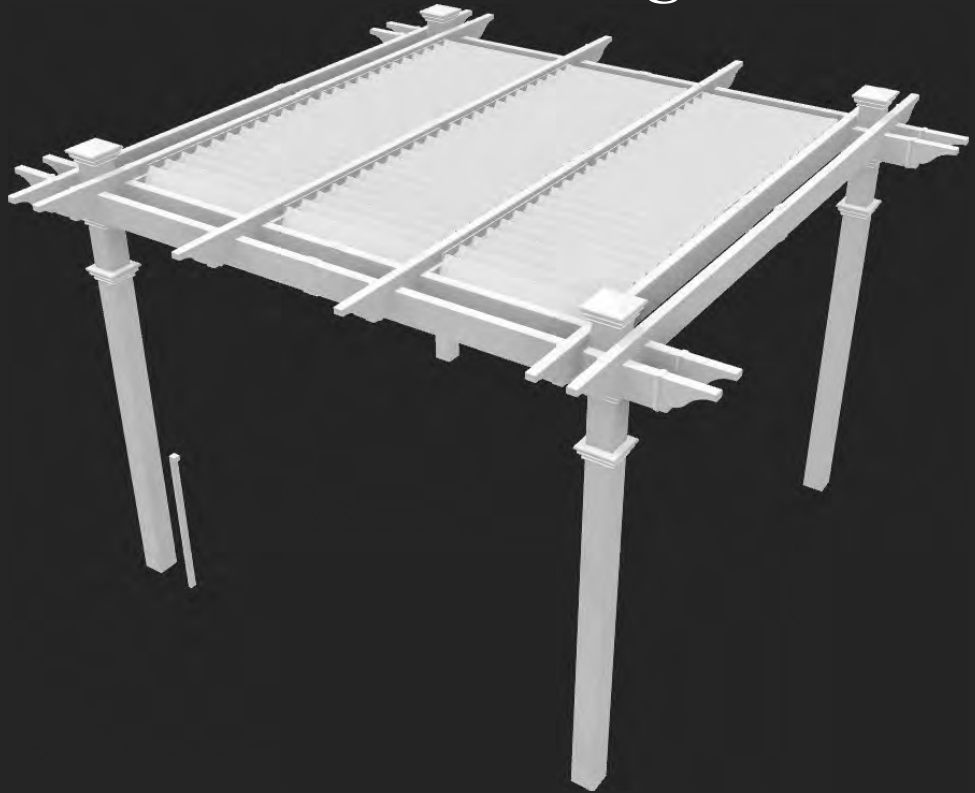


# 10 x 10 Flat Top Louvered Pergola



## ASSEMBLY GUIDE

Models: **Avalon**

### OPTIONAL ACCESSORIES

- Arch Kit System (2 Arches)
- Privacy Fence Panel System (2 Panels & Middle Post)
- Bolt Down Bracket Kit (4 for Pergola)



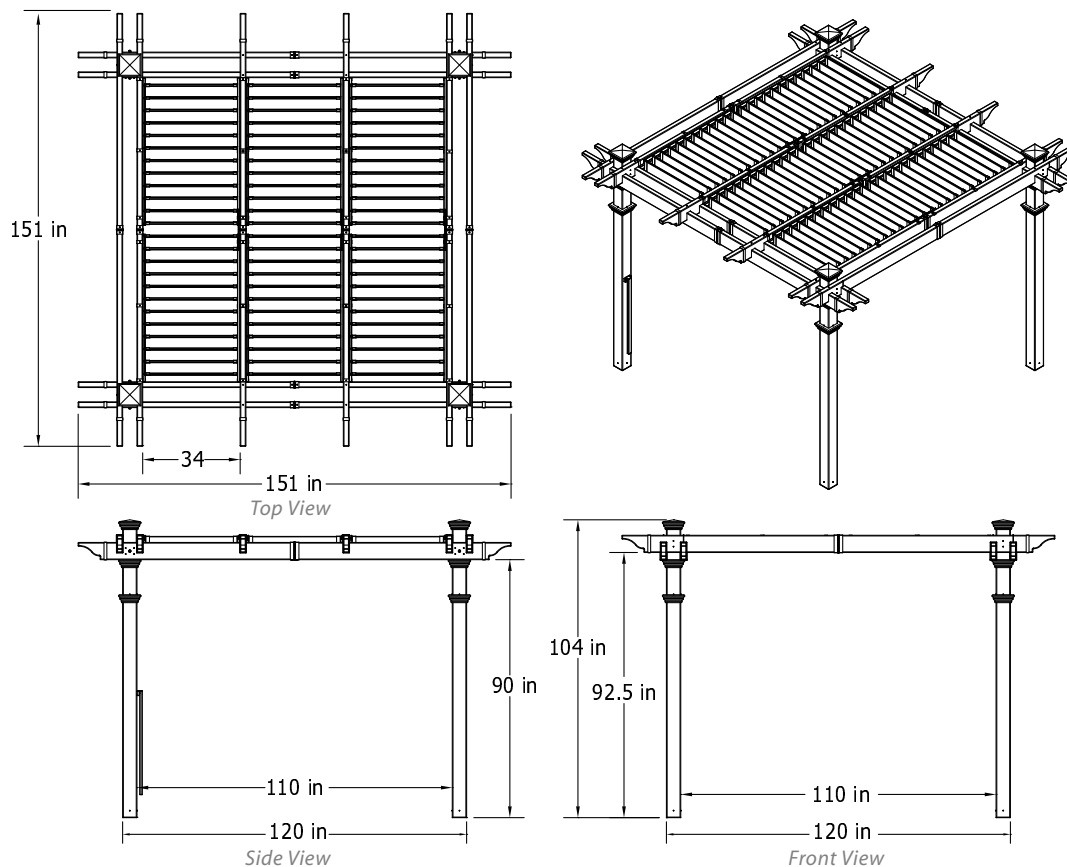
**New England<sup>®</sup>**  
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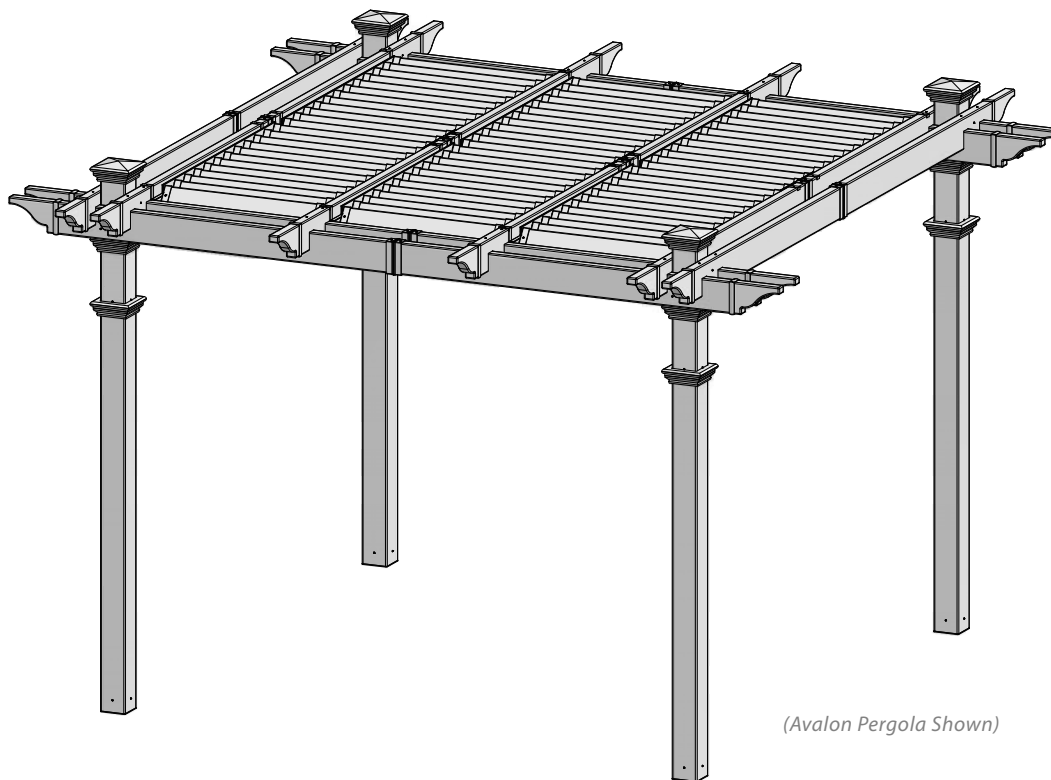
# Table of Contents

## 10 x 10 Flat Top Louvered Pergola

	PAGE
Introduction & Overview.....	<b>3</b>
Pergola Materials Overview.....	<b>4</b>
Pergola Materials Breakdown.....	<b>5</b>
Pergola Additional Materials List.....	<b>6</b>
Wood Post Layout & Installation for In-Ground Application.....	<b>7</b>
Wood Post Layout & Installation using Bolt Down Post Brackets for Concrete or Wood Surface.....	<b>8</b>
Vinyl Column Assembly and Installation Over Wood Posts.....	<b>9</b>
Vinyl Beam Assembly.....	<b>10</b>
Vinyl Rafter Assembly.....	<b>11</b>
Vinyl Beams & Rafter Placement.....	<b>13</b>
Louver Assembly .....	<b>15</b>
Turn Bar Holder Installation .....	<b>20</b>
Operations .....	<b>21</b>
Modification .....	<b>22</b>



## Introduction & Overview



(Avalon Pergola Shown)

### Getting Started

First off, allow us to say thank you for the investment you have made in one of our fine pergola kits. This kit is designed to be assembled and installed ideally by two people with basic carpentry knowledge and tools. Do not attempt alone, especially during the installation stage. Should you decide to moderately modify the dimensions of your pergola from the standard kit size, a circular saw with a sharp fine-tooth blade is all that is needed to cut, shorten or modify the vinyl components. When assembling components place on a non-abrasive surface (ie: shipping box) to avoid scratching. We recommend a 15' x 15' area for unobstructed assembling. You should not need to use excessive force when assembling any components.

### Planning & Preparing

The Avalon Pergola is made to stand independent of your home and you can either locate it near your house or let it stand alone in the garden. By keeping it unattached from your home you will not have to deal with moving existing gutters or matching eave heights. If you plan to build your pergola close to the house, please keep the outer extremities of the pergola a minimum of 4 inches back from your eaves.

What looks like the toughest part of this project is actually the easiest, the graceful, solid-looking columns. We've designed these columns to simply be slipped over treated 4x4 wood posts that are either embedded in concrete or directly mounted to a concrete or wood surface using our bolt down brackets. See pages 7, 8 and 9 for more details.

It is critical before you start that you consider the current slope of elevation where the pergola is planned - if there is any. Also utility or sprinkler line location is important to identify prior to excavating holes if necessary. You should also check to verify local building codes, ordinances, neighbourhood covenants, or height restrictions regarding this type of structure.

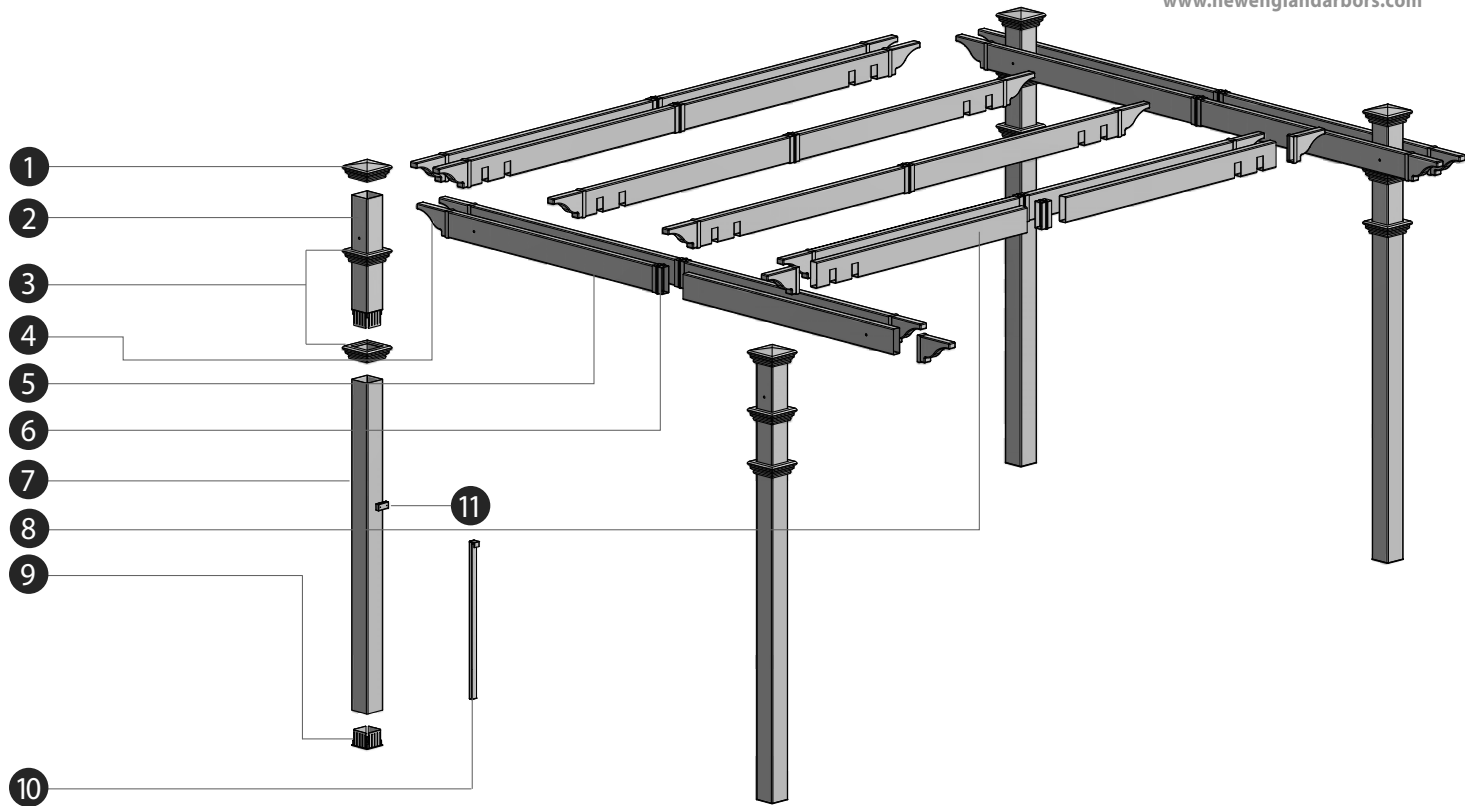
### Restriction of Use

*This product **is not** designed to carry additional weight loads such as swings, people or other objects.*

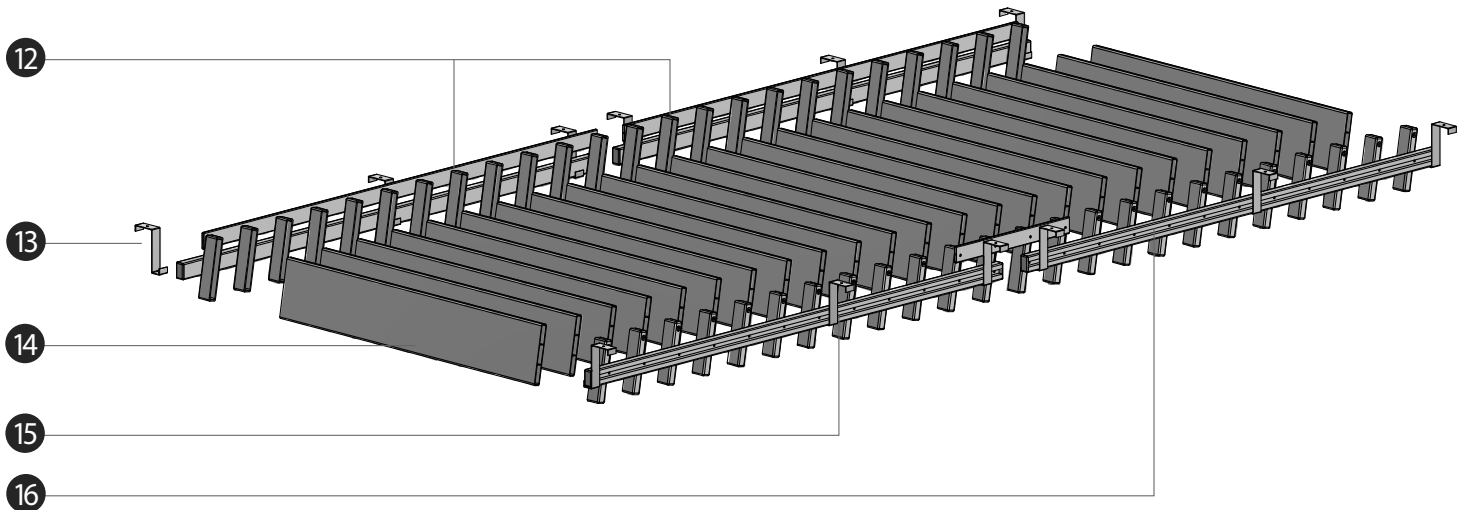
**Please take the time to read this instruction guide thoroughly prior to the construction of your pergola. If you have any questions, feel free to contact our technical dept by calling 1 800 282 9346, ext #20 (Mon to Fri 8:00 A.M to 4:00 P.M. EST).**

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# Avalon Pergola Materials Overview



- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1. Post Caps (4)</li> <li>2. Main Column Tops (4)</li> <li>3. Post Trims (8)</li> <li>4. Rafter &amp; Beam Decorative End Caps (20)</li> <li>5. Main Support Beams (8)</li> <li>6. Beam &amp; Rafter Joiners (10)</li> <li>7. Main Column Bottoms (4)</li> <li>8. Rafters (12)</li> </ul> | <ul style="list-style-type: none"> <li>9. One Way 4"x4" Internal Wood Post Guides (4)</li> <li>10. Louver Turn Bar (1)</li> <li>11. Turn Bar Holder (1) - <i>Found in Hardware Kit</i></li> <li>12. Pre-assembled Louver Bars - With Long Louver Bar (6)</li> <li>13. Steel Holder Brackets (36)</li> <li>14. Louver Boards (72)</li> <li>15. Pre-assembled Louver Bars - With Short Louver Bar (3)</li> <li>16. Pre-assembled Louver Bars - With No Louver Bar (3)</li> </ul> |
|--|--|

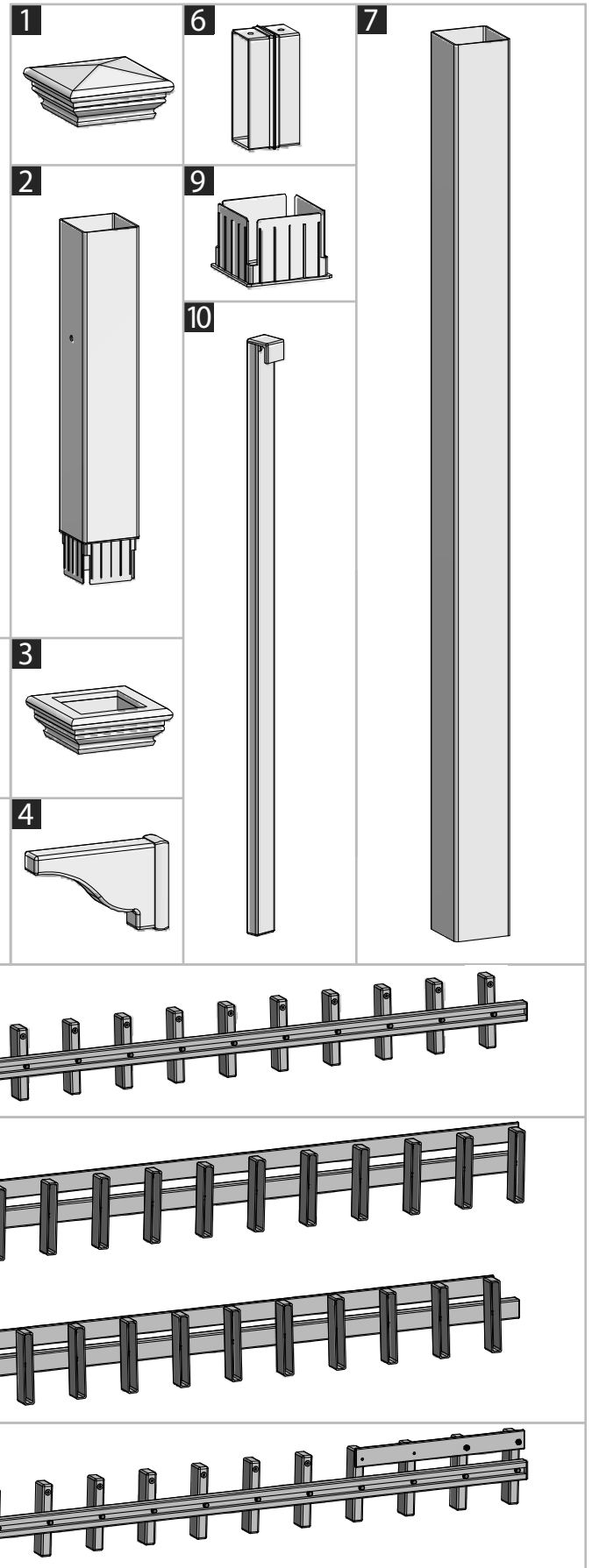


## Avalon Pergola Materials Breakdown

### Check Boxes (Total of 7) for These Contents

In the event of missing or defective parts please call our customer service dept. at **1 800 282 9346, ext #20** (Mon. to Fri. 8:00 AM to 4:00 PM EST).

1. Post Caps (4)
2. Main Column Tops (4)
3. Post Trims (8)
4. Rafter & Beam Decorative End Caps (20)
5. Main Support Beams (8)
6. Beam & Rafter Joiners (10)
7. Main Column Bottoms (4)
8. Rafters (12)
9. One Way 4"x4" Internal Wood Post Guides (4)
10. Louver Handle Bar (1)
11. Pre-assembled Louver Bars - With Long Louver Bar (6)
12. Steel Holder Brackets (36)
13. Louver Boards (72)
14. Pre-assembled Louver Bars - With Short Louver Bar (3)
15. Pre-assembled Louver Bars - With No Louver Bar (3)



Not to Scale

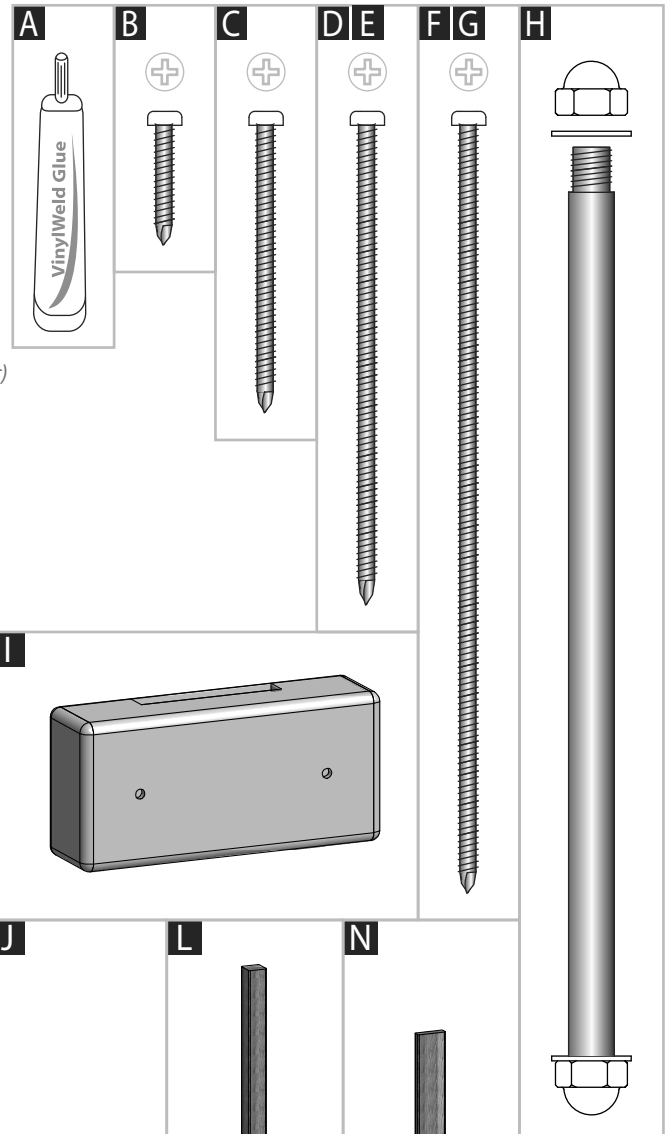
## Pergola Additional Materials List

### Hardware *(in plastic bag)*

**NOTE: WE HAVE INCLUDED 10% EXTRA SCREWS BEYOND WHAT IS IDENTIFIED BELOW.**

All Screws Included with this Kit are Self-Auguring.

- A.** Tube of Vinyl Weld Glue (2)
- B.** 5/8" Self-Auguring Stainless Steel Screws (72)  
*(to lock Louver Assembly to Steel Holder Brackets)*
- C.** 1 1/2" Self-Auguring Stainless Steel Screws (40) *(for Beam and Rafter Joiners)*
- D.** 2 1/2" Self-Auguring Stainless Steel Screws (32) *(to lock the Main Column Bottom and Tops to the Wood Posts)*
- E.** 2 1/2" Self-Auguring Stainless Steel Screws (2) *(to fasten Turn Bar Holder to post)*
- F.** 4" Self-Auguring Stainless Steel Screws (32) *(to lock Beams to the Posts)*
- G.** 4" Self-Auguring Stainless Steel Screws (40) *(to lock Rafters to the Beams)*
- H.** 9" Stainless Steel Bolt Assembly with Nuts and Washers (4)  
*(to lock the Column Tops and Beams together)*
- I.** Turn Bar Holder (1)



### Extra Materials You will Need

*(Purchase separately from www.newenglandarbors.com or retailer of our products)*

#### If Mounting Pergola on Concrete or Wood Deck

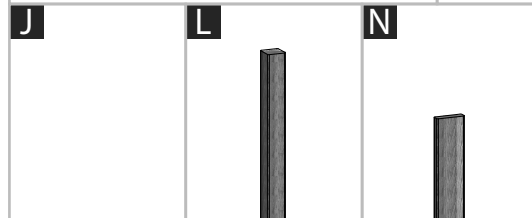
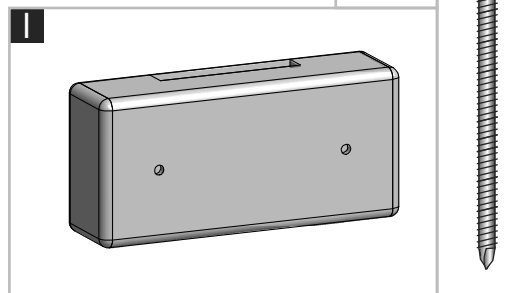
- J.** 4x4x8 Pressure-Treated Wood Posts (4) *(purchase at local building center)*
- K.** 4x4 Bolt Down Bracket Kit *(purchase from www.newenglandarbors.com or a retailer of our products)*

#### If Mounting Pergola in Ground

- L.** 4x4x12 Pressure-Treated Wood Posts (4) *(purchase at local building center)*
- M.** Concrete Ready Mix (4) *(purchase at local building center)*

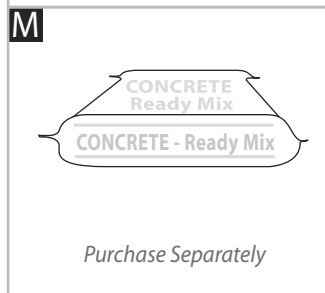
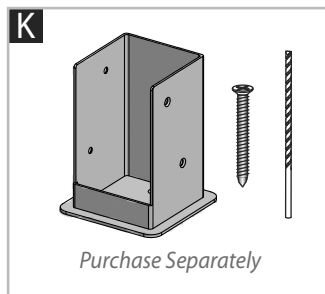
#### Rafter/ Beam Support (Required)

- N.** 2x6x10 Pressure-Treated Boards for Beams and Rafters (10) *(purchase at local building center)*



### Tools You Will Need

- Level
- Rubber Mallet / Hammer
- Tape Measure
- String Line
- Wood Stakes (4) *(temporary support for string line)*
- Step Ladders (2)
- Cordless Drill
- 1/2" Wood Drill Bit
- Circular Saw with Fine Tooth Blade
- Framing Level
- Framing Square
- Wrench / Socket Set



Not to Scale

## Wood Post Layout & Installation for In-Ground Application

This pergola can also be installed on a pre-existing wood or concrete surface using our bolt down bracket system with a 4x4 wood post (sold separately). See page eight for more details.

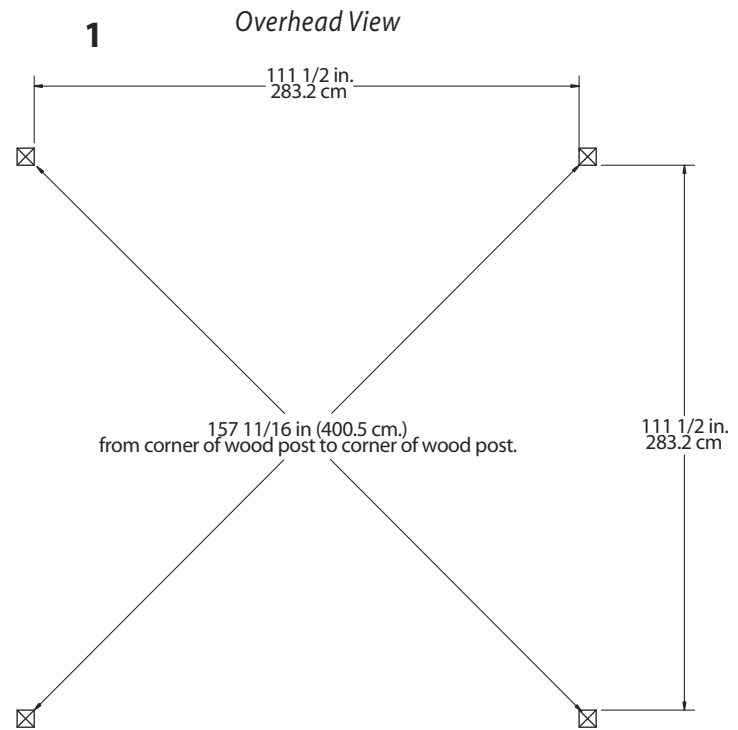
Post location and placement is the most critical step in the overall installation process. Please double check for the possibility of any underground utilities such as sprinkler, gas or telephone lines.

### STEP ONE

Measure and mark out the location of the pergola posts using string line and temporary wood stakes. Diagonal distances must be the same to ensure a square installation. Adjust string lines accordingly. The inside corner of the string lines will be the post location.

**Please Note:**

Should you decide to moderately modify the dimensions of your pergola from the standard kit size, a circular saw with a sharp fine-tooth blade is all that you need to cut, shorten or modify the vinyl components.



### STEP TWO

#### Install Wood Supporting Posts Directly into the Ground

**1**

After you have determined where the posts will be located, excavate 10" diameter x 36" deep post holes.

**2**

After holes are dug and cleaned, place the 4x4 wood post into a hole ensuring it's level and square to string lines. The final post height should be no more than 102" out of the ground. If a post is higher because of obstructed excavation of footings, please cut down in height accordingly.

**3**

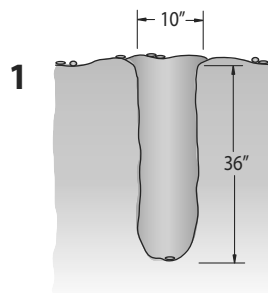
Fill the vacant hole with pre-mixed concrete all the way to within 3" of the top of the hole.

**4**

Repeat for all four posts.

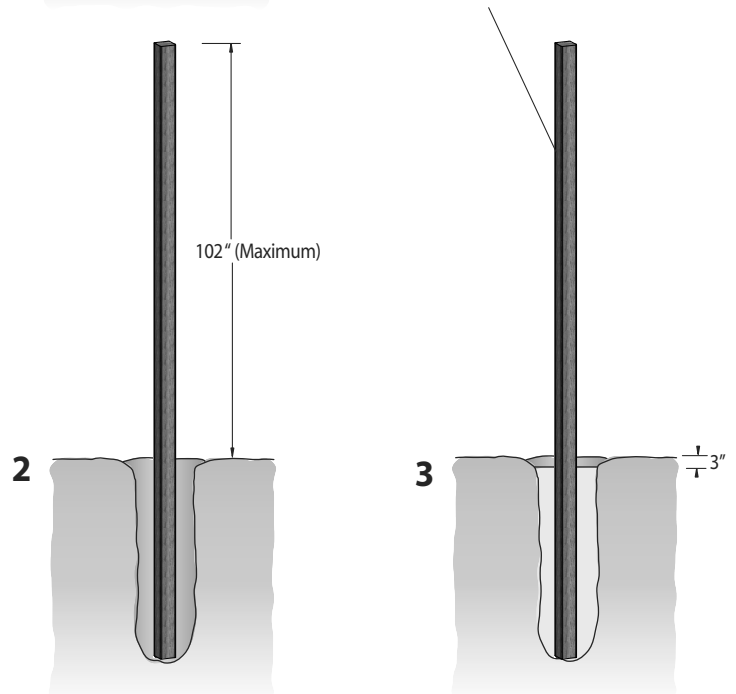
**Please Note:**

Some 4x4 pressure treated posts can be larger than 3 1/2 x 3 1/2 square due to twisting or cracking. We have allowed a tolerance for this in the internal one way and two way 4x4 wood post guides (see page 8). However in extreme cases you may need to shave down the top of the 4x4 wood post slightly to get the vinyl post started over the wood post. Before installing your wood posts in the ground, please check to confirm this and correct at this stage if necessary.



**Note:**

Shown is a 11'-6" length of wood, and since the 4x4 Pressure Treated wood comes in 12' lengths, do one of the following:  
a. Cut the wood down to 11'-6"  
b. Dig 42" deep holes instead of 36"



## OPTIONAL STEP

### Wood Post Layout & Installation Using Bolt Down Brackets for Concrete or Wood Surface

**1**

Measure and mark out the location of the pergola posts using string or chalk line. Diagonal distances must be the same to ensure a square installation. Adjust string lines accordingly. The inside corner of the string lines will be the post location.

**2**

Mark out the location of bolt down brackets using the base of the bracket accordingly.

**3**

Using the 5/32" masonry drill bit included in your bolt down bracket kit, drill 3" deep holes to allow installation of 2 1/2" concrete screws included in your kit.

**4**

Proceed to install three 2 1/2" concrete screws into the bottom base of the bolt down bracket.

**Please Note:**

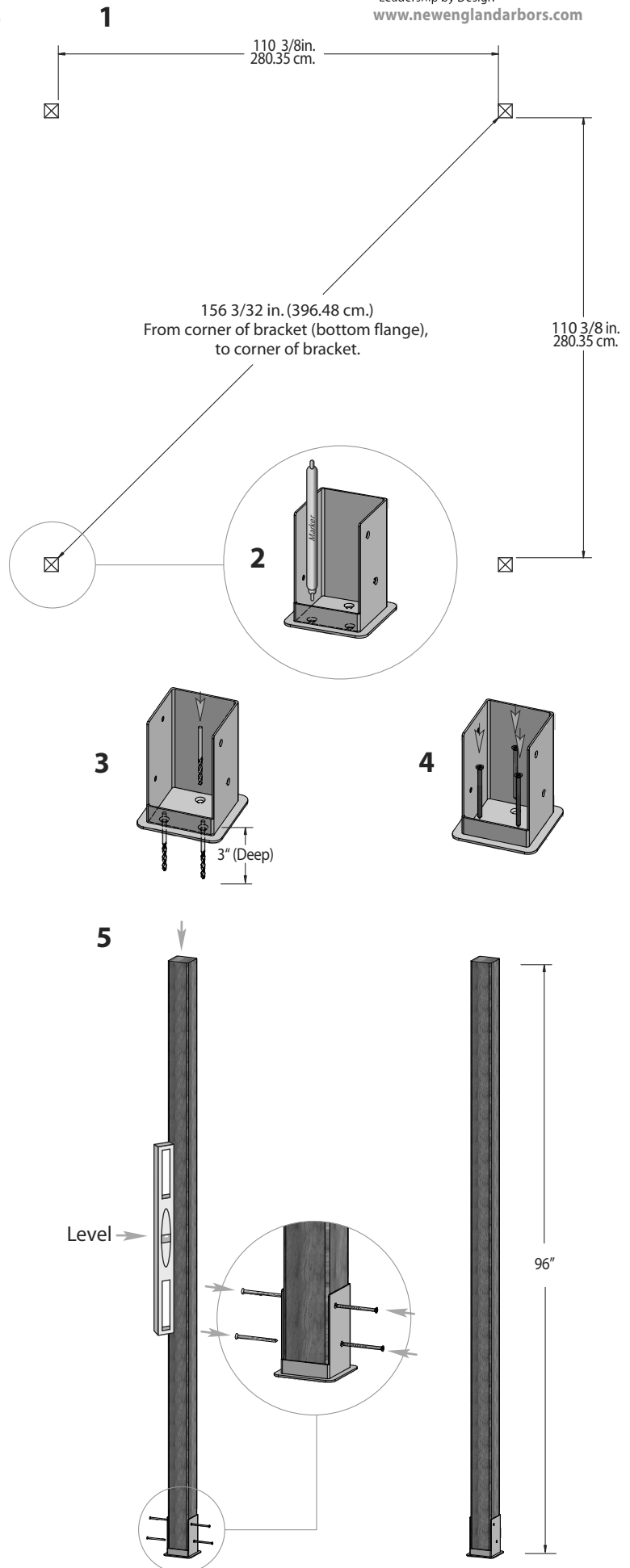
Concrete patios generally have sloped surface for water run-off. If this is the case, when you secure the bolt down bracket to the concrete, the bracket may be at an angle. This can be corrected for level using galvanized steel washers (not provided), acting as shims underneath the base to level - **VERY IMPORTANT OR PERGOLA BEAMS AND RAFTERS WILL NOT BE LEVEL.**

**5**

With the four post brackets installed plumb, proceed to set the 4x4x8' wood post in place. Secure using the wood screws included in the kit. Repeat for all 4 posts.

**Please Note:**

Some 4x4 pressure treated wood posts can be larger than 3 1/2 x 3 1/2 square due to twisting or cracking. We have allowed a tolerance for this in the post brackets and the internal one way and two way 4x4 wood post guides. However in extreme cases, you may need to shave down the end of your 4x4 wood post slightly to allow access.





## STEP THREE

### Vinyl Column Assembly & Installation Over Wood Posts

**1**

Using the vinyl weld glue, insert the One Way 4"x4" Internal Wood Post Guide in the one end of the main column posts. This step is only applicable if your wood 4x4 post are embedded into the ground. If your pergola is going to be installed on wood or concrete surface, please dispose of these four pieces.

**2**

Using a step ladder, guide the bottom vinyl columns over the wood 4x4 posts.

**3**

Using a step ladder guide the top vinyl columns over the wood 4x4 posts.

**Please Note:**

Ensure that predrilled holes at top of column are orientated correctly for future beam and rafter placement. See diagram at top of next page.

**3a** - If you also purchased base moldings (sold separately), they should be inserted at this stage.

**4**

Connect the bottom and top vinyl column by using vinyl weld and sliding together. **Please Note:** Vinyl Weld Glue has about a sixty second cure time and about a 20 minute dry time.

**5**

Slide the top and bottom post trim into position. Use the bottom post trim to cover the joint on the column. Slide the top post trim into approximate position  $\pm 3"$  below the hole in the top vinyl column assembly.

**6**

Finally adjust post heights accordingly to ensure future level installation of beams and rafters as necessary. If slope is severe causing a height difference between the posts, you may need to trim down the bottom of two or more of your vinyl columns as necessary.

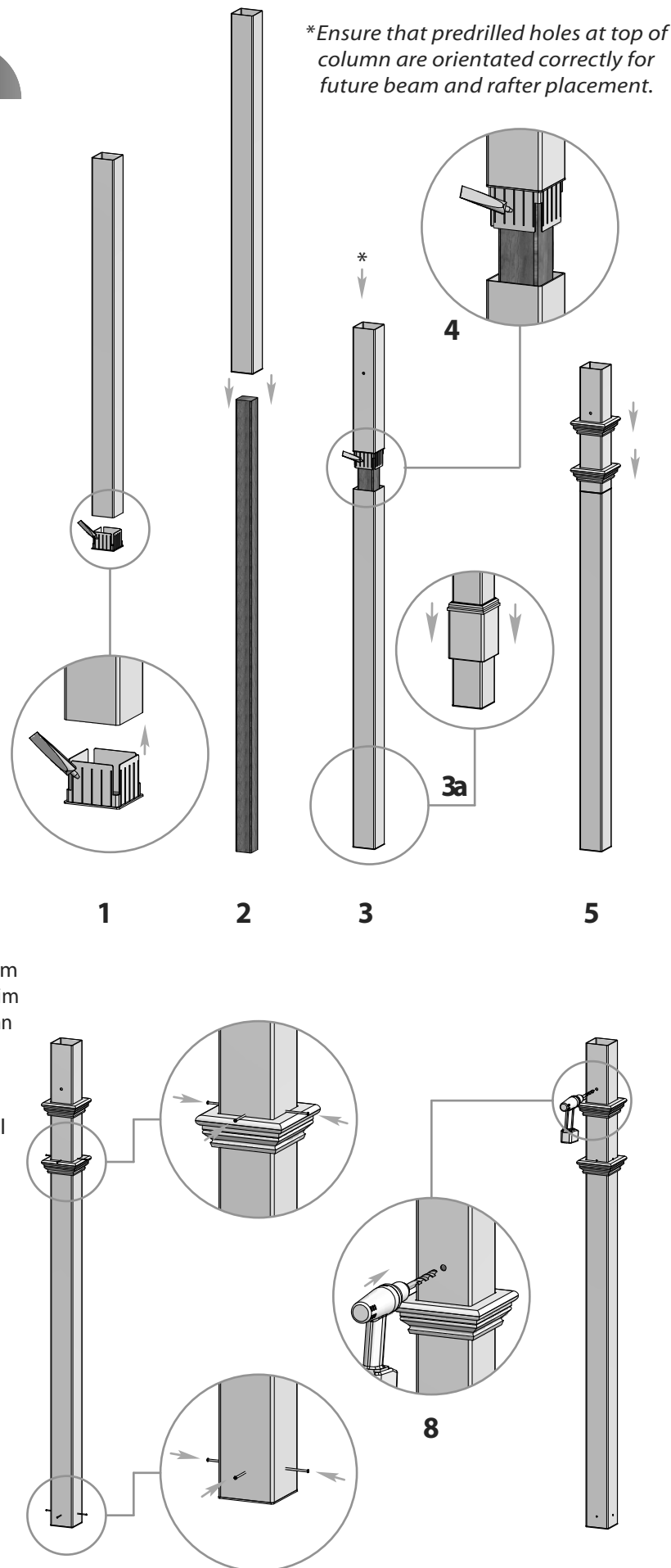
**7**

Secure the vinyl columns to the wood posts using 4 - 2 1/2" self-auguring stainless steel screws at 8" up from the base of the posts, and 4 - 2 1/2" self-auguring stainless steel screws just above the trim cap as illustrated. This will prevent possible uplift during high winds, etc.

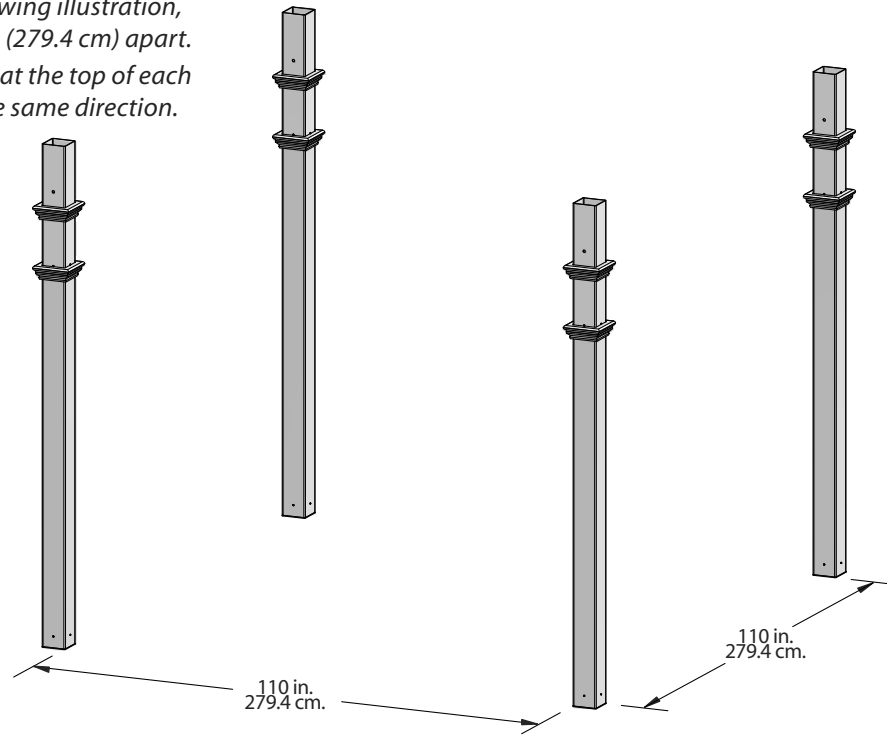
**8**

Using the predrilled hole as a template, drive a 1/2" hole through the wood post. Make sure to drill straight through to the hole on the opposite side of the post.

\*Ensure that predrilled holes at top of column are orientated correctly for future beam and rafter placement.



At this stage, the columns should be properly installed as per the following illustration, with the columns 110" in. (279.4 cm) apart. Also, notice that the holes at the top of each post should be facing the same direction.



## STEP FOUR

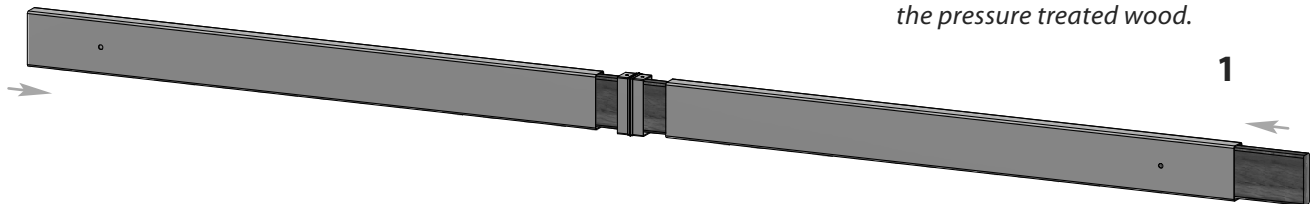
### Vinyl Beam Assembly

**1**

Insert one 2x6x10' pressure treated wood into a beam section followed by the joiner and another beam section.

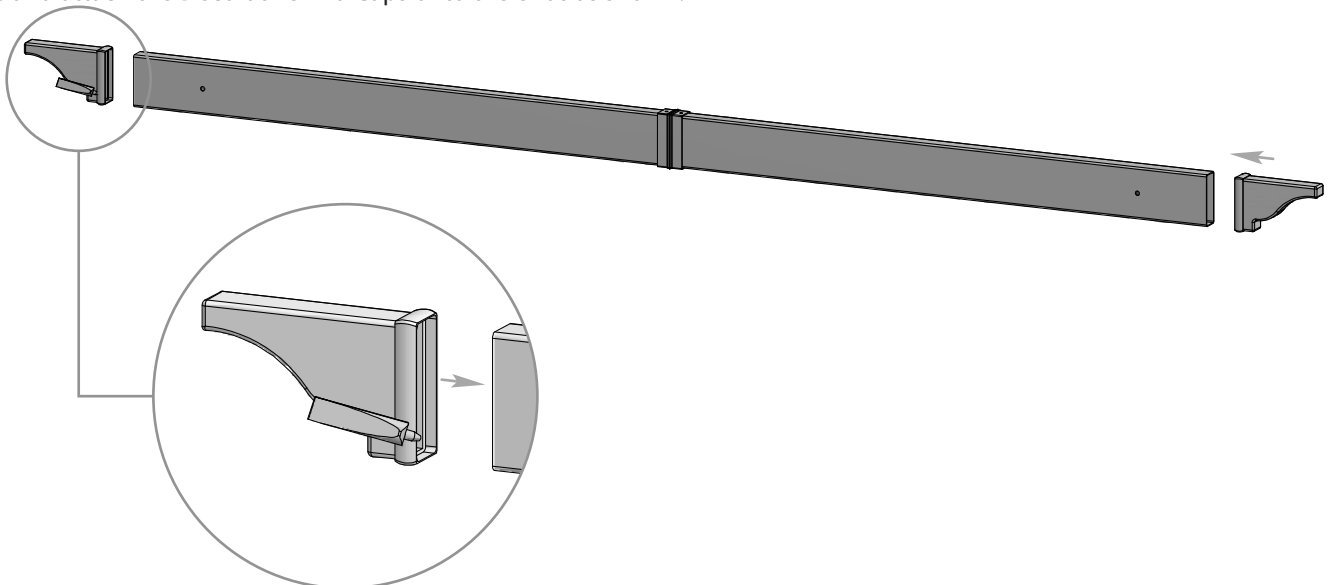
**Critical Note:**

Note the location of the pre-drilled hole on beams as pictured aside. These holes will align with the hole on the posts. Both ends of beam section should extend approximately 6" over the pressure treated wood.



**2**

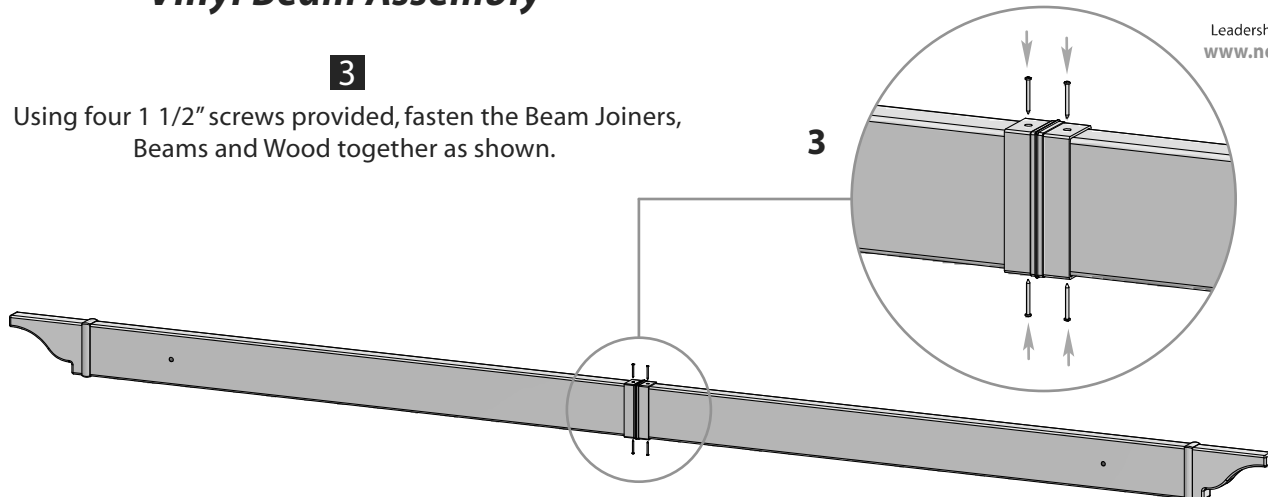
Glue and attach the Decorative End Caps onto the ends as shown.



## Vinyl Beam Assembly

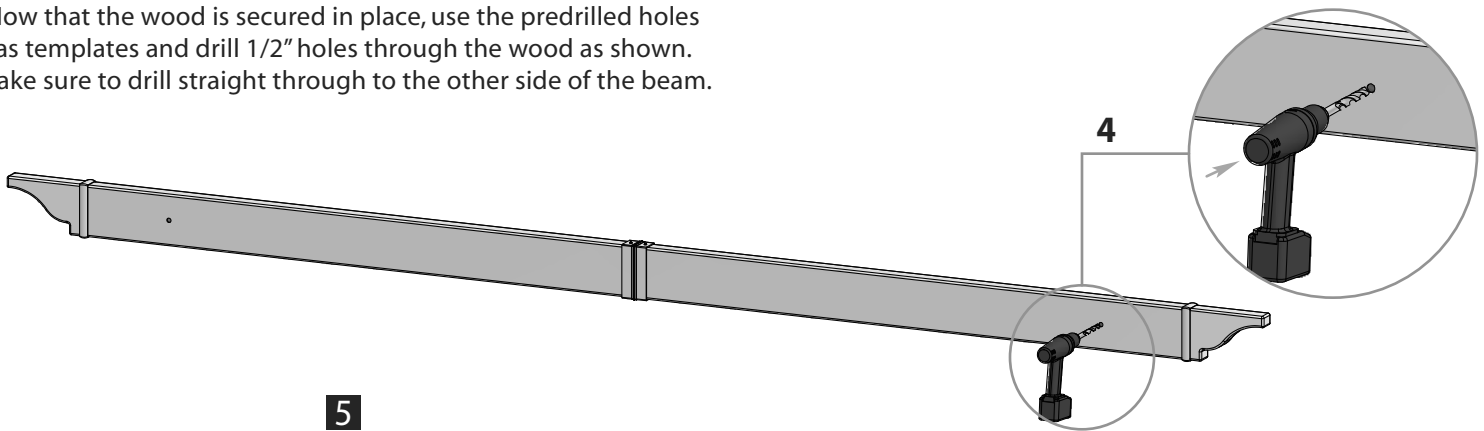
**3**

Using four 1 1/2" screws provided, fasten the Beam Joiners, Beams and Wood together as shown.



**4**

Now that the wood is secured in place, use the predrilled holes as templates and drill 1/2" holes through the wood as shown. Make sure to drill straight through to the other side of the beam.



**5**

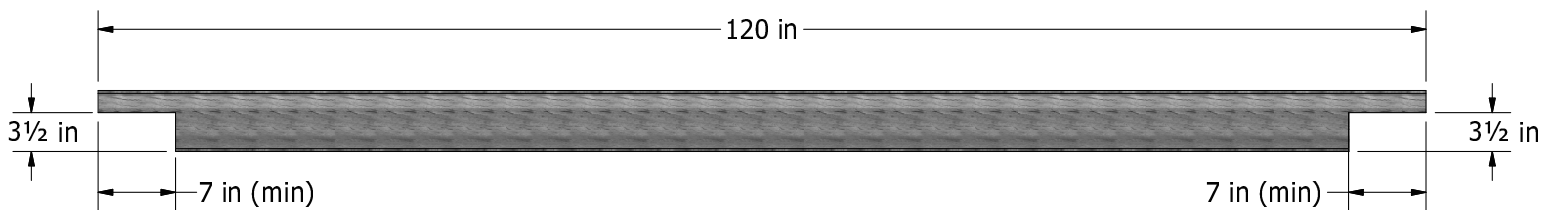
Repeat for all four beams.

## STEP FIVE

### Vinyl Rafter Assembly

**1**

To accommodate the notches on the rafters, first the wood inserts must be notched out as shown below:

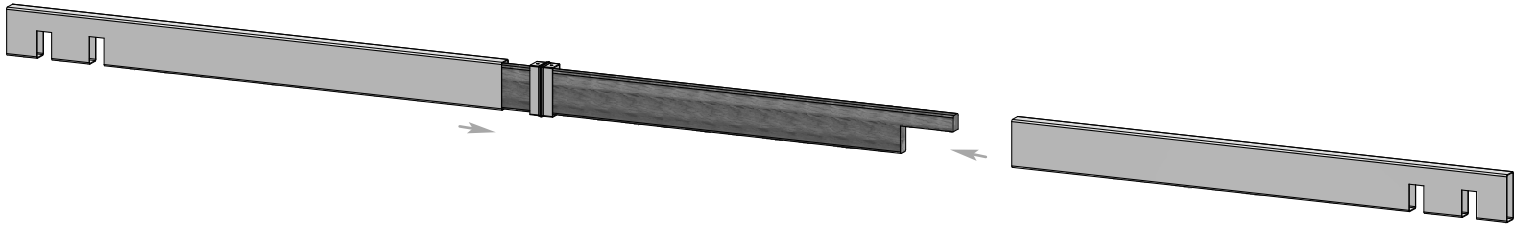


Six will be needed.

# Vinyl Rafter Assembly

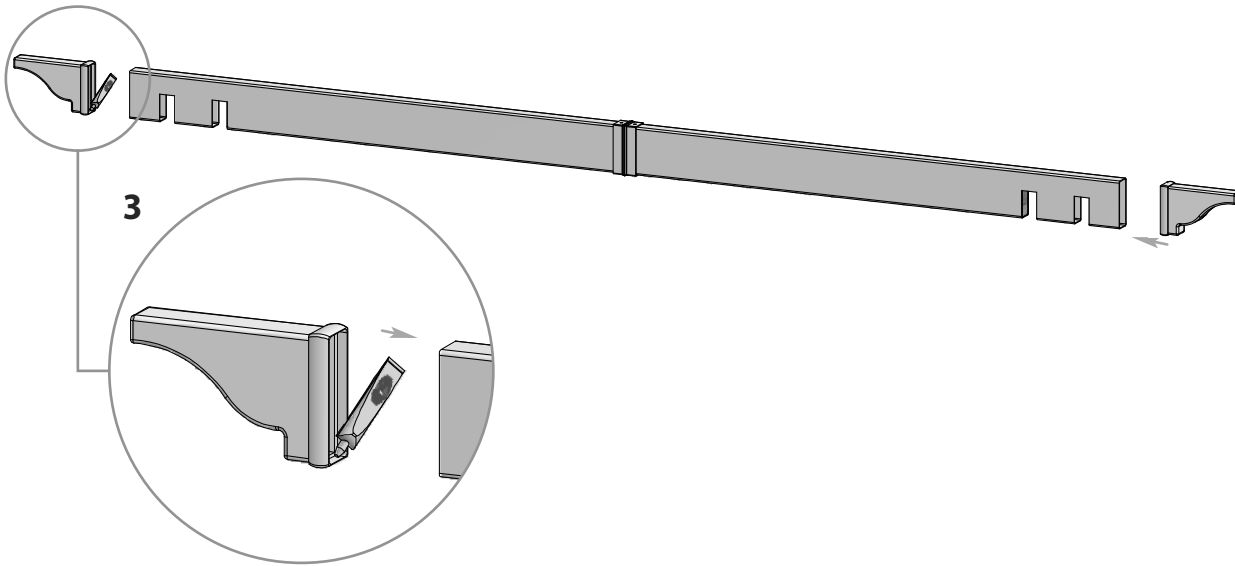
**2**

Insert one of the notched 2x6x10 pressure treated wood into a beam section follow by the joiner and another beam section. Make sure the notch is at the bottom as shown.



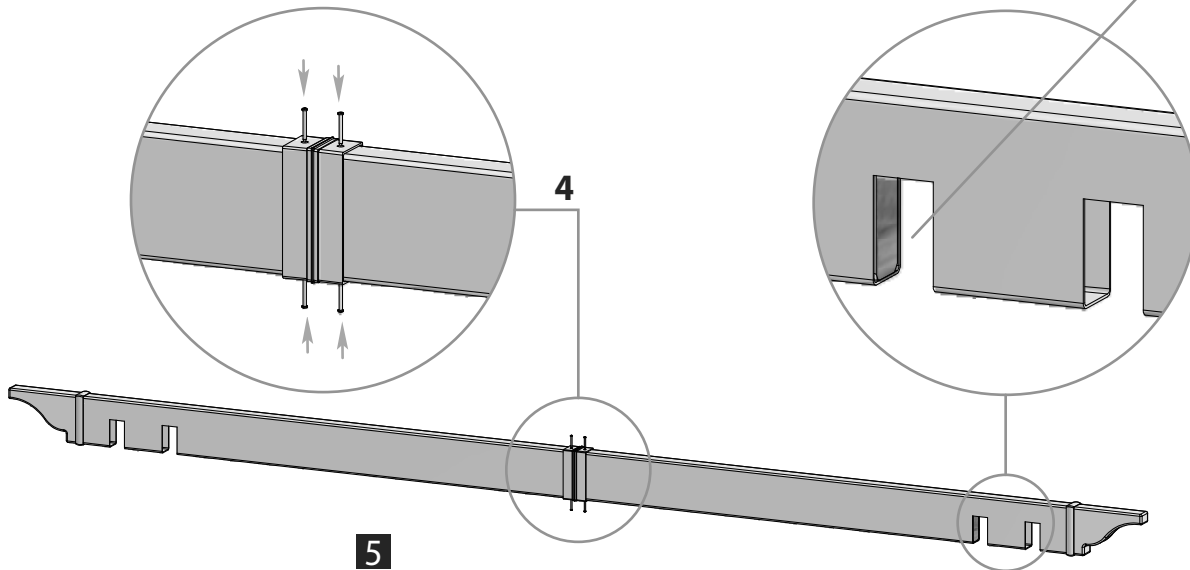
**3**

Glue and attach the Decorative End Caps onto the ends as shown.



**4**

Using four 1 1/2" screws provided, fasten the Rafter Joiners, Rafters, and Wood together as shown.



**Note:**  
Ensure the wood insert is not protruding into the notched area of the Rafter.

**5**

Repeat for all six rafters.

## STEP SIX

### Vinyl Beams & Rafter Placement

Using a helper and two ladders proceed to complete the following steps:

**1**

Raise one Beam Assembly at a time and insert the Bolt Assembly into the holes to hold into place as shown. Some force may be required to get the bolt through. Do not tighten the nuts until all four beams are in place, instead, simply hand-tighten them.

Once all four beams are in position, use two wrenches to lock the beams into place.

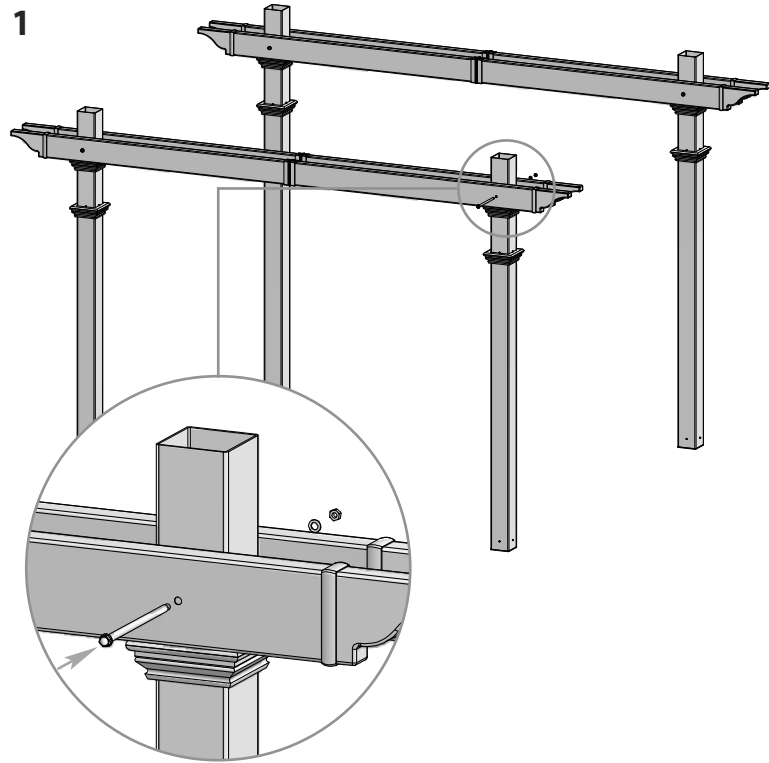
**2**

Fasten the Beams onto the Posts using the 4" screws provided. (8 screws per post)

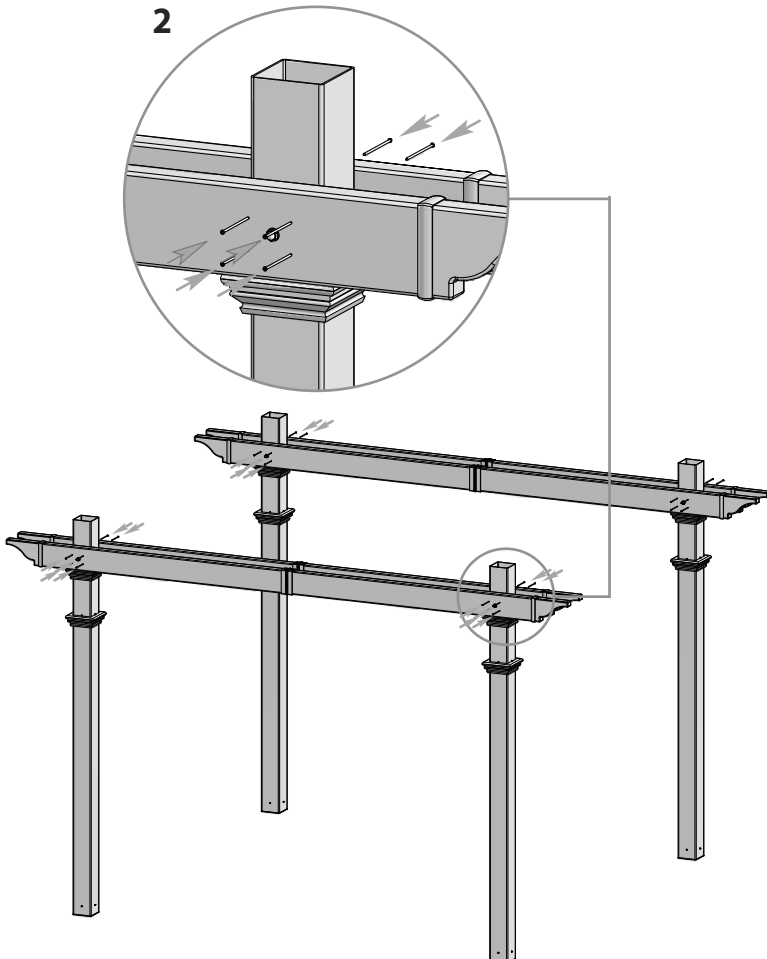
**3**

Place the rafters onto the beams as shown. Space the middle two rafters 34" apart (Critical for louver placement)

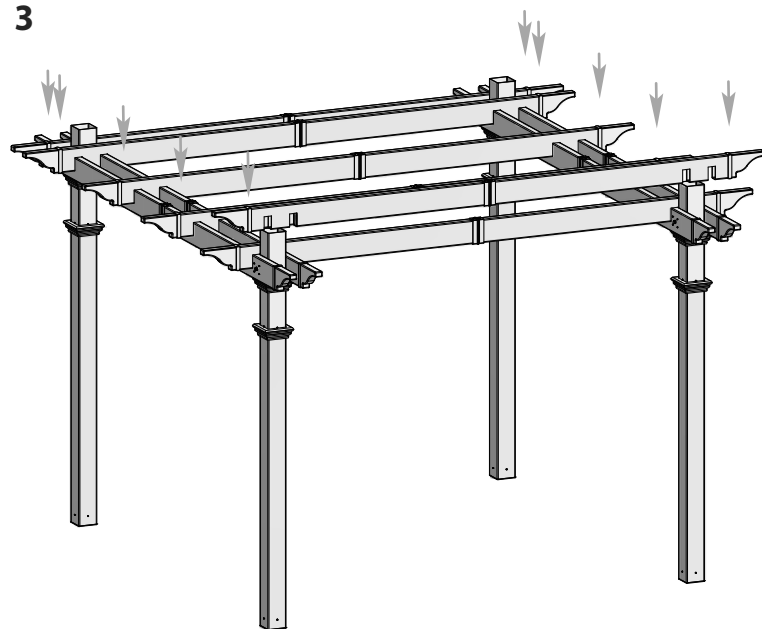
**1**



**2**



**3**



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## Vinyl Beams & Rafter Placement

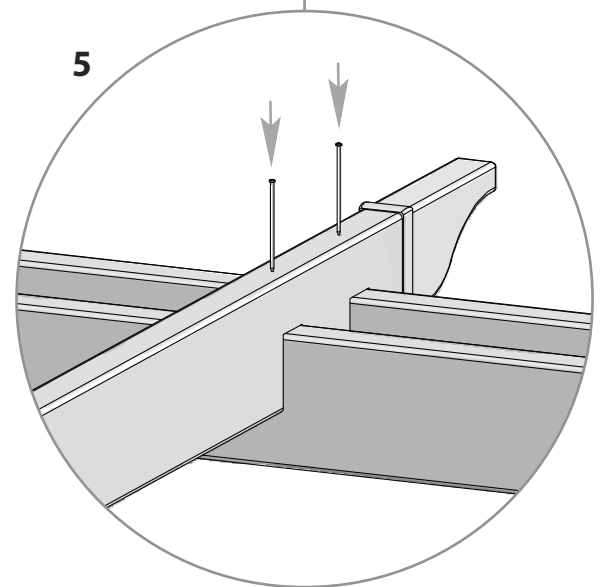
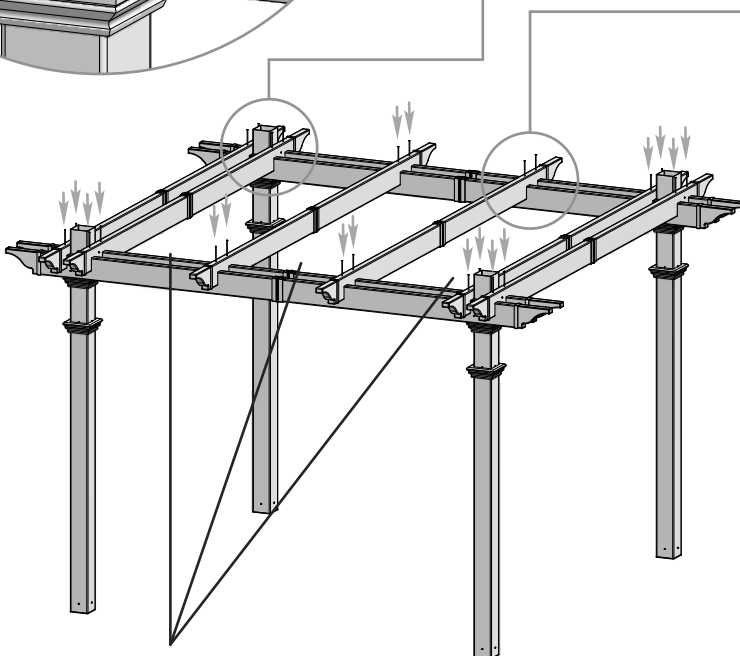
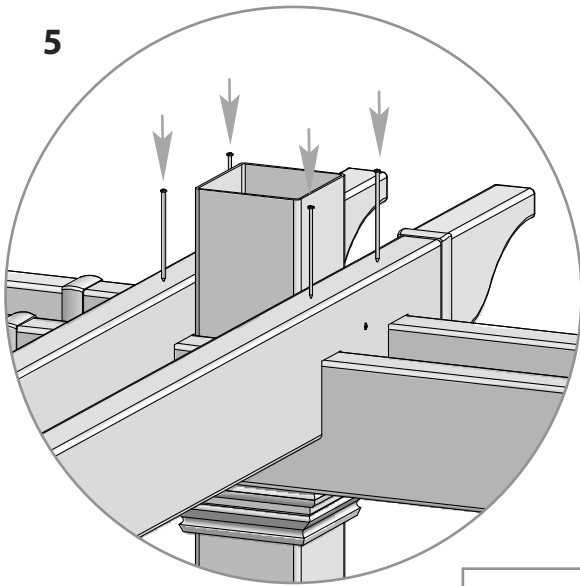
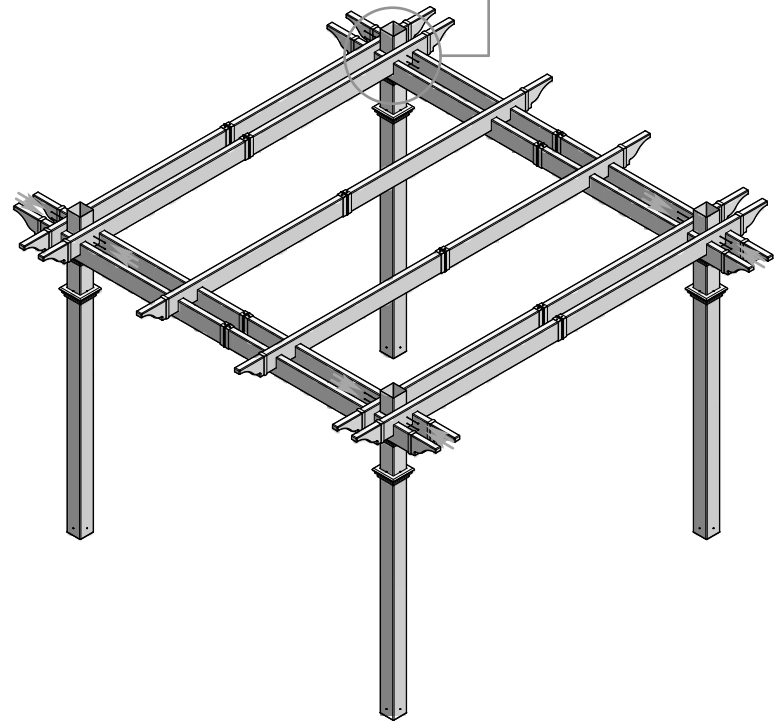
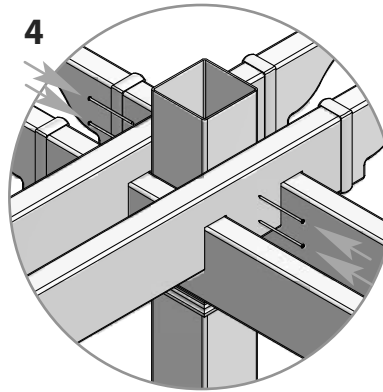
4

Fasten the Rafters to the Posts using the 4" screws provided (4 per post).

5

Fasten a 4" screw at each intersection where the Beams and Rafters intersect as shown. 24 screws will be needed.

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**\*Important: Make sure the distances between rafters are 34"**

# STEP SEVEN

## Louver Assembly

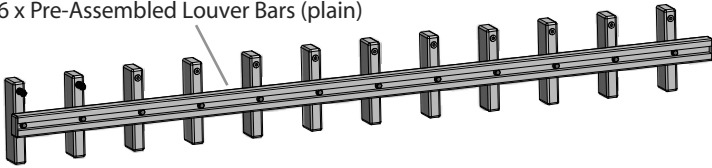
**1**

This kit contains four different pre-assembled Louver Bars as shown below and aside:

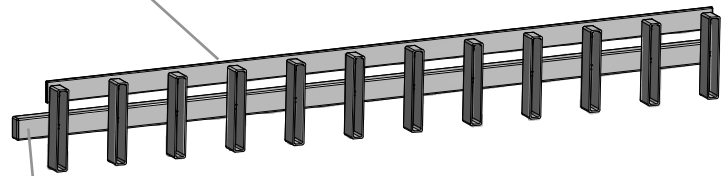
- 3 x Pre-Assembled Louver Bars (plain)
- 6 x Pre-Assembled Louver Bars with Long Louver Bar\*
- 3 x Pre-Assembled Louver Bars with Short Louver Bar

*\*) There are two variations of Louver Bar Assemblies with Long Louver Bar.*

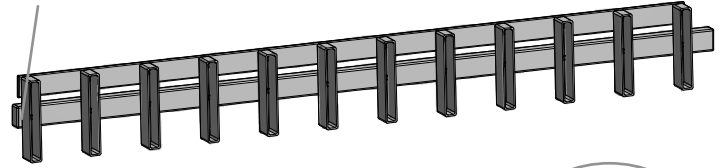
6 x Pre-Assembled Louver Bars (plain)



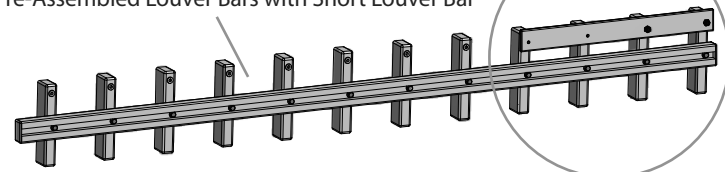
Pre-Assembled Louver Bars with Long Louver Bar



*Note the difference in distance to the first Louver Bracket*

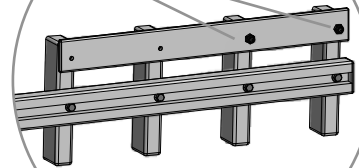


Pre-Assembled Louver Bars with Short Louver Bar

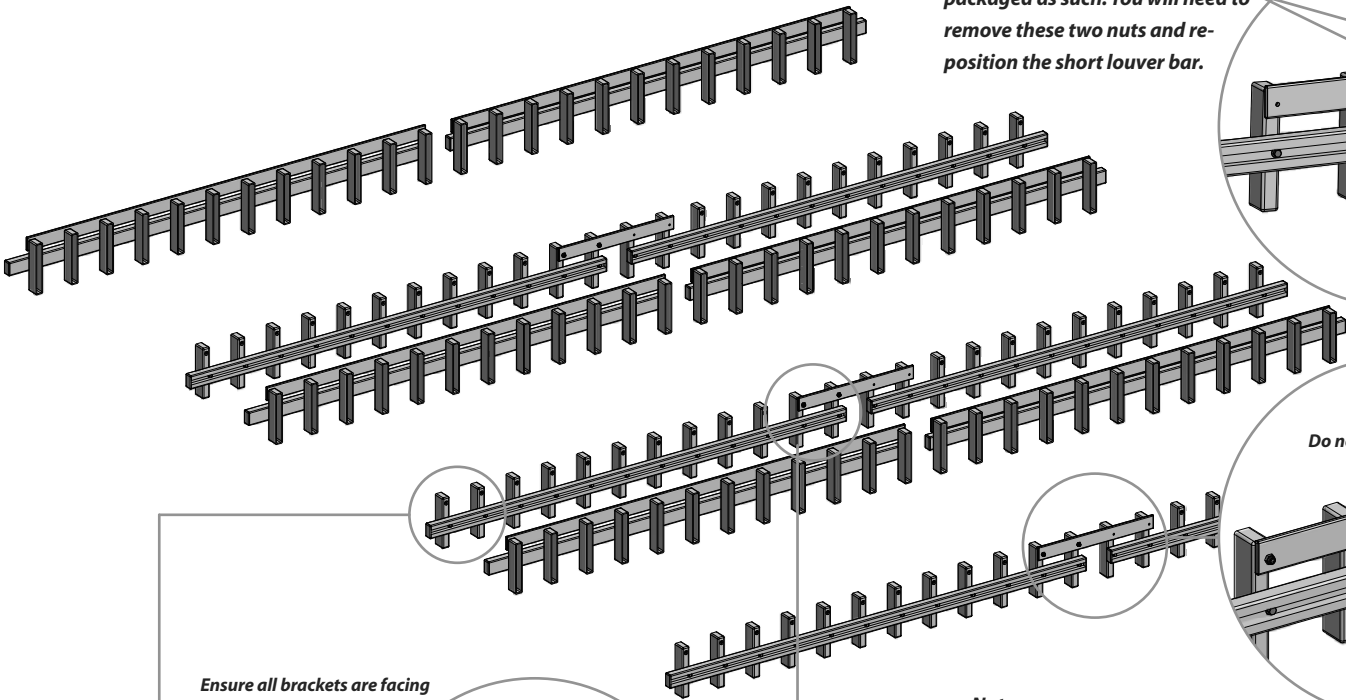


**Note:**

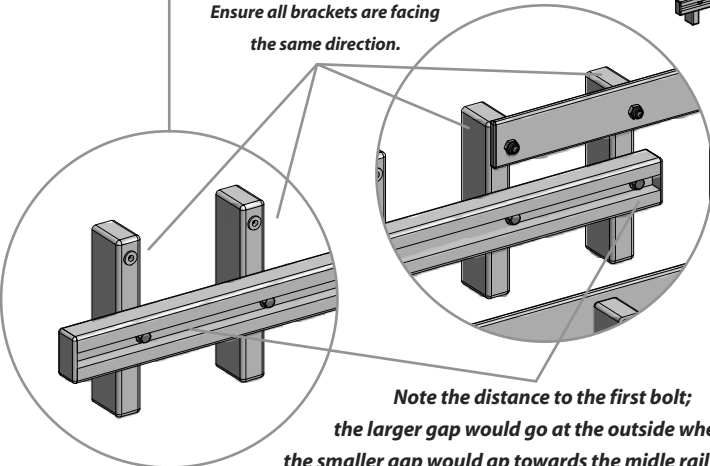
*The short louver bar assembly will be packaged as such. You will need to remove these two nuts and re-position the short louver bar.*



Identify and layout the twelve louver bars assembly as shown below:

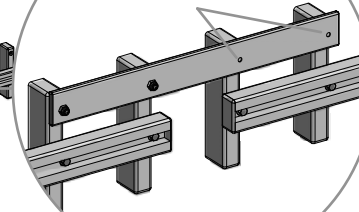


*Ensure all brackets are facing the same direction.*



*Note the distance to the first bolt; the larger gap would go at the outside whereas the smaller gap would go towards the middle rail assembly.*

**Do not re-attach nuts**



**Note:**

*Reposition the short louver bar as shown but do not bolt to the adjacent louver assembly at this point. Important ! : the holes on the louver bars are offset. ensure the holes are at the bottom as shown.*

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## Louver Assembly

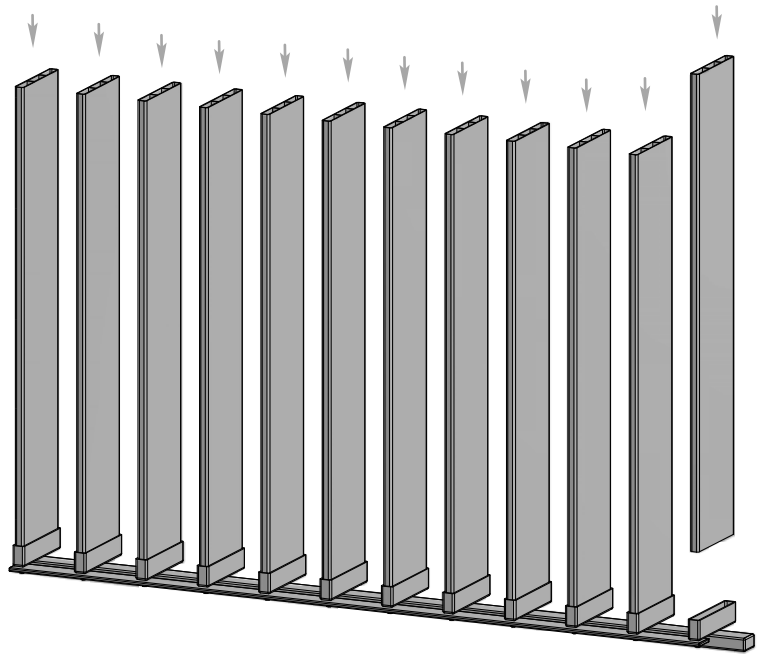
**2**

Insert the Louver Boards one by one. Make sure each board is inserted completely into the brackets.

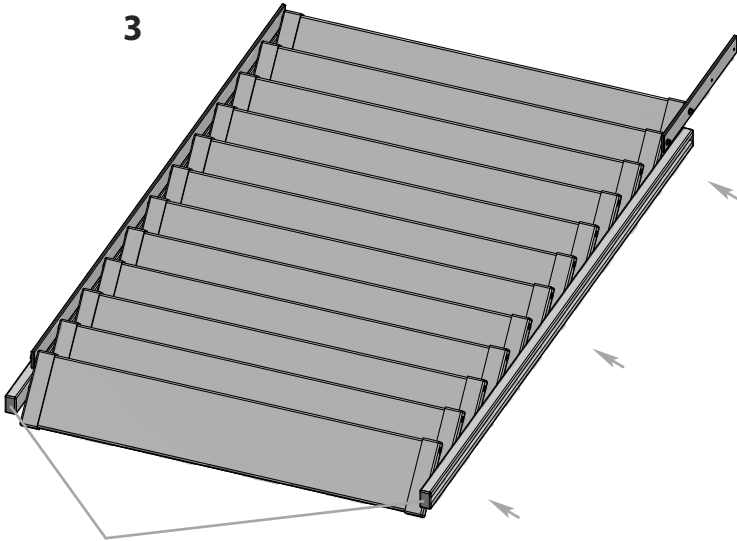
**3**

Attach the matching Pre-assembled Louver Bar. Pressure fit the boards one by one.

**2**



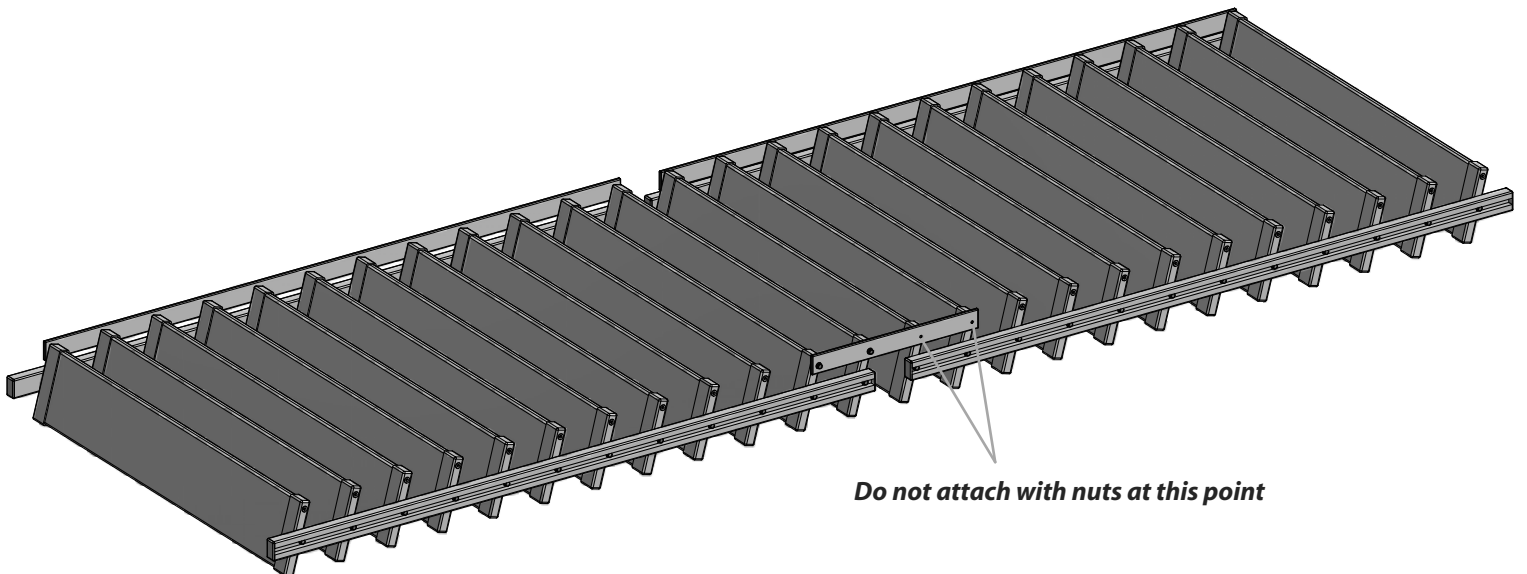
**3**



*The ends of the louver bars with large space should be at the same end.*

**4**

Repeat for all six sub-sections. At this point, you should have three full sections of Louvers as shown below:



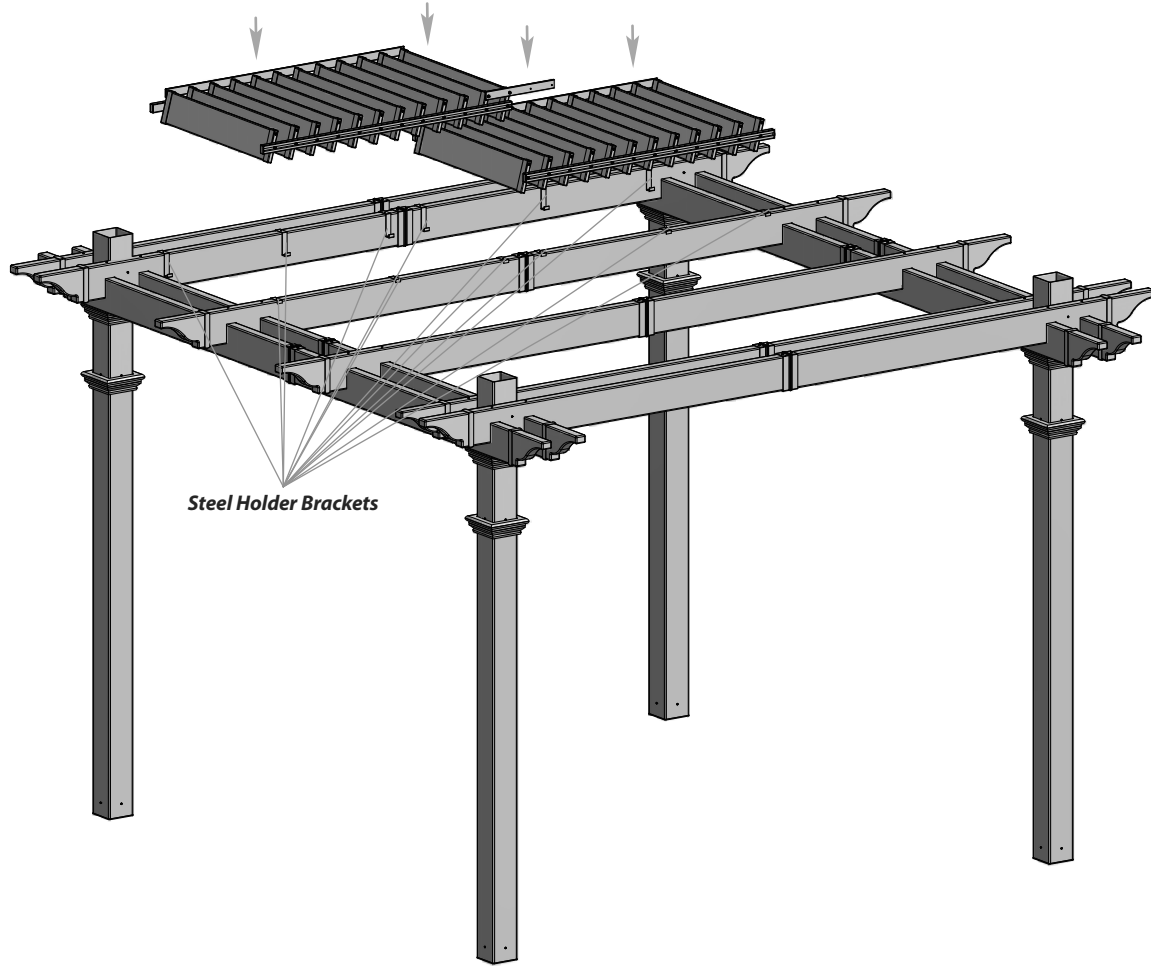
*Do not attach with nuts at this point*



## Louver Assembly

5

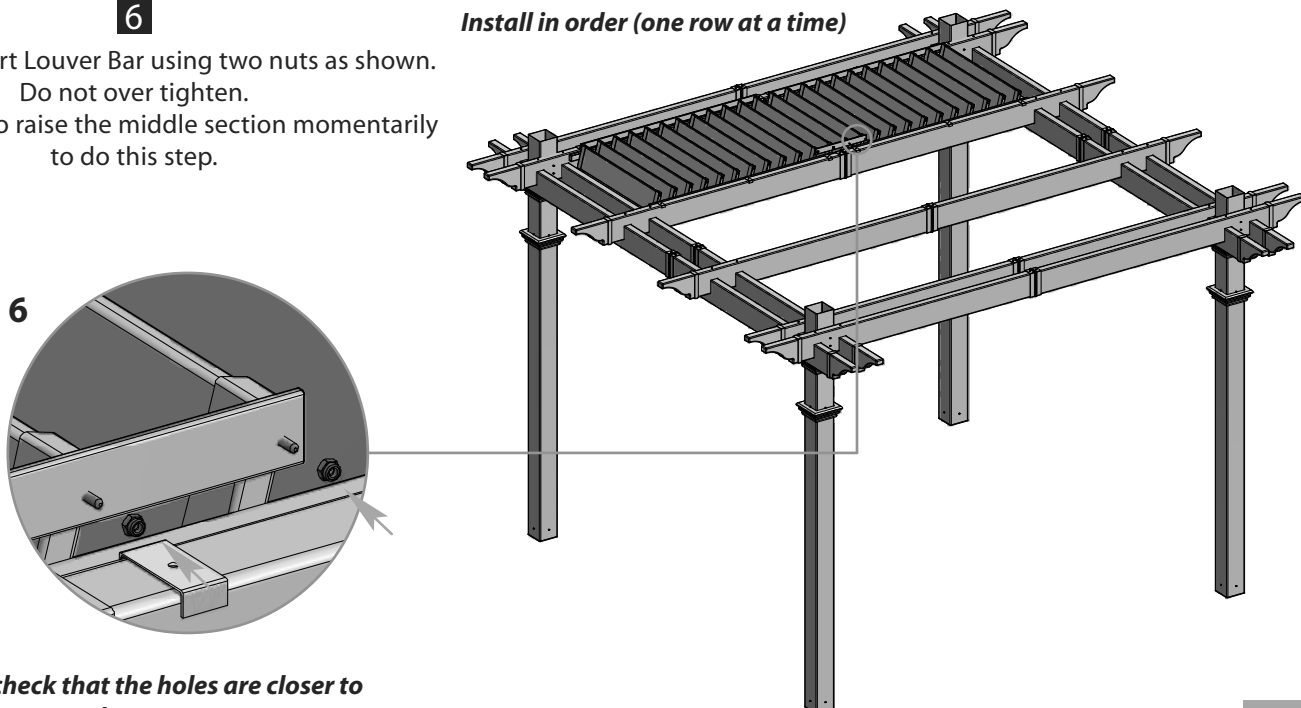
Place twelve Steel Holder Brackets as shown below and carefully lower the Louver assembly onto the steel brackets. Do not screw the Steel Holder Brackets in place at this point.



6

Fasten the Short Louver Bar using two nuts as shown. Do not over tighten. You will need to raise the middle section momentarily to do this step.

*Install in order (one row at a time)*



**Note: check that the holes are closer to the bottom as shown.**

## Louver Assembly

**7**

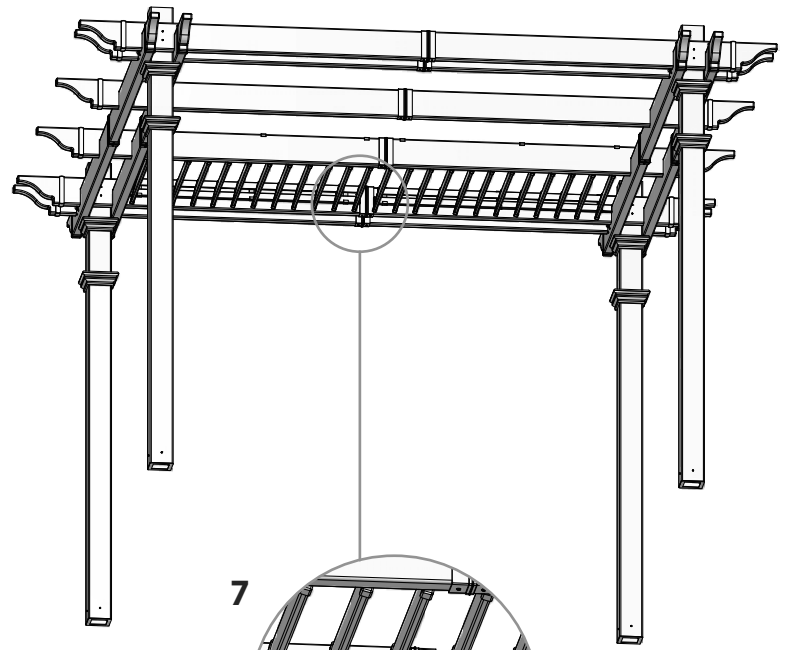
Slide the Steel Holder Brackets to a spot which will not interfere with the operations of the louvers. 'Open' and 'Close' the louvers to test and make sure the steel brackets are not constraining the operation.

**8**

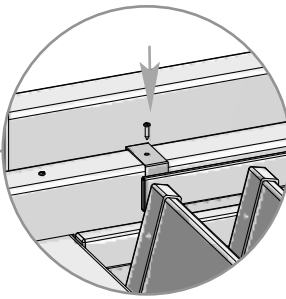
From the top, fasten the steel brackets in place using 5/8" screws. A total of 12 screws will be needed.

**9**

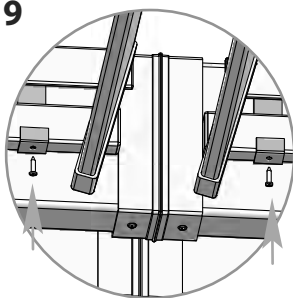
Repeat for the underside of the steel brackets. Another 12, 5/8" screws will be needed.



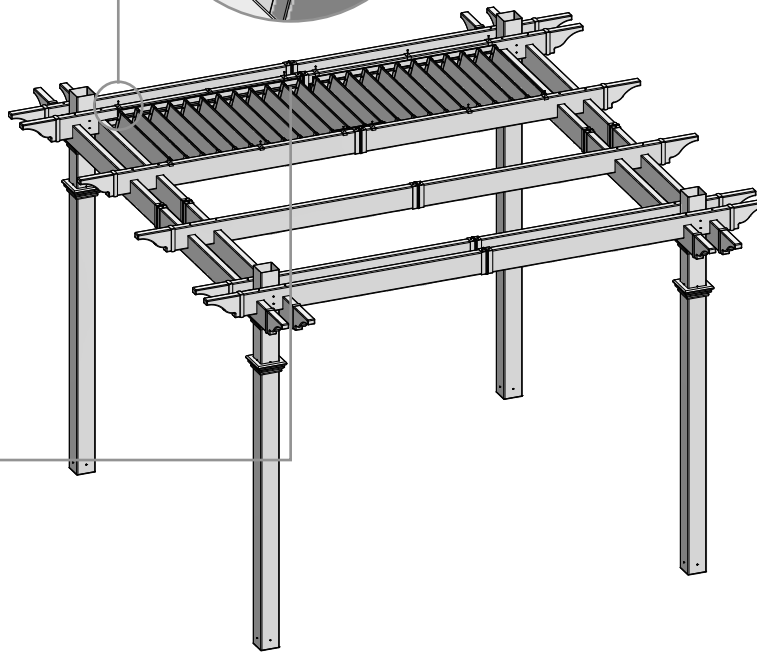
**8**



**9**



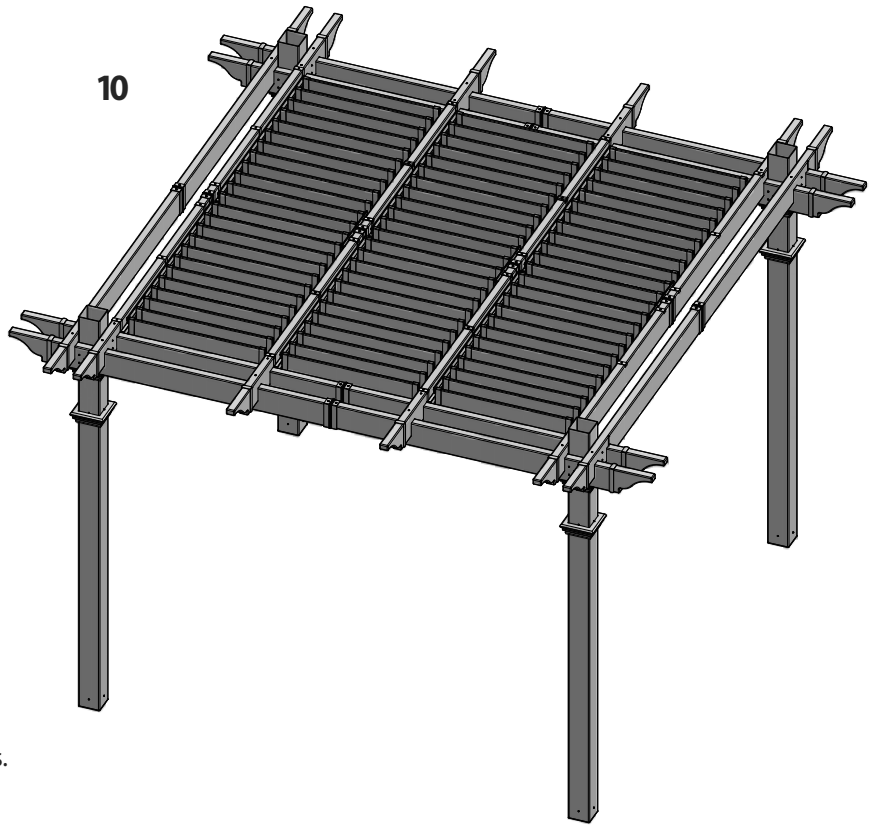
**Bottom View**



## Louver Assembly

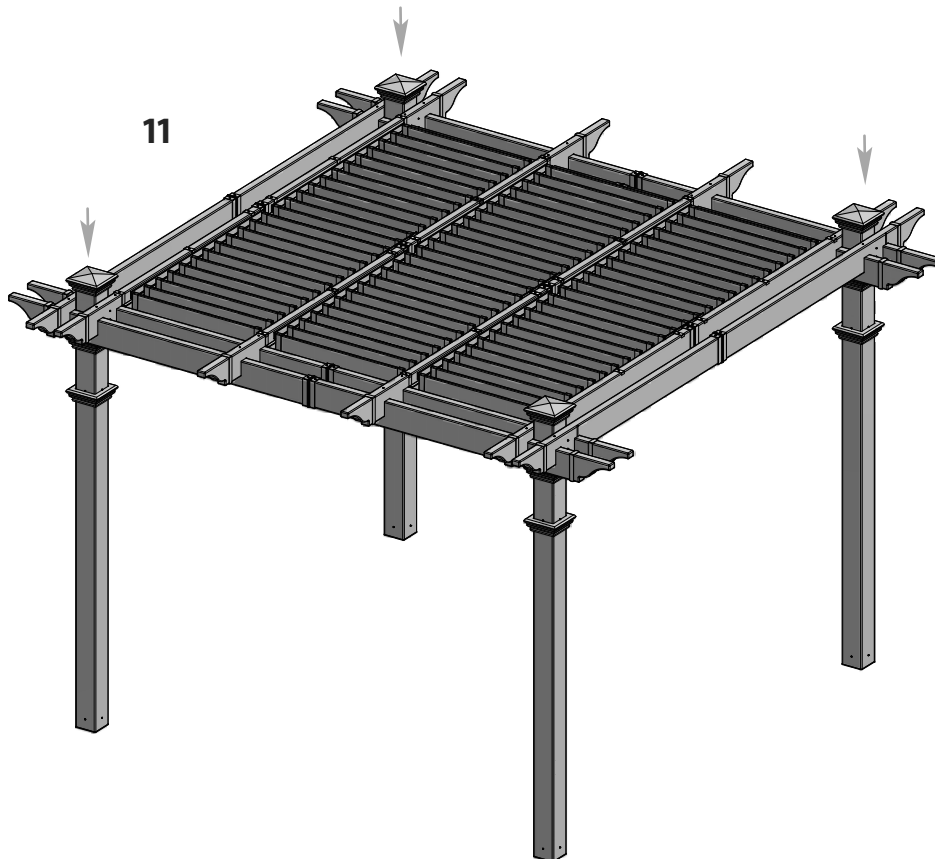
**10**

Repeat for other two rows.



**11**

Place the Post Caps onto the posts.



## STEP EIGHT

### Turn Bar Holder Installation

The Turn Bar Holder can be found with the hardware kit and is designed to provide a place to keep the Turn Bar when not in use.

**1**

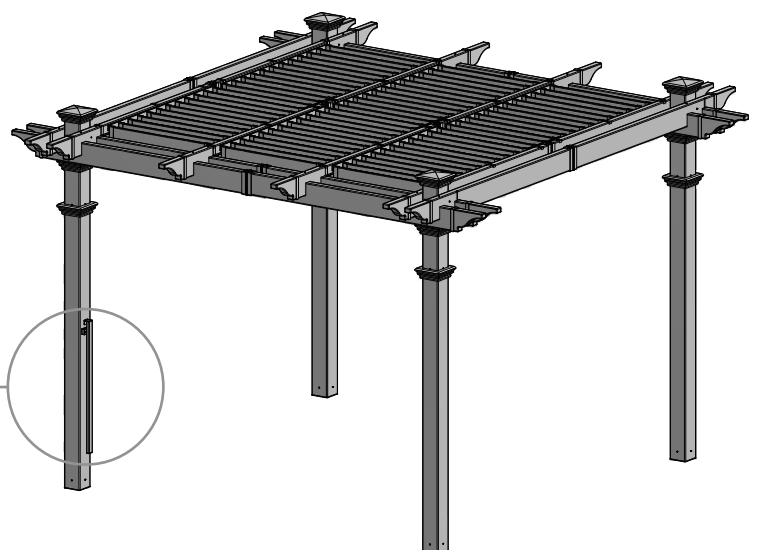
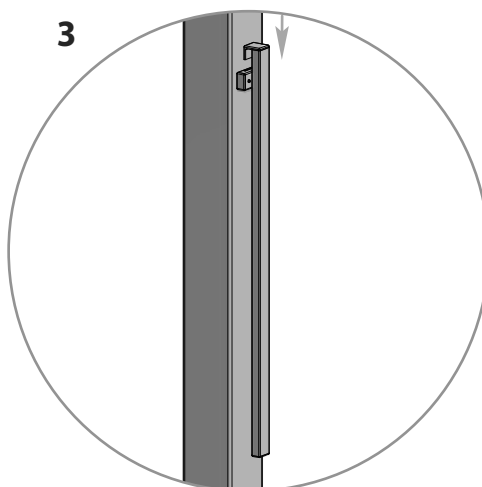
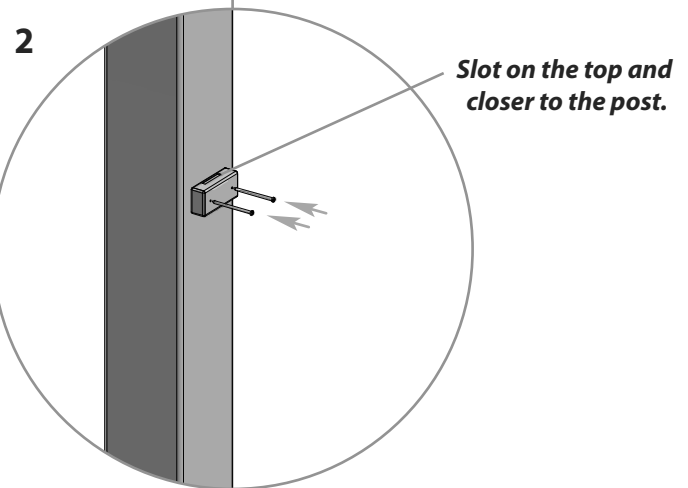
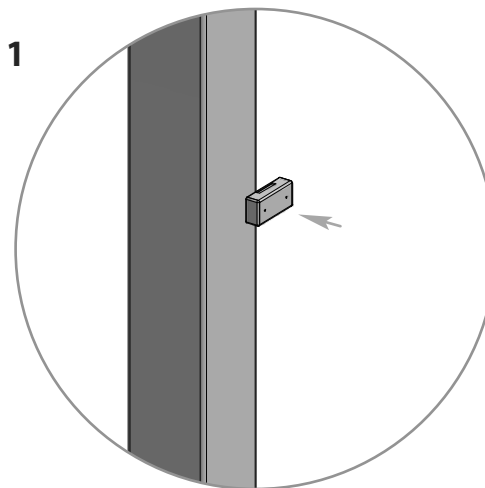
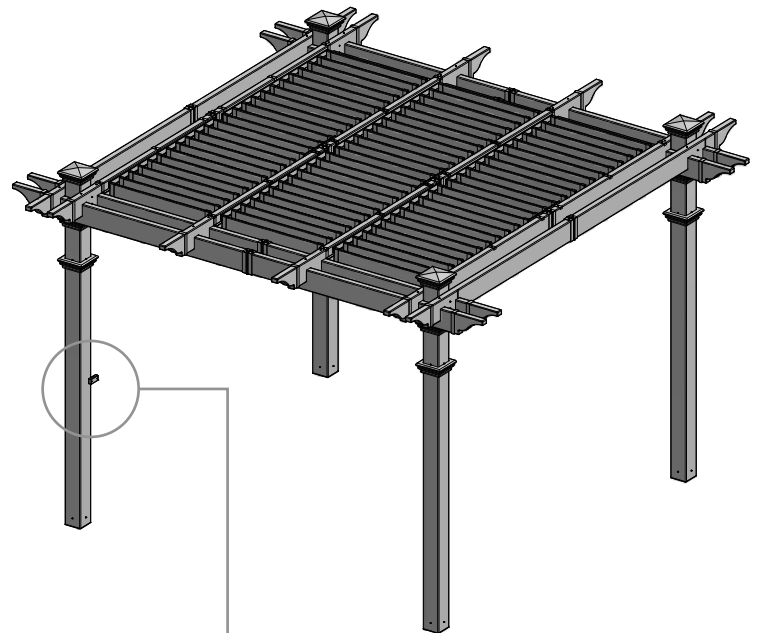
Pick a location that is easily accessible and out of the way of the louvers operation. The post is recommended as the 2 1/2" screws are used to protrude into the wooden post, providing a secure mounting support.

**2**

Mount with the slot on the top and closer to the post as shown. Fasten with two 2 1/2" screws provided.

**3**

Hang the Turn Bar as shown.



# OPERATIONS

1

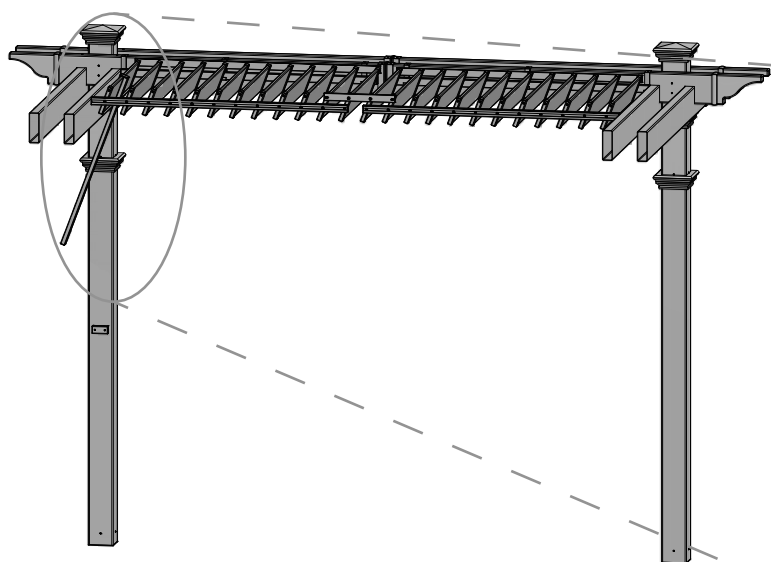
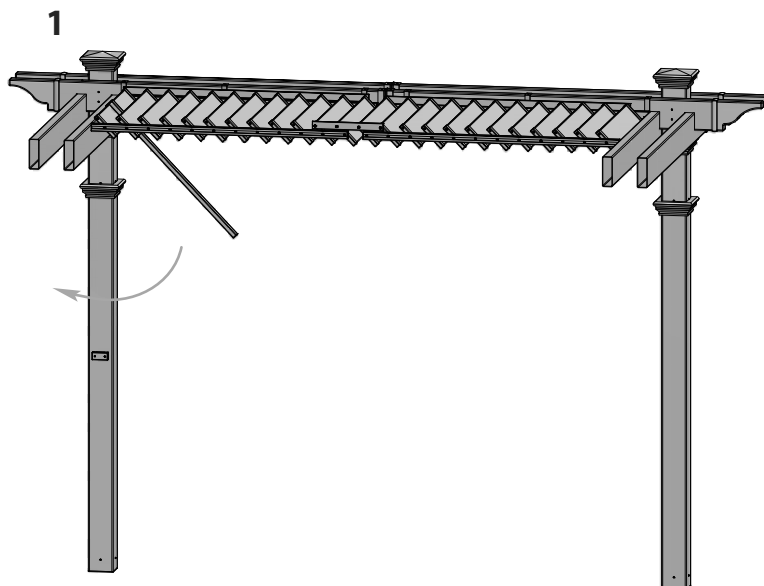
To adjust the positions of the louvers, slide the Turn Bar in between two louver boards and turn in a circular motion to the desired position. Excessive force should not be required.

2

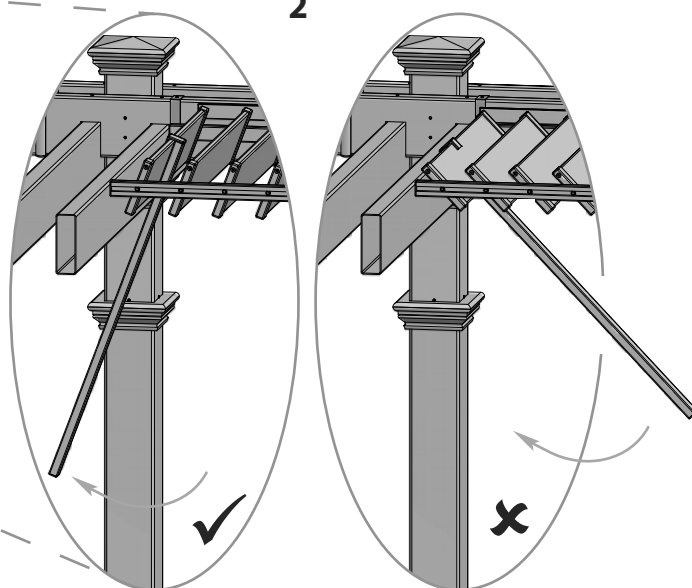
For best leverage, push with the arm of the Turn Bar as opposed to 'prying' with the Turn Bar Cap (see illustrations).

3

If operation proves to be difficult, this may be caused by nut(s) that are too tight. Troubleshoot which nut is too tight by turning them one by one, check for resistance, and loosen the nut slightly. Only loosen the nut a quarter of a turn at a time as it may come off.

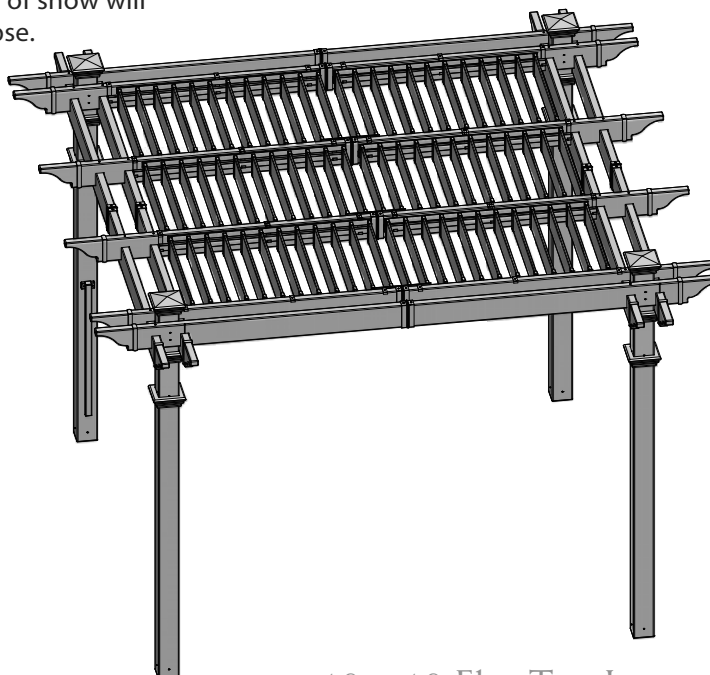


2



4

If your area experiences heavy snow, make sure to keep the louvers in the **OPEN** position. The accumulation of snow will cause the louvers to buckle and collapse.



# MODIFICATION

The footprint of the pergola is 10' x 10' measured to the outside of the posts. If a smaller dimension is required, a few guidelines should be considered:

**1**

It is easier to shorten the pergola by the way shown - by shortening the lengths of the louver boards and the beams.

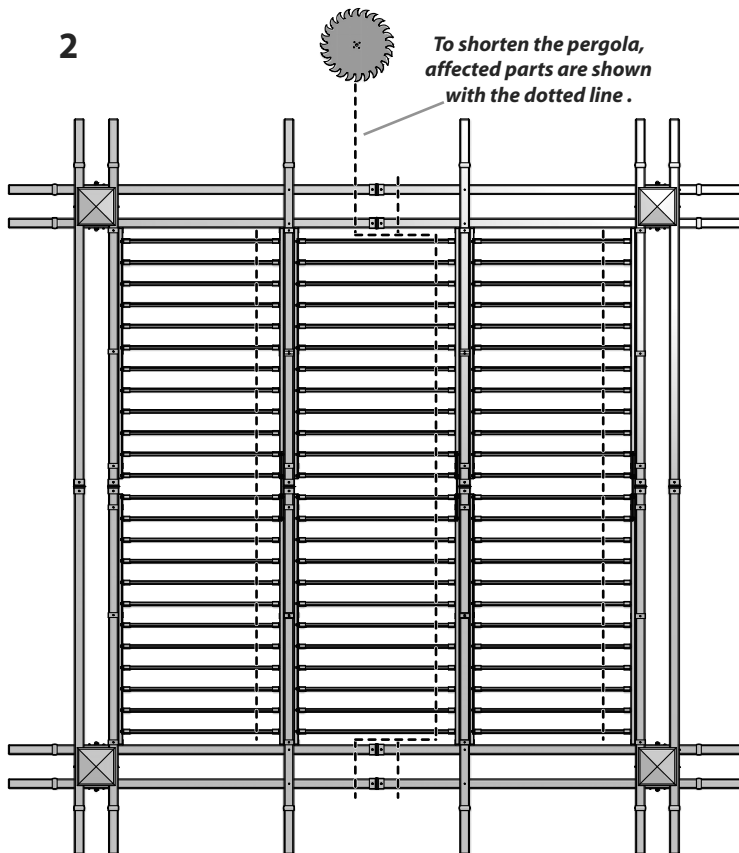
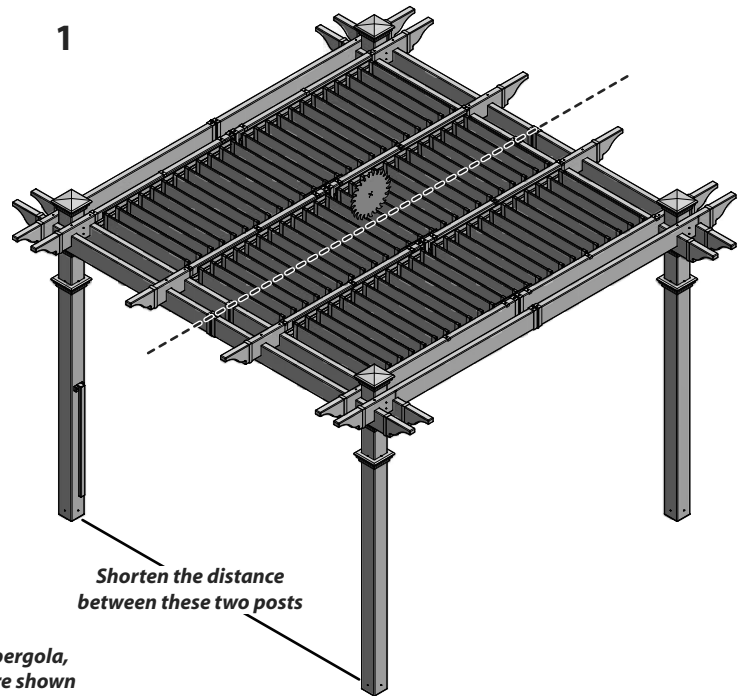
**2**

Aesthetically, it is best to cut all 72 boards equally so that they are even across the three rows. However, cutting only one or two rows will involve less labor.

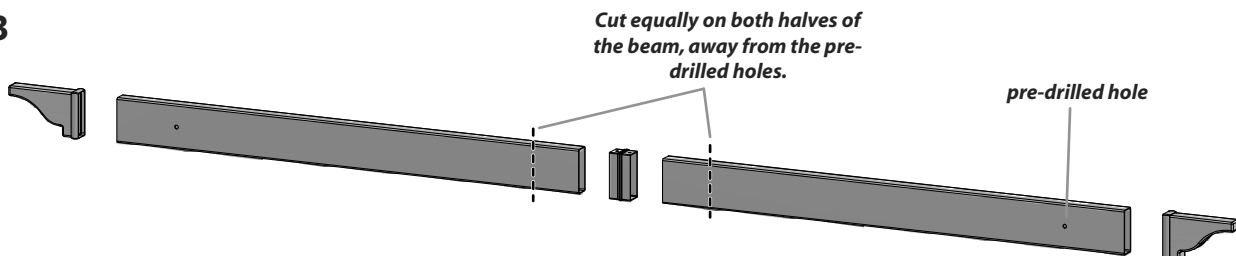
**3**

The beams shall be cut at the middle (away from the pre-drilled hole), and equally on both halves to ensure the symmetry of the pergola.

See example on next page.



**3**



# MODIFICATIONS

Below is an example of resizing the pergola:  
[In this example, the new dimensions are 120" (10') x 102" (8'-6")]

All 72 louver boards are cut down by 6"  
All 4 Beams are cut down by 9"

