THE JOINERY

Woodworking Shared Shop and Learning Community

Step Stool

Project Companion

A first project in tapers, curves, and honest joinery

Estimated Build Time: **3 Hours**

Skill Level: **Beginner**

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Welcome

Welcome to your step stool project. This is a small piece of furniture built from four boards, held together with glue and a handful of nails, and it has been made in more or less this form for a few hundred years. There is a reason for that: it works, it lasts, and it teaches you almost everything you need to know about how furniture goes together.

Do not let the size fool you. In three hours you will mill rough stock to thickness, cut precise crosscuts and rips, cut an angled taper, lay out and saw a curve, sand that curve fair, ease every edge with a router, and glue up an assembly that has to come out square. That is the entire vocabulary of furniture making compressed into one afternoon.

And at the end you get a stool. Which, unlike a lot of first projects, you will actually use.

About This Guide

I'm Steven Ricks, co-owner of The Joinery, a woodworking shared shop and learning community in Middleton, Wisconsin. I've taught hundreds of people how to work with wood, and I've written this guide to share not just the technical steps, but the practical wisdom that makes the difference between frustration and success.

Throughout this guide, you'll see callout boxes labeled "Thoughts from Steven." These are where I share things that don't fit neatly into step-by-step instructions—the philosophy behind the techniques, mistakes I've seen students make and how to avoid them, shortcuts that actually work, and conventional wisdom that's worth ignoring. You'll also see blue technical boxes that explain the "why" behind a step.

> ***Thoughts from Steven***
>
> Woodworking books and YouTube videos tend to present everything as if there's one right way to do it. There isn't. There's what works, what doesn't, and a lot of gray area in between.
>
> My goal is to give you the principles and the confidence to make good decisions, not to turn you into a robot following instructions. When you see these boxes, I'm talking to you like I would if you were standing next to me at the bench.

Project Overview

The step stool is four parts: a top, two tapered legs, and a stretcher that ties the legs together. The legs get a half-circle arch cut into the bottom edge, which turns two wide feet into four narrow ones. That arch is not decoration—it is what lets the stool sit flat on a floor that is not flat.

Finished dimensions are 16 inches long, 8 inches wide, and 8¾ inches tall. That is a comfortable height for reaching a top shelf, sitting to lace boots, or handing to a four-year-old who wants to see what is happening on the counter.

The finished stool. Four parts, three hours, one afternoon of skills.

Skills Covered

- Milling rough lumber to consistent thickness
- Crosscutting to length and ripping to width
- Cutting a repeatable angled taper at the miter saw
- Laying out a curve with a compass or circle template
- Bandsaw curve cutting, including relief cuts
- Fairing a curve on the spindle sander
- Router edge treatment with a round-over bit
- Progressive sanding to a finish-ready surface
- Glue-up, clamping, and checking for square
- Pilot drilling and nailing

Thoughts from Steven

This is a prototype. When I do a project for the first time, I like to think of it as a prototype—I'm practicing the skills to produce the real piece once I have it all figured out. This takes a lot of the pressure off. It doesn't need to be perfect.

Sometimes for the first version I use lower-grade wood or scraps around the shop. Quite often I use my favorite wood—cherry—and dive straight in anyway, because it's affordable and I like looking at it. Very often once I've finished the "prototype," I look at it and say "Wow, that looks great." Sometimes I make a second one, sometimes I don't.

My recommendation: consider this build a prototype. Take the pressure off and enjoy the process. You may be impressed with what you turn out.

Understanding Wood

Before cutting any wood, it helps to understand how wood behaves. Unlike metal or plastic, wood is a natural material that keeps responding to its environment long after the tree came down.

Grain Direction

Long grain runs the length of the board, parallel to the trunk. This is the strong direction, and it is the direction that glues well.

End grain is visible on the ends where the growth rings are exposed. It is weak, it drinks glue and finish, and it does not make a reliable glue joint on its own.

Face grain is the wide surface showing the decorative pattern. It is what people look at.

Why This Stool Has Nails In It

The top of each leg is end grain. The underside of the stool top is face grain. Gluing end grain to face grain gives you a joint that looks fine and fails early—the end grain absorbs the glue into the open fibers instead of forming a film between the two surfaces.

Nails solve this. They give the joint mechanical strength that does not depend on the glue, and they clamp the parts while the glue cures. Traditional stools like this one have been nailed for exactly this reason for centuries. The nails are not a shortcut—they are the joinery.

Why Wood Moves

Wood expands and contracts across the grain (width), not along it (length). This happens as the wood takes on and gives off moisture with the seasons. On a stool this size the movement is small, but the top will get slightly wider in a humid August and slightly narrower in a dry January. Because the top is only fastened at two points, it has room to do that without splitting.

> ***Thoughts from Steven***
>
> "Wood will do what wood wants to do." This is one of my favorite sayings at The Joinery. We can plan for movement, design around it, and do everything right—but wood is ultimately unpredictable. A tree spent decades growing under tension and compression, reacting to wind, weather, and its own weight. That stress is locked inside the board. When we mill and cut, we release some of it, and we never know exactly when or how the wood will react.
>
> It's kind of like us humans, actually. Our experiences shape us in ways we don't always understand until later.
>
> This isn't meant to scare you. It's meant to free you. You can't control everything, so focus on what you can: sharp tools, careful technique, and enjoying the process.

Materials

Primary Stock

This project needs roughly 2.5 board feet of 4/4 (nominally 1 inch thick) hardwood. That is a small enough amount that offcuts from another project will often cover it. You need:

- One piece at least 8" wide × 16" long — the top
- Two pieces at least 8" wide × 8" long — the legs
- One piece at least 5" wide × 12" long — the stretcher

All four can come from a single board 8" wide and 40" long, which is a convenient thing to ask for at the lumber rack.

What Does 4/4 Mean?

Lumber thickness is measured in quarters of an inch. "4/4" (pronounced "four-quarter") means the rough board is roughly 1 inch thick before planing. After milling to flatten both faces and remove the saw marks, you land at about ¾ inch of usable thickness. That is why we start with 4/4 to finish at ¾".

The drawings for this project were modeled in cherry, but there is nothing species-specific about the design. Maple, walnut, ash, poplar, and soft maple all work. Pick something you like looking at.

Stock milled to ¾" and crosscut to rough length, ready for ripping.

Hardware & Consumables

- Eight 1" forged or cut nails (four for the top, four for the stretcher)
- Wood glue (yellow PVA such as Titebond Original or II)
- Sandpaper: 120, 150, and 220 grit
- Finish of your choice (optional — see page 25)

Tools Required

Milling & Dimensioning

- Thickness Planer — brings all four boards to a consistent ¾"

- Miter Saw — crosscuts to length, and cuts the leg tapers
- Table Saw — rips all parts to final width

Shaping

- Bandsaw — cuts the arch in each leg
- Spindle Sander — fairs the sawn arch smooth
- Trim Router with ⅛" round-over bit — eases every exposed edge
- Random Orbital Sander — surface prep, 120 through 220 grit

Layout, Assembly & Measurement

- Pencil and measuring tape
- Combination square
- Compass or circle template of about 5" diameter
- Bar or pipe clamps (2–4)
- Drill with a bit slightly smaller than your nail shank
- Hammer

> ***Thoughts from Steven***
>
> You do not need a compass for the arch. A 16-ounce can of paste wax is 4.97 inches across, which is exactly the arch on the drawing, and that is not a coincidence. Trace around the can and move on.
>
> This is not me being cheap. Half of shop layout is finding a round thing the right size and drawing around it. A paint can, a roll of tape, a coffee mug, the bottom of a bucket. The wood does not know what you traced.

The circle template in question, next to a leg blank.

Cut List

After milling, you will produce the following four components. Cut them slightly long, mill them, then trim to final dimension.

Component	Qty	Thickness	Width	Length
Top	1	¾"	8"	16"
Leg	2	¾"	7" at foot, 6" at top	8"
Stretcher	1	¾"	4"	12"
Nails	8	—	—	1"

How the Dimensions Stack Up

The legs are 8" tall and the top is ¾" thick, which gives a finished height of 8¾". The stretcher is 12" long and fits between the legs, so the outside of the legs measures 13½", leaving 1¼" of top overhanging at each end. The top is 8" wide and the legs are 7" at the foot, so the top overhangs ½" on each long side.

None of these numbers are sacred. What matters is that the two legs match each other and the stretcher is square on both ends.

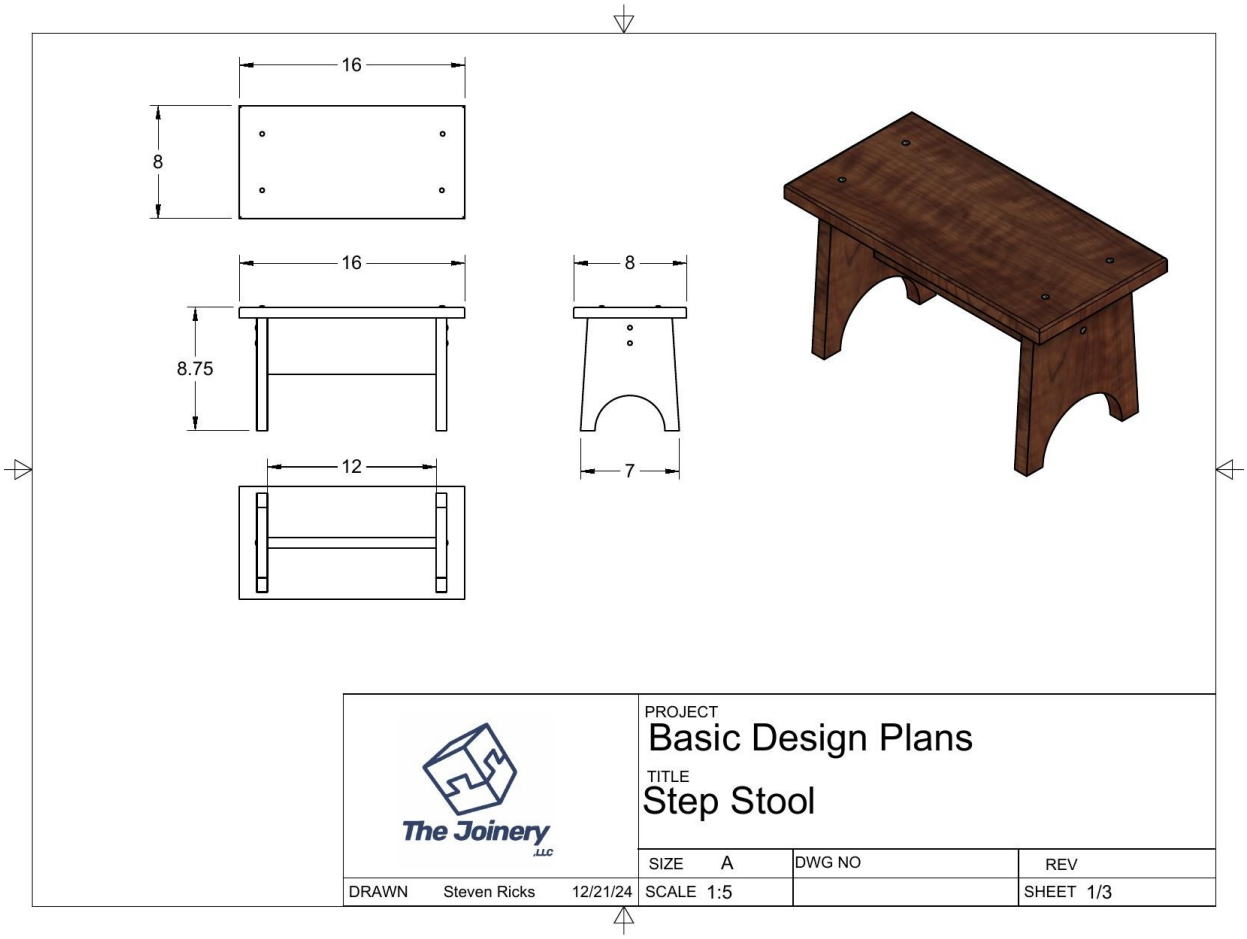
Thoughts from Steven

Consistency matters more than precision. If all your like parts are exactly the same dimension—even if that dimension is slightly off from the plan—your project will go together well. It's when pieces vary from each other that you run into problems.

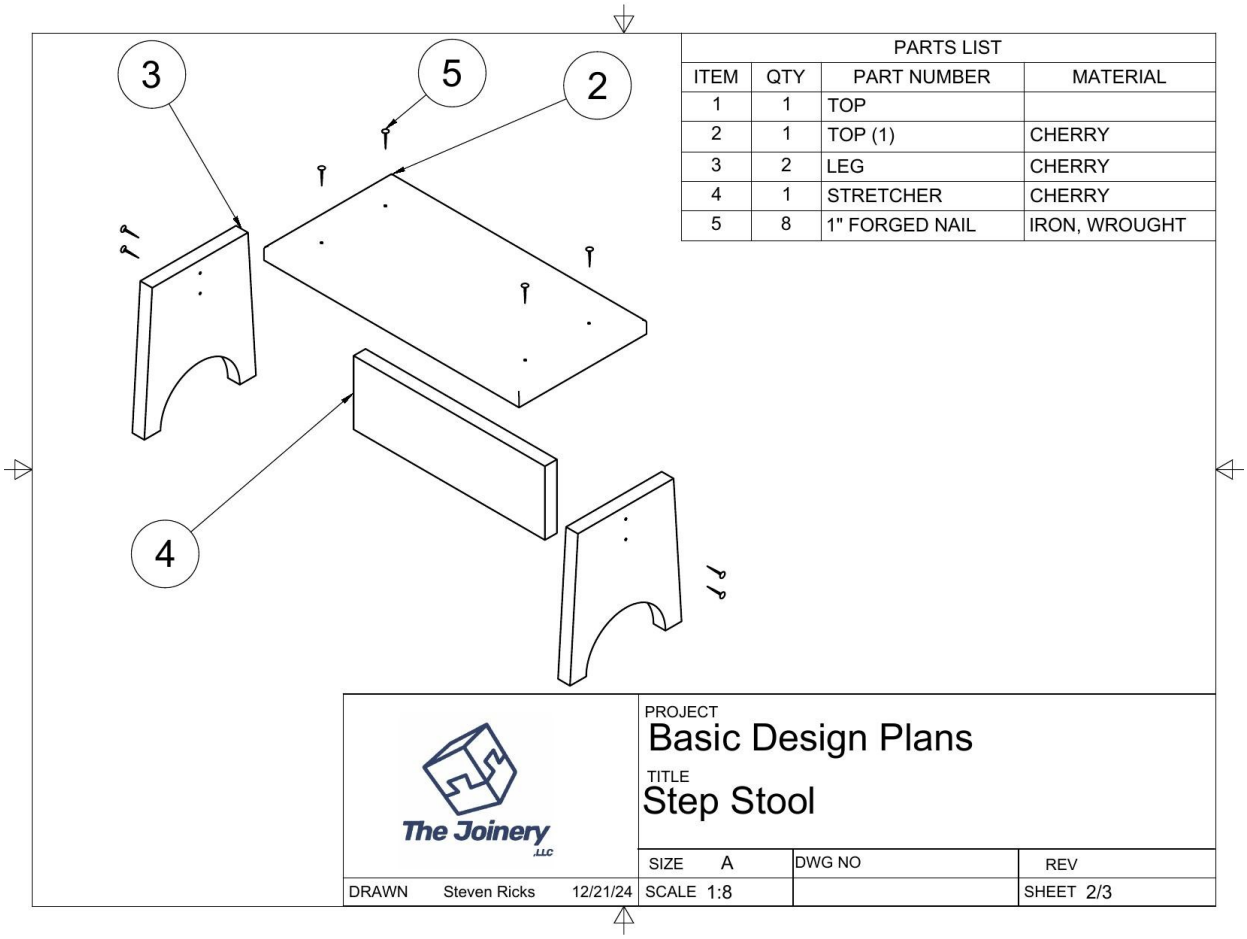
So if you rip the legs at 7" and they come out at 6-15/16", don't panic. Set the fence there and cut them both to match. Nobody is going to check your stool with calipers.

Shop Drawings

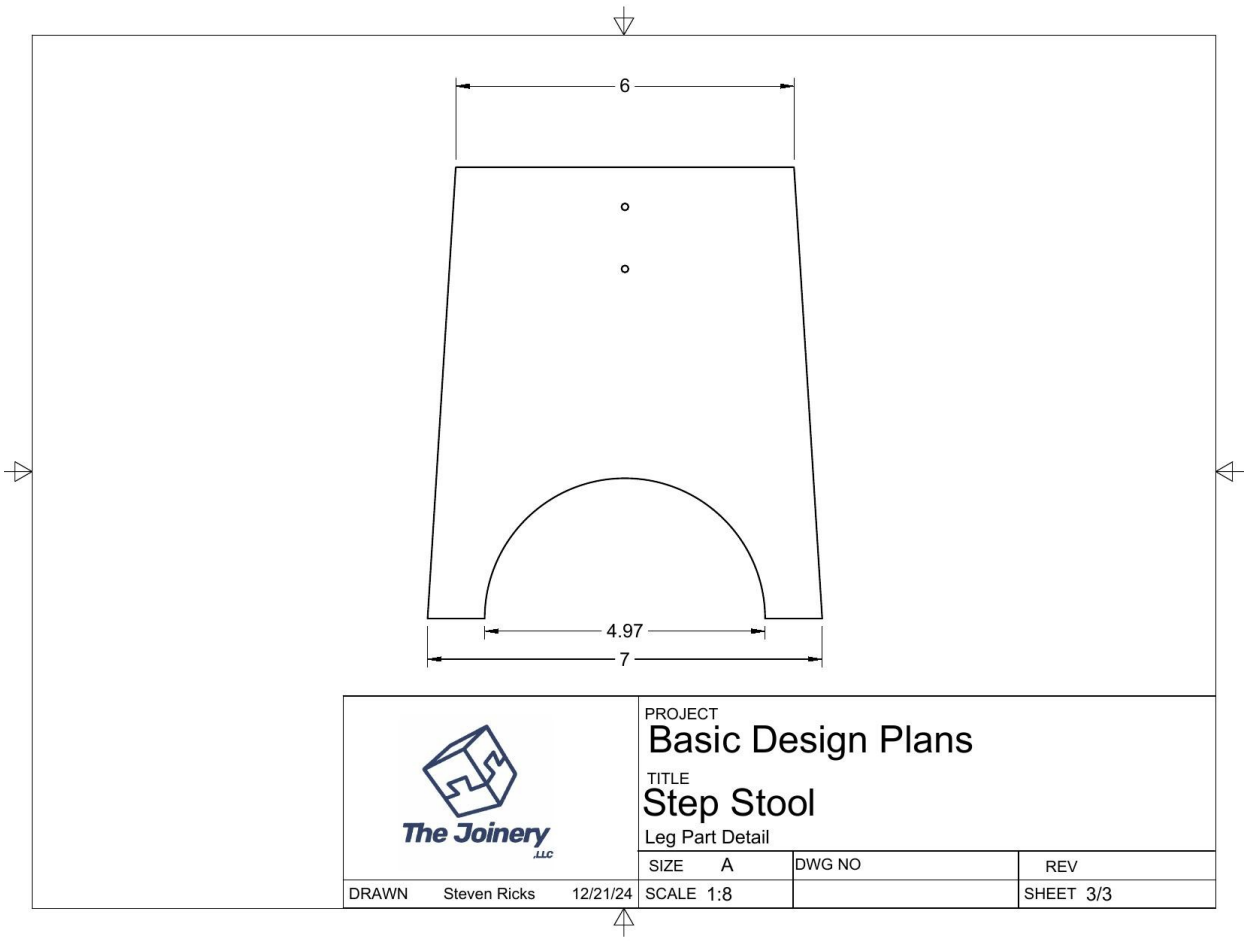
Three sheets follow: overall dimensions and views, an exploded assembly with the parts list, and a full detail of the leg. Keep the leg detail in front of you during Phases 4 and 5.



Sheet 1 of 3 — Overall views and dimensions.



Sheet 2 of 3 — Exploded assembly and parts list.



Sheet 3 of 3 — Leg part detail. The 4.97" dimension is the arch span; the two circles are the stretcher nail locations.

Reading the Leg Detail

The leg starts as a rectangle 7" wide and 8" tall. Both sides taper inward toward the top, narrowing the leg to 6" where it meets the stool top. That works out to ½" of taper per side over 8" of height—about 3½ degrees.

The arch spans 4.97" and is a true half circle, which leaves just over 1" of foot on each side. The two small circles on the leg face are the pilot holes for the nails that pin the stretcher.

Safety Guidelines

Woodworking is rewarding and it involves real risk. This project uses six different machines, and every one of them will do exactly what you ask it to, whether or not you meant to ask.

The Joinery's 2-3-12 Rule

2 — Two Control Surfaces: Every tool has two control surfaces. Know what they are and how to use them the way the manufacturer intended.

3 — Three Inches: Keep your hands and fingers at least 3 inches from the blade or cutter at all times.

12 — Twelve-Inch Gut Check: If the board you're cutting is 12 inches or less, do a gut check—are you using the correct tool for the job? If your gut says no, use a different tool. Most cuts can be made with more than one tool in the shop.

> ***Thoughts from Steven***
>
> Read that 12-inch rule again, because this project is full of short parts. An 8" leg and a 12" stretcher are exactly the size that gets people hurt—small enough that your hands end up close to the blade, big enough that you think you can get away with it.
>
> Clamp your work. Use a stop block. Cut parts long and trim them after. There is no prize for holding a small part with your fingers.

General Shop Safety

- Always wear safety glasses when operating any power tool
- Wear hearing protection around loud machinery (planer, router, table saw)
- Remove loose clothing and jewelry, and tie back long hair
- Never reach over or behind a spinning blade or cutter
- Keep your workspace clean and free of sawdust buildup
- Know where the emergency stop buttons are located

Tool-Specific Safety

- Planer: feed with the grain, keep hands clear of the infeed rollers, never reach into the machine while it is spinning down
- Miter Saw: keep hands 3" from the blade, clamp short parts, and let the blade stop fully before raising it — especially on the angled taper cuts

- Table Saw: use the blade guard and splitter, use a push stick on narrow rips, never stand directly behind the blade
- Bandsaw: keep fingers to the side of the blade, not in front of it, and never back out of a curve while the blade is running
- Spindle Sander: feed against the rotation, keep fingers clear of the pinch point between the spindle and the table insert
- Router: start and stop off the workpiece, move against the bit rotation, and keep the base flat on the work

Build Process

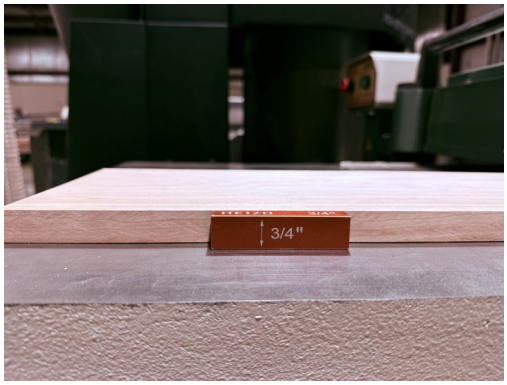
Ten phases, about three hours. Read each phase through before you start it.

Phase 1: Stock Preparation (30 minutes)

Everything downstream depends on all four boards being exactly the same thickness. Do this well and the rest of the build is easy.

1. Sort your boards and find the thickest one. Measure it with a caliper or a rule you trust.
2. Set the planer just under that thickness and run every board through at that setting. Some will not touch the knives on the first pass. That is fine and expected.
3. Raise the bed one full turn per pass and run all four boards through at each setting. Keeping them together as a set is what guarantees they end up identical.
4. As you approach ¾", drop to lighter passes and alternate faces. Lighter passes leave a better surface and less tearout.
5. Stop at ¾". Check with a setup block or a rule.

Feeding a board through the planer.



Checking against a ¾" setup block.

Understanding Snipe

Snipe is a slightly deeper cut at the beginning or end of a board. There is no way to eliminate it completely—it is a symptom of how the planer works, caused by the feed rollers lifting the board as it enters and exits.

To minimize it: support the board in and out, take lighter passes, and leave your boards a few inches longer than needed so the sniped ends get cut off in Phase 2. That last one is the real answer.

Thoughts from Steven

Run all four boards through at every setting, even the ones that are already thin enough. It costs you nothing but a few seconds and it removes any chance of one part being a sixteenth off from the others.

This is the single most common place I see a beginner project go sideways. Not the joinery, not the curves. Inconsistent thickness at the very first step, which then shows up as a gap three hours later when the glue is already on.

Phase 2: Crosscutting to Length (15 minutes)

At the miter saw, square one end of each board, then cut to length off that squared end.

1. Trim a thin slice off one end of each board to establish a square reference end and remove any snipe.
2. Measure and cut **two legs at 8"**.
3. Measure and cut **one top at 16"**.
4. Measure and cut **one stretcher at 12"**.

Measuring from the squared end.

Crosscutting to length.

> **Measure Twice, Cut Once**
>
> Mark your measurement with a sharp pencil. The Joinery's miter saws have either a laser or a shadow line that shows both sides of the kerf—position your mark so the kerf falls on the waste side of the line.
>
> For the two legs, set a stop block rather than measuring twice. A stop block makes identical parts; a tape measure makes two parts that are close.

Phase 3: Ripping to Width (20 minutes)

Move to the table saw. Set the blade height just above the thickness of the stock — about 1 inch.

1. Rip the 16" board to **8" wide** — this is the top.
2. Rip both 8" boards to **7" wide** — these are the legs. Cut them back to back at the same fence setting.
3. Rip the 12" board to **4" wide** — this is the stretcher.
4. Check that the two legs are identical in both dimensions before moving on. This is your last easy chance to fix it.

A leg blank ripped to width and squared up.

Ripping vs Crosscutting

Crosscutting means cutting across the grain, making a board shorter. Ripping means cutting along the grain, making a board narrower.

We use the miter saw for crosscuts because it excels at precise 90° cuts across a board. We use the table saw for rips because the fence gives a consistent, parallel cut down the length. Using the wrong one for the job is how boards get away from people.

Phase 4: Tapering the Legs (25 minutes)

Each leg tapers from 7" at the foot to 6" at the top — ½" removed from each side, over 8" of height. That is roughly 3½ degrees on the miter saw scale.

1. On each leg, mark which end is the top. Then measure in ½" from each top corner and make a pencil mark. Those two marks are your target — the angle setting is just a means to hit them.
2. Set the miter saw to 3.5 degrees.
3. Lay the leg flat on the saw table with the top edge facing you. Position it so the blade path runs from the ½" mark at the top down to the bottom corner, with the waste on the outside of the blade.
4. Clamp the leg to the fence. This cut is longer than a normal crosscut and the part wants to shift.
5. Make the cut. Check it against your marks.
6. Flip the leg left to right and cut the second side at the same setting.
7. Repeat both cuts on the second leg without changing the saw setting.

Leg clamped to the fence with the taper laid out.

The saw set over for the angled cut.

Thoughts from Steven

Cut all four taper cuts at one saw setting, then stop. Do not do one leg completely, admire it, and then set up again for the second one. Two setups means two slightly different angles, and a stool with mismatched legs looks wrong in a way people notice without knowing why.

Also: test on a scrap first. Always test on a scrap first. I have never once regretted the ninety seconds that costs me.

Why Taper at All?

A leg with parallel sides reads as heavy and a little dumb. Narrowing the leg toward the top does two things: it makes the stool look lighter than it is, and it puts the widest part of the leg at the floor, where the stability actually matters.

This is one of the oldest moves in furniture design, and it costs you two extra cuts.

Phase 5: Laying Out and Cutting the Arch (25 minutes)

The arch turns each leg into two feet. It spans just under 5" and rises to about 2½" at its peak.

1. Find the center of the bottom edge of the leg and mark it.
2. Set a compass to a 2½" radius, or grab a circle template about 5" across. Center it on your mark, sitting on the bottom edge, and trace the half circle. You should end up with a little over 1" of foot on each side.
3. Repeat on the second leg. Check that both arches start and end at the same distance from the leg edges.
4. At the bandsaw, first make a series of straight relief cuts from the bottom edge up to just short of your line, like slicing a pie. These let the waste fall away in pieces instead of binding on the blade as you turn.
5. Now cut the arch itself, staying just outside the line. You will sand to the line in the next phase.

The arch traced and ready to cut.

Both legs cut, with the waste from the relief cuts.

Why Relief Cuts?

A bandsaw blade cuts forward. It does not like being twisted. When you try to follow a tight curve in one continuous pass, the waste on the outside of the curve hits the back of the blade and binds, which either stalls the cut or pushes you off the line.

Relief cuts remove that waste in advance. Each one gives the blade an escape route. It takes an extra thirty seconds and it is the difference between a clean curve and a fight.

Phase 6: Smoothing the Arch (10 minutes)

The bandsaw got you the shape. The spindle sander makes it fair.

1. Choose a spindle smaller than the radius of your arch — a 2" spindle works well for a 2½" radius.
2. Feed the leg against the direction of spindle rotation, keeping the leg flat on the table and moving continuously.
3. Sand to your pencil line, then remove the line. Sight down the curve — you are looking for a smooth sweep with no flat spots.
4. Do the second leg, then hold them together and compare. Adjust until they match.

The spindle sander, set up and ready.

Fairing the arch to the line.

> ***Thoughts from Steven***
>
> Do not park the leg in one spot. The spindle will happily dish a hollow into your curve in about two seconds, and there is no way to add that wood back.
>
> Keep it moving. If you need to take more off somewhere, make more passes, not longer ones.

Phase 7: Easing the Edges (15 minutes)

A ⅛" round-over on every exposed edge makes the stool feel finished and keeps it from denting your shins.

1. Install the ⅛" round-over bit and set the depth so the bearing rides against the edge and the cutter just breaks the corner. Test on scrap and adjust.
2. Round over **all four edges of the top, both faces**.
3. Round over **the leg tapers, the arch, and the feet**, on both faces.
4. Round over **the long edges of the stretcher**.
5. Leave the mating surfaces square: the top edge of each leg, the ends of the stretcher, and the underside of the top where the legs land. Rounding those over leaves a gap in the finished joint.

Handheld trim router on the top.

The same bit in a router table, for small parts.

> **Handheld or Router Table?**
>
> Both are shown here on purpose. Large parts like the top are easier to handle with a handheld trim router — the work stays put and the tool moves. Small parts like the stretcher are safer at the router table, where the work moves and your hands stay behind a fence.
>
> The 12-inch gut check applies here too. If a part feels small under a spinning bit, it is small. Move to the table, or clamp it down.

Phase 8: Sanding (15 minutes)

Sand now, while everything is still flat and separate. Sanding inside corners after glue-up is miserable.

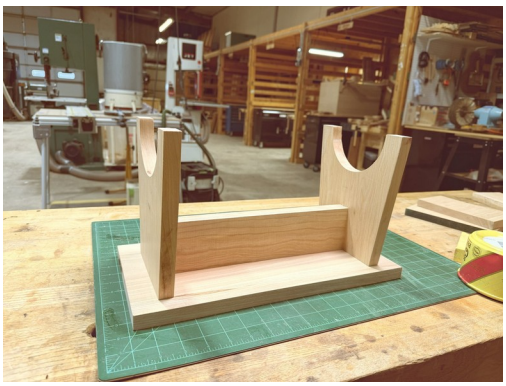
1. Start at 120 grit with the random orbital sander. Work the faces and edges of all four parts.
2. Move to 150, then 220. Do not skip grits — each one is removing the scratches from the last one.
3. Hand sand the arch and the routed edges. The orbital sander cannot get into a curve without flattening it.
4. Wipe everything down and look at it in raked light. Any scratch you can see now will be twice as visible under finish.

> ***Thoughts from Steven***
>
> I stop at 220 on almost everything. Past that, on most hardwoods with most finishes, you are burnishing the surface rather than smoothing it, and the finish has a harder time grabbing.
>
> Sanding is also where a card scraper earns its keep. Thirty seconds with a sharp scraper does what several minutes of sanding does, with no dust and a better surface. Ask me to show you sometime.

Phase 9: Assembly and Glue-Up (20 minutes)

Dry fit first. Every time. Then glue.

1. Mark the center of the top edge of each leg, and the center of each end of the stretcher.
2. Dry assemble: stand the legs on the bench, set the stretcher between them, and set the top in place. Check that everything meets cleanly and the stool does not rock. Fix anything you find now.
3. Disassemble. Apply glue to both ends of the stretcher and to the top edge of each leg.
4. Set the legs upside down on a flat surface with the stretcher upside down between them. Clamp across the legs, pulling them tight to the stretcher.
5. Set the top on and clamp it down, or weight it. Check that the overhangs are even at both ends.
6. Check for square: measure diagonally across the assembly both ways and adjust until the measurements match. Sight down the length for twist.
7. Wipe away squeeze-out with a damp rag before it sets. Dried glue will not take finish, and you will find every spot you missed the moment you wipe on the first coat.
8. Leave it clamped at least 30 minutes. An hour is better.



Dry fit — check it before the glue is open.

Clamped across the legs and stretcher.

> ***Thoughts from Steven***
>
> The glue-up is where beginners panic. Don't. Yes, glue has a working time, but ten to fifteen minutes is longer than you think. Move with purpose, not with panic.
>
> If something isn't going together right, stop and figure out why rather than trying to force it. You can always wipe the glue off and try again. What you cannot do is un-crack a leg you clamped too hard to close a gap that was never going to close.

Phase 10: Nailing the Joints (5 minutes)

Eight nails: four pinning the top to the legs, four pinning the stretcher to the legs. As covered on page 5, these are doing real structural work, not decoration.

1. Lay out two nail locations in each joint. On the leg faces, the two pilot holes shown on the leg detail drawing mark the stretcher nails. On the top, place two nails over each leg, centered on the leg thickness.
2. Choose a drill bit slightly smaller in diameter than the nail shank.
3. Drill each pilot hole about two-thirds the depth of the nail. Deep enough to prevent splitting, shallow enough that the nail still bites.
4. Drive the nails. Set them flush, or just below the surface if you want to fill them.

> **Why Pilot Holes Matter Here**
>
> A nail is a wedge. Driven into a narrow piece of hardwood without a pilot hole, it forces the fibers apart and splits the board — usually right at the end of the leg, where you have the least material and the most stress.
>
> The pilot hole gives the wood somewhere to go. Slightly undersized means the nail still has to compress fibers on the way in, which is where its holding power comes from.

Finishing Your Stool

Once the glue has cured — an hour to handle, overnight for full strength — you can finish. Or not. A raw stool in the shop is a perfectly respectable object.

Penetrating Oil

Danish oil, tung oil, or boiled linseed oil are easy to apply, bring out the grain, and touch up without drama. Wipe on, wait, wipe off.

Wax

Fast, gives a soft sheen, and layers nicely over oil. Not much protection on its own.

Polyurethane

More durable and water-resistant, available in several sheens. Needs multiple coats with light sanding between. Worth it if the stool is going in a bathroom or a mudroom.

> ***Thoughts from Steven***
>
> I'm a lazy finisher. Finishing is my least favorite part of the project, so I look for easy solutions that last and are repairable. My favorite is Tried and True—a linseed oil and resin finish that's non-toxic, doesn't produce harsh fumes, and gives a beautiful natural look.
>
> Wipe on a thick coat, let it sit fifteen or twenty minutes, wipe off the excess. Wait 24 hours, do a second coat. That is the whole process.
>
> For a stool that is going to get stood on with dirty shoes, a simple oil finish is the right call. When it gets scuffed, you sand the spot and put on more oil. Try doing that with polyurethane.

Tips for Success

- Label your parts as you cut them. "Leg A" on a piece of tape prevents a lot of confusion at the glue-up.
- Keep the same face up when machining like parts. Consistent reference surfaces mean consistent results.
- Cut the legs back to back at every setting — same planer pass, same fence, same miter angle, same spindle.
- Check your measurements against the cut list before each cut. 8", 12", and 16" are easy to mix up when three of them are sitting on the bench.
- Sand before assembly. Always.
- Test every new setup on scrap. Router depth, miter angle, fence position. Every time.
- If the stool rocks at the dry fit, find out why before you glue. A rock is almost always a leg that is not square to the top, and it is trivial to fix now and impossible to fix later.

> ***Thoughts from Steven***
>
> Don't fall in love with your work—at least not until it's done. I see students get so attached to a piece that they're afraid to make the next cut because they might ruin it. That paralysis actually makes mistakes more likely.
>
> Stay engaged but detached. If you mess up, it's wood. There's more wood. Learn from it and keep going.

Glossary

4/4 (Four-Quarter): Lumber thickness designation meaning roughly 1 inch rough, planed to about ¾" finished.

Crosscut: Cutting across the grain to shorten a board.

Dry Fit: Assembling parts without glue to check the fit before committing.

End Grain: The surface exposed when cutting across the fibers, showing the growth rings. Weak, thirsty, and a poor glue surface.

Face Grain: The wide surface of a board showing the decorative pattern.

Fair (a curve): A curve with no flat spots, bumps, or hollows — smooth all the way through.

Kerf: The width of material removed by a saw blade.

Long Grain: Wood fibers running the length of a board, parallel to the trunk. The strong direction.

Pilot Hole: An undersized hole drilled ahead of a nail or screw to prevent splitting.

Planer: Machine that brings board thickness to a consistent dimension.

Relief Cut: A straight cut made into waste material ahead of a curved cut, so the waste falls away instead of binding the blade.

Rip: Cutting along the grain to narrow a board.

Round-Over: A router profile that turns a sharp corner into a quarter-round.

Snipe: A deeper cut at the beginning or end of a board, caused by planer feed rollers.

Stop Block: A block clamped to a saw fence so repeated cuts land at identical length.

Stretcher: A horizontal member connecting two legs, resisting racking.

Taper: A gradual narrowing of a part along its length.

Next Steps

Congratulations on your step stool. Take a second and notice what you actually did today: you took rough lumber, milled it, dimensioned it, shaped it, refined it, and assembled it into a structure that holds a person up. That is the whole job. Everything else is a variation.

Ready to keep going? The Joinery offers classes at every level:

- Tool Tote — another single-board beginner build, this one introducing Domino joinery
- Introduction to Woodworking — a Shaker-style side table, start to finish
- Whiskey Cabinet — an intermediate case piece with doors and a real finish schedule
- Japanese Contemplation Bench — advanced through-tenon and tusk tenon joinery over six sessions
- Membership for open shop access, so you can build whatever you want next

And when you build one, post a picture in the Discord. We like seeing them.

Thoughts from Steven

Every piece of furniture you will ever build uses the skills you practiced today: mill, measure, cut, shape, join, finish. The projects get more complex but the fundamentals do not change.

A step stool and a dining table are the same problem at different scales. Master the basics and everything after this is just variations on the theme.

Welcome to woodworking.

The Joinery

Woodworking Shared Shop and Learning Community

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