

Student Chair

A larger chair to accomapny the student desk.



Introduction

These plans are for building a chair to accompany the larger student-sized desk.

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.

The simplest method is to use a pocket hole jig and screws to assemble the chair. Along with glue, this makes a sturdy chair that will last a long time. A stronger method is to use mortise and tenon joinery or floating tenon joinery, but this requires more time and expense if you do not already own the tools. Finally, dowel joints are a nice middle-ground for strength over using pocket hole screws.. A decent dowel jig is not too expensive.

We have left the joint method up to you for these plans. The dimensions of the various pieces to cut will remain the same.

The chair can be made from select grade pine or poplar for very little money. The seat is made from gluing 1x6 boards (5-½ inch actual width) together to achieve a 16-inch width or greater. 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.

A single 8-foot long 1x6 board will allow you to make one chair seat. The remaining portion of the board can be ripped to make

the remaining 1x3 pieces (aprons and back rest).

The legs are cut from a single 2x2x8-foot board (or ripped from a 2x4x8-foot stud).

The cut list diagram shows the layout for making a single chair from one 1x6 board and one 2x2 board.

Tools & Materials

A table saw is essential to rip the 1x6 boards to 2-1/2 inches wide for cutting the chair apron and seat back pieces. 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.

For the joints, you will need either a pocket hole jig, a dowel jig, or some means of cutting mortise and tenon joints, or floating tenon joints. 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 will also work. All the boards are sanded to at least 120-grit before assembly and a final sanding of 150 or 180-grit is given after assembly.

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

Chair Construction Steps

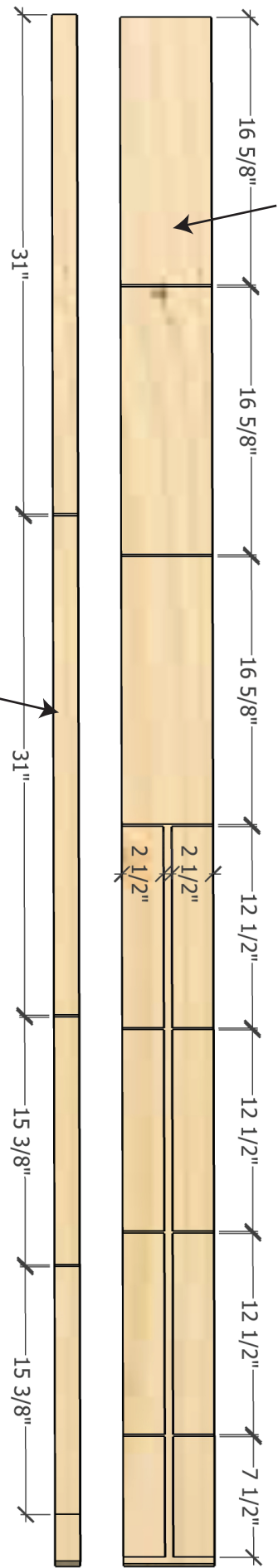
1. Begin by cutting out the three seat pieces from the 1x6 board. Cut these about $\frac{1}{4}$ inch longer than specified so they can be cut to length later. [Optional] Cut three biscuit slots into the boards prior to edge-gluing them. Edge glue the boards together and clamp, allowing at least 24 hours for the glue to cure. After the glue has dried, cut the seat to the final dimensions of $15\text{-}\frac{3}{4}$ inches wide by $16\text{-}\frac{1}{2}$ inches long (see illustration). Use a 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. Rip the remaining 1x6 board to two $2\text{-}\frac{1}{2}$ -inch wide boards. From these, cut the chair aprons and seat back pieces to length, as shown in the illustration.
3. Cut the chair legs from the 2x2 board. The rear legs are 31 inches long and the front legs are $15\text{-}\frac{3}{8}$ inches long. If you have access to a taper jig, cut a taper in the rear legs starting at $16\text{-}\frac{1}{8}$ inches up from the bottom, to create a 1-inch width at the top of the leg. This is only to create a slight incline in the backrest and is not absolutely necessary.
4. With all the chair pieces cut out, sand them with 120-grit sandpaper before assembling the chair.
5. The next steps will be left up to you, depending on the joinery technique you plan to use. If using pocket hole screws, make sure there are at least two screws in each end of the 1x3 pieces. Two dowels in each end should also provide a strong joint. A single floating tenon will also work.
6. We have found it easiest to assemble a left and right side separately, clamping both ends flat and setting aside for at least 12 hours. Then the seat back pieces can be assembled and also allowed to dry.
7. Finally, attach all the center pieces to the two ends and assemble the chair upright on a flat surface and ensure everything is in alignment before the glue completely dries. Clamp this securely and allow the glue to dry, about 12-24 hours.
8. 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 8 clips are needed for one chair. 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.
9. Now that the chair has been assembled, sand everything with a final 150 or 180-grit paper and wipe any dust using a non-damp cloth.

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Cut list

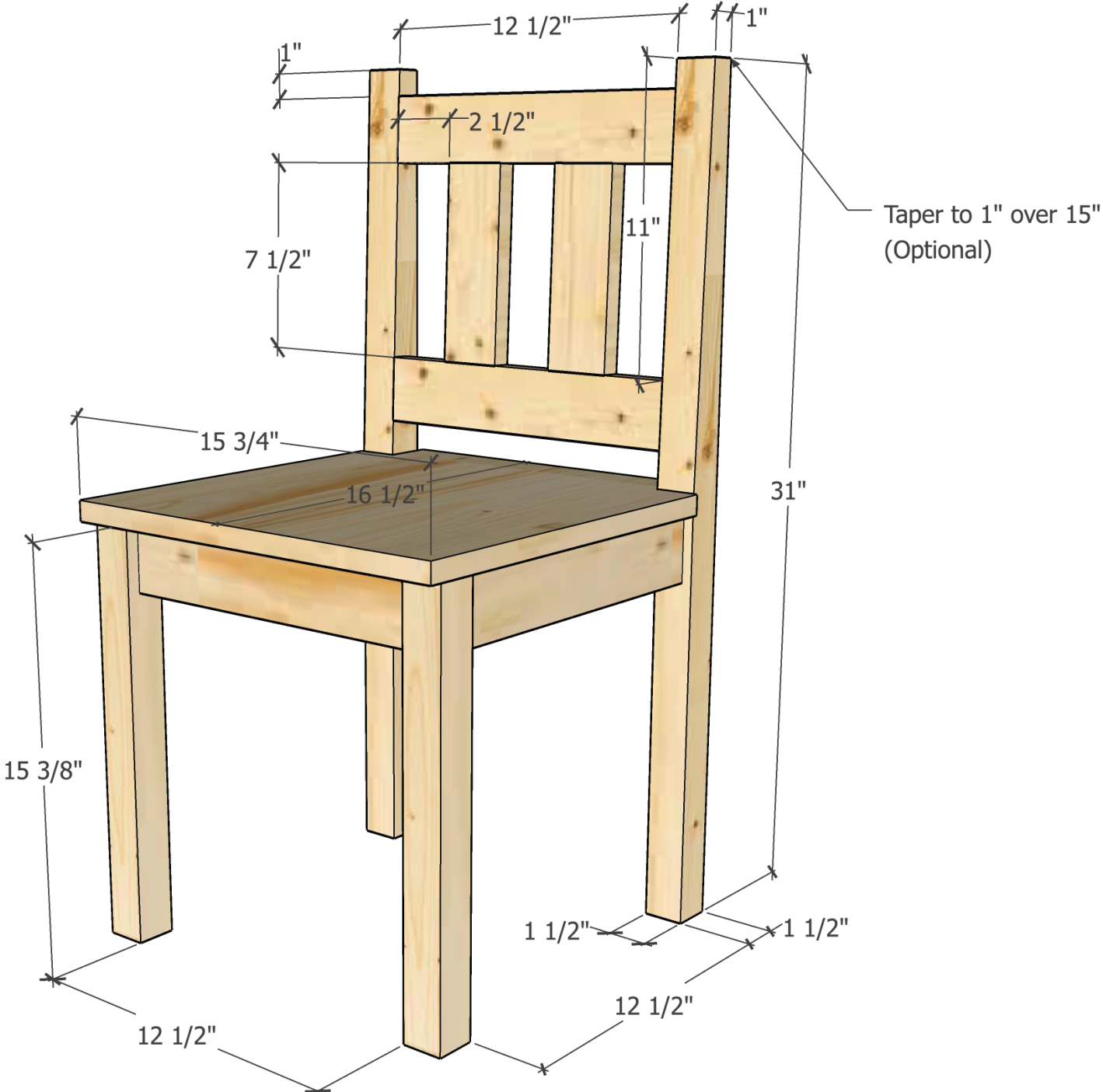
2x2x8-foot board
(1-1/2-inch x 1-1/2-inch)

1x6x8-foot board
(3/4-inch x 5-1/2-inch)



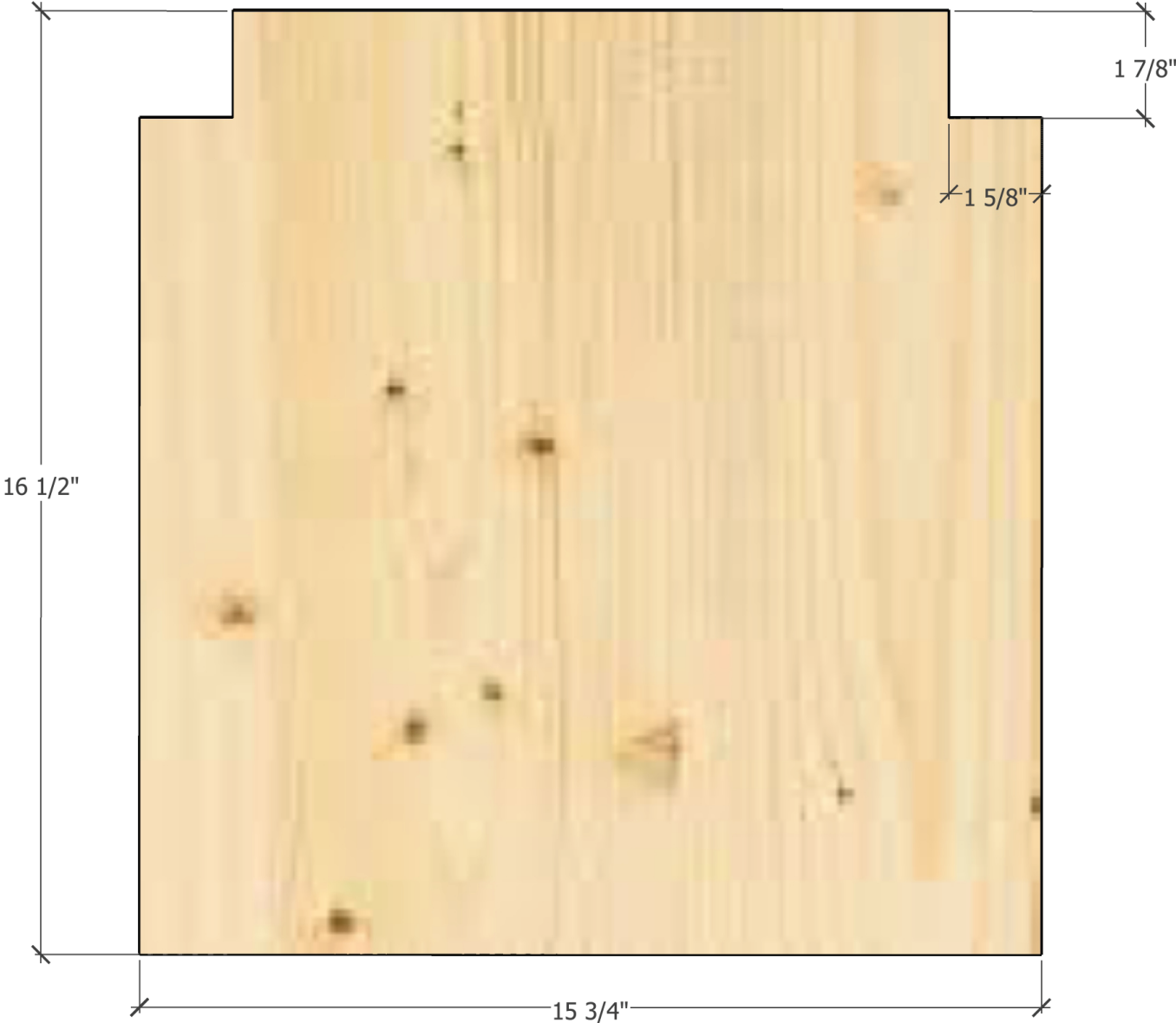
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Chair Dimensions



Student Chair

Seat Dimensions



Glue (3) 1x6 boards to make seat.