

The Classic Roubo Style Workbench

Intermediate Level Project



I've had a Roubo-style workbench at the top of my wish-list for quite a while after reading through Christopher Schwarz's [Workbenches: From Design & Theory to Construction & Use](#). And, as luck would have it, three years ago I helped a friend mill several large trees that they had taken down and, in return, he was nice enough to give me a bunch of really nice,

thick lumber to use for a workbench. So while that finishes drying, I thought I'd build a bench from common construction-grade lumber and experiment with some design and construction ideas that I've come across over the years.

Step 1: Materials

For this bench I used 2x8 and 2x10 construction-grade lumber and a piece of 3/4" MDF for the shelf. The upside to using construction-grade lumber is the price. The southern yellow pine boards for this bench cost right around \$100 here in North Carolina. Unfortunately, the downside to using this type of lumber is the quality. I spent *quite* a while sorting through lumber at two different stores to find the boards needed for this project.

I tried to find the straightest boards without knots on either the outside edges or down the middle since they'll all be ripped in half. A few small knots on the top are fine and can easily be filled with epoxy or Super Glue, but it's best to avoid anything large that looks like it might break off.

For the top and stretchers, I decided to use 2x8 boards which saves a little money and still results in a plenty-thick top at 3-1/4" thick and stretchers that were 3-3/4" thick. For the legs, I switched to 2x10s and ended up with legs that were a little over 4" wide.

Lumber (Southern Yellow Pine or Similar)

- Top: (9) 2" x 8" x 8'
- Stretchers: (1) 2" x 8" x 10' and (1) 2" x 8" x 8'
- Legs: (2) 2" x 10" x 10'

Other Materials

- [Titebond III Wood Glue](#)



Step 2: Tools Used

To speed up the process of surfacing the construction grade lumber, I used a jointer and planer. You could purchase pre-surfaced boards to skip this step at additional cost, skip-plane the boards using only a planer, or even hand-plane the boards if you like a good workout.

A table-saw is very handy for ripping the boards to final width, though a circular saw with an edge guide could also be used. The sliding miter saw could also be replaced with a circular saw or hand saw. The main goal is to end up with boards that have a consistent thickness and that the thickness of the outer two boards of the top match the thickness of the corresponding boards in the leg and long stretcher so that the laminated joints match.

- [Hitachi 12" Compound Sliding Miter Saw \(C12RSH\) \(Latest version: C12RSH2\)](#)
- [Dewalt Heavy Duty Miter Saw Stand \(DWX723\)](#)
- [Grizzly 8" Jointer \(G0586\) on \[Mobile Base\]\(#\)](#)
- [Ridgid 13" 3-Blade Thickness Planer \(R4330\) \(Latest version: R4331\)](#)
- [Grizzly 17" Bandsaw \(G0513P\)](#)
- [Grizzly G0691 Table Saw](#)
- [Craftsman 17" Drill Press \(22901\) on \[Mobile Base\]\(#\)](#)
- [Drill Press Table](#)
- [Bosch 5" Random Orbit Sander \(ROS20VSC\)](#)
- [Skil 6 Amp Scrolling Jigsaw \(4690-01\)](#)
- [Rockler 16-Piece Forstner Drill Bit Set](#)
- [Ridgid 18V Power Tools 5-Piece Combo Kit](#)
- [Rubber Roller for Spreading Glue](#)

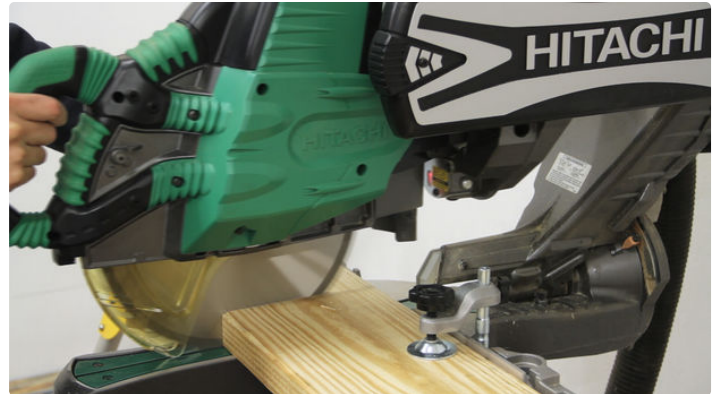
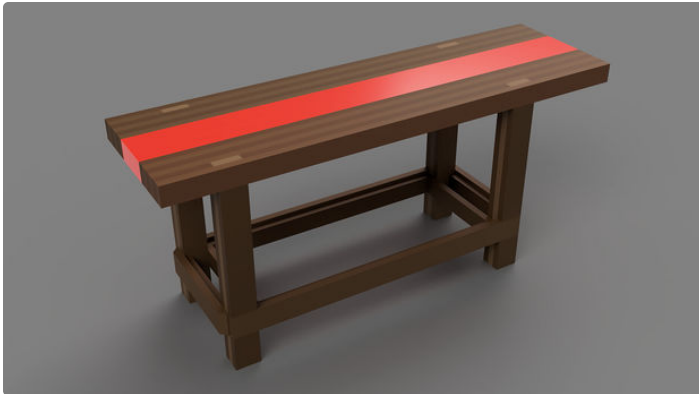
Step 3: Preparing Boards for the Top

I started with the top and split it into three sections. Trying to glue more than six long boards at a time can be stressful, and I had dreams of running the sections back through the jointer and planer.

I started with the middle section first by cutting the board to rough length at the miter saw, leaving three to four inches extra for planer snipe and for spacers. Then I joined one face and edge at the jointer and ran

them through the planer to get a final thickness of 1-1/4".

Next, I ripped the boards into two pieces by running the jointed and then newly cut edges against the fence at the table saw. I also went ahead and cut off two spacer pieces to use later when laminating the leg tenons.



Step 4: Gluing the Top Sections

Since these boards like to warp after they're surfaced, I also made a few clamping cauls from some scraps. These will be used to remove any crook in the boards during glue-up by clamping them across the top and bottom edges of the boards.

Then it was time to add some glue! For this project I used Titebond III glue which costs a bit more but has a longer open time which reduces some of the glue-up stress. This project and the vises should take around 2/3 of a gallon, so I definitely recommend

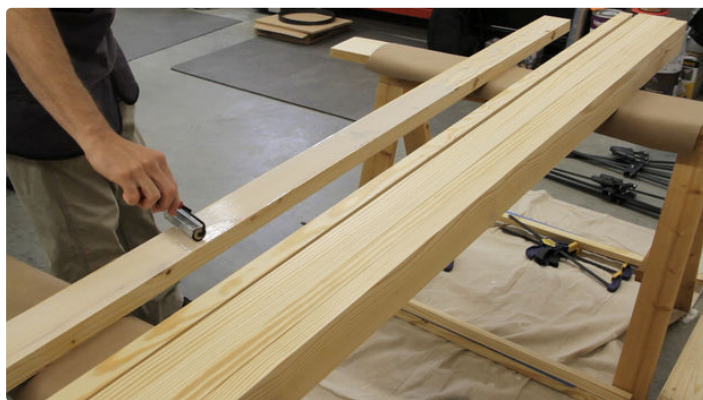
top's two outermost boards. These boards will be laminated later (once spacers are made from the legs) to create the through-mortise for the legs. The important thing to remember is that the thickness of

buying a gallon bottle to save some money.

I tried to move quickly and spread the glue using a hard rubber roller which worked really well. Once the glue was applied I attached the cauls and then the rest of the clamps. Then I tried to clean up as much glue squeeze-out as possible before moving on to the next two sections.

While the middle section dried, I repeated the same steps for the front and back sections *except* for the

these two boards needs to match the thickness of the middle and outer leg boards and the long stretcher.

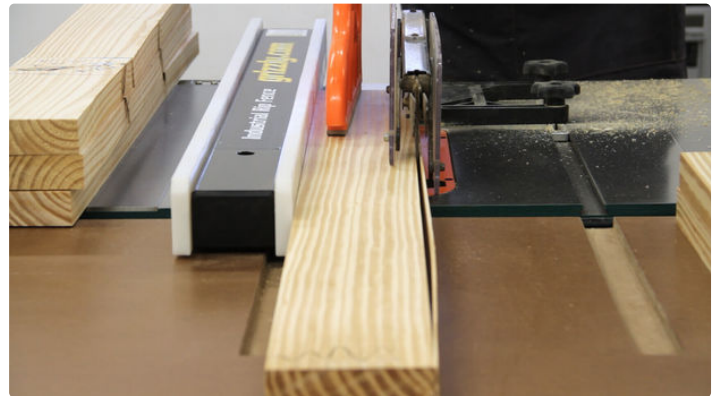
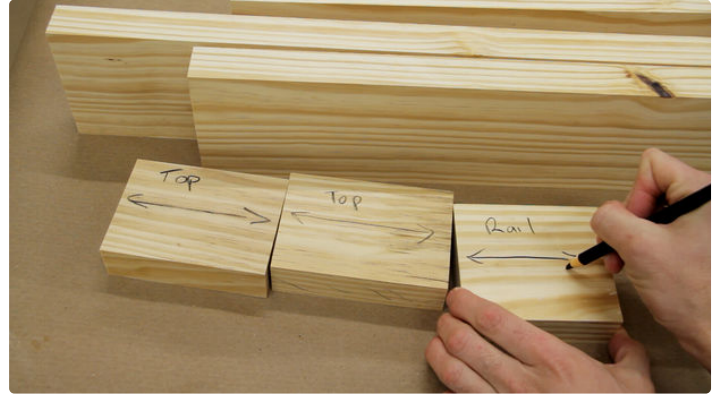


Step 5: Preparing Boards for the Legs and Stretchers

Next, I rough cut a single 10' 2x8 board for the long stretchers, again leaving enough room for a 4" spacer to use when laminating the lap-joint in the legs. Note that the spacer (shown here) should be cut after the stretchers have been surfaced and ripped to final width.

rough length at the miter saw also leaving about 4" extra for the spacer that will be used to create the mortises in the top. Since the 2x10's that I wanted to use for the legs were wider than my jointer, I went ahead and ripped them using my bandsaw. I then surfaced them at the jointer and planer and ripped everything to final width at the table saw.

I also went ahead and cut the boards for the legs to



Step 6 : Laminating the Leg's Tenon and Lap Joints

After cleaning up the top edge of the leg boards at the miter saw, it was time to glue the parts together. Each leg consists of three boards laminated together. To create the tenons on the leg, I temporarily clamped two of the spacer blocks that I cut earlier from the top to the middle leg board. I tried to make sure that the spacer blocks were flush with the top of the middle leg board to ensure a gap-free with the top later.

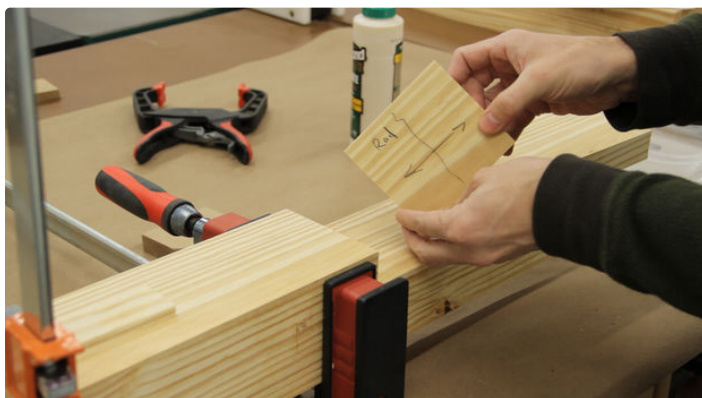
To remove any any slight warping between the three leg pieces, I used a pair of parallel clamps to keep the sides flush.

To avoid having to use a dado blade later, I also cut

the front board of the leg and used the spacer cut from the long stretcher to create its corresponding lap joint.

Once everything was in place and clamped down, I *immediately* removed all three spacer blocks and cleaned up any glue squeeze-out.

Finally, I cut all the legs to their final length at the miter saw and saved the odd shaped cut-offs for use later as spacers when laminating the mortises in the top.



Step 7: Filling Small Gaps

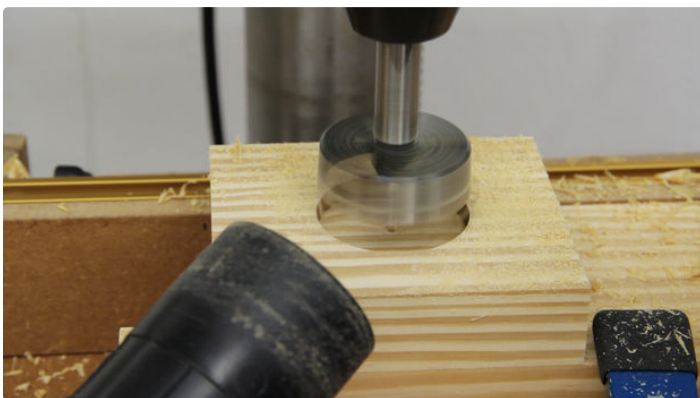
I did end up with a very small gap between two of the boards in one leg. To fix this, I made a simple wood filler from some pine sawdust and glue mixed together. After it dried I sanded it down and while it's not 100% perfect due to the changes in wood color, you now have to look closely to notice it.

Note that this can be used for any of the laminations should you end up with a small gap in the top.



Step 8: Leg Vise Preparation

Before moving back to the top, I went ahead and drilled a few holes for the linear bearing and leg vise screw at the drill press. I'll cover this as well as building the chop for the leg vise in more detail in our next Instructable.



Step 9: Preparing Outer Top Pieces

To finish up the top sections, I started by cutting the left end of each laminated section at the miter saw. I then cut the boards that make up the row with the mortise into the pieces. To make sure that the matching front and back pieces were identical, I made one final cut at the miter saw trimming each pair of boards together.

Before gluing these into place, I went ahead and drilled 3/4" dog holes as deep as I could with my Forstner bit at the drill press. This made it much easier to finish drilling the holes later with a regular spade bit.



Step 10: Laminating the Mortises in the Top

Next, working from left to right, I glued up the three pieces to form the two mortises using the spacer blocks from the legs. And again, as soon as everything was clamped down I made sure to remove the spacers and clean up any excess glue.

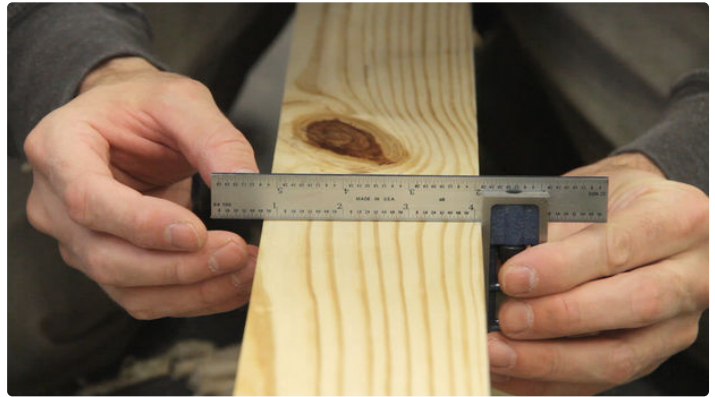
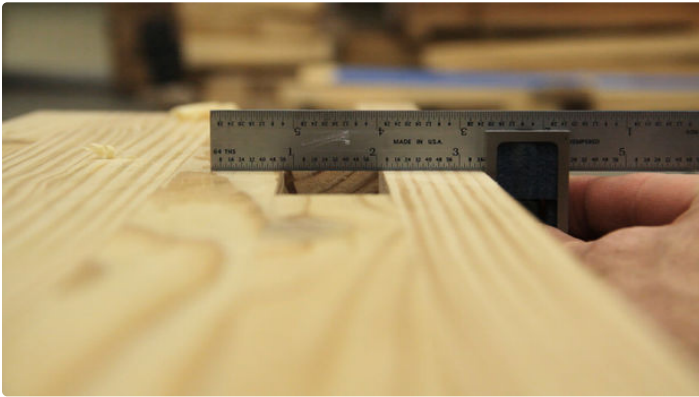
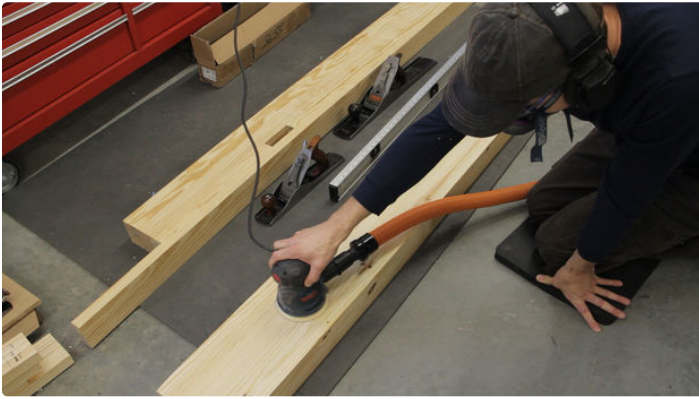
After the glue dried, I finished up the section by gluing on the outer most board. I then repeated the same steps to finish the last section.



Step 11: Preparing the Top Sections

I then moved to the floor and started cleaning up the bottom of each section by sanding any glue squeeze out before switching to the hand planes to roughly flatten the sections. I had originally intended to run each of these sections back through the jointer and planer, but they were starting to get pretty heavy and my middle section actually ended up a little wider than my jointer.

While planing, I tried to focus on the area around the mortise to try to avoid any gaps once the legs were added. I also checked periodically to make sure the sides and bottom remained square. Once I was happy with the fit between the sections, I took them to the miter saw and cut them to final length which ended up being right at 6'6".



Step 12: Gluing the Top Sections

Next, it was finally time to glue up the three sections to form the top. I started with the rear and the middle sections first and once those dried, I glued the front section onto the other two.



Step 13: Routing a Groove in the Top for the Sliding Deadman

Before moving onto the legs and stretchers, I routed a groove on the bottom of the top along the front for a board jack or sliding deadman which I'll be adding in a future Instructable. It's just easier to do now to avoid having to flip the bench over again later.



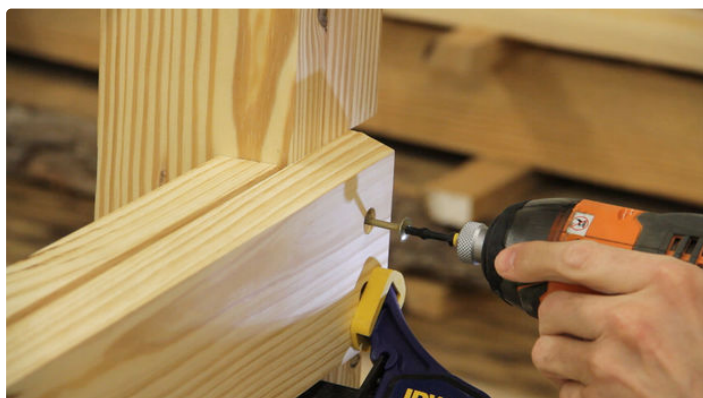
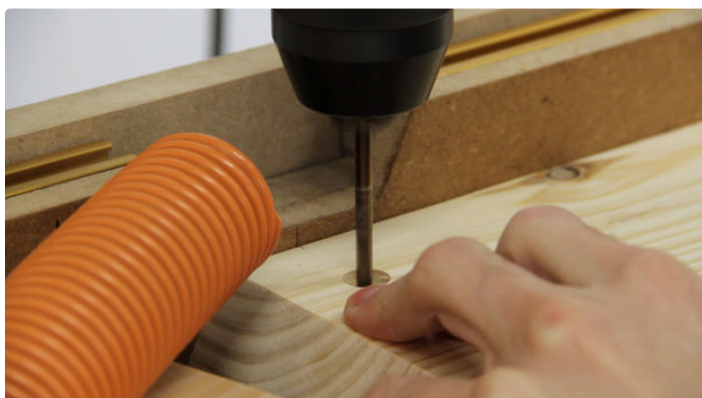
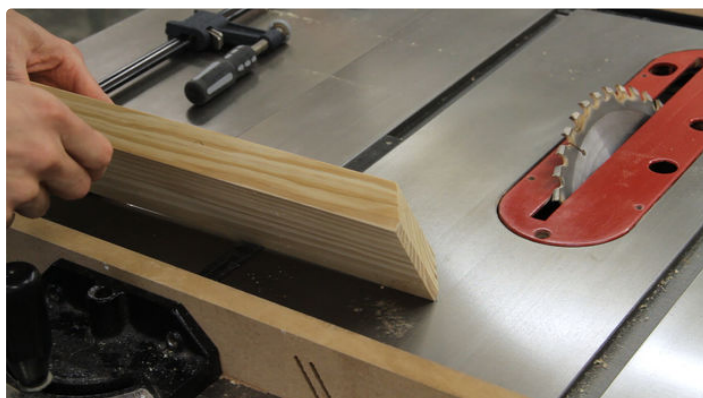
Step 14: Preparing the Short Stretchers

Since assembling the entire base and then trying to get all four tenons to fit in the top at once didn't sound like a lot of fun, I decided to fit each leg first and then attach the stretchers to them in-place. This actually went a lot better than I thought it would. After a little sanding, the tenons fit nicely, though I should have sanded one a little more as the fit was a bit tight when dry. When the glue was applied later, it required a fair amount of persuasion to fully seat.

Once all the legs were dry fit in place, I marked and cut pieces for what would later become the inner half of the short stretchers. I could then clamp one in

place as a spacer and mark the exact length on the outer half of the stretcher. After cutting the outer boards to length, I headed over to the table saw and cut a small bevel on the ends just to make it look a bit nicer.

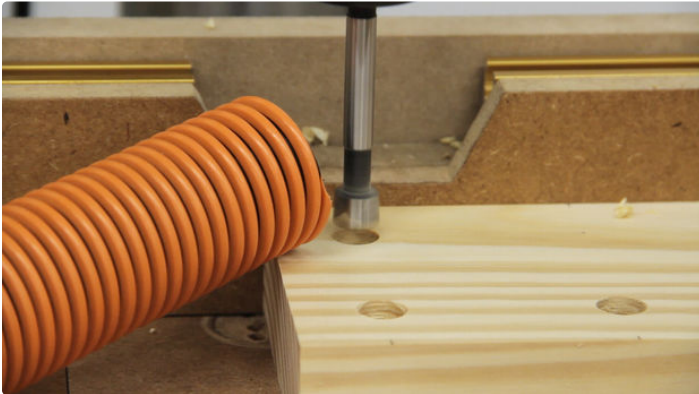
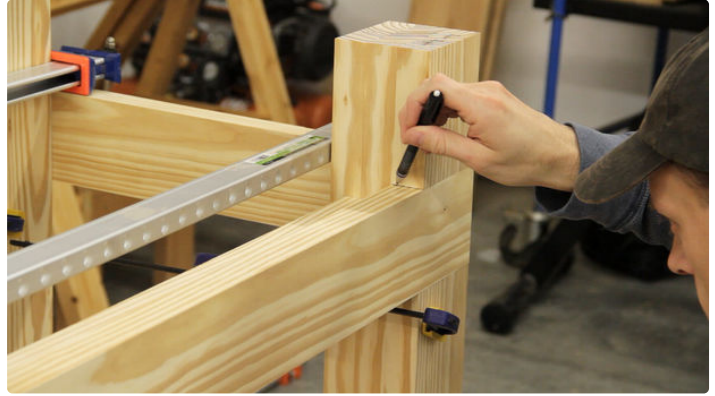
I then took them to the drill press and counterbored two holes on each side. And after clamping them back into place on the legs, I pre-drilled and screwed them into place temporarily just to make the final glue-up go faster.



Step 15: Preparing the Long Stretchers

Next, I repeated the same process with the long stretchers. Starting again with the inner half and using it as a spacer to help mark the outer half. For the long stretchers I made four counterbored holes for each lap joint and again pre-drilled and temporarily screwed the stretchers in-place.

Once that was finished, I removed both of the long stretchers and then the legs and short stretchers on the right end to prepare for the first step of this glue-up.



Step 16: Assembling the Legs and Stretchers

I started the final assembly by applying glue to the mortises and tenons on the right two legs first. Once the legs were in place, I then glued and screwed the outer half of the right stretcher onto the legs.

To keep the legs in their proper alignment while the glue dried, I screwed the long stretchers back into place. This also gave me something to clamp the legs

down to as I didn't have a pair of clamps that were quite long enough to go over the entire leg.

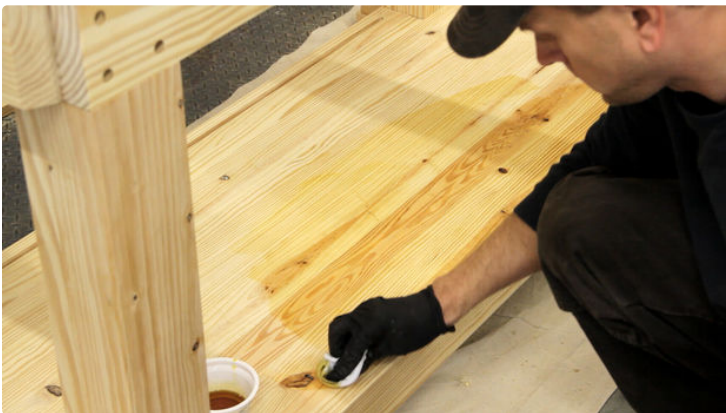
After the glue dried I repeated these same steps for the left two legs and stretchers except that I went ahead and glued and screwed the long stretchers to the legs as well.





Step 17: Easing Edges and Finishing the Bottom of the Top

While the glue was drying (and before I flipped it over), I eased the edges of the legs and stretchers a bit with a block plane and some sandpaper. I also beveled the bottom of all the feet to help prevent tear-out when the bench is moved around on the floor. Then I applied a little boiled linseed oil to the bottom of the top before flipping it over with the help of a friend.



Step 18: Completing the Stretchers

I finished up the inside half of the stretchers by applying some glue and clamping it into place using a small piece of 3/4" MDF to position it so that the final shelf would sit flush with the outer half of the stretcher. Then I screwed it into place and repeated the process for the remaining stretchers.



Step 19: Attaching the Inner-Inner Stretchers

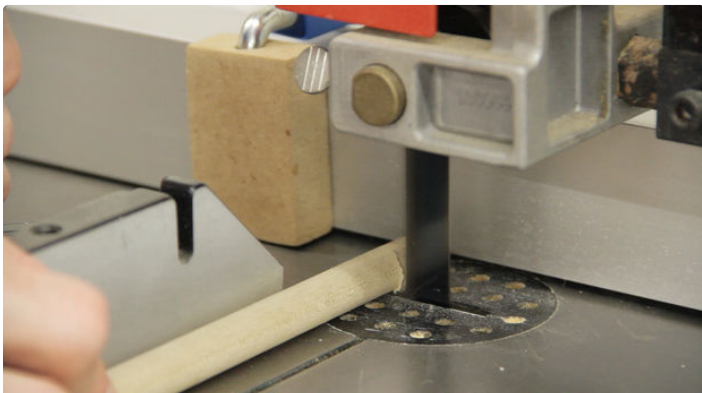
Once that was done, I marked and cut the final "inner-inner" stretchers for the left and right sides. This isn't really needed, but I had some leftover pieces so I thought I might as well add.

Note that if you wish to add a leg vise, it's best to wait to add these (and the shelf) until after adding a guide block that will be described in that video. It just makes attaching the guide a bit easier.



Step 20: Finishing the Stretchers

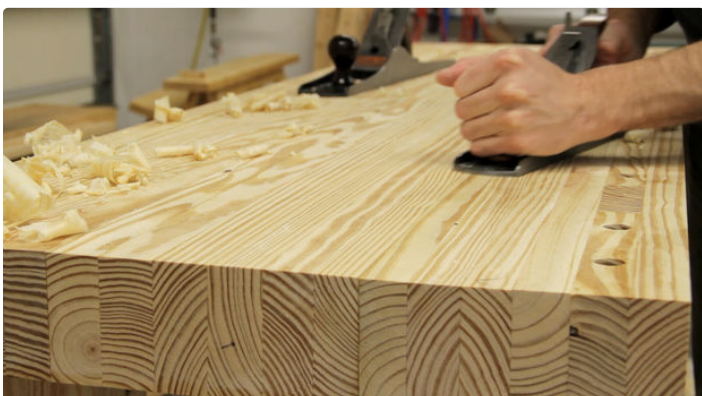
To finish up with the stretchers, I cut some 1/2" poplar dowels into plugs at the bandsaw to hide the screws. After gluing them into place I sanded them flush and wiped on more boiled linseed oil.



Step 21: Flattening the Top

The next big step was to flatten the bench top, though it was basically just a repeat of what I did for its underside. I started by using my Stanley #5 plane to knock down most of the high spots. Rubbing some paraffin wax on the plane's sole helped quite a bit (you can also find it at grocery stores in their canning section).

After a while, I switched to my Stanley #7 and just used my longest straight edge at different angles to check which areas needed more work. If you have a pair of winding sticks (or two straight edges) you could also check for twist. I'll probably give mine a few more months and then double check it.





Step 22: Finishing the Top

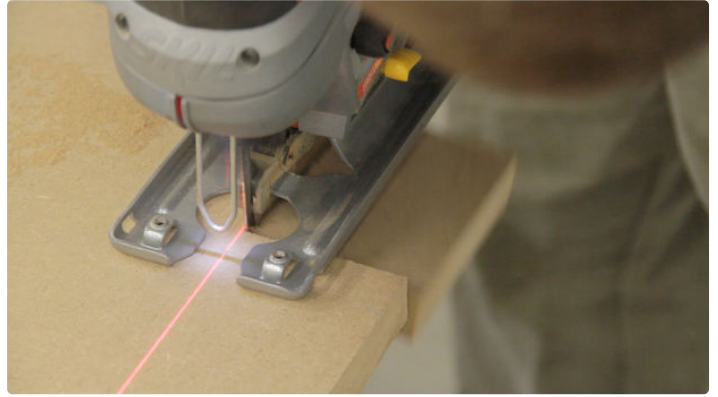
Once I was happy with the top's flatness (completely unrelated to how tired I got), I started drilling out the remainder of the dog holes. To prevent tear out on the underside, I clamped a small board in place before using a spade bit to finish drilling the holes.

To finish the top, I sanded it with 80 grit sandpaper and eased over the dog hole edges a little before applying a coat of boiled linseed oil.



Step 23: Adding a Shelf

To finish up the bench, I measured and cut a piece of 3/4" MDF to size for the shelf since I always seem to have left over MDF lying around. I then used a jigsaw to cut out notches in the corners to fit around the legs. After a little test-fitting, I wiped on some boiled linseed oil which darkens the MDF. Once that dried I applied a light coat of paste wax and fit it in place on the bench.



Step 24: Workbench Complete (Mostly)

That completes the workbench itself! So far I'm very happy with the way it turned out -- especially how nice the mortise and tenon joints ended up in the top.

