



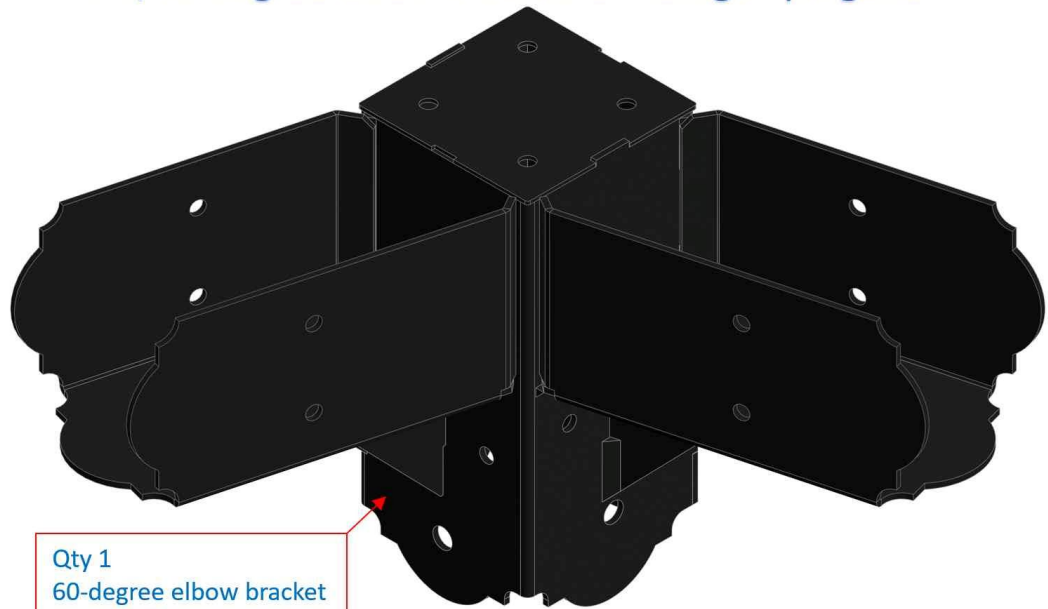
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## #4HL Installation Instructions

**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.

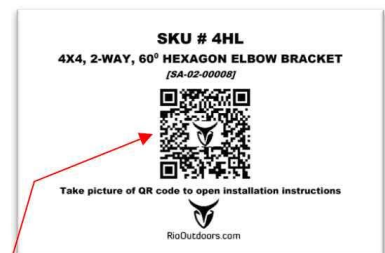
### Contents of SKU #4HL

4x4, 60-degree elbow bracket for hexagon pergolas



Qty 1  
60-degree elbow bracket

Qty 12  
¼" 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.

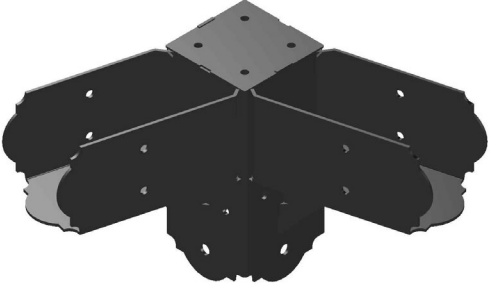

Description	Tool Purpose	Required for	Reference Image
Tape Measure	Measure and verify lengths.	All pergola types	
Framing Level	Verify Level/Plumb	All pergola types	
Drill/Hammer Drill	Drill holes in concrete pads or concrete footing for securing floor anchor brackets. Drill pilot holes for lag screws.	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 # 4HL

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="147 701 703 730"><b>4x4 Post Top/Floor 2-way Hexagon Elbow Bracket</b></p> <p data-bbox="370 749 480 779"><b>SKU# 4HL</b></p> <p data-bbox="110 800 716 861">(The hardware required to mount this bracket are taped to the bracket)</p>	<p data-bbox="834 768 850 793"><b>1</b></p>	
<p data-bbox="310 1010 540 1039"><b>¼ x 1-1/4" Lag Screw</b></p> <p data-bbox="120 1058 732 1087">(This Qty shows the total of this item included in this kit)</p>	<p data-bbox="829 1037 857 1062"><b>12</b></p>	

## 1.4 DESIGN INTENTS (INTENDED APPLICATIONS) FOR THE #4HL ELBOW BRACKET

The #4HL Elbow Bracket is designed with a 60-degree elbow angle which, when nested together create a perfect hexagon shape. The #4HL Elbow Bracket is designed to create a strong and permanent 60-degree joint between two dimensional 4x4 (3.5" x 3.5") lumber members.

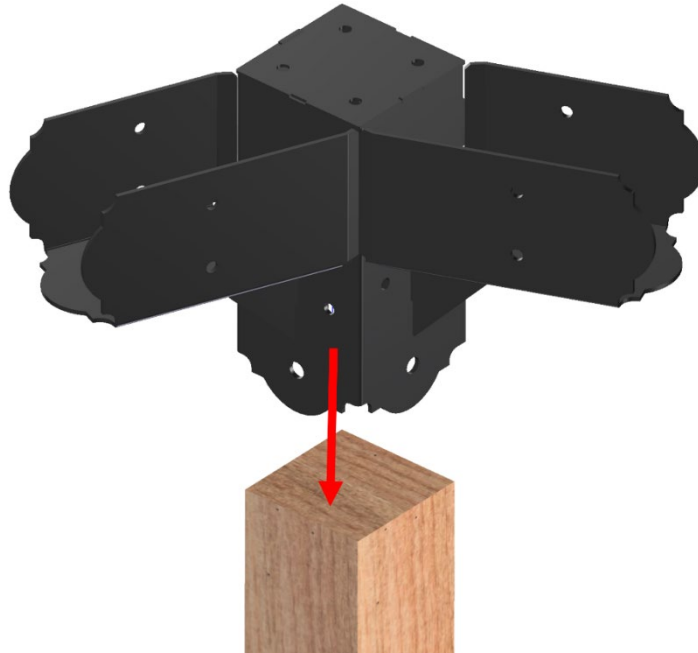
The #4HL Elbow Bracket can be installed at the top of a post to receive 4x4 headers or at the bottom of a post to receive floating 4x4 footers.



## 1.5 POST TOP #4HL ELBOW BRACKETS INSTALLATION

1. Slide a #4HL hexagon 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. If you feel resistance tap lightly on top of the elbow bracket until it slides all the way down.

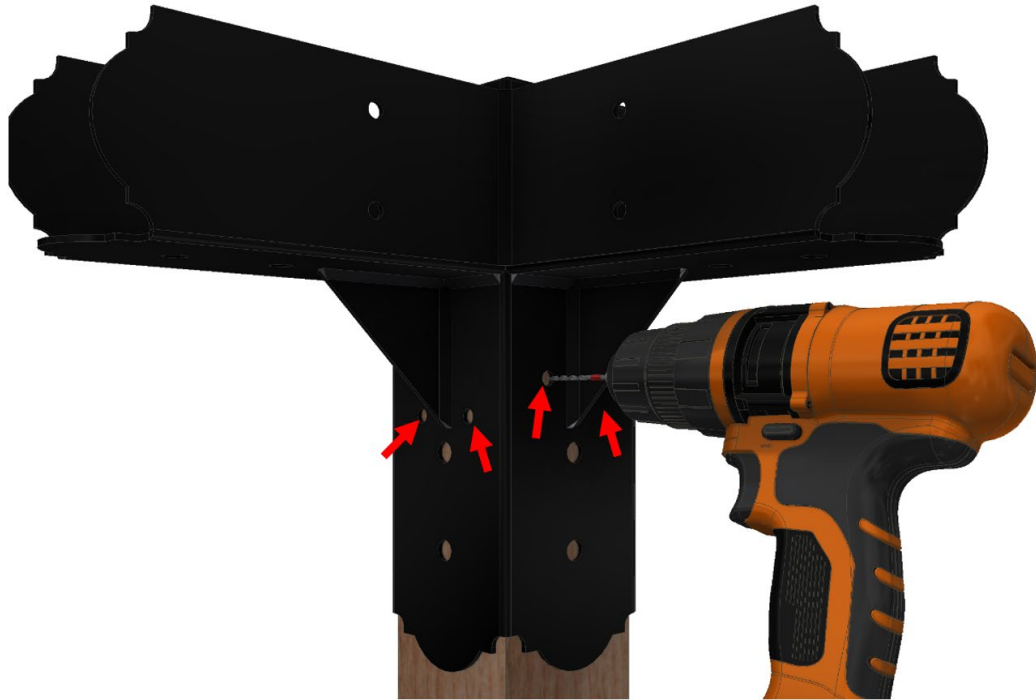
Note: The same installation procedures apply to use the #4HL bracket as a post base elbow for a floating deck-type structure. Simply attach to the bottom end of a post using the same procedures.



2. Wrap a piece of electrical tape around the 3/32" 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.



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



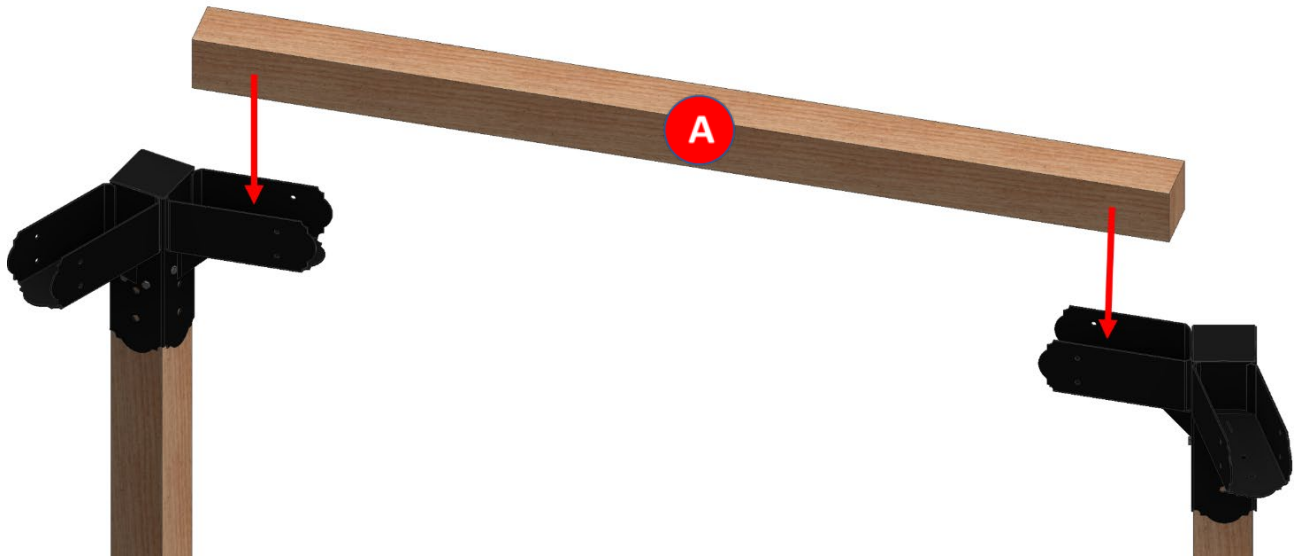
5. Drive one 1/4 x 1-1/4" Lag Screw through each 5/16" hole into the pilot holes you drilled in step 4, using a 7/16" Socket and Ratchet driver. Tighten down each screw.



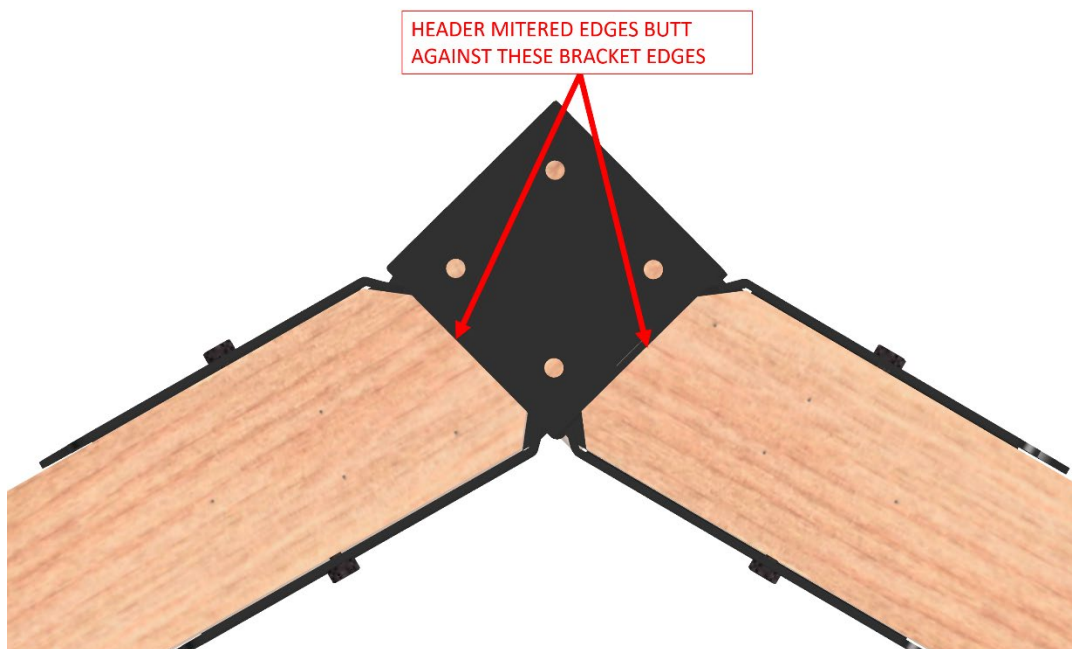
6. Repeat steps 1 through 5 for all post top brackets.

## 1.6 HEADERS INSTALLATION

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



2. The resting positions of headers in the U-channels are shown, below.

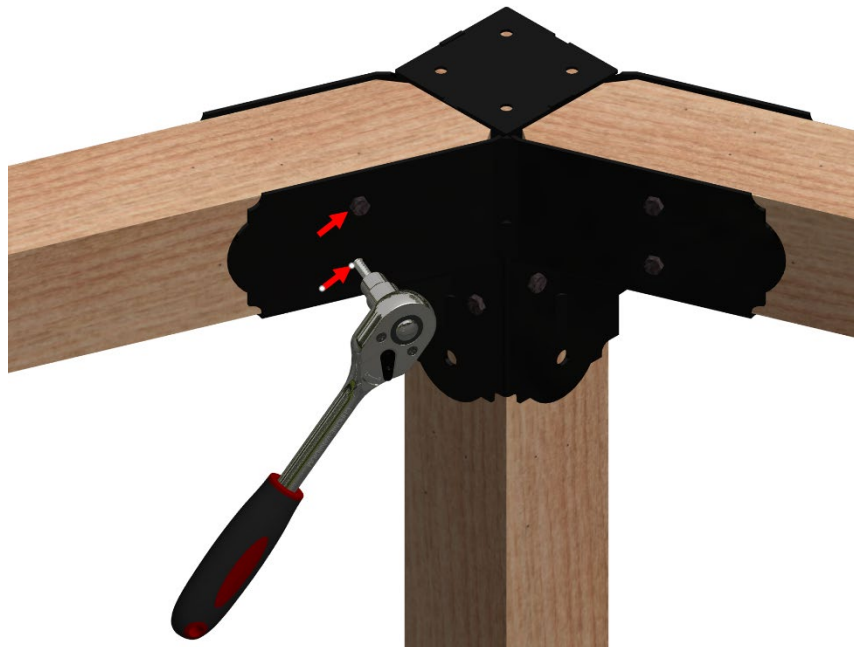




3. Locate the two 5/16" holes on each vertical face of the U-channels holding the 4x4 header. Drill 3/32" X 1-1/4" deep pilot holes at the center of four 5/16" Holes. Locate pilot holes at the center of each 5/16" hole. Repeat for the opposite end of the header.



4. Drive one 1/4 x 1-1/4" Lag Screw through each 5/16" hole into the pilot holes you drilled in step 8, using a 7/16" Socket and Ratchet driver. Tighten down each screw. Repeat for opposite side of the U-channel and the opposite end of the header.



5. Repeat steps 1-4 for all headers.