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Ladder Chair

Supplies

- (3) 5/4×2×8
- (1) 5/4×3×8
- (2) 1×2×8
- (1) 1×3×6
- (1) 1×4×6
- (1) 1×5×6
- (1) 1×6×6
- 1-1/4" Pocket Screws
- 1-1/2" Pocket Screws
- 1-1/4" Pocket Screws
- 2" Wood Screws
- Wood Glue ([I used this one](#))
- [1-1/2"×12" piano hinge](#)

Tools

- Tape Measure
 - Drill
 - [Kreg Jig](#)
 - Miter Saw
 - Jig Saw, Circular Saw or Band Saw
 - Table Saw
 - [Countersink Drill Bit](#)
 - [Pocket Hole Plug Cutter](#) (optional)
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Disclaimer

This DIY ladder chair has not been weight or stress tested. Excess weight or excess stress may make the ladder chair unsafe to use.

Joints and connections may become loose over time and could make the chair unsafe to use.

Discontinue use if at any time the ladder chair feels unsafe.

By using these plans you are agreeing to do so at your own risk.

Please wear all personal protective equipment (PPE). Protect your eyes with safety glasses, ears with hearing protection, and lungs with a dust mask or respirator.

Follow all safety instructions that come with your tools.

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This Plan Uses 5/4 Lumber

5/4 lumber is spoken as five-quarter. Let's look a little closer at a 5/4×3×8.

The **first number** refers to the **thickness**. The thickness of a 5/4 **can range from about 1 inch to 1-¼ inches thick**. The 5/4 lumber I used measured **1-½ inches thick**.

The **second number** refers to the **width**. The width of a 5/4×3×8 is 2-½ inches.

The **third number** refers to the **length**. The length of a 5/4×3×8 is 8 feet.

NOTE: I was not able to locate 5/4×2 at my local big box store. Instead, I used my table saw to rip 5/4×4 to 1-½".

Related: [Beginner's Guide to Wood Sizes](#)

These are the **finished measurements** of the material I used for this project:

$$5/4 \times 2 = 1\text{-}\frac{1}{8}" \times 1\text{-}\frac{1}{2}"$$

$$5/4 \times 3 = 1\text{-}\frac{1}{8}" \times 2\text{-}\frac{1}{2}"$$

$$1 \times 2 = \frac{3}{4}" \times 1\text{-}\frac{1}{2}"$$

$$1 \times 3 = \frac{3}{4}" \times 2\text{-}\frac{1}{2}"$$

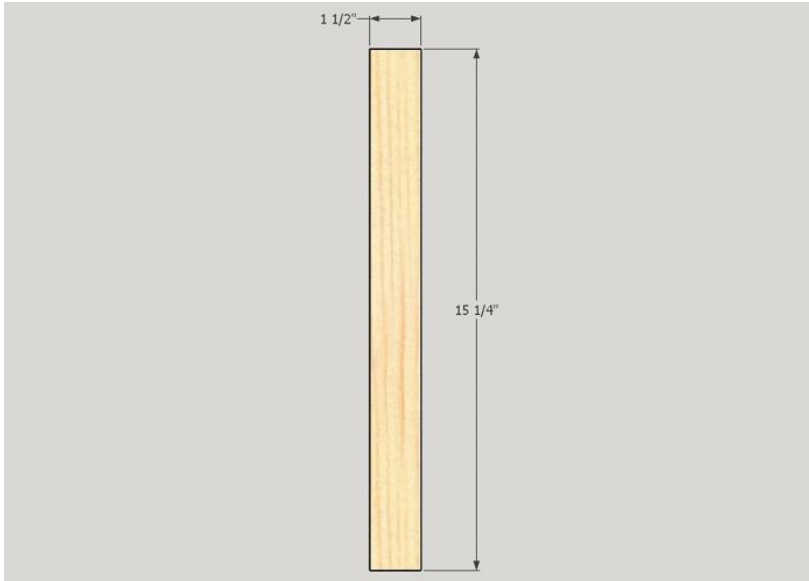
$$1 \times 4 = \frac{3}{4}" \times 3\text{-}\frac{1}{2}"$$

$$1 \times 5 = \frac{3}{4}" \times 4\text{-}\frac{1}{2}"$$

$$1 \times 6 = \frac{3}{4}" \times 5\text{-}\frac{1}{2}"$$

Step 1. Cut the Legs

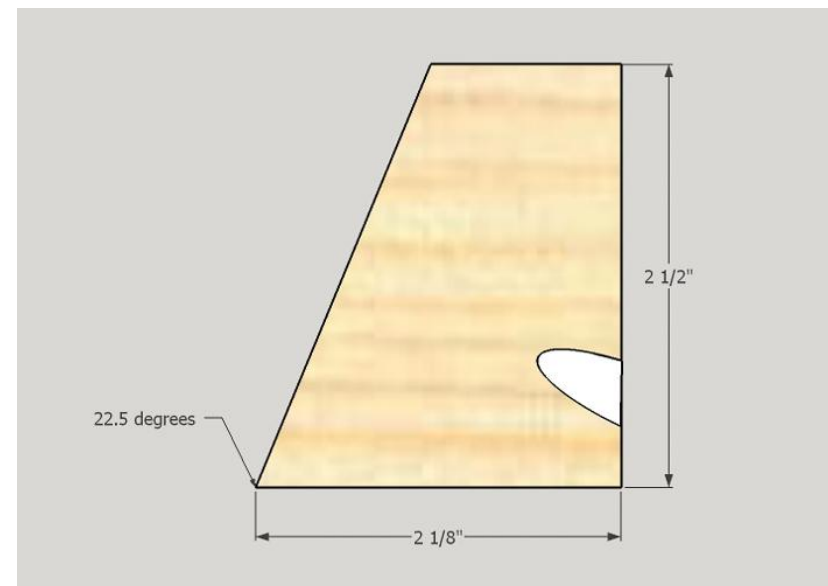
Cut 2 pieces of $5/4 \times 2$ to $15-1/4''$.



Step 2. Cut the Front Leg Rails

Cut a 22.5-degree angle on a $5/4 \times 3$, measure $2-1/8''$ from the bottom of the angle and make a 90-degree cut. Drill one pocket hole into the front edge of the rail. Repeat for the other rail. Be sure to make a right and a left.

Related: [How to Use a Kreg Jig](#)

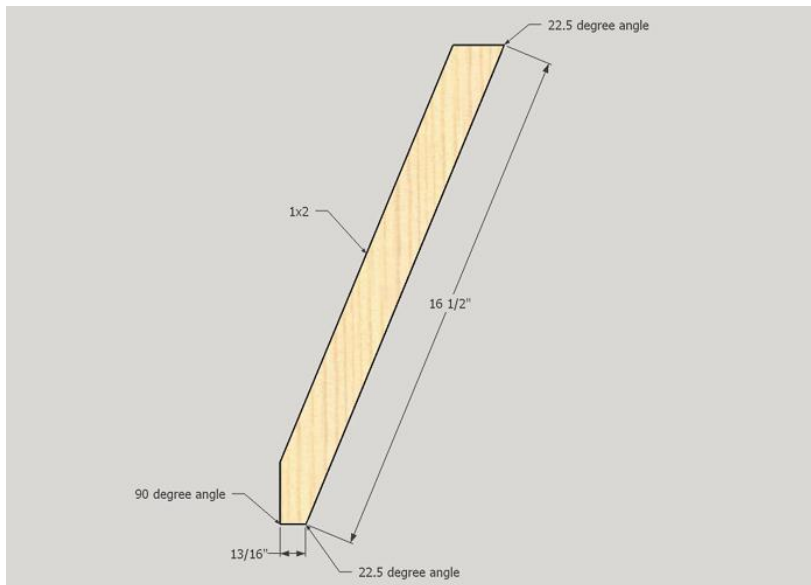


Step 3. Cut the Front Slanted Legs

Cut a 22.5-degree angle on a 5/4x2, measure 16-1/2" and cut a parallel 22.5-degree angle.

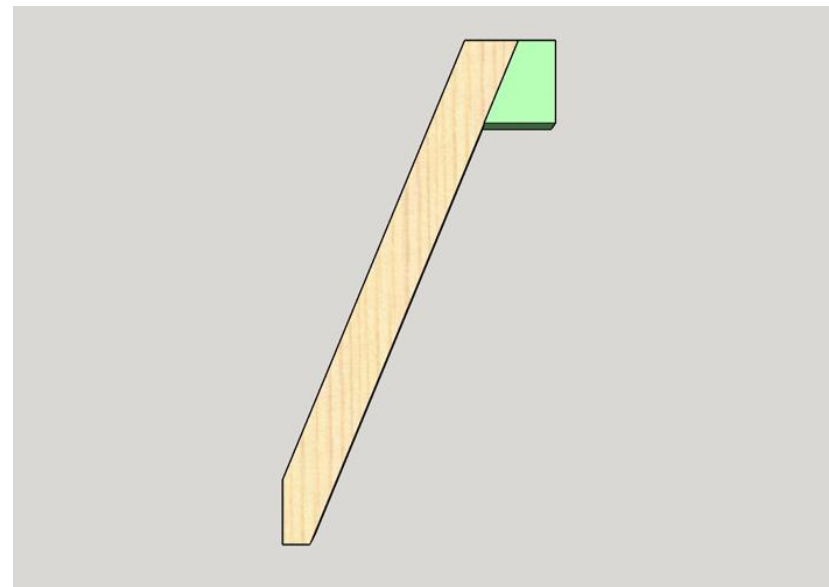
Measure 13/16" on one end and make a 90-degree cut. This cut would be dangerous to make on a miter saw. I used my bandsaw to make this cut, but you could also use a jigsaw or circular saw and crosscut jig.

Related: [How to Make a DIY Circular Saw Crosscut Jig](#)



Step 4. Attach the Front Leg Rail to the Slanted Leg

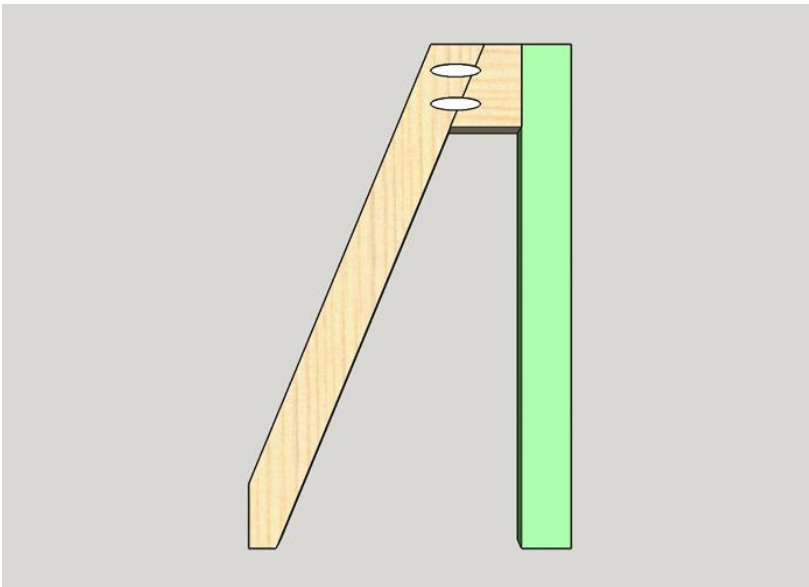
Apply glue to the front leg rail, clamp and attach using a 1-1/2" pocket screw.



Step 5. Attach the Front Leg Assembly to the Front Leg

Drill two pocket holes in the leg assembly making sure to avoid drilling into the pocket screw. Repeat for the other side.

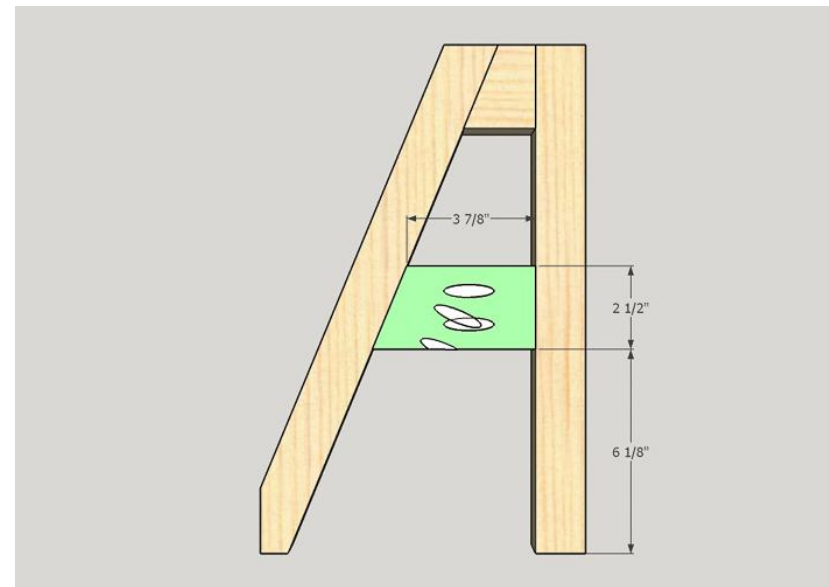
Apply glue to the front rail, clamp to the front leg, and attach using 1-1/2" pocket screws.



Step 6. Cut and Attach the Front Step Rail

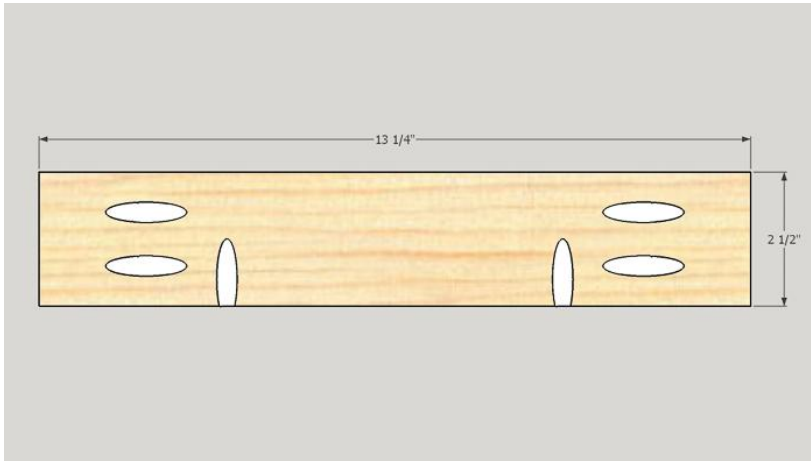
Cut a 22.5-degree angle on a 5/4x3, measure 3-7/8" from the top of the angle and make a 90-degree cut. Drill two pocket holes in each end. Repeat for the other rail. Be sure to make a right and a left.

To help position the rails cut a piece of scrap wood to 6-1/8" and clamp the scrap to the front leg. Apply glue to the ends of the rail, clamp in position and attach using 1-1/2" pocket screws. Repeat for the other side.



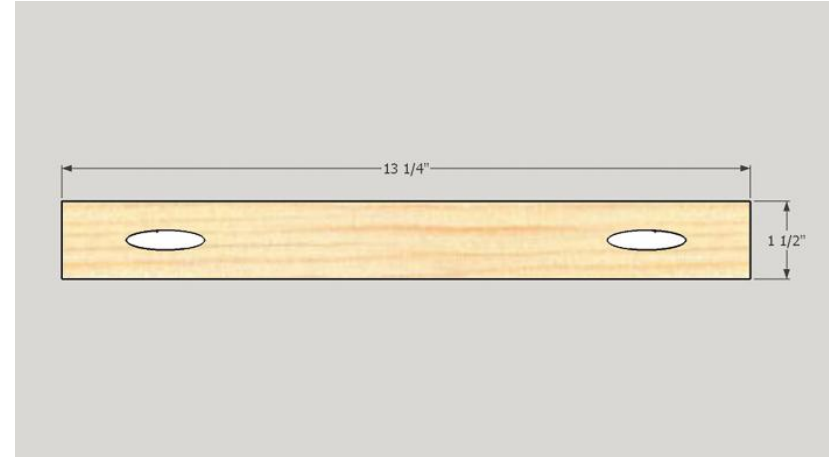
Step 7. Cut the Front Seat Rail

Cut a $5/4 \times 3$ to $13-1/4"$. Drill pocket holes in each end and in one side.



Step 8. Cut the Front Step Rail

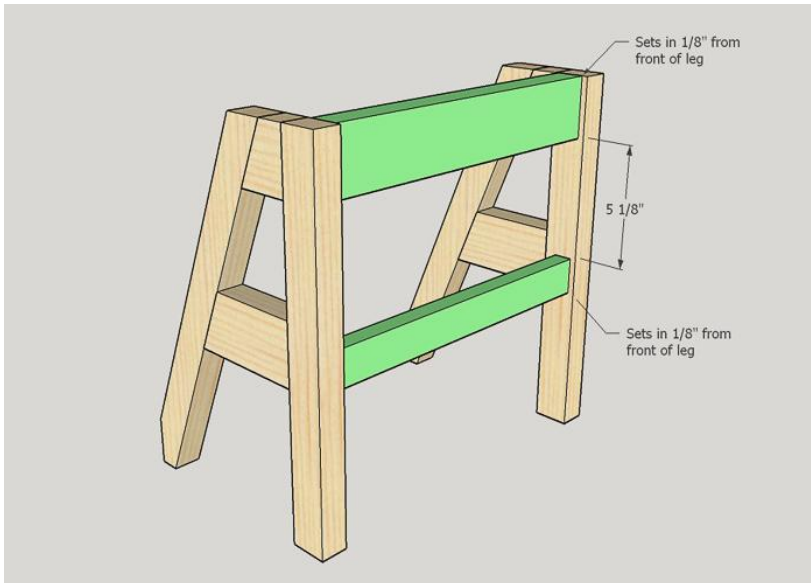
Cut a 1×2 to $13-1/4"$. Drill a pocket hole in each end.



Step 9. Attach the Front Rails

Place the legs on your workbench. Then, place some scrap 1/8" hardboard on your workbench. The hardboard will help to set the rails in from the front of the leg 1/8".

Apply glue to the ends of the seat rail and place at the top of the legs. To help position the step rail cut a piece of scrap wood to 5-1/8" and place below the seat rail. Apply glue to the ends of the step rail and place below the scrap wood. Clamp rails in position and attach using 1-1/2" pocket screws.



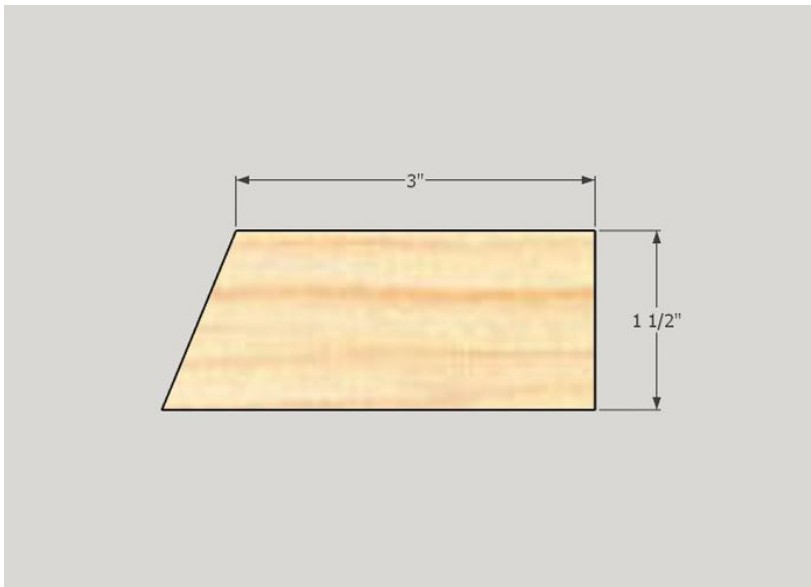
Step 10. Cut the Front Step Cleat

Cut a 22.5-degree angle on a 1×2, measure 6-9/16" from the top of the angle and make a 90-degree cut. You can also place a 1×2 in position, mark the angle and cut. This method will ensure the best fit. Repeat for the other side.



Step 11. Cut the Front Seat Cleat

Cut a 22.5-degree angle on a 1×2, measure 3" from the top of the angle and make a 90-degree cut. You can also place a 1×2 in position, mark the angle and cut. This method will ensure the best fit. Repeat for the other side.

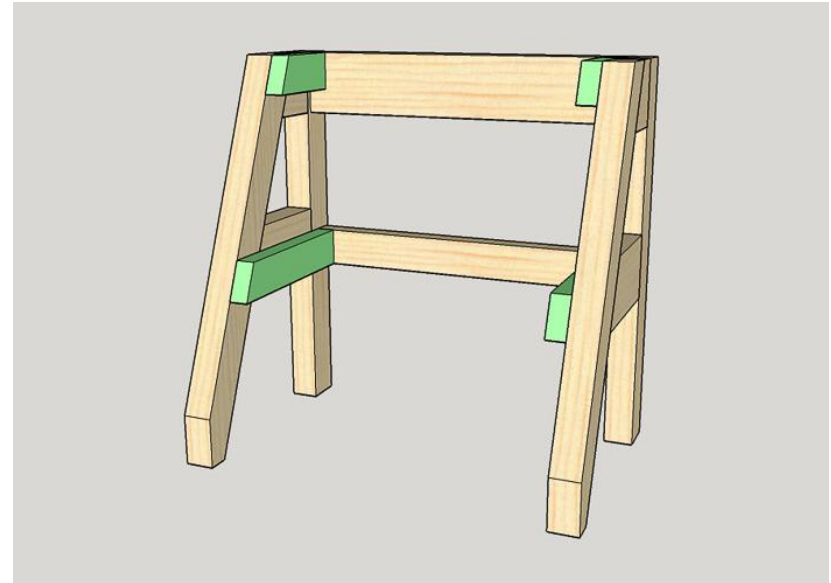


Step 12. Attach the Front Cleats

Drill countersink holes in the sides of the step and seat cleats. These holes will be used to attach the cleats to the legs. Be sure to make a left and a right.

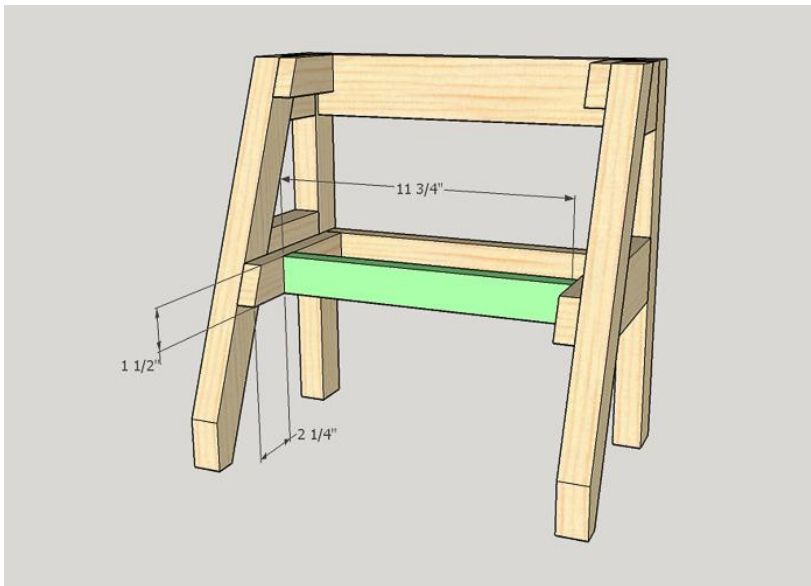
Then drill countersink holes in the bottom of the step and seat cleats. These holes will be used to attach the cleats to the step and seat.

Apply glue to the cleats, clamp in position and attach using 1-1/4" wood screws. The top cleat is flush with the top rail and the bottom cleat is flush with the bottom rail.



Step 13. Cut and Attach the Front Step Support

Cut a 1×2 to 11-3/4" and drill a pocket hole in each end. Apply glue to the ends of the step support, place 2-1/4" from the back of the step cleat and clamp. I used a right angle attachment on my drill to attach the 1-1/4" pocket screws.



Step 14. Cut and Attach the Front Seat

Cut a 1×6 to 16" and rip to 4-3/4". The seat is flush to the back of the legs, overhangs the front of the legs 1/2" and overhangs the sides of the legs 1/4". Clamp in position. Attach to the cleats using 2" wood screws and attach to the front rail using 1-1/2" pocket screws.



Step 15. Make and Attach the Front Step

Cut a 1×4 to 13-1/4". Cut a 1×5 to 13-1/4". To make the step, drill pocket holes, apply glue and attach using 1-1/4" pocket screws.

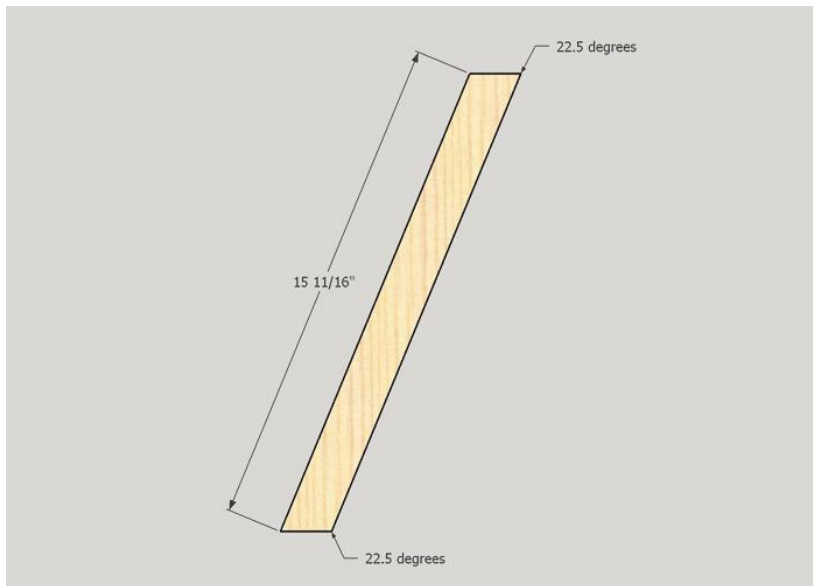


Place the step flush with the front of the legs and mark the angle at the back of the legs. Using a table saw or circular saw, cut a 22.5-degree angle at this mark. Clamp in position. Attach to the cleats using 2" wood screws and attach to the front rail using 1-1/2" pocket screws.



Step 16. Make the Back Legs

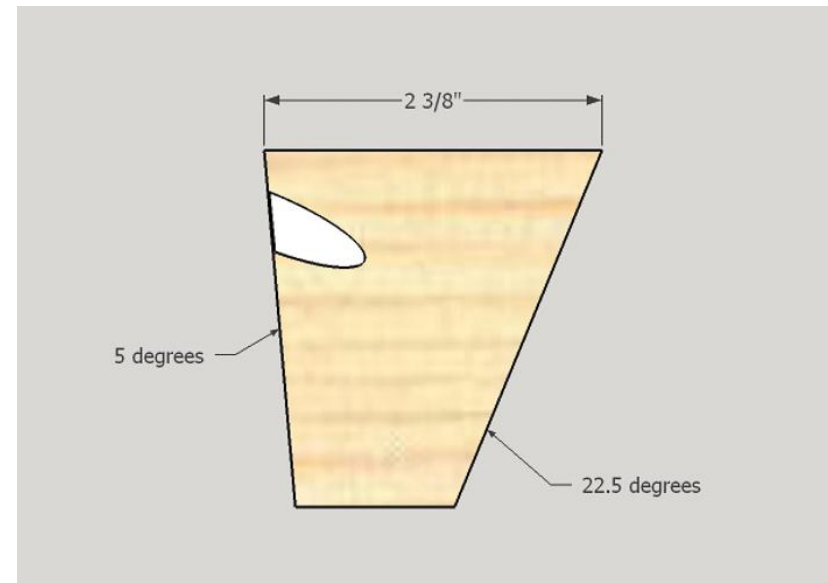
Cut a 22.5-degree angle on a $5/4 \times 2$, measure $15\text{ }11/16''$ and cut a parallel 22.5-degree angle. Repeat for the other leg.



Step 17. Make and Attach the Back Bottom Rails

Cut a 22.5-degree angle on a $5/4 \times 3$, measure $2\text{ }3/8''$ from the bottom of the angle and make a 5-degree cut.

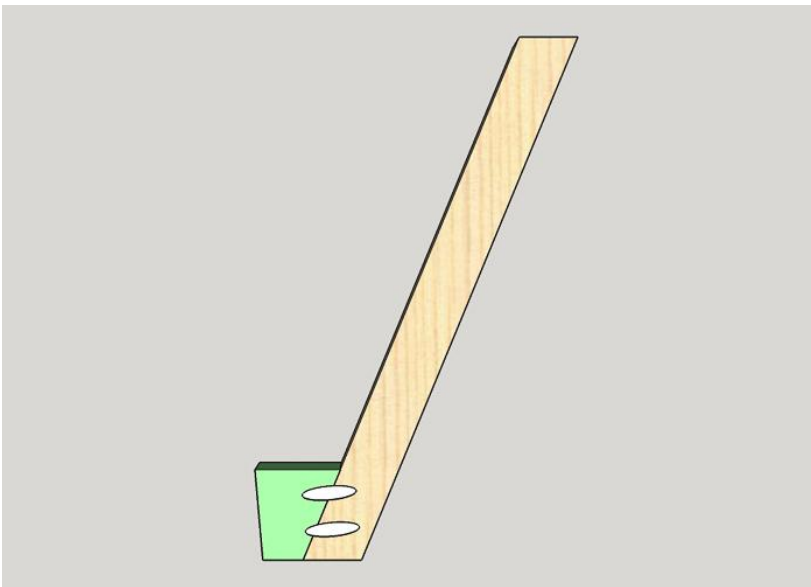
Drill a pocket hole to attach the bottom rail to the leg. Repeat for the other rail. Be sure to make a right and a left.



Step 17. Continued...

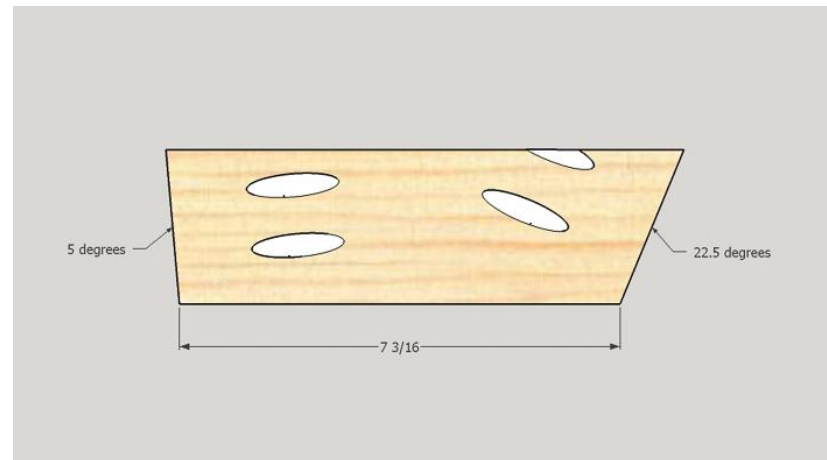
Apply glue to the front edge of the bottom rail, clamp to the front leg and attach using 1-1/2" pocket screws.

Then drill two pocket holes to attach the bottom rail to the stile. Be sure to position the pocket holes to avoid the pocket screw you just attached.



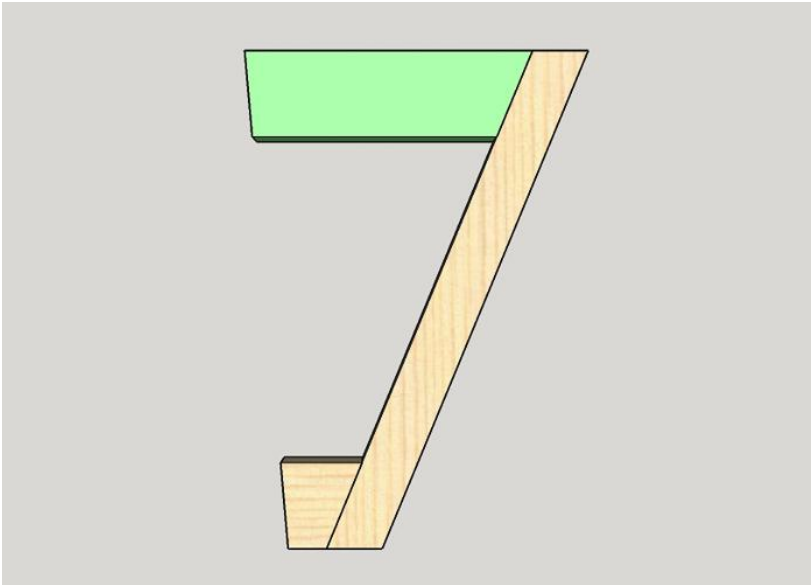
Step 18. Make and Attach the Back Top Rails

Cut a 22.5-degree angle on a 5/4x3, measure 7-3/16" from the bottom of the angle and make a 5-degree cut. Drill pocket holes in each end. Repeat for the other rail. Be sure to make a right and a left.



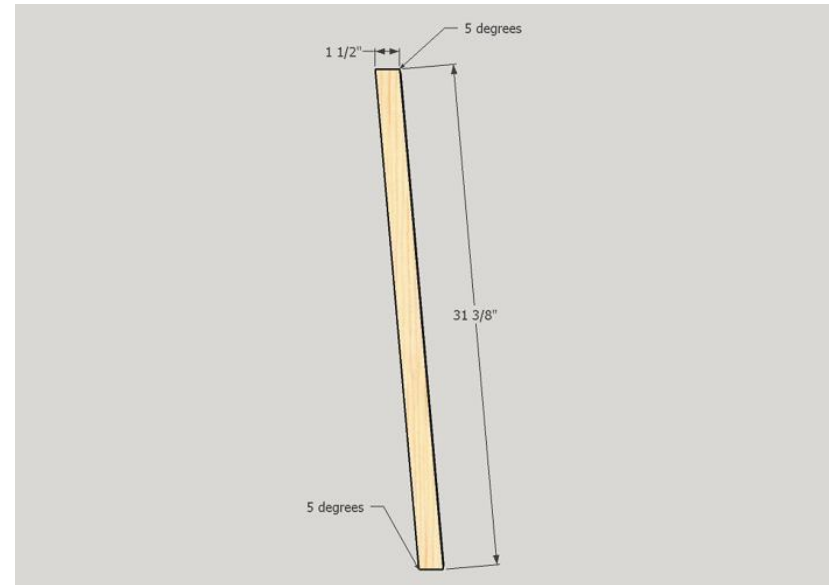
Step 18. Continued...

Apply glue to the front edge of the top rail, clamp to the front leg and attach using 1-1/2" pocket screws.



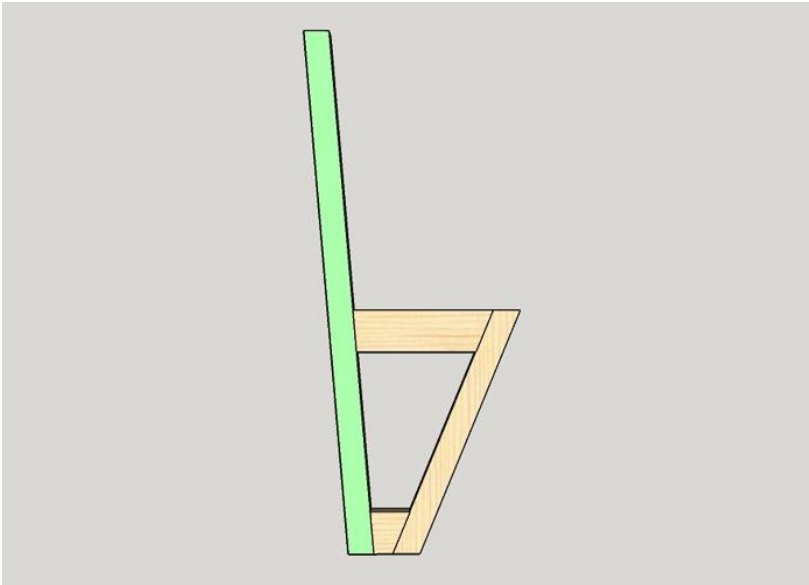
Step 19. Make the Back Stiles

Cut a 5-degree angle on a 5/4x2, measure 31-1/8" and cut a parallel 5-degree angle. Repeat for the other stile.



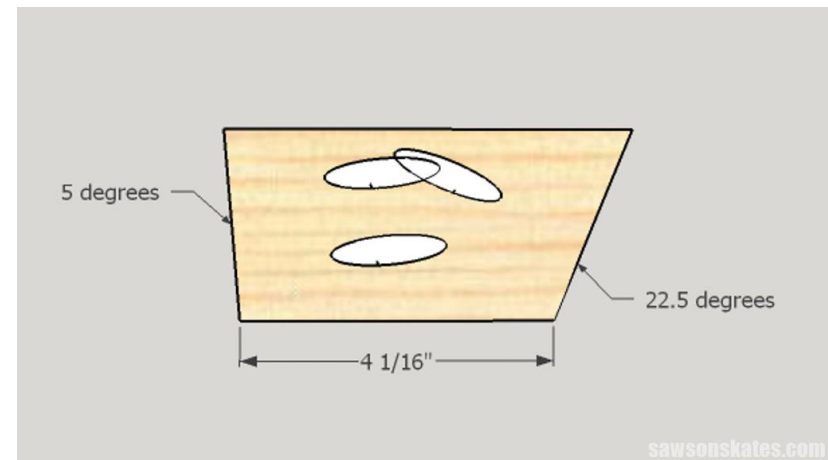
Step 20. Attach the Back Stiles

Apply glue to the ends of the rails, clamp to the stile and attach using 1-1/2" pocket screws.



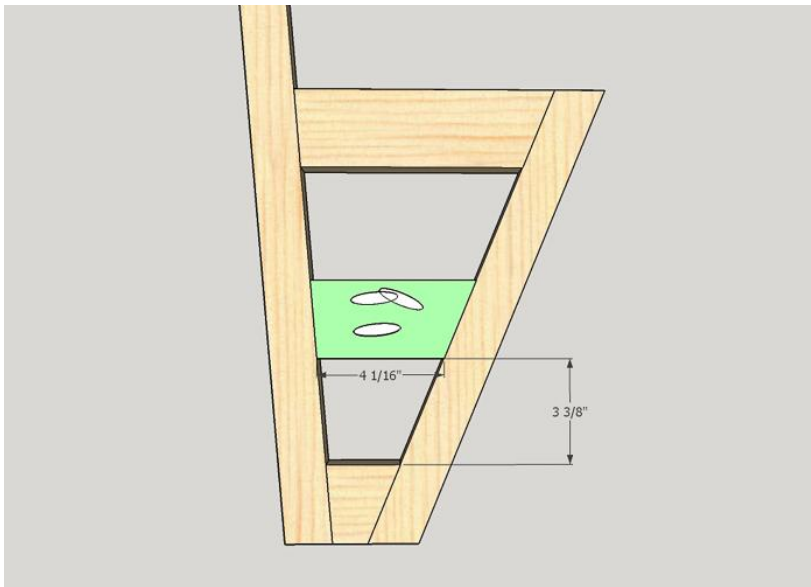
Step 21. Make and Attach the Back Middle Rails

Cut a 22.5-degree angle on a 5/4×3, measure 4-1/16" from the bottom of the angle and make a 5-degree cut. Drill pocket holes in each end. Repeat for the other rail. Be sure to make a right and a left.



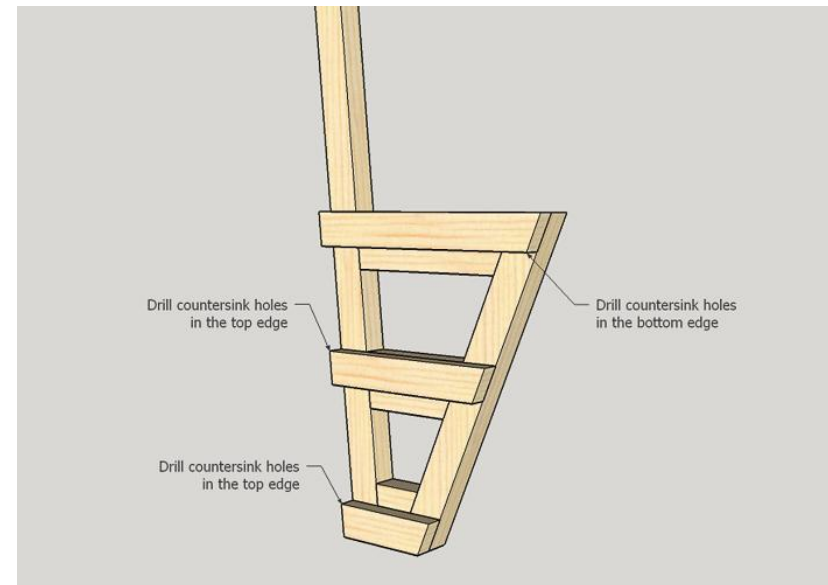
Step 21. Continued...

To help position the middle rail I cut a piece of scrap to 3-3/8". Place the scrap on top of the bottom rail, apply glue to the ends of the middle and clamp in position. Attach using 1-1/2" pocket screws.



Step 22. Make and Attach the Cleats

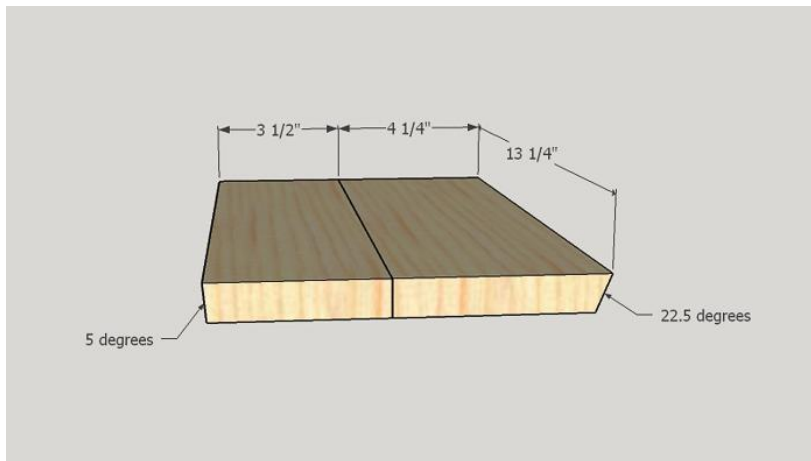
For the best fit of the cleats, it's best to place the wood in position, mark the angles and cut. The top cleat is flush with the top rail, the middle cleat is flush with the top of the middle rail and the bottom rail is flush with the bottom of the bottom rail.



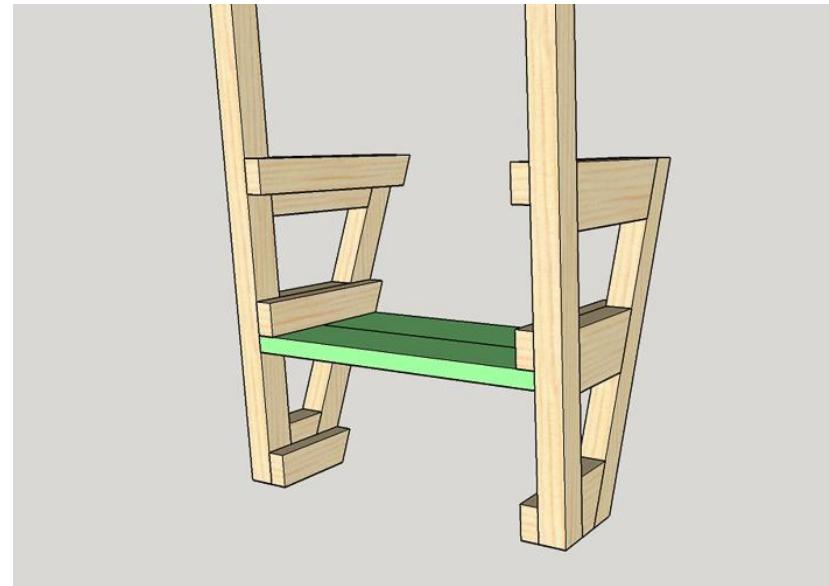
Once the cleats are cut, drill countersink holes in the bottom edge of the top rail to attach the seat. Drill countersink holes in the top edge of the middle and bottom rails to attach the steps. Then drill countersink holes in the faces to attach the cleats to the legs. Be sure to make a right and left. Apply glue to the cleats, clamp in position and attach using 1-1/4" wood screws.

Step 23. Make and Attach the Middle Step

Cut a 1×4 to 13-1/4". Cut a 1×5 to 13-1/4". Apply glue to the edge, clamp and allow to dry.

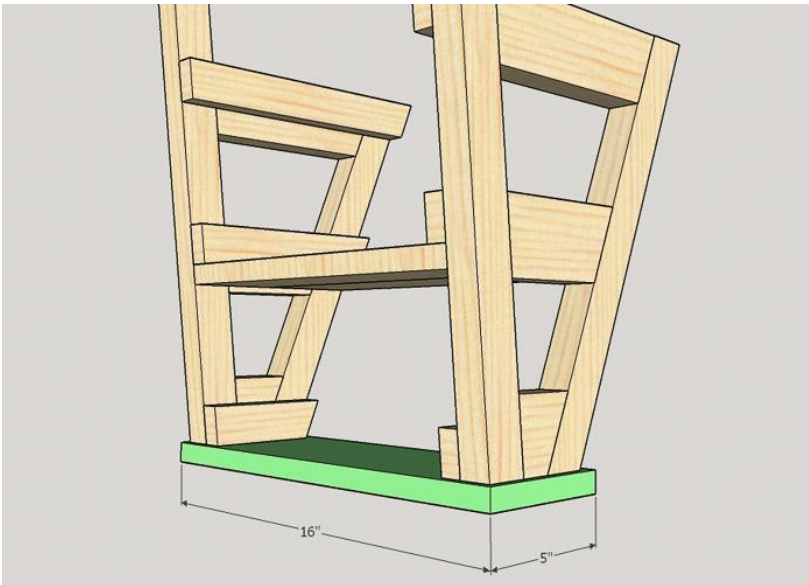


Once the glue is dry, rip a 5-degree bevel on one edge. Place the 5-degree angle under the middle cleat and against the back of the leg assembly. Mark the angle on the front edge. Rip a 22.5-degree bevel at the mark. Clamp the step between the legs and attach using 2" wood screws.



Step 24. Make and Attach the Bottom Step

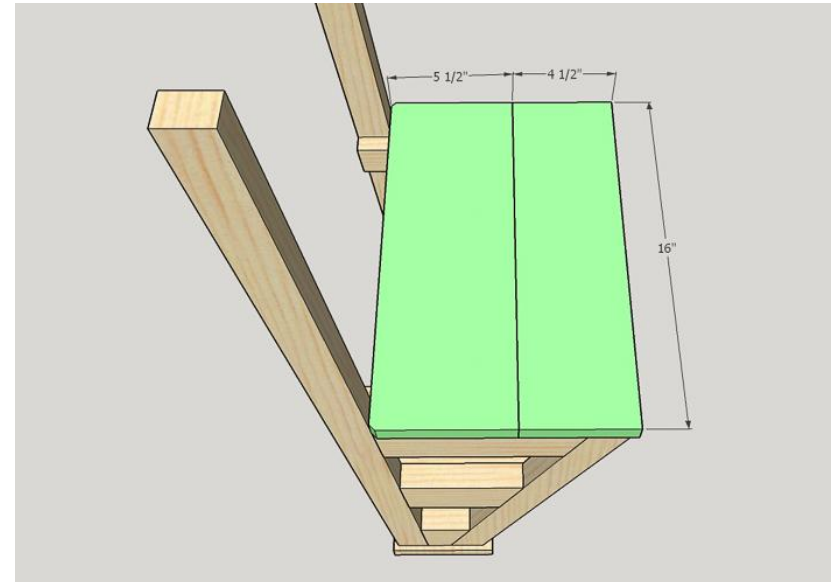
Cut a 1×6 to 16" and rip to 5". Position on the legs, clamp in position and attach using 2" wood screws.



Step 25. Make and Attach the Seat

Cut 2 pieces of 1×6 to 16". Apply glue to the edge, clamp and allow to dry. Once the glue is dry, rip a 5-degree bevel on one edge. Place the 5-degree angle against the stile and mark the front edge. Rip the seat to this mark.

Center the seat on the legs, clamp in position and attach using 2" wood screws.



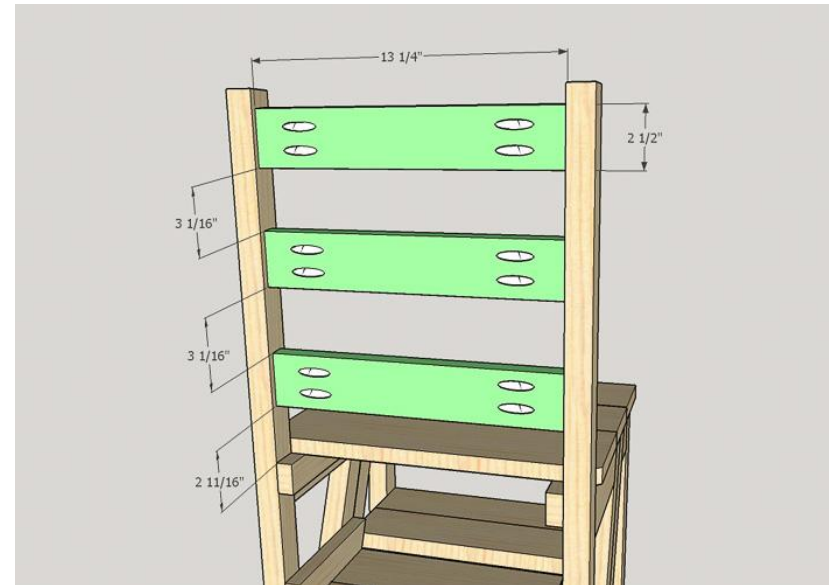
Step 26. Make and Install the Back Rails

Cut 3 pieces of 1×3 to 13-1/4" and drill pocket holes in each end. I cut a few pieces of scrap wood to help position the rails. For the bottom rail, I cut a piece of 1×2 with a 90 degree cut at the bottom, measured 2-11/16" and cut a 5-degree angle. For the remaining rails, I cut a piece of 1×2 with a 5-degree angle, measured 3-1/16" and made a parallel 5-degree cut.

Place the 2-11/16" scrap on top of the seat rail and temporarily attach to the stile with painter's tape. Place the bottom rail on top of the scrap, center on the stile, and clamp in position.

Place the 3-1/16" scrap on top of the bottom rail and temporarily attach to the stile with painter's tape. Place the middle rail on top of the scrap, center on the stile, and clamp in position.

Place the 3-1/16" scrap on top of the middle rail and temporarily attach to the stile with painter's tape. Place the top rail on top of the scrap, center on the stile, and clamp in position. Attach using 1-1/4" pocket screws.



Step 27. Attach the Piano Hinge

Set the back leg assembly on top of the front leg assembly. Center the [piano hinge](#) and temporarily attach with painters tape. Attach using the screws included with the hinge.

Step 28. Fill the Back Rail Pocket Holes

The pocket holes in the back rails are exposed. For a more tailored look, I used my pocket hole plug cutter to make plugs to fill the holes. Apply glue to the pocket holes and insert the plugs. Trim flush once dry.

Related: [How to Make Pocket Hole Plugs](#)

Step 29. Finish the Step Ladder Chair

Sand the ladder chair, then paint or stain to match your decor.

Coffee is Like a High Five in Your Mouth!



Did you find value in this free plan? **If you answered yes**, please consider treating me to a small [cup of coffee](#). **Thank you** for your support!