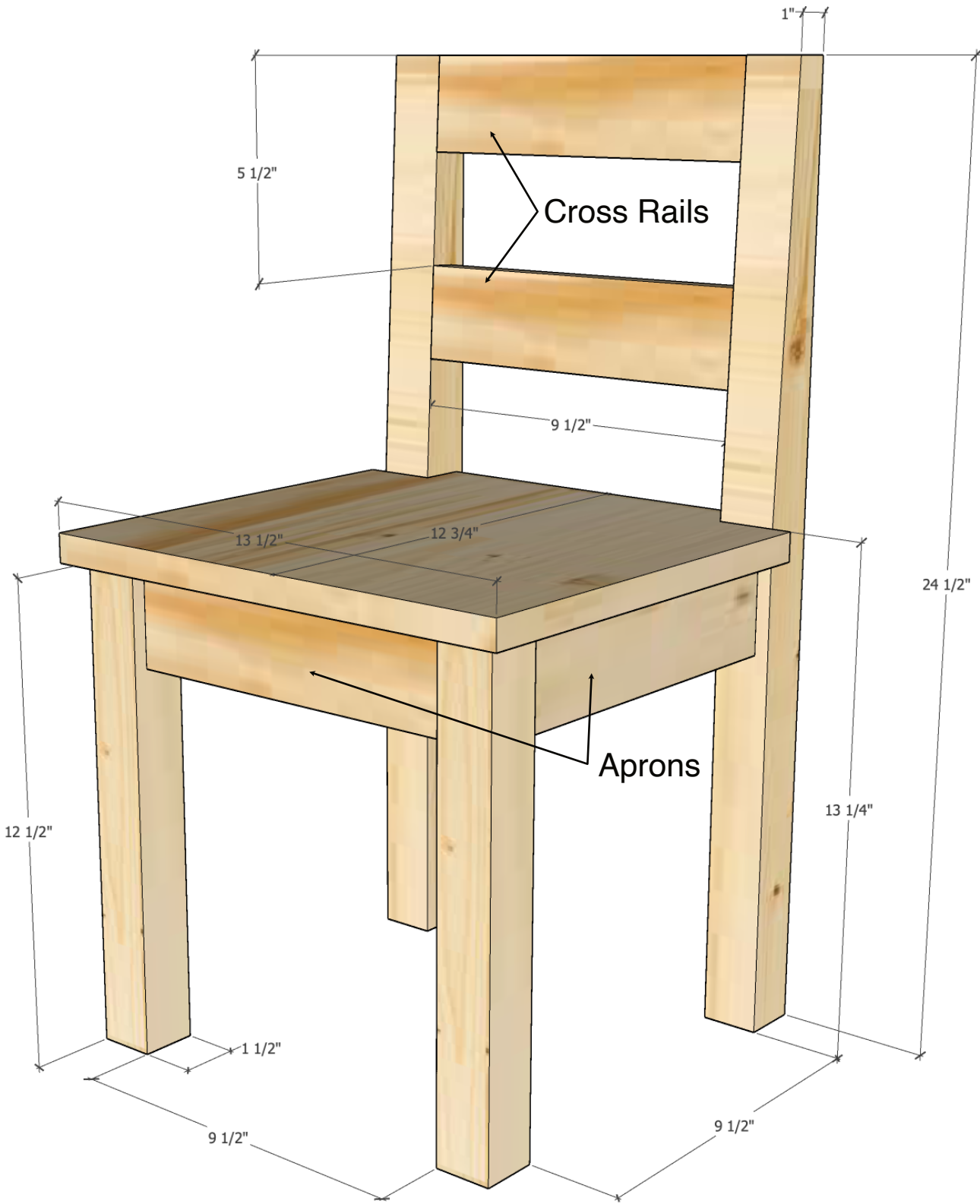


Kid's Chair

The assembled chair



Introduction

These plans are for building a chair to accompany the smaller kid-sized desk. This version uses floating tenon joints for better strength and rigidity. These are typically made using the Festool Domino tool but there are other versions of floating tenon systems out there and these plans will be useful to anyone with such tools. If you do not have access to such tools, look for the plans for the basic chair that is made with pocket hole joinery.

Chairs are a little more complicated to build due to the joinery techniques and tools used, and the glue-up involved, but they can be done by anyone with reasonable woodworking skills.

YOU MAY USE ANY JOINERY TECHNIQUE YOU WISH! The important idea is to preserve the overall size of the chair, notably the seat height.

The chair can be made from select grade pine or poplar for very little money. Finding poplar in sufficient thickness for the legs requires going to higher-end wood stores, so it may not be worth it for some. It is possible to glue up two $\frac{3}{4}$ -inch boards as an alternative but this is more time consuming.

Two chairs can be made from one 1×8×6 ft long common board, one 2×4×8 ft long stud, and two 1×3×6 ft long common boards. This puts the low-end cost estimate at around \$17 per chair if using pine, not counting glue and miscellaneous supplies.

The seat is made from edge-gluing 1×8 boards (7- $\frac{1}{4}$ inch actual width) together to achieve the final width of 13- $\frac{1}{2}$ inches after trimming. Assuming your boards are cut

square, the seat can be simply edge-glued and clamped until dry, or you can add a little more stability by joining them with biscuits or floating tenons, based on your skill set.

The legs are ripped from the 2×4 studs to final dimensions of 1- $\frac{1}{2}$ inches × 1- $\frac{1}{2}$ inches.

A cut list is included in these plans.

Tools & Materials

A table saw is essential to rip the 2×4 boards to 1-1/2 inches wide for cutting the chair legs. If you have access to a planer or drum sander you may want to cut them thicker and then bring them to final thickness with those other tools. It is also useful for cutting the chair seat to size following glue-up. A circular saw with clamping guide could also be used but is more cumbersome.

A mitre saw is perfect for cutting pieces to specific lengths but you can also use a table saw with an accurate mitre cross cutting attachment.

You will need a floating tenon cutter for the joints, as previously mentioned.

A biscuit joiner is useful for gluing up the seat boards and for making slots for the z-clips that will hold the seat in place.

Any interior wood glue will suffice for all the joints.

A wide planer or belt sander is used to finish the seat following glue-up but a hand plane or simpler sander will also work. All the boards are sanded to at least 120-grit before assembly.

Clamps capable of opening to 16 inches or more are necessary for assembly.

You are highly encouraged to read through these instructions before beginning.

Chair Construction

Cut out all the pieces

1. Begin by cutting out the seat pieces from the 1×8 board. Cut these about $\frac{1}{4}$ inch longer (13-inches) than specified so they can be cut to length after gluing. [Optional] Cut three #20 biscuit slots into the boards prior to edge-gluing them. Edge glue the boards together and clamp, allowing at least 24 hours for the glue to cure. After the glue has dried, cut the seat to the final dimensions of 13- $\frac{1}{2}$ inches wide by 12- $\frac{3}{4}$ inches long (see illustration). Use a bandsaw or hand saw to cut the notches out of each corner along the back edge of the seat. Plane or sand the boards flat on both sides, finishing with 120-grit sanding.
2. Cut the leg pieces. It is easier to cut the legs to length from the 2×4 board first, then rip them to 1- $\frac{1}{2}$ -inch wide final thickness. The rear legs are 24- $\frac{1}{2}$ inches long and the front legs are 12- $\frac{1}{2}$ inches long. If you have access to a taper jig, cut a taper in the rear legs starting at 13- $\frac{1}{4}$ inches up from the bottom, to create a 1-inch width at the top of the leg. This is to create a slight incline in the backrest and is not absolutely necessary.
3. Cut the four aprons and two cross rail pieces from the 1×3 boards. These are all the same length, 9- $\frac{1}{2}$ inches.
4. Next it is time to cut all the floating tenon mortises. The measurements given here assume the use of an 8 mm cutter and that you'll be using Festool's 8×40×22 mm dominos. Adjust for your specific setup. All of the apron and backrest pieces can be cut identically the same. Cut a mortise that is centered with the width of the boards ($\frac{3}{8}$ inch) and $\frac{5}{8}$ inch from one edge (see illustration). Cut one on each end of these pieces. If you plan to make a lot of chairs, building a simple jig to repeat this cut will be ideal.
5. Glue a domino into each end of all the apron and cross rail pieces.
6. Now cut the matching mortises in the leg pieces. Note that the front and back aprons are inverted versus the sides. This is so the tenons do not overlap when being inserted into the same leg (see "Front Leg Mortises" illustration). For the front legs, the side mortise is cut centered $\frac{5}{8}$ inches down from the top of the leg, centered on the width of the leg ($\frac{3}{4}$ inch). For the front apron that goes between these two legs, the mortises are cut centered 1- $\frac{7}{8}$ inches down from the top, centered on the width.
7. Cut the matching mortises in the rear legs as well as the mortises for the cross rails. The mortises for the cross rails are cut parallel to the tapered edge (if tapered). They are centered $\frac{5}{8}$ inch and 6- $\frac{1}{8}$ inches from the top, and $\frac{3}{8}$ inch from the front surface. The mortises for the side aprons are centered 11- $\frac{7}{8}$ inches from the bottom of the leg and in the center of the leg. The mortises for the back apron are centered 10- $\frac{5}{8}$ inches from the bottom of the leg and set back $\frac{3}{8}$ inch from the front surface. There are left and right versions though only the right rear leg is shown in the illustration. The left is a mirror copy.
8. With all the chair pieces cut out, sand them up to 120-grit sandpaper before assembling the chair. Sand the edges and give them a slight roundover to avoid sharp edges.

Assemble The Chair

1. Begin assembling the chair by creating a left and right side assembly. Apply glue in the mortise of each leg to accept the aprons. Keep in mind that these are the higher mortises on the front leg pieces. Apply glue to the surface of each apron ends, insert into the legs and clamp together. Wipe off any squeeze out. If there is any twist to the pieces, it may also be necessary to clamp the assembly down to a heavy flat surface, like a piece of wood such as a $\frac{3}{4}$ -inch plywood. Allow the glue to fully cure before unclamping and continuing.
2. With the left and right side assemblies completed, lay one side down face-up. Apply glue to the remaining mortises. Do the same to the opposite side assembly. Apply glue to the ends of the remaining apron and cross rail pieces. Insert these pieces into one of the side assemblies. Quickly invert the other side assembly and press into place after aligning all of the tenons with the appropriate mortises. Use just enough force to fully seat both side pieces and then apply clamps at the locations shown in the diagram. Wipe away any squeeze out and allow the glue to cure before continuing.
3. The seat should be attached in such a way that it allows for seasonal movement along the width of the seat. The preferred method is to use z-clips purchased from Rockwell (or Amazon) for around \$8 for a pack of 20, with screws. Only 4 clips are needed for one chair. *Make sure the screws are not too long and will not protrude through the seat surface.* A biscuit cutter is used to cut two slots into each chair apron, just far enough down from the top surface to allow the z-clips to apply modest holding pressure. The z-clips on the sides should

only go half-way into the slots (allowing for movement). The back and front z-clips can be pushed all the way into each slot. You can also use a router with a slot cutter to make these slots. If using a router table, you would need to make these cuts before assembling the chair.

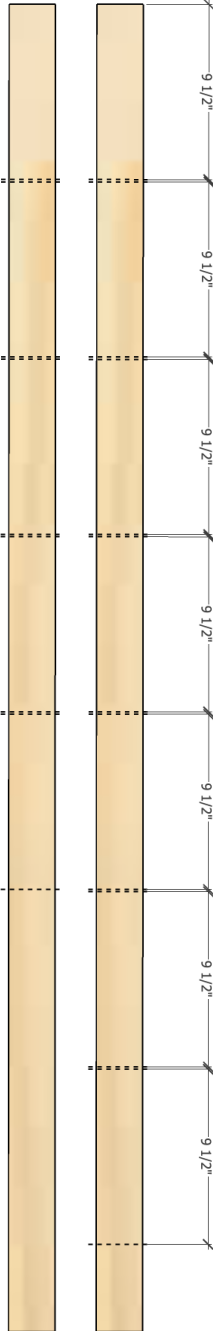
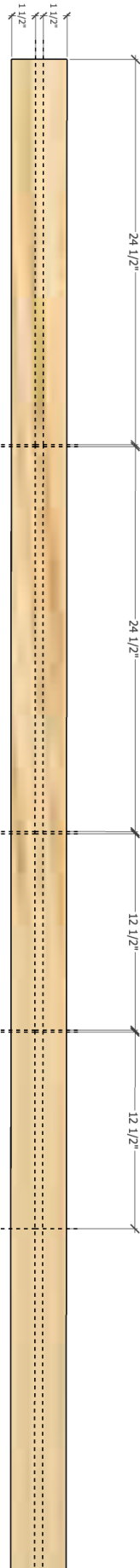
There are other ways to attach the seat if not using z-clips, and instructional videos can be found on YouTube.

4. Now that the chair has been assembled, sand everything with a final 150 or 180-grit paper and wipe away any dust using a non-damp cloth.

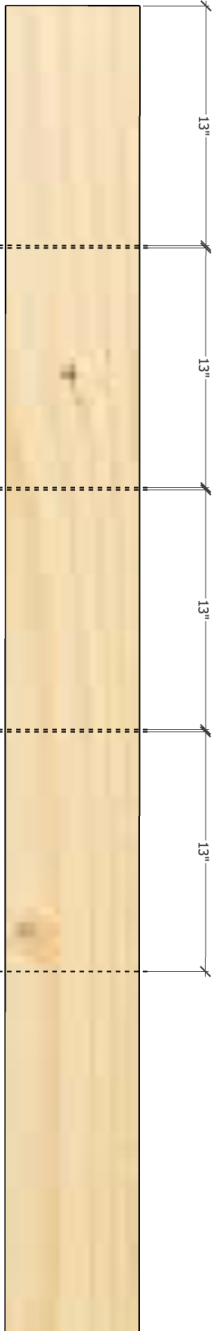
Kid's Chair

Cut List

2x4x8 ft
ripped to two
1-1/2 x 1-1/2



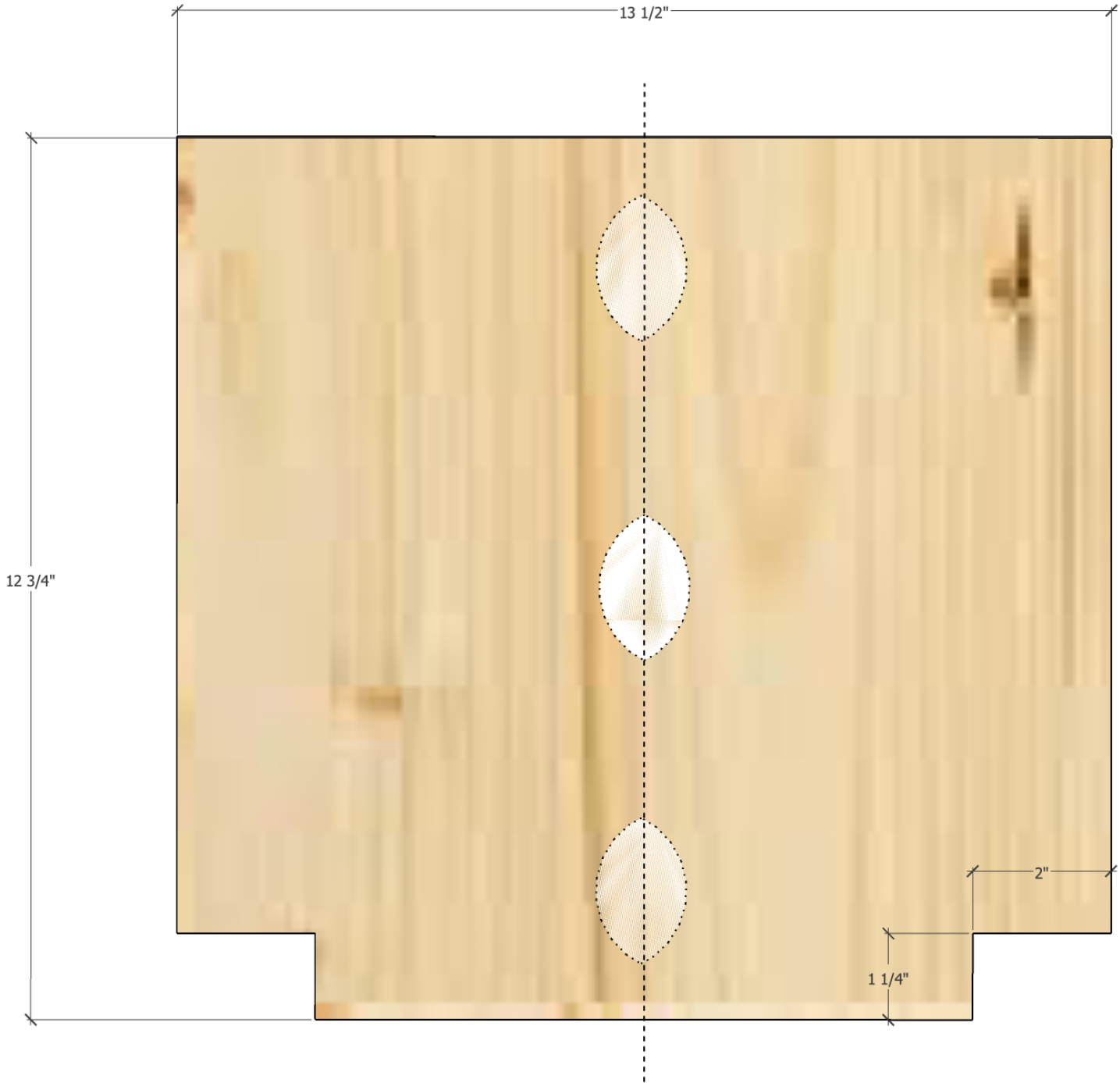
1x3x6 ft
(2)



1x8x6 ft

Kid's Chair

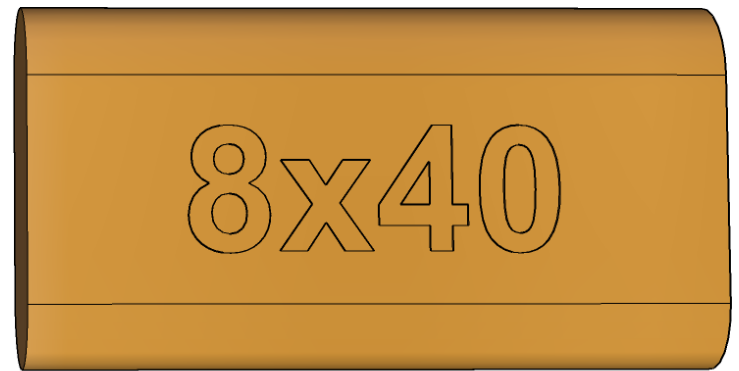
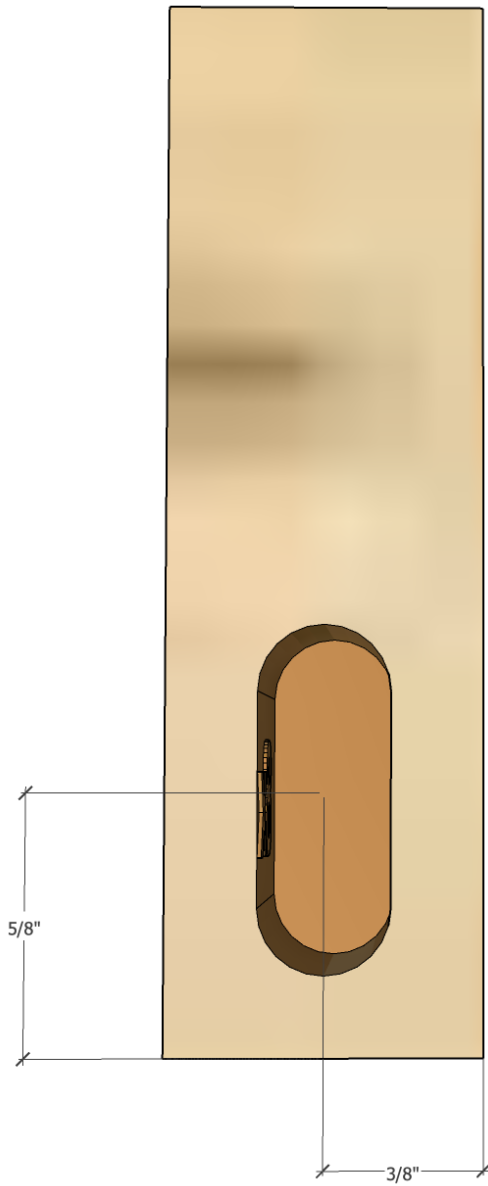
Chair Seat



Kid's Chair

Mortises

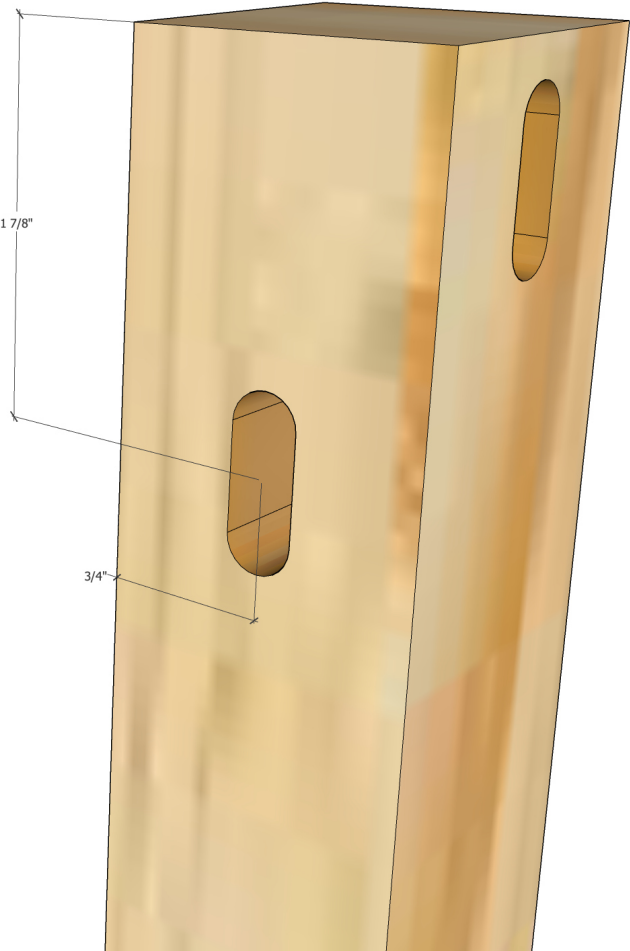
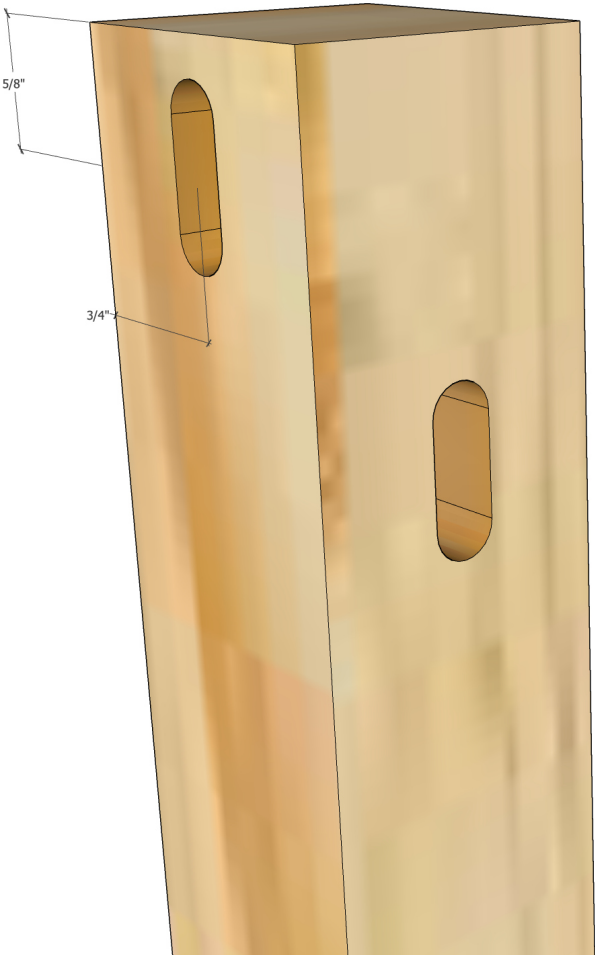
Cut a mortise on each end of the 9-1/2-inch pieces in the locations shown. Glue an 8×40×22 mm domino into each end.



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Front Leg Mortises

The leg mortises are offset so that tenons do not strike each other when inserted into the legs.



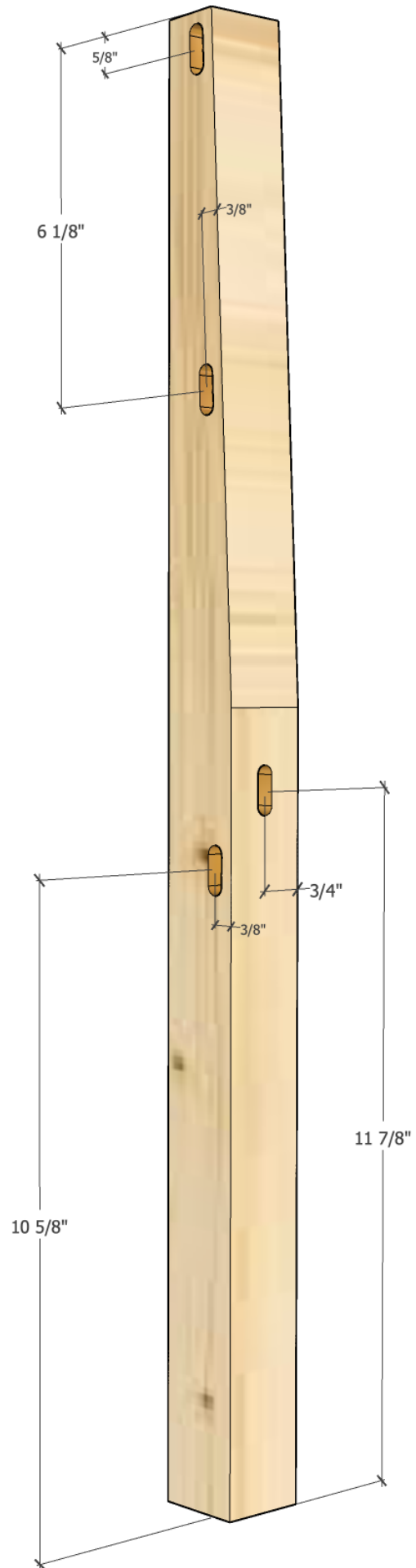
Kid's Chair

Rear Leg Mortises

The mortises for the cross rail are cut parallel to the tapered edge (if tapered). They are centered $5/8$ inch from the top and $3/8$ inch from the front surface.

The mortises for the side aprons are centered $11-7/8$ inches from the bottom of the leg and in the center of the leg.

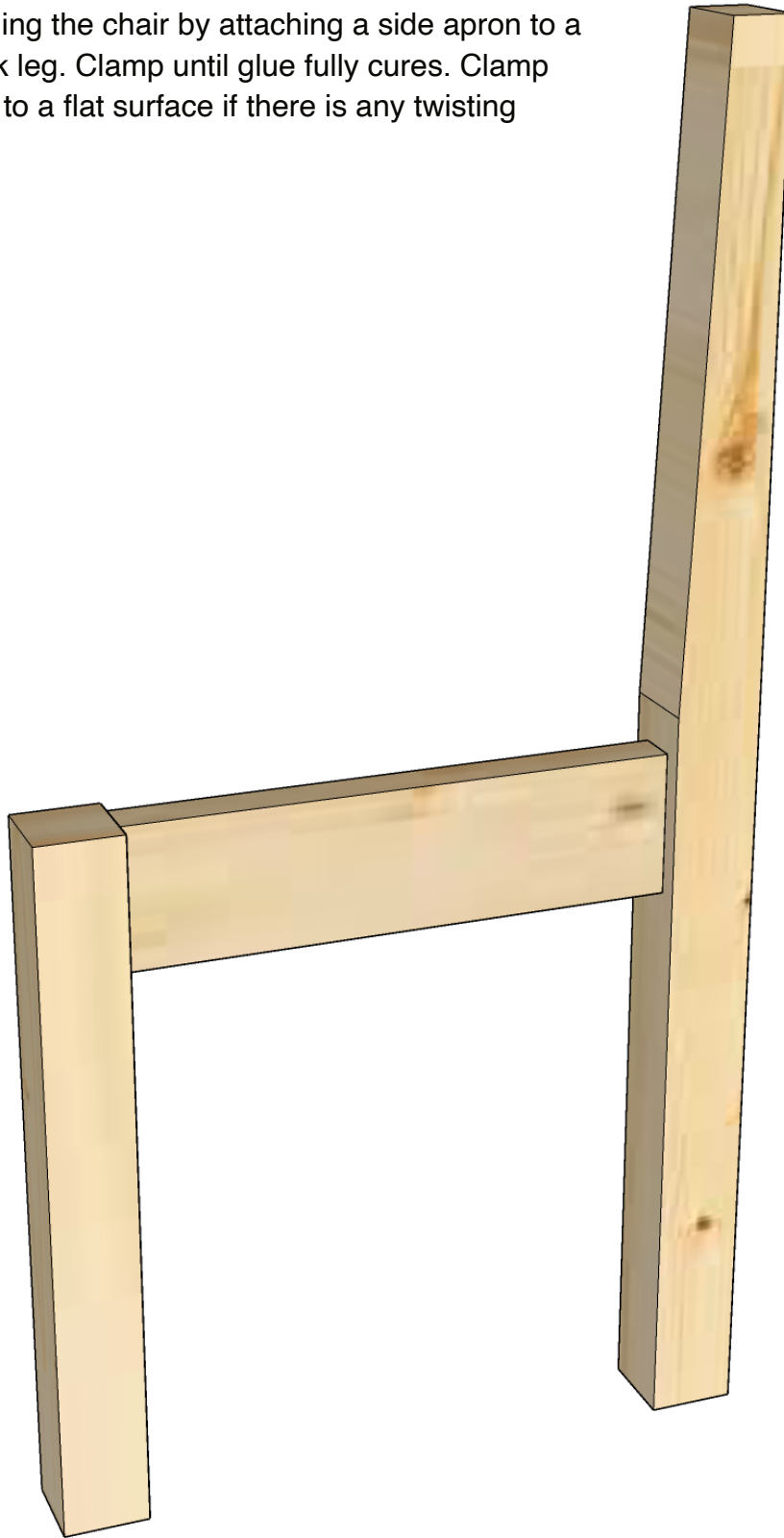
The mortises for the back apron is centered $10-5/8$ inches from the bottom of the leg and set back $3/8$ inch from the front surface.



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Side Assembly

Start assembling the chair by attaching a side apron to a front and back leg. Clamp until glue fully cures. Clamp the assembly to a flat surface if there is any twisting present.



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Final Clamping

Attach the remaining pieces using glue and clamp in place until cured. Wipe off any excess glue.

