Double-Beam Freestanding Pergola Installation Guide

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Before you begin installation:

- View the installation video here
- Consult your local authorities for any permits required to construct the pergola.
- Check with local building code officials to review any required permits or building limitations.
- Read instructions thoroughly prior to assembly.
- If you have questions or concerns with this product **DO NOT** return to store. Assembly questions? Missing parts? Call 1-800-403-9259.
- Due to the size of the parts, at least two people are required to handle, fit and secure pergola components.
- Read manual first as mounting hardware varies with each application. Do not anchor to paver bricks. Foundation must be a solid surface.
- Do not stand, sit, or store items on top of pergola.
- Repair or replace broken parts immediately. Call 1-800-403-9259 for replacement parts.
- At regular intervals inspect the pergola to make sure that assembly integrity has been maintained.

Tools required for installation:

1. Extension Cord
2. Post-Hole digger (for ground installation only)
3. Hammer Drill (for concrete installation only)
4. Reciprocating Saw
5. Cordless Drill
6. Power Drill (Optional)
7. Drill Bits – 1”, 5/16”, 3/16”
8. Phillips Screwdriver Bit
9. Masonry Bit – 3/8” (for concrete installation only)
10. Masonry Bit – 5/32”
11. Carpenter’s Square
12. Pencil
13. String Line
14. Level
15. Tape Measure (min of 25’)
16. 2 Ladders (for at least the height of your pergola)
17. Rubber Mallet
18. Ratchet
19. Deep Socket – ½”
20. Standard Socket – 9/16” (for concrete installation only)

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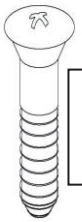
Hardware & Accessories

5/16” x 4” SS Lag Bolt (washer included)

8oz. Vinyl Glue

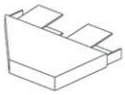


#14 x 2” Wood Screw (Concrete Installations Only)

1” Hole Plug

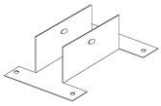
3/8” x 5” Wedge Anchor with Nut & Bolt (Concrete Installations Only)

2”x6” Finial



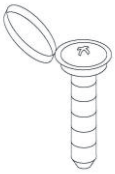
7/8” x 3” Dog-Ear Picket Cap

2” x 8” Finial



2x6 Double-Beam Rafter Support

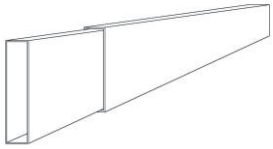
#10 x 1” SS Self-Tapping Screw with Screw Cap

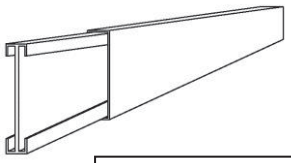


#10 x 1.5” SS Self-Tapping Screw with Screw Cap

Canopy Components

2”x6” Hollow Vinyl Rail with Aluminum Insert





2”x8” Hollow Vinyl Rail with Aluminum Insert

7/8”x3” Purlin

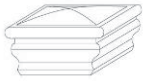
Post Components:

24” Post Spacer

4x4 Pergola Post Mount (Concrete Installations Only

4”x4” Treated Wood Post

4”x4”x24” Post Sleeve

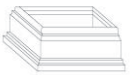


4”x4” Federation Post Cap

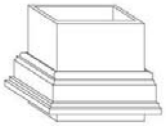
5” Post Assembly

5”x5” Blank Vinyl Post

7”x7” Top Gasket



5”x5” Top & Bottom Dress Skirt

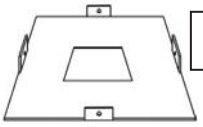


5”x5” Interior Post Adapter

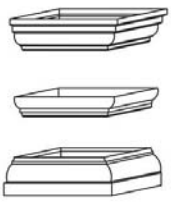
5” to 4” Adapter

8” Square Post Assembly

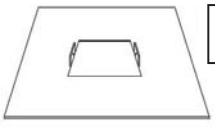
8”x8” Blank Vinyl Post



11”x11” Top Gasket



8”x8” Post Trim (3-piece)



8”x8” Interior Adapter

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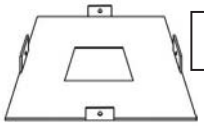
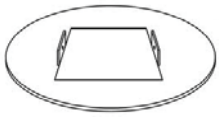
8” Round/Tapered Column Assembly

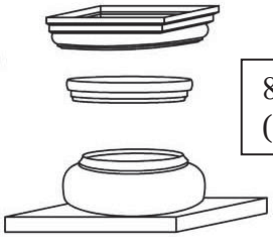
8” Round Post



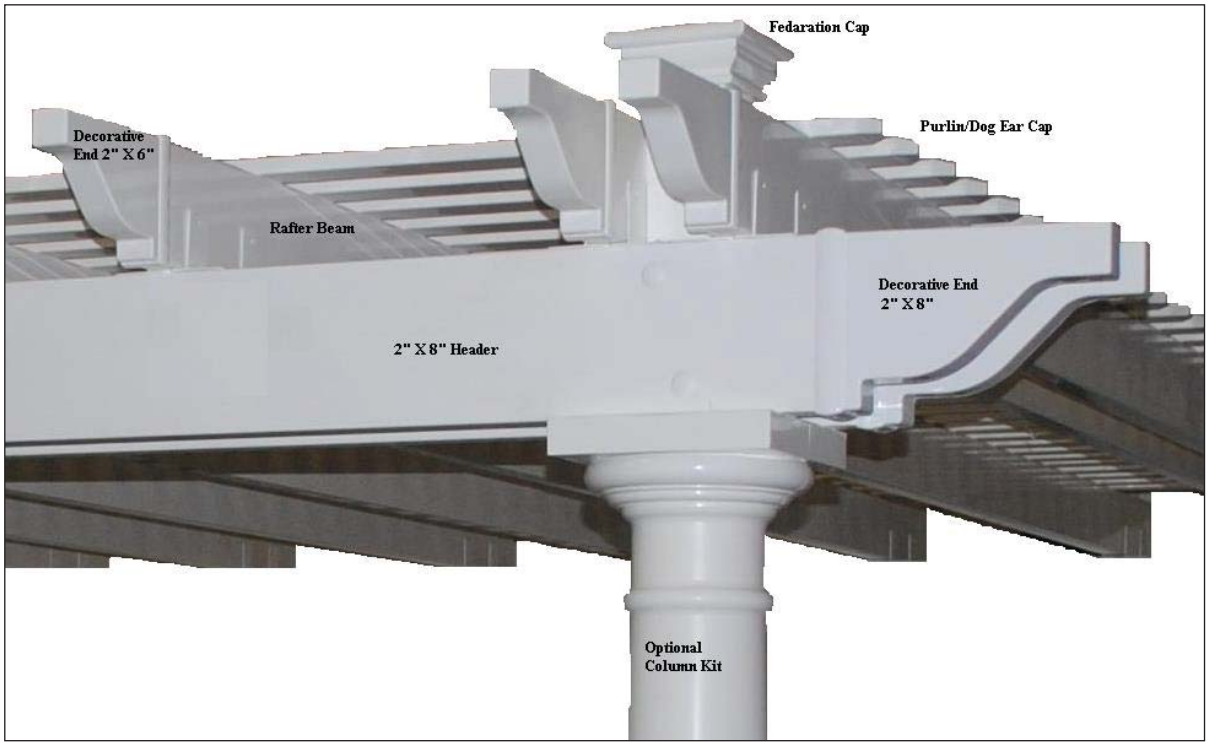
11”x11” Top Gasket



8” Round Interior Adapter



8” Round Post Trim (3-Piece)



Section 1: The Posts

Pergola Size	(A) Rafter 2x6 (projection)	(B) Header 2x8 (width)	Number of posts	(C) Diagonal in inches (approx.)
12x12	144"	144"	4	203.65"
14x14	168"	168"	4	237.63"
16x16	192"	192"	4	271.53"

Figure 1

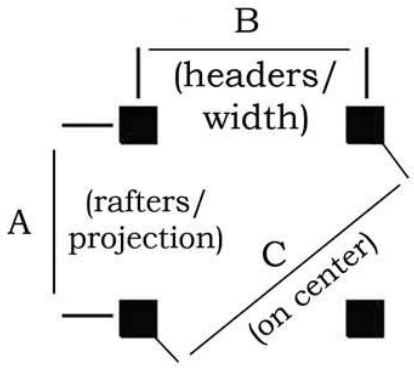


Figure 2

A. Preparation for Post Installation

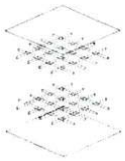
NOTE: It is important that the pergola is both level and square. The post layout in Figure 1 is a suggestion for squaring the posts. Use the formula $a^2+b^2=c^2$ to find the measurements needed to square the posts (See Figure 1 & 2)

NOTE: Figure 3 shows options for concrete installation based on the strength needed for the pergola. For more information, see Engineering Specs.

NOTE: All of our pergolas use 'on center' measurements for width x projection. For example, if the pergola is 16' wide x 14' projection the post must be 16' on center for the width and 14' on center for the projection.

Figure 3

CHOOSE CONCRETE MASS FROM CHART BELOW BASED ON WIND SPEED :



Wind Speed	Mass cu ft	Depth	Length & Width
170 MPH	13.50	2'	2'-8" SQUARE
		2'-6"	2'-4" SQUARE
		3'	2'-1" SQUARE
150 MPH	10.4	2'	2'-4" SQUARE
		2'-6"	2'-1" SQUARE
		3'	1'-11" SQUARE
130 MPH	7.4	2'	1'-11" SQUARE
		2'-6"	1'-9" SQUARE
		3'	1'-7" SQUARE
110 MPH	5	2'	1'-7" SQUARE
		2'-6"	1'-5" SQUARE
		3'	1'-4" SQUARE

CONCRETE SHALL BE A MINIMUM OF 3000PSI COMPRESSIVE STRENGTH WITH 2 MATS OF GRADE 60, #4 REINFORCING STEEL, 6" CENTER TO CENTER, E-W

NOTE: If you are not installing the pergola on level ground, you will need to level and mark the wood posts to determine how much the vinyl posts will need to be cut before installation. There are multiple ways to level the pergola height. You must ensure that all of the posts (trim etc.) are at the same height.

1) Determine the lowest elevation point for the pergola.
2) Run a string line with a level to determine if the columns/posts will be level with each other.
3) Cut any extra material off the length of the sleeve. Always measure twice and cut once.

B. In-Ground Installation

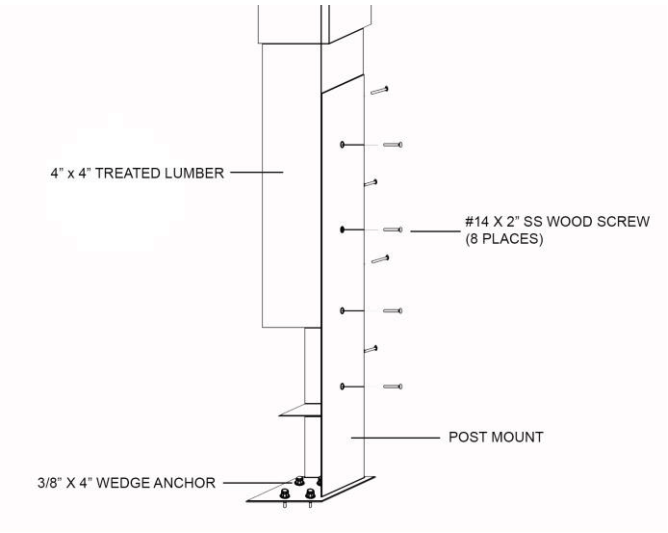
1) Lay out and mark the location of the wood posts according to pergola size and specification.
2) Dig holes using a post hole digger, assuring the holes sit below the frost line for your area. Figure 3 above will help determine the size of the post hole.
3) Place the 4x4 treated wood post into the hole and pour concrete around it. Use a post leveler to keep the post level and plumb. Do not twist the post, as this will cause issues when the canopy is installed. Allow concrete to set up and dry.
4) Repeat this process for all in-ground posts

C. Deck Installation

1) If the posts are connecting to a deck or other structure, assure that the structural framing is strong enough to hold the pergola and that the posts are fastened securely. Consult a structural engineer to determine if deck installation is possible as well as to define appropriate fasteners.

D. Concrete Installation

1) After you have placed, squared and traced each concrete mount you will need to attach the 4" pressure treated wood to each concrete mount.
2) Place the concrete mount on the bottom of the wood post. Pre-drill the holes on the sides of the mount with a 3/16" drill bit and install the #14 x 2" screws in each hole. Repeat this step for each post.
3) Use a hammer drill at a 4 ½" depth and drill the traced anchor holes with a 3/8" masonry bit. **Do not** rush this step as you may compromise the integrity of the concrete surface.
4) Place the 3/8" x 5" wedge anchor into the each drilled hole and tap them into the concrete using a hammer, making sure to leave 1" of the anchor above the concrete.



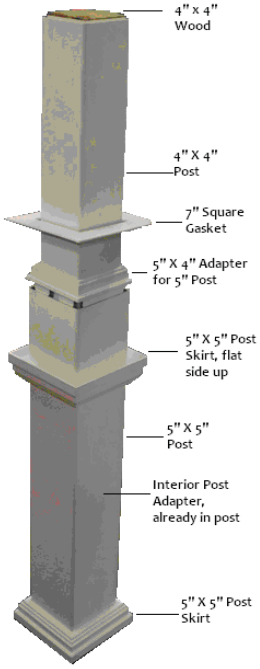
5) Place the concrete mount and pressure treated wood post over the wedge anchors and install the washer and nut to each anchor.
6) Before the washer and nut are fully tightened, level the post and mount. If the post is not level you can use washers (not provided) as shims under the post mount until the post is level. Using a 9/16" standard socket, slowly tighten all of the nuts until they are level with the bottom of the post mount bracket. ***Do not over-tighten the nuts***. Repeat these steps for each concrete post mount.

Section 2: Vinyl Sleeve Installation

NOTE: If you will be changing the height of the pergola from the standard 8' or 10' height, you will need to measure and cut the post sleeve at this time. The height is determined from the ground to the bottom of the first header.

A. 5" Post Assembly

1) Slide the 5" interior post adapter over the wood post. Install the interior adapter at least 6" off the ground using 1" self-tapping screws on either side of the adapter.
2) Slide the 5" post sleeve over the wood post. Slide two post skirts over the 5" post sleeve. The first skirt (bottom trim) will be upright, and the second skirt (top trim) upside down. See diagram at the right.
3) Slide the 4" x 4" x 24" post and spacer together (spacer between the wood and vinyl sleeve) over the remaining portion of the wood post.
4) Using a rubber mallet, hammer the sleeve and spacer down until at least 18" is above the 5" post.
5) Slide the 5" to 4" adapter over the 4" post and into the 5" sleeve.
6) Slide the 7" x 7" gasket over the 4" post and rest it on top of the 5 to 4 adapter. Slide the top post skirt up so it is touching the gasket.
7) Secure the top and bottom post skirt to the vinyl post with a 1 ½" self-tapping screw and screw cap.
8) Repeat these steps for each post.



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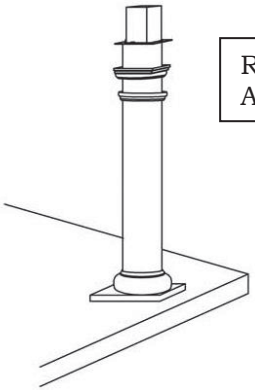
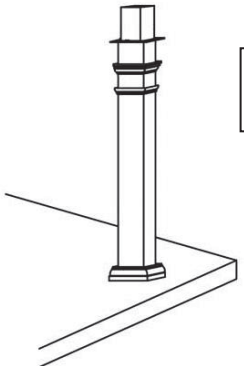
B. 8” Square Post/ Round Column Assembly

1) Slide the interior post adapter over the wood post. Install the interior adapter at least 6” off the ground using 1” self-tapping screws on either side of the adapter.
2) Slide the 8” Post sleeve over the wood post. Slide the bottom trim onto the 8” post and move to the bottom. Slide the middle trim piece over the post and place 10” from the top of the post (the space may vary at your discretion).
3) Slide the 4” post sleeve and spacer over the wood post so that at least 18” is above the 8” vinyl post.
4) Slide the Top trim (pre-drilled) and gasket so that the gasket is sitting on top of the 8” vinyl post. Secure all trim pieces with the provided self-tapping screws and screw caps.



Round Column Assembly

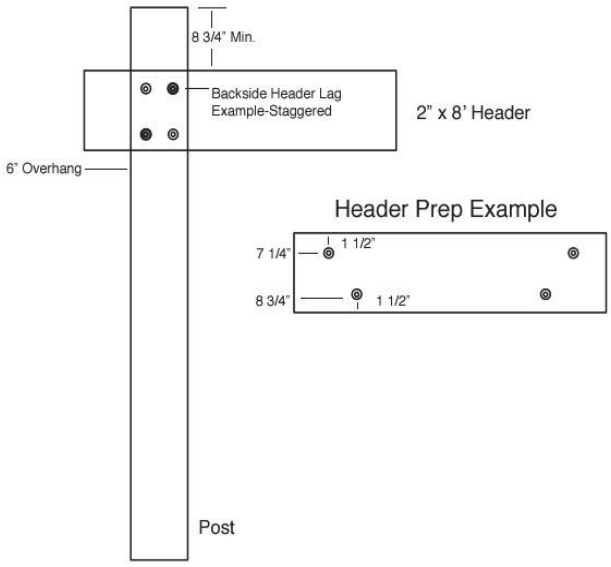


Square Post Assembly

Section 3: Installing the Headers

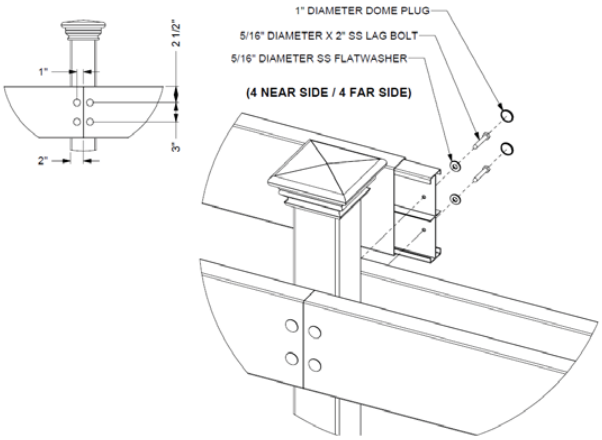
A. Header Prep

1) With a pencil, mark two holes on each end of the header for the Lag bolts. For hole #1, measure 1½” from the top of the header and 7¼” from the end. For hole #2, measure 1½” from the bottom of the header and 8¾” from the end (this will allow for a 6” overhang once the headers are installed).
2) Do this on both the left and right end of each header. This will allow the 5/16” x 4” lag bolts to be staggered so they do not hit each other during installation. See diagram to the right.
3) Slide the aluminum out of the way and use a 1” drill bit to pre-drill each mark through one side of the header. Slide the aluminum back in place and drill through aluminum and the other side of the header with a 5/16” drill bit.
4) Repeat these steps for all 2” x 8” headers.



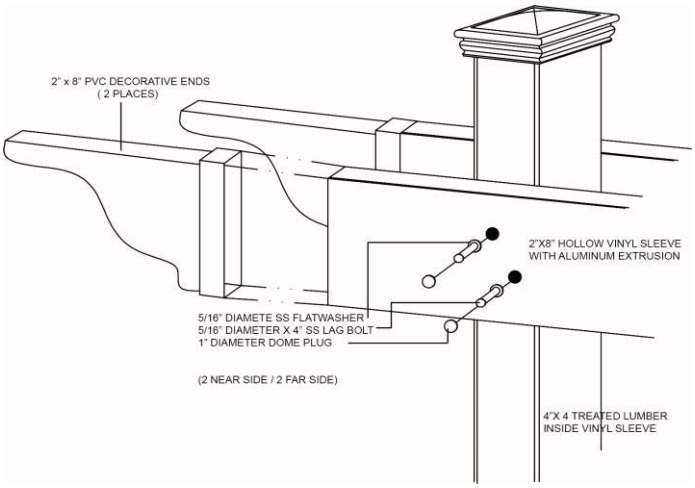
B. Header Prep (For Pergolas wider than 16')

1) For pergolas wider than 16', the headers must be spliced on a post. One side of the header will be prepared as explained in the previous section.
2) The spliced side of the header will have different hole measurements. Hole #1 will be 2 ½" from the top and 1" from the side of the header. Hole #2 will be 5 ½" from the top and 1" from the side of the header.
3) You will need to offset measurements for the other header to prevent the lag bolts from hitting each other inside the 4" wood post. To do this, hole #1 will be 1-½" from the top of the 2"x 8" and Hole #2 will be 6-½" from the top of the 2"x8".
4) Slide the aluminum out of the way and use a 1" drill bit to pre-drill each mark through one side of the header. Slide the aluminum back in place and drill through aluminum and the other side of the header with a 5/16" drill bit.
5) Repeat these steps for all spliced 2" x 8" headers.
6) Continue with header installation as normal.



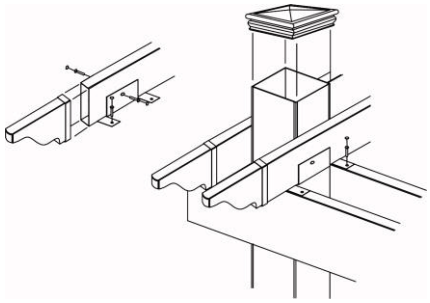
C. Header Installation

1) With the help of another person, position the header on top of the gasket, against the 4" post. Assure the pre-drilled holes line up on the post with at least 6" overhang from the end of the header to the 4" post.
2) Use a 3/16" bit to drill through the pre-drilled holes of the header into the 4" post. Install the lag bolts and washers through the vinyl and aluminum into the wood post. Tighten with a ½" socket, DO NOT over-tighten as this may cause the aluminum insert to bend.
3) Repeat these steps for all the header connections. Trim the tops of the post to be the same height (if necessary).



Section 4: Rafter Installation

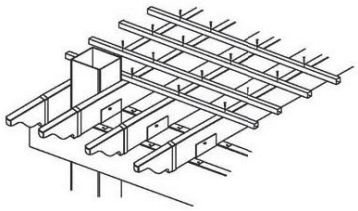
1) To assure that you will have equal spacing between the rafters, preset the rafters in their support brackets before making any cuts or securing any brackets. The rafters will extend at least 2" past the header on both sides.
2) Adjust the spacing of the rafters as necessary. The on center spacing of the rafters (approximately 22"-24") may vary depending on the width of the pergola.
3) Place the rafters into the brackets and use #10 x 1" self-tapping screws and screw caps to secure the rafter support bracket to the rafter and to the header.



Section 5: Purlin Installation

NOTE: The purlin will lay perpendicular to the rafters.

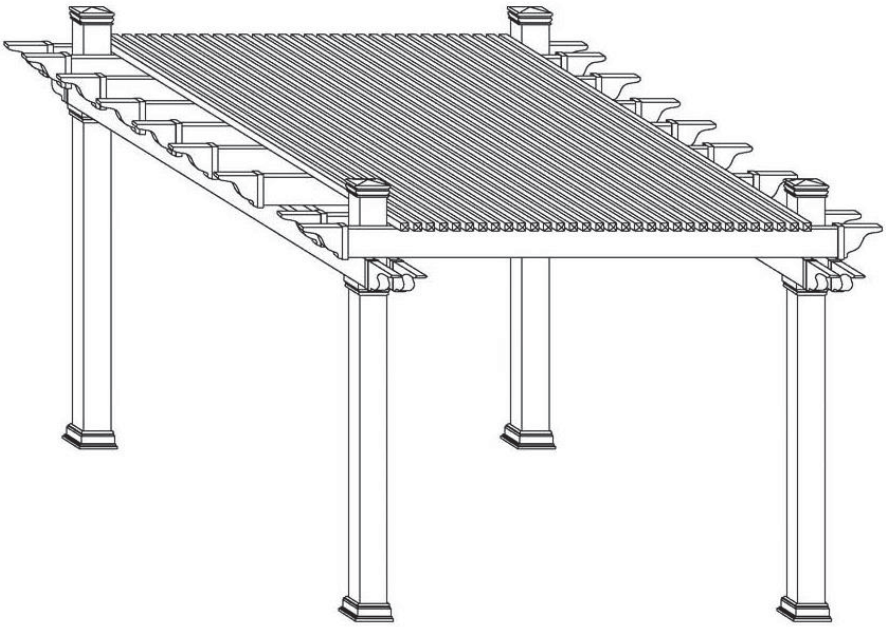
1) Place the purlin on top of the pergola and space them evenly before securing with screws.
2) The purlin overhang should be the same on both sides of the rafters. It is helpful to have another person to assist with adjusting and securing the purlin.
3) Use the #10 x 1.5" self-tapping screws and screw caps to secure the purlin to each rafter. **Do not** over-tighten the screws as this will cause dents in the purlin.



Section 6: Finish Work

1) Install the 1" hole plugs into the headers to cover the lag bolts.
2) Place and secure the 4" post caps, the 2"x6" & 2"x8" Finials and the purlin caps with vinyl glue.
3) ***For headers 16' and wider*** Once the 5/16" x 4" lag bolts and washers are installed for the headers sharing a post or column sleeve, you will need to install the 2" x 8" splice piece. The lips of the splice will rest on the outside seam on the bottom and top of the header and secure with 4 #10 x 1 ½" self-tapping screws and screw caps in each corner.

Enjoy your new pergola!



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