



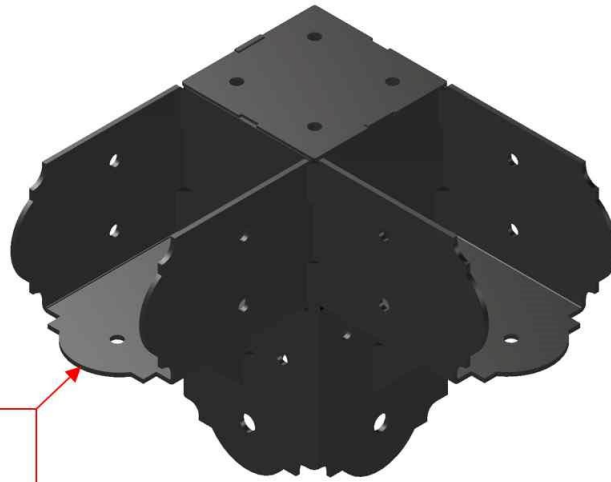
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## #4C2L Installation Instructions

**WARNING:** If the information in these instructions is not followed exactly, weakening or failure of the erected structure may result causing property damage, personal injury, or loss of life.

# Contents of SKU #4C2L

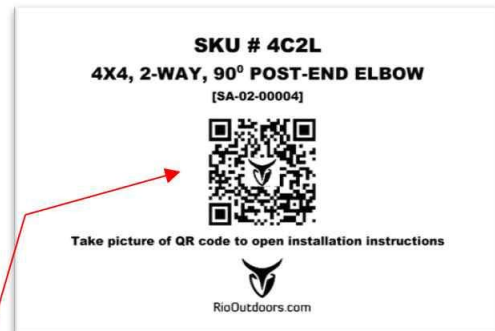
4x4, 2-way, 90-degree elbow bracket



Qty 1  
2-way elbow bracket



Qty 12  
1/4" x 1-1/4" Lag Screw



Box Label with QR Code Links to  
Installation Instructions Video

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A properly sized pilot hole must be drilled before you attempt to drive lag screws into any pergola lumber member. See Table, below. Driving lag screws into lumber, without first drilling a pilot hole, can prevent the lag screw from driving fully into the wood or can lead to crack formation while driving the lag screw in, or later, as the wood dries naturally. This can result in a weakened pergola structure.

<b>Proper pilot hole diameter and depth for various lag screws and wood types</b>		
<b>Lag Screw Type</b>	<b>Wood Type</b>	<b>Pilot hole drill diameter and depth</b>
<b>¼" X 1-1/4" Lag Screw</b>	Soft Wood	3/32" drill bit diam., 1-1/4" depth
	Hard Wood	3/16" drill bit diam., 1-1/4" depth
<b>3/8" X 3" Lag Screw</b>	Soft Wood	11/64" drill bit diam., 3" depth
	Hard Wood	¼" drill bit diam., 3" depth

# 1 GENERAL INFORMATION

## 1.1 SAFETY AND WARNING INFORMATION









### 1.1.1 Cautions

**CAUTION:** Adhere to all safety requirements. Wear safety glasses/goggles when working. Wear safety gloves when handling brackets, hardware, and lumber. Wear hearing protection when using a circular saw, miter saw, table saw, or hammer drill.

**INSTALLER:** Leave this manual with the consumer. **CONSUMER:** Retain this manual for future reference.

## 1.2 TOOLS REQUIRED

Listed below, are common tools required for pergola projects. These tools are not included in this kit. Your pergola project may not require all tools. Select and acquire the tools for your project from the "Required for" column in this table.


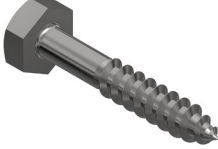
Description	Tool Purpose	Required for	Reference Image
Tape Measure	Measure and verify lengths.	All pergola types	
Framing Level	Verify Level/Plumb	All pergola types	
Drill/Hammer Drill	Drill holes in concrete pads or concrete footing for securing floor anchor brackets. Drill pilot holes for lag screws.	All pergola types	
Ratchet Socket Driver	Drive lag screws into Pergola lumber members.	All pergola types	
7/16" Hex Socket	Drive 1/4" X 1-1/4" Hex Hd. lag screws.	All pergola types	
3/32" Drill Bit	Drill pilot holes for 1/4" lag screws in soft wood.	All pergola types	
Circular Saw/Miter Saw	Cut headers to length; cut rafters to length.	All pergola types	
Crescent Wrench	Tighten down nut on concrete anchors.	Surface Mount Pergolas	Image not available.
Hammer	Various.	All pergola types.	

### 1.3 CONTENTS OF BRACKET # 4C2L

The contents of this Bracket are shown in the table, below. All hardware for each bracket is placed inside a plastic bag and taped to the individual bracket. This packaging method makes it easy for you to locate the hardware at the location you will be attaching the bracket. The exact quantity needed to attach the bracket is included.

Before you begin your project, take an inventory of all items that you received from us. If any items are missing, contact us directly via email at [info@RioOutdoors.com](mailto:info@RioOutdoors.com). Include your name and shipping address and your order number, if available. We will respond within 24 hours with a resolution to your problem.

Please note that the bracket parts you receive may appear slightly different than those depicted in these instructions. We perform continuous improvements in our designs and update our current products accordingly. The parts you receive will contain our most-recent improvements and will perform superior to those depicted in these instructions.

Item SKU #, Description	Item Qty	Item Image
<p data-bbox="142 705 711 779"><b>4x4 Post Top/Floor 2-way 90-degree Elbow Bracket</b> <b>SKU# 4C2L</b></p> <p data-bbox="110 800 716 863">(The hardware required to mount this bracket are taped to the bracket)</p>	<p data-bbox="834 772 850 793">1</p>	
<p data-bbox="310 1014 537 1045"><b>¼ x 1-1/4" Lag Screw</b></p> <p data-bbox="120 1066 732 1098">(This Qty shows the total of this item included in this kit)</p>	<p data-bbox="829 1045 857 1066">12</p>	

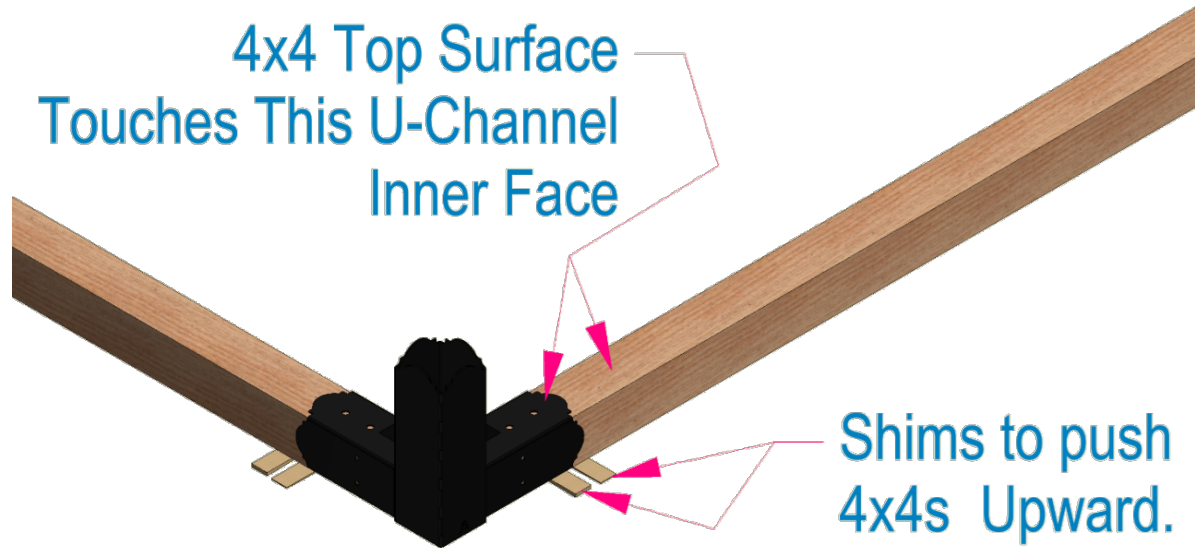
## 1.4 DESIGN INTENTS (INTENDED APPLICATIONS) FOR THE 2-WAY ELBOW BRACKET

The 2-Way Elbow Bracket is designed to create a strong and permanent 90-degree joints between two horizontal and one vertical dimensional 4x4 (3.5" x 3.5") lumber members. The elbow may be used at a post top or at a post bottom.

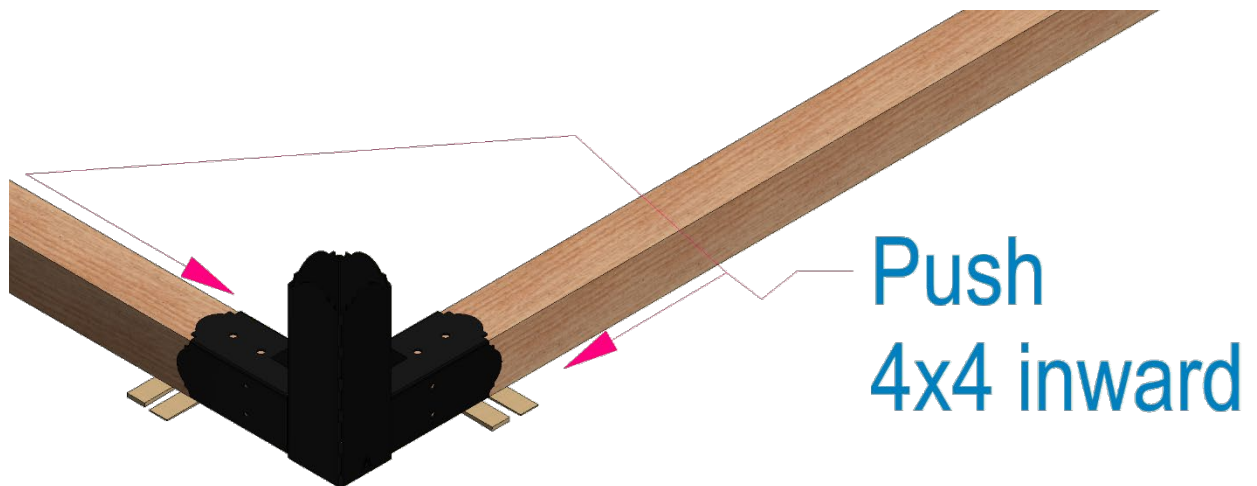


## 1.5 CREATING A JOINT AT A POST BOTTOM WITH THE CORNER 2-WAY ELBOW BRACKET

1. Starting in one corner, slide one 2-way elbow over two adjacent 4x4s so the U-channels in the 2-way elbow bracket over the 4x4s.
2. Place two shims under each 4x4 near the 2-way elbow.
3. Push 2-way elbow bracket downward until the horizontal part of the U-channels touch the 4x4 top surfaces.



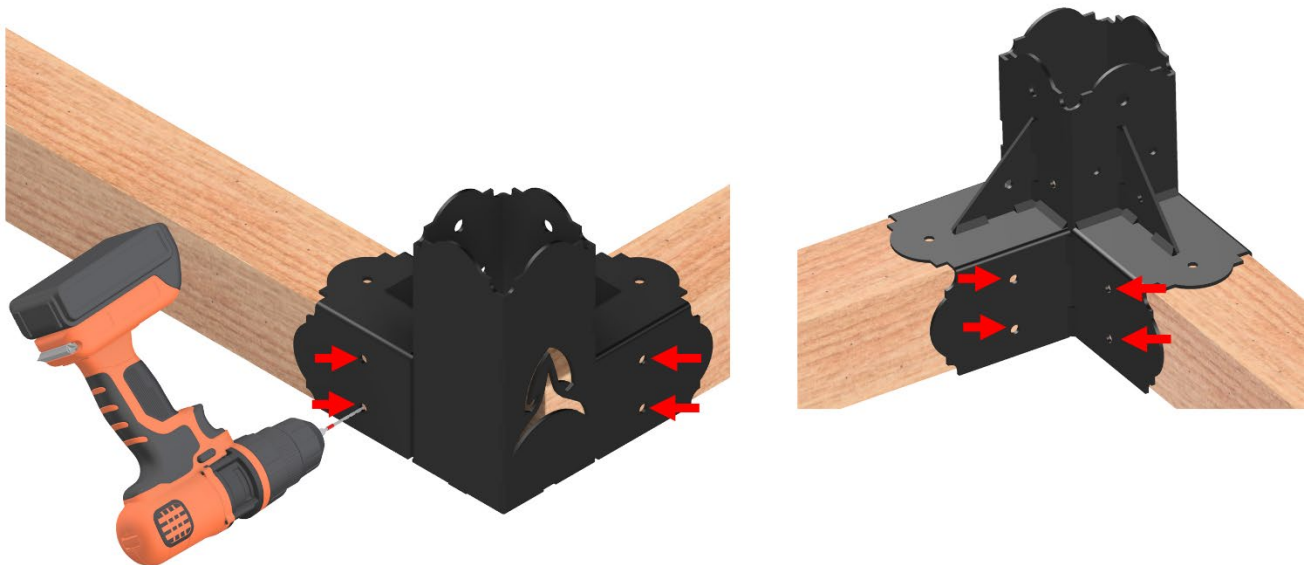
4. Slide 4x4s all the way in towards the center square tube in the 2-way elbow bracket.



5. Wrap a piece of electrical tape around the drill bit, spaced 1-1/4" from the drill bit tip. This will act as a hole depth indicator when you drill each pilot hole. Pilot holes should be drilled at least 1-1/4" deep. A little bit deeper is acceptable but do not drill less than the required 1-1/4" depth.



6. Drill 3/32 X 1-1/4" pilot holes through eight holes in the U-channel's sides, on both visible and not visible sides. Drill at the center of the holes in the U-channel faces.

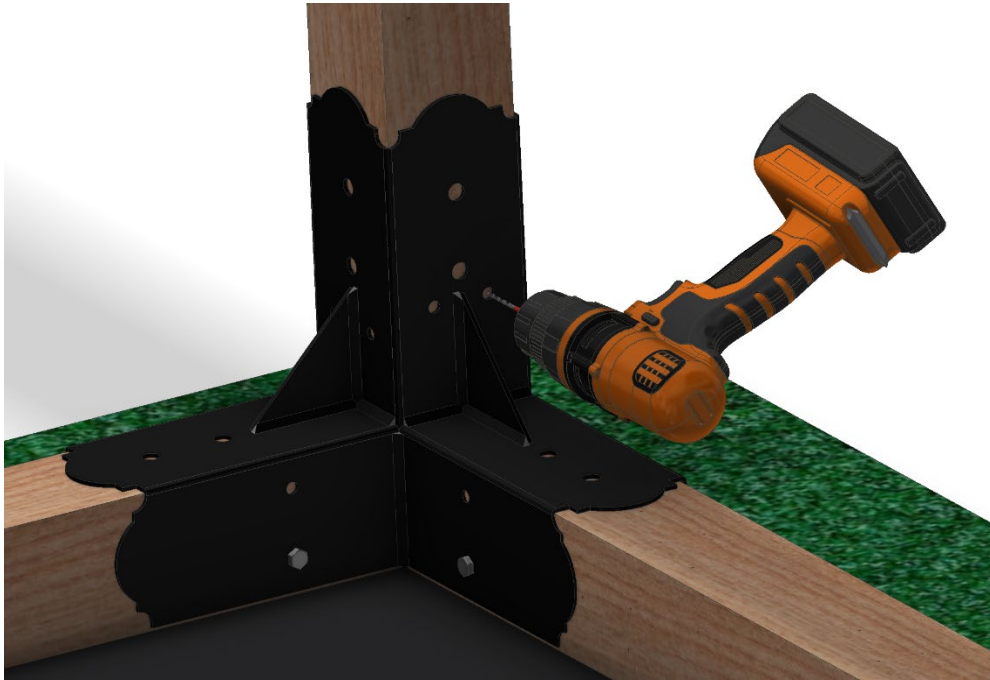


7. Drive one 1/4" X 1-1/4" lag screw through the pilot holes you drilled.
8. Repeat steps 8 and 9 for the other side of both U-channels.
9. Remove all shims from under the 4x4s.
10. Tap top of 4x4s with a hammer to settle the 4x4s into the ground fabric.
11. Using a 4 foot framing Level, check top surfaces of all 4x4s to see if they are level. Use shims as you see necessary to level all four 4x4s that are sitting on the ground.

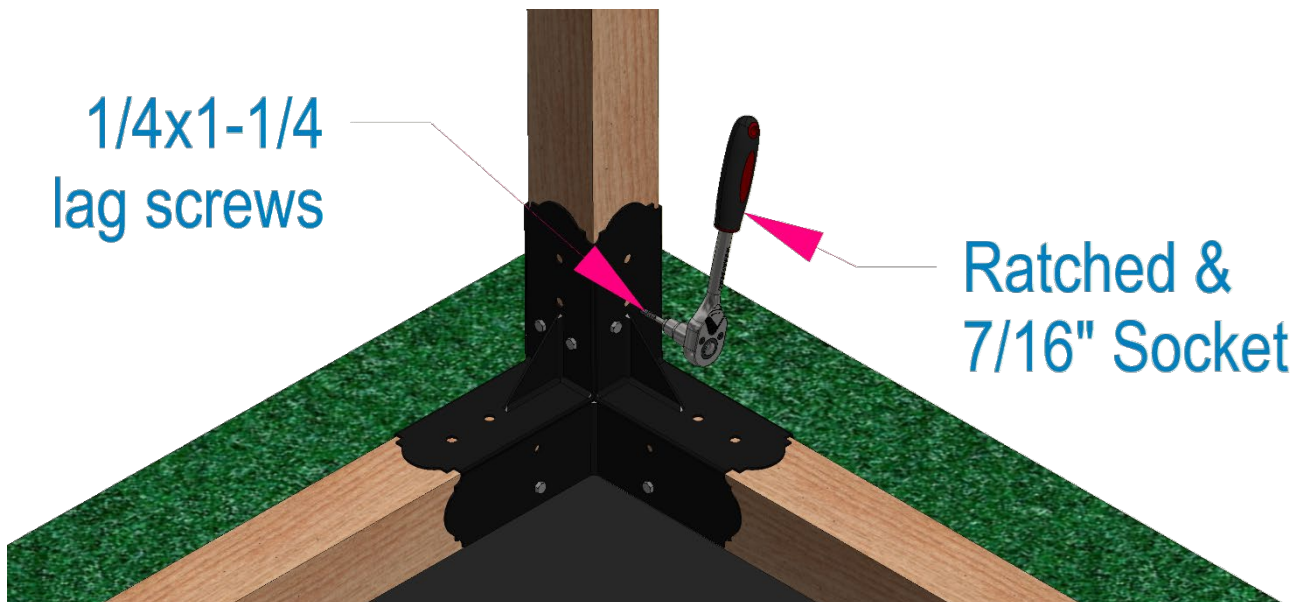


### 1.5.1 Adding the vertical Post

1. Slide a 4x4 post inside the open vertical tube in all four corners' 2-way elbow bracket.
2. Identify the 5/16" holes in the inner faces of the 2-way elbow's vertical tube. Drill 3/32" X 1-1/4" pilot holes in the center of all four 5/16" holes.



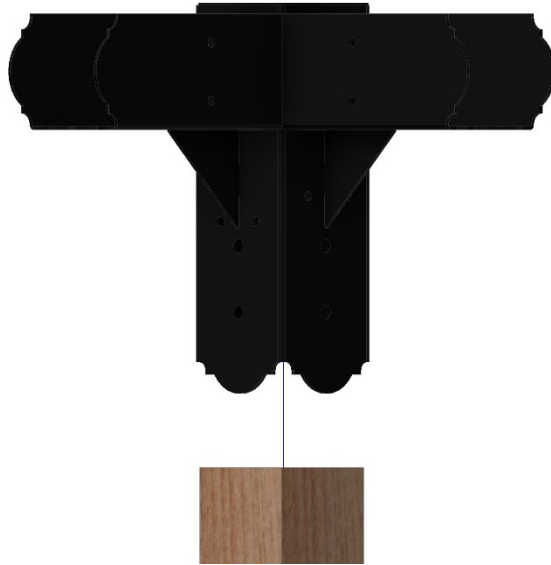
3. Drive one 1/4x1-1/4" lag screw through each pilot hole you drilled and tighten down using a ratchet and 7/16" socket.



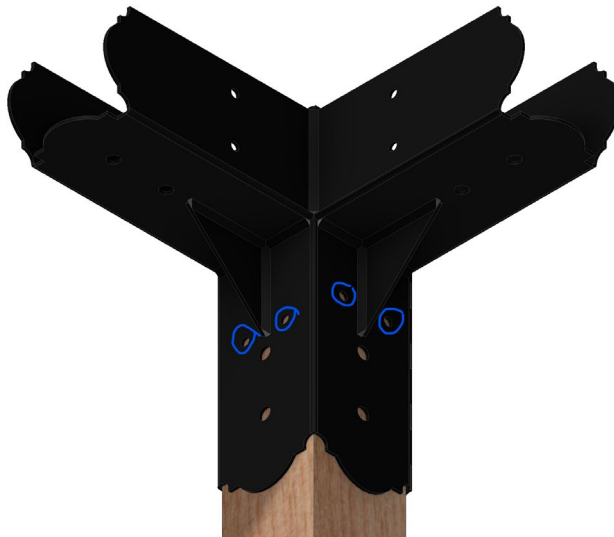


## 1.6 CREATING A JOINT AT A POST BOTTOM WITH THE CORNER 2-WAY ELBOW BRACKET

1. Slide a 2-way elbow bracket's tube over the 4x4 post top after aligning the header receiver U-channels in the proper directions. Let gravity work and pull the bracket all the way down on top of the post.



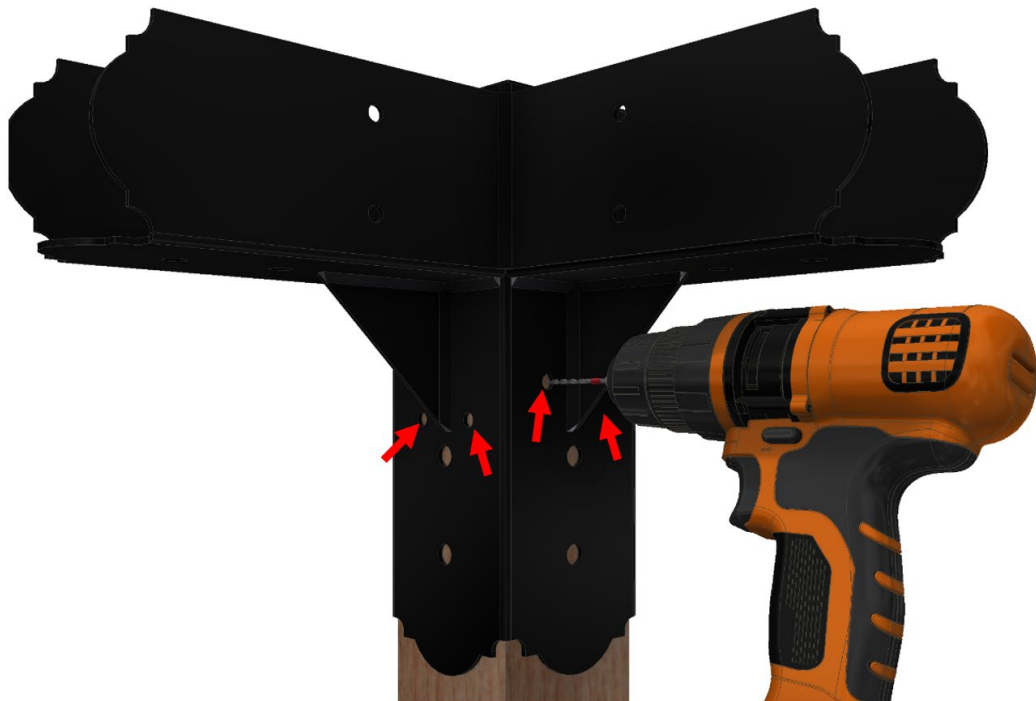
2. Identify the four 5/16" holes which are on the sides of the gussets in the bracket.



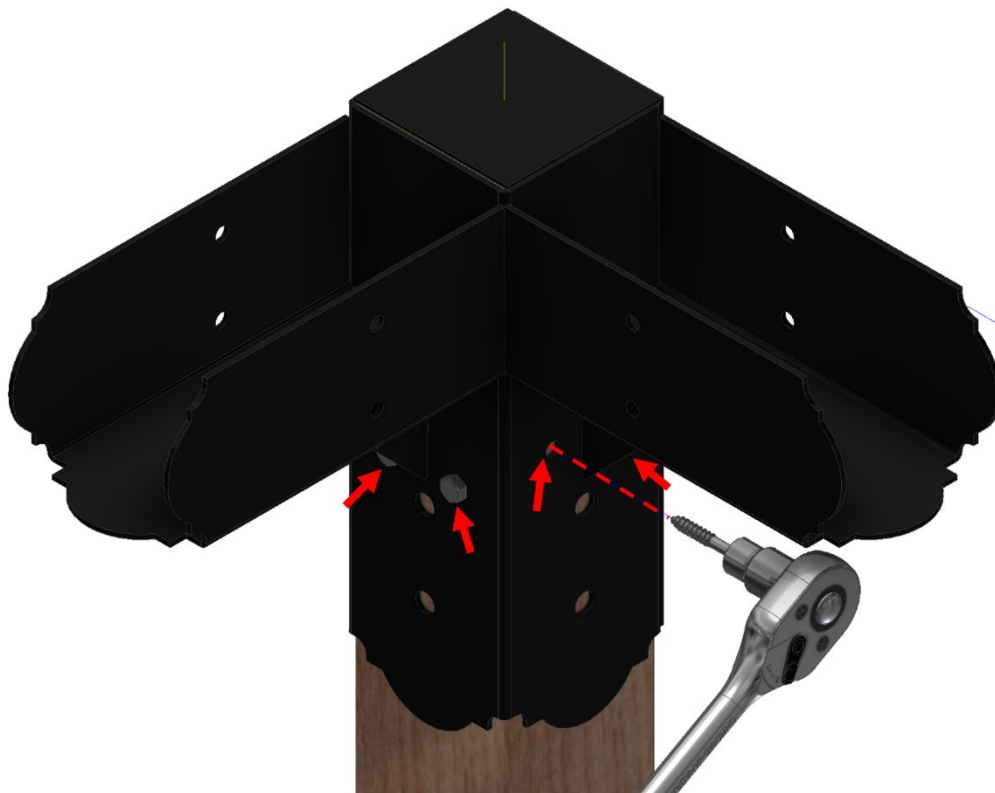
3. Wrap a piece of electrical tape around the drill bit, spaced 1-1/4" from the drill bit tip. This will act as a hole depth indicator when you drill each pilot hole. Pilot holes should be drilled at least 1-1/4" deep. A little bit deeper is acceptable but do not drill less than the required 1-1/4" depth.



4. Drill 3/32" X 1-1/4" deep pilot holes at the center of four 5/16" Holes. Locate pilot holes at the center of each 5/16" hole.



5. Drive one  $\frac{1}{4}$  x 1-1/4" Hex Lag Screw through each  $\frac{5}{16}$ " hole into the pilot holes you drilled in step 4, using a  $\frac{7}{16}$ " Socket and Ratchet driver. Tighten down each screw.



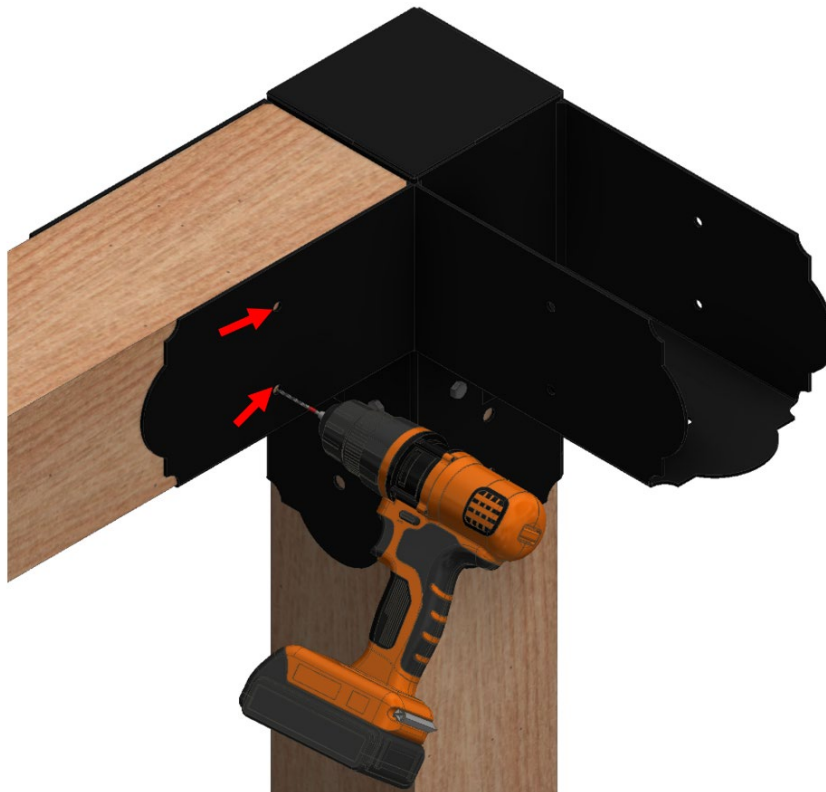
### 1.6.1 4x4 Headers Installation

1. Lift and place one 4x4 header into the U-channels of adjacent post top brackets.



*Figure 1: Place one header 4x4 in U-channels.*

2. Locate the two 5/16" holes on each vertical face of the U-channels holding the 4x4 header. Drill 3/32" X 1-1/4" deep pilot holes at the center of four 5/16" Holes. Locate pilot holes at the center of each 5/16" hole.



3. Drive one  $\frac{1}{4}$  x 1-1/4" Hex Lag Screw through each  $\frac{5}{16}$ " hole into the pilot holes you drilled in step 8, using a  $\frac{7}{16}$ " Socket and Ratchet driver. Tighten down each screw.

