplied with the kit, hammer them into the wall and tighten with a 15/16" wrench. Drill the two outer holes first, secure the ledger board with two anchors, and then drill the rest of the holes.

If installing on a wood frame wall, locate the studs behind the framing or the top mounting plate above a window or door, and mark where the holes will be drilled. For wood frame walls, we do not pre-drill the ledger board so that you can match the holes in the ledger to the stud locations. Once you have identified and marked where the ledger will be attached, using a 1/2" drill bit, pre-drill holes to a depth of at least 4 1/2", insert the 1/2" lag screws provided with the kit through the ledger board and tighten with a 3/4" wrench.

The ledger should now look like this:



- **Step 14** - Move the stepladder in between the beam assembly and wall/ ledger board. Position one of the rafters with the end cut pointing away from the wall. Slide the rafter onto the same X marks on the beams as you did on the ground in an earlier step. The notches on the rafter should slide over the beam on one side and rest on the ledger board on the other. Adjust the position of the posts if needed to allow the rafters to fit squarely. If more significantly out of alignment, you may need to further adjust post placement or height of either the post and beam assembly or ledger board. Please contact us as needed to assist.

When the first rafter fits squarely, partially secure the rafter using 6" screws provided through the predrilled holes in the rafter onto the top of the beam and ledger board. Then move to the opposite side and slide another rafter into position over the corresponding X marks on the beam and ledger board. Adjust as described above as needed. Once both rafters fit squarely, completely secure both outside rafter to the beam and ledger board using 6" screws through the pre-drilled holes.

Now your helpers should be able to let go of the assembly and you can remove the 2x4 post braces if used.

- **Step 15** - If using post bases, secure the bases to the posts using the galvanized nails supplied.
- **Step 16** - Install the angle braces connecting the post to beam securing with 3/8"x6" lag screws provided. The shorter braces (36" long) are for the post to beam and the longer braces (40" long) are for the post to rafter (installed at a later step). Using 9/16" socket or drill attachment, partially screw the lags into the pre-drilled angle braces so about 1/4" of the lag screw tip comes through the brace.



Position the brace with radius cut facing in and flat ends centered on the underside of the beam and side of the post. Make sure the angles are flush to the post and to the top of the beam, then clamp or have your helper hold the angle in place. Use a hammer to tap both lag bolts to leave an indentation.



Set the brace aside, and pre-drill holes using a 1/4" bit where the indentations are located.

Place the brace back into position so the tip of the lag bolts meet with the pre-drilled holes. Tighten using a 9/16" socket or drill attachment. Repeat for the other post to beam side angle brace.



This is what they should look like when installed correctly:



- **Step 17** - Before installing the wooden pegs, pre-drill the posts at the marked spot on the beams. Using 9/16" drill bit, drill through the beam and into the tenon (post), approximately 4" to no more than 5". We recommend marking your drill bit 4.5" from the tip with tape so you can see the depth of the hole while drilling. Clear out the excess debris from the hole. Then, insert the rounded end of the wooden peg through the pre-drilled holes in the beam and post. Using a rubber/wooden mallet or hammer and a small block of wood, carefully hammer in the wooden peg until there is approximately 1/2" of the peg remaining outside the hole. (Optional) You can leave the peg as is (pictured below on the left) or trim the wooden peg to desired length. (Note peg trimmed to be flush with the beam in picture below on the right) Repeat for each post to beam connection.



- **Step 18** - Install the remaining rafters over the "X" marks and secure them to the beams with 6" screws through the predrilled holes.



- **Step 19** - Now install the angle braces connecting the post to the outer rafter at each post, securing with 3/8"x6" lag screws provided. Using 9/16" socket or drill attachment, partially screw the lags into the pre-drilled angle braces so about 1/4" of the lag screw tip comes through the brace.



Position the brace with radius cut facing in and flat ends centered on the underside of the beam and side of the post. Make sure the angles are flush to the post and to the top of the rafter, then clamp or have your helper hold the angle in place. Use a hammer to tap both lag bolts to leave an indentation.

Set the brace aside, and pre-drill holes using a 1/4" bit where the indentations are located.



Place the brace back into position so the tip of the lag bolts meet with the pre-drilled holes. Tighten using a 9/16" socket or drill attachment. Repeat for the other post to rafter side angle brace.

This is what they should look like when installed correctly:



- **Step 20** - Place the top slats into position across the top of the rafters between the marked lines. Ensure each top slat is centered by adjusting for equal measurement outside of the beam on each side (as pictured below). Then screw the top slats down to the rafters using 3" screws provided. Start on one side and make your way across to the other side screwing down the top slats to each rafter.



Be careful with the screws because stainless steel is a soft metal, and they strip easily. Make sure your screw gun is straight and that the bit is inserted all the way into the screw, then push down hard while screwing them in. There are extra screws in every kit just in case you strip some, but if you need more you should be able to find them at any local hardware store. If you are having trouble with the screws stripping, it is helpful to get a bar of soap and rub the threads of the screw across it before screwing them in. This lubricates the screw, and they will go in a little easier.



- **Step 21** - Check the whole pergola assembly, tighten down loose screws and lags.
- **Step 22** - Slowly add water (follow concrete manufacture instructions for amount of water) to the dry concrete and mix with a shovel or trowel to eliminate air bubbles. Be sure not to move the pergola unit around while the concrete cures. Follow concrete manufacture instructions for curing time.

Please let us know if you have any questions or feedback on the instructions, products, or our support process. We always appreciate receiving photos of the build and finished spaces!

Congratulations and thank you for being a Pergola Depot customer!



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