Simple Shaker End Table

Most joinery for small tables is unnecessarily complex. You can build this icon of good design using simplified (but solid) methods.

PHOTO BY AL PARRISH

When woodworkers first set out to build a project that they designed themselves, the end result is usually overbuilt and chunky-looking. I myself was a victim of just that problem: One of my earliest projects had massive finger joints that were reinforced with #10 screws.

Good craftsmen also must be good designers and good engineers. This mix of sound skills, pleasing proportions and just-right joinery is as difficult to teach as it is to learn.

And so, as my best teachers always said, "It is better to show than tell."

This small Shaker-style table is a perfect blend of traditional joints and delicate lines. Though I'm going to tell you how to build it, my hope is that this article will show you that strong joints don't need to be massive – just well-made. And that good design doesn't have to be flashy – just pleasing to the eye.

This table is adapted heavily from Thomas Moser's excellent book, "How to Build Shaker Furniture" (Sterling). Moser, an English-professor-turned-cabinetmaker, has an excellent eye for design. You can see it in the line of furniture produced by his successful Maine-based business, Thos. Moser Cabinetmakers, and you can see it in this book, first published in 1977.

The first time I built a version of this table, I was stunned by its proportions. The legs are so delicate – just 1⅛" square. And the detailing is so Spartan – the only ornament is the wide bevel on the underside of the top. But the results are impressive, and I think you'll be impressed, too.

I built the table shown here with a hand-dovetailed drawer. However, if you're not up for attempting that joint yet, don't worry. We've outlined an effective technique for making simple rabbeted drawers on page 24.

Begin at the Legs

For me, the most difficult task in making this table is choosing the right wood. It sounds ridiculous, but it's true. There is so little wood in this project (only about 12 board feet) that you have to be picky. The pickiness begins with the legs.

Making table legs is more involved than you probably imagine. If you ignore any of the following steps, there's a good chance your legs won't look right and this will bother you when the project is finished. The goal with the legs is to find the straightest-grained boards possible with the end-grain growth rings running from corner to corner. A leg with the growth rings running from corner to corner exhibits what's called "bastard grain" on all four faces.

"The finest tool ever created is the human hand, but it is weak and it is fallible."

— Sign above door to shop of planemaker and author Cecil Pierce (1906 - 1996)

The reason for this is simple and is shown in the photos at right. If the growth rings do not travel from corner to corner, then each face of your legs will look markedly different than the face adjacent to it. It's distracting and worth avoiding.

If you can find boards at the lumberyard that are cut this way, count yourself lucky, because I never can. So I purchase 1¾"-thick stock (sold in the rough as 8/4 wood) and mill the legs from those over-thick boards.

The legs are 1⅛" thick, so I made a cardboard template with a hole in the center that is oversized, 1⅜" square. I place this template on the end grain and rotate it until I see the grain lines run from corner to corner. Then I trace the shape of the leg onto the end grain using the template.

Next I rip out that shape. Transfer the cutting angle from the board to the blade of the table saw using a bevel gauge and rip one edge of the leg at that angle. Then, rip the leg free of the rest of the waste (you might have to reset your saw blade to 90° to do this) and square up the other three faces of the leg.

With the grain tamed in the legs, you can then joint and plane them to their final thickness and width. I prefer to use my thickness planer for this job. It gives me more consistent results than trying to size the parts on my table saw.

Choose your best-looking boards for the tabletop and drawer front. Your next-best pieces should be reserved for the aprons. The rest of the stuff is useful for the parts inside the case that guide the drawer. Joint and plane all the parts to their finished thicknesses, then rip and crosscut them to their finished widths and lengths.

Tackle the Top

Making a good-looking and flat tabletop is a skill to itself, so we included a primer on gluing up panels on page 22. Even if you have mastered the edge joint used for making panels, you should keep a wary eye when it comes to picking the right boards for your tabletop.

To make the top look as natural as possible, pay attention to the seams. Never join the straight rift-sawn wood edges of a board to the cathedral-grain wood you typically find in the middle of a board. This looks horrible. The best arrangement is to join edges with rift grain to similar-looking edges with rift grain. Shift things around until the top looks good. Ignore the adage about alternating the growth rings face up and face down on adjacent boards in a tabletop. The warpage patterns of almost any antique table will quickly point out the fallacy of this approach.

Glue up your top and set it aside for the adhesive to cure. It's time to make mortises.

Simple & Sturdy Table Joinery

Mortise-and-tenon joints are the best ones for a table. Yes, there are metal corner brackets out there, and a couple of biscuits also could do the job. But the simple router-table setup we've devised is so simple, straightforward and inexpensive that there's no reason to cheat here.

Essentially, the mortises are open at the top and milled in the legs using a router in a table and a $\frac{3}{8}$" straight bit. The simplified tenons are cut using the exact same tools and setup. There is no reason to buy a pricey mortiser or spend hours learning to make the joint by hand. Both of those approaches are noble; they're just not necessary for this particular table.

It's important to talk about the length of the tenons used for this table. As a rule, you want your tenons to be as long as possible – within reason, of course. An ideal tenon is $\frac{3}{4}$" to $1\frac{1}{4}$" long. But when you're dealing with a small project such as this, you need to scale your joinery. The legs for this table are quite delicate, just $1\frac{1}{8}$" square, so full-size joints aren't going to work. And once you set the aprons back $\frac{3}{16}$", as shown in the illustration on page 19, you get even less room. The maximum length for the tenons in this table is $\frac{3}{4}$" with the tenons meeting in the middle. But making these mortises open at the top makes a fragile shoulder on the inside corner of the leg.

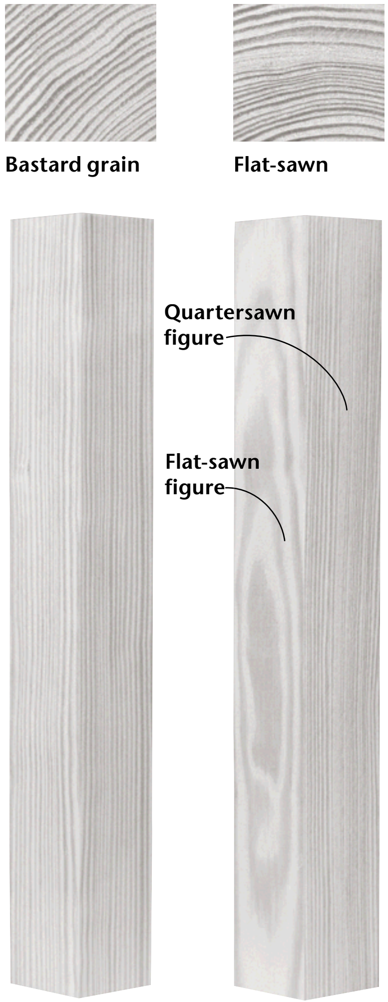
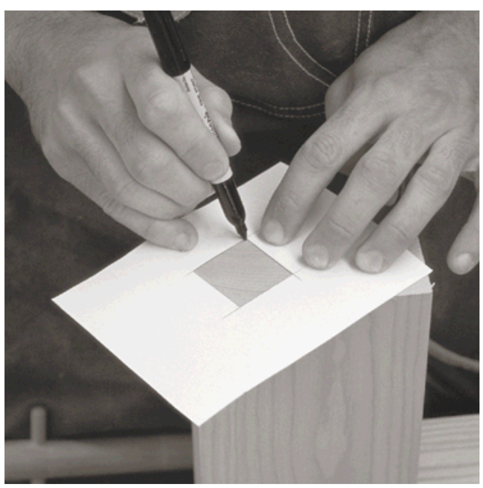
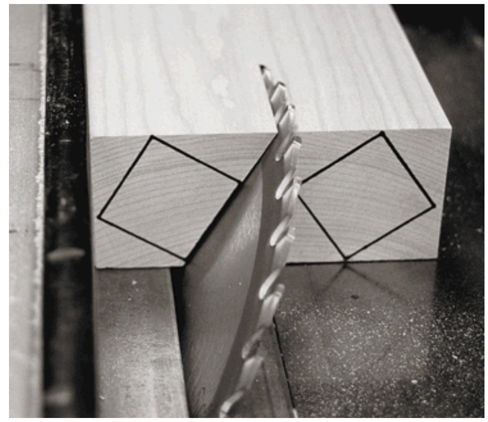


PHOTO BY TIM GRONDIN

Getting good-looking legs is all in the growth rings. When the rings run from side to side (right), the leg shows flat-sawn figure on two faces and quartersawn figure on two faces. This won't look right. Grain that runs from corner to corner – called bastard grain – creates four faces that all look the same.

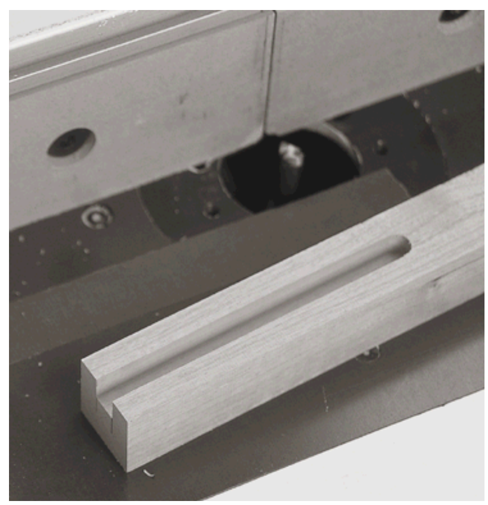


Yes, this wastes a little wood, but there isn't much wood in this table to begin with. When the grain lines run from corner to corner of your template, mark that shape and head to the table saw.

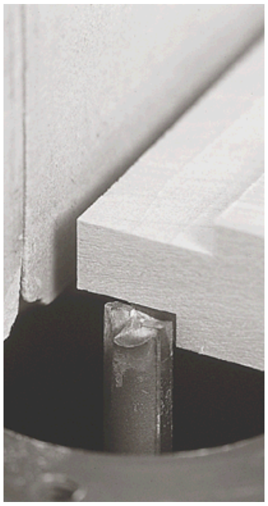


With the shape of the leg drawn on the end grain, it's now just a matter of sawing and jointing to those lines. First cut the angle on the table saw.

Then square things up on the saw or jointer.

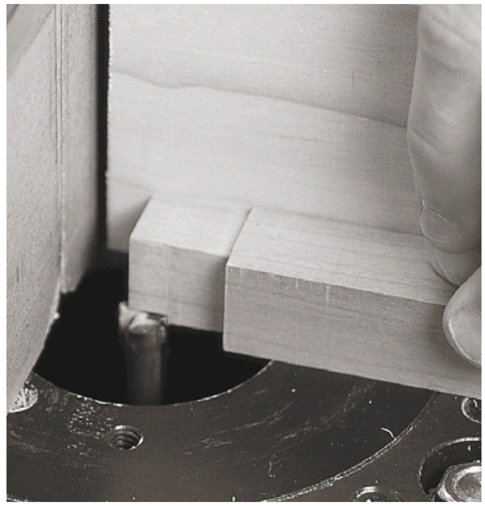


The $\frac{3}{8}$"-deep mortises are centered on the ends of the legs and are open at the top. This allows you to cut them all with one fence setup. Note that the front legs receive a mortise on only one face. The back legs get mortises on two faces.



The 3⁄8"-long tenons are cut using the same setup on your router table. Here it's obvious that tenons are nothing more than rabbets that have multiplied.

A 5⁄8"-wide chisel makes quick and accurate work of the small mortises on the legs. If you don't have a mortising chisel, a standard bevel-edge chisel will do the job, though you should avoid wailing on the handle and levering out the chips as much as possible. Work from the center out as shown. Mark the mortise depth on your chisel using permanent marker (believe me, it's not permanent). This works better than tape.



Shave 1⁄16" of all four faces of the tenons for the lower front rail. Make the same cut on three faces of the upper front rail. Then raise the bit's height to almost 3⁄16" and shave the two larger cheeks on the lower rail. Adjust the height of the bit until the lower rail fits snugly into its mortise.

Once you glue up the joint, the shoulder is supported just fine, but you risk breaking it before assembly time.

So I opted for 3⁄8"-long tenons. There is still a remarkable amount of gluing surface and the joint is more than stout enough for a table this small. When you make a bigger table in the future, you can make bigger tenons.

For details on executing this joint, see "Mortises & Tenons for Tables" on page 6.

After milling the mortises and the tenons for the aprons and the legs, you need to join the front two legs with the front two rails. This is a fiddly bit of joinery, but there are some tricks to make it foolproof. Let's start with the lower front rail.

The lower front rail needs to be mortised into the front legs. The best way to cut the mortises is with a chisel. First lay out the location of the mortises on the front legs. The mating tenon on the rail will be 3⁄8" thick x 5⁄8" wide x 3⁄4" long. Next, lay out the mortise wall 1⁄4" in from the front edge of the legs.

Chop out the mortises to a depth of 3⁄4". Work from the center to the ends of the mortise with the bevel facing the center of the hole. Keep in mind as you work that though you want to be as neat as possible, the edge of the mortise will be concealed by the shoulders of the tenon, so the occasional small ding is no harm done.

Now you can cut the corresponding tenon on the lower front rail. Use the same procedure as you did for the tenons on the aprons. First set the height of the bit to 1⁄16". Then adjust the fence so the tenon will be 3⁄4" long. Make a couple of test cuts to confirm your setup.

With the bit at this setting, cut away all four faces of the tenon on the lower rail. Next, get the upper front rail and make this cut on three faces and set it aside. Now increase the height of the bit and shave away material on the tenons until the lower rail fits in its mortise snugly.

The upper front rail is dovetailed by hand into the front legs. Before you despair, take a look at the upper rail, which you just tenoned on three faces. You've cut three perfect shoulders for this joint. So even if your dovetail is the sloppiest one ever cut (which is doubtful), it will still fit tightly against the legs and the joint will never show.

With that knowledge, lay out a 3⁄4"-long dovetail on each end of the upper front rail. Its size and slope aren't critical. Lay it out so it's easy to cut and yet takes away as little material as possible. And make the slope of the angle about 8° or so.

Cut the dovetail on the end of the rail. Next, dry-assemble the table base and clamp up all the joints. Place the upper rail in place (the shoulders should fit tightly between the legs) and trace the dovetail shape onto the top of the front legs and the part of the apron tenon that it overlaps. Disassemble the table and saw out the socket in the legs and on the top of the aprons' tenons.

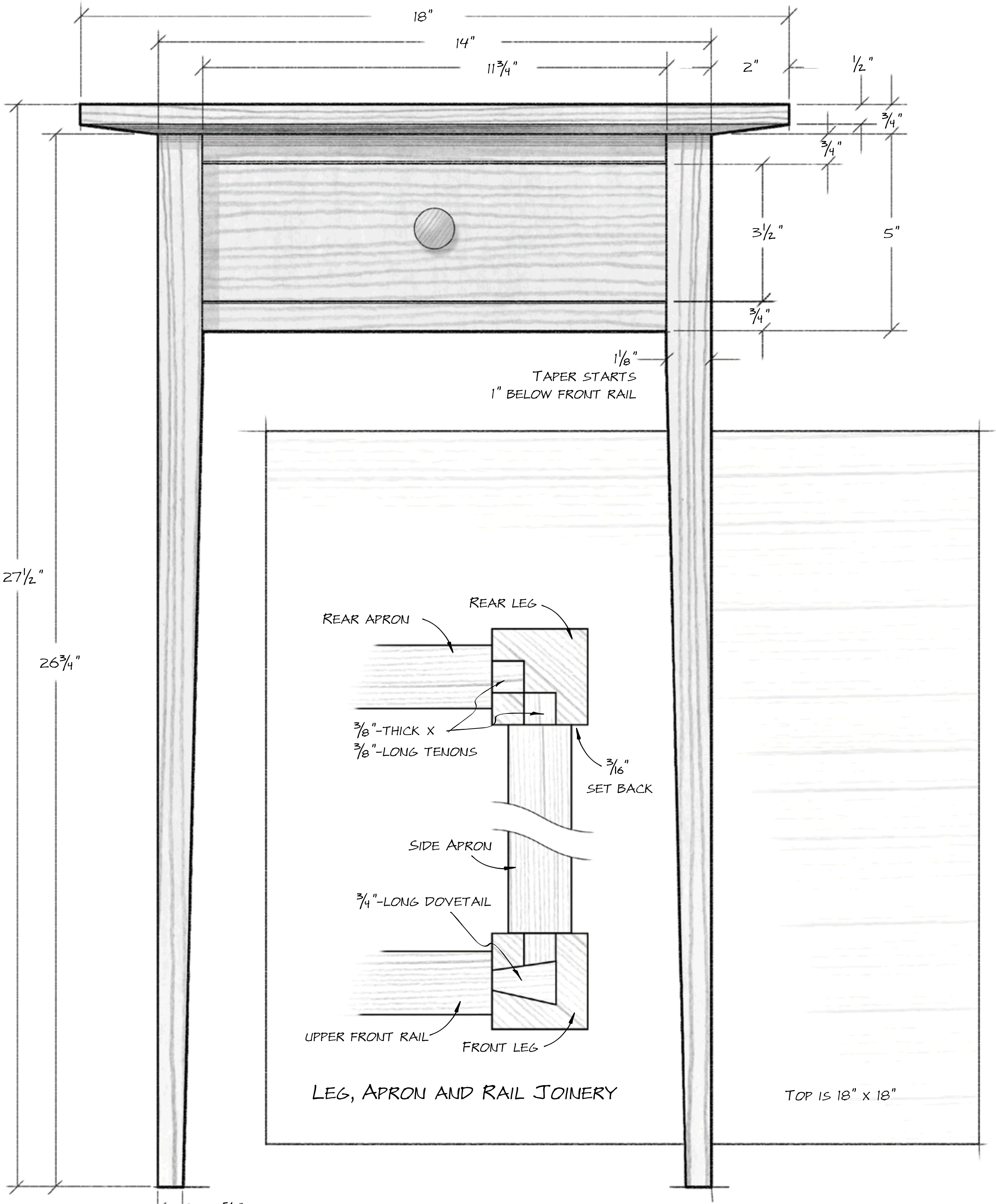
Now you can assemble the table without glue and take a look at how your joints fit.

Taper the Legs

There are a variety of ways to cut tapers on legs. I don't like the commercial tapering jigs for table saws. They work, but they put your hand too close to the blade. Shop-made tapering sleds are

Simple Shaker End Table

	NO.	PART	SIZES (INCHES) T	W	L	MATERIAL	NOTES
Table							
❑	4	Legs	1 1⁄8	1 1⁄8	26 3⁄4	Cherry	Taper to 5⁄8"
❑	1	Top	3⁄4	18	18	Cherry	1⁄4" x 2" bevel on underside
❑	3	Aprons	3⁄4	5	12 1⁄2	Cherry	3⁄8" tenon both ends
❑	2	Front rails	3⁄4	3⁄4	13 1⁄4	Cherry	3⁄4" tenon or dovetail
❑	4	Drawer guides	3⁄4	1	12 1⁄8	Cherry	Notched around legs
❑	2	Spacers	3⁄16	3⁄4	11 3⁄4	Cherry	Glued to aprons
Drawer							
❑	1	Front	3⁄4	3 1⁄2	11 3⁄4	Cherry	1⁄4" x 1⁄2" rabbet on ends
❑	2	Sides	1⁄2	3 1⁄2	12 1⁄4	Poplar	
❑	1	Back	1⁄2	3	11 3⁄4	Poplar	1⁄4" x 1⁄2" rabbet on ends
❑	1	Bottom	1⁄2	11 1⁄4	12 3⁄8	Poplar	In 1⁄4" x 1⁄4" groove



18"
14"
11¾"
2"
½"
¾"
¾"
3½"
5"
¾"
1⅛"
TAPER STARTS
1" BELOW FRONT RAIL
27½"
26¾"
⅝"
REAR APRON
REAR LEG
⅜"-THICK X
⅜"-LONG TENONS
3/16"
SET BACK
SIDE APRON
¾"-LONG DOVETAIL
UPPER FRONT RAIL
FRONT LEG
LEG, APRON AND RAIL JOINERY
TOP IS 18" X 18"

END TABLE

safer, but they require wood, material and time to fabricate. And don't even ask me to explain the math involved in making taper cuts on a jointer. It makes my head hurt.

The most straightforward, safe and foolproof way to cut tapers is to lay them out on the legs, cut them out with a band saw (or jigsaw in a pinch) and clean up the cuts on your jointer or with a hand plane (my tool of choice).

The leg taper begins 1" down from where the aprons end. The legs taper down to 5/8" square at the foot. That seems almost too delicate a taper, on paper. But when you see the results, you'll be impressed with the strength and beauty of the legs. Don't forget that the tapers are on only the two inside edges of the legs. With the tapers complete, you're ready to assemble the base.

Gluing it up

Begin by sanding or planing all your base pieces so they are ready for finishing. If you choose to sand, I recommend you sand the legs by hand with a small sanding block. A random-orbit sander will give you a bellied surface, which will spoil the fit of your joint. Begin with #100-grit paper and work your way up the grits to #180- or #220-grit.

Start the assembly by gluing a side apron into a mating front and back leg. When this assembly is complete, you can then check the fit of your dovetail a second time and make any modifications necessary for a tight fit. If you're going to peg your joints from the inside (as described in "Mortises & Tenons for Tables"), now is the time to peg those side aprons. Then glue up the remainder of the table base.

Sorting Out the Guts

The rest of the table is simple joinery, but you need to pay close attention to how everything fits so that the drawer slides well. The first order of business is to fit and glue up the four drawer guides. The drawer rides on the two at the bottom. The two at the top have dual functions: They attach the table base to the top and they prevent the drawer from tipping downward when it's pulled out.

Start by notching the corners of all four guides. A 3/16" x 3/16" notch allows the guides to fit around the legs. You can cut it with a band saw or jigsaw if you like, but a backsaw will be just as fast and accurate. When the guides fit around the legs, glue the lower guides to the aprons. Make sure their top edge is flush with the lower front rail. This ensures the drawer won't hang up.

Before you glue on the upper guides, you should drill countersunk holes that will allow you to screw the base to the underside of the top. These holes need to be elongated a bit to allow the top to expand and contract, but please don't get too worked up about this point. There is no need to rout out a slot or drill overlapping holes. Simply drive your drill into the hole, and while the drill is running, pivot it forward and back.

Glue the upper guides in place. Make sure they are flush to the top of the apron (or just a little below) and don't drop below the upper front rail.

You can see details of what the inside of the table base looks like – with all the guides and runners in place – in "Simple & Fast Rabbeted Drawers" on page 24.

Return To the Top

You might think that building and fitting the drawer is the next step, but it's not. In a small project, the top will change how everything fits below it. If you tighten the screws between the top and base too much, the drawer will bind up in the case. So really the best course of action is to make the top, attach it, then fit the drawer.

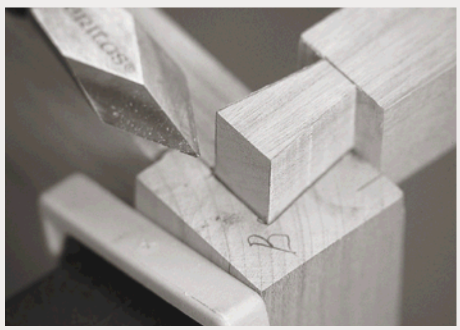
Cut your top panel to its finished size and lay out the bevel on its underside. You can cut this bevel on the table saw much like you would a raised panel for a door. This can be tricky depending on the height of your table saw's fence and the size of the throat opening for the saw blade.

If you choose this route, set your table saw's

This table is a great project for practicing your planing. The parts of the base aren't wide, so you don't have to worry about the corner of the plane iron digging into your work. If you're interested in learning to use a hand plane, planing the tapers, rails and edges of tabletops are three good places to begin.

Cutting the Dovetails on the Upper Front Rail

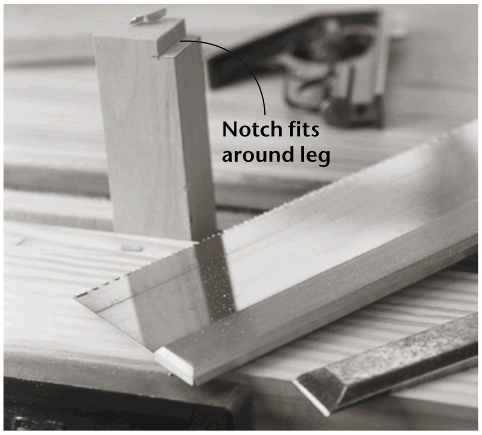
The dovetails are simple backsaw work. Even if you miss your line, you'll be able to fix it when you cut the socket. If you mess up the socket, the result will never show. Saw down to the shoulder and pare away the little waste sliver with a chisel.



Second, mark out the shape of the dovetail on the top of the leg using a mechanical pencil or (even better) a marking knife.

Third, use your backsaw to define the edges of the socket. Saw inside the marked line. You can pare away the extra waste with a chisel once the socket is chopped out.

To remove the waste, first loosen it up by chopping a series of score lines on top of the leg. Then come in from the front of the joint (as shown) to pop the waste out. Keep working down and back. This is good chisel practice.

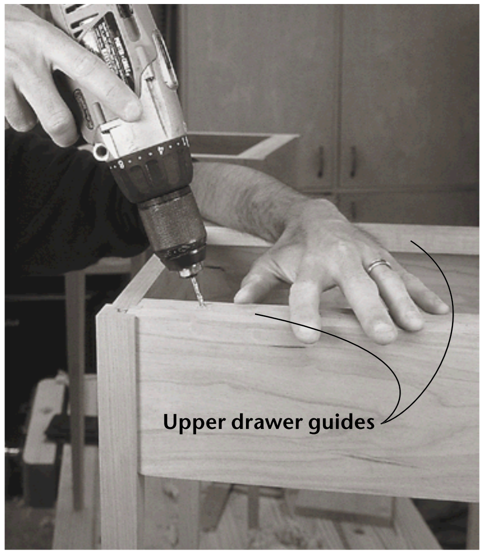


Once you cut the notch in the drawer guide, a sharp chisel can fine-tune the fit with ease. To learn how to correctly sharpen a chisel, see "Sharpening a Chisel" on page 11.

blade for a 7° bevel and sneak up on the proper cut by making a couple of passes over the blade, changing the height of the blade and location of the fence until you get the bevel you desire.

If that approach doesn't appeal to you, I recommend you mark the bevel on the underside and shape it with a rasp and file. A rasp (I prefer the inexpensive Microplane rasp for this job) can remove wood in a hurry. A mill file, scraper and sandpaper will clean up your work from there.

Plane or sand the top for finishing. Attach it to the base with #8 x 1" screws. The easiest way to accomplish this is to put the top upside down on your bench. Then clamp the table base in place to the top. Drill pilot holes into the top and then drive each screw home. Now you are ready to construct the drawer.



The holes need to allow the body of the screw to pivot. So reaming out the holes as shown is perfectly acceptable.

Drawer Details

When I've built this project in the past, I've made a dovetailed drawer, which is typical of Shaker construction methods. But to make the project simpler to build, I recommend you try out the drawer-building method detailed on page 24. That style of drawer is easy to construct and will be more than adequate for the light duty this drawer is certain to receive.

Note that the sizes in the cutting list for this table assume you will make the drawer using this rabbeted construction method.

No matter how I make my drawers, I usually choose poplar for the sides and bottom. It's inexpensive and machines well. When the drawer is built, I fit it with a jack plane. Plane the top, bottom and outside faces of the drawer's sides until it moves smoothly in and out of the table's base. Then turn your attention to getting the right gap (called the "reveal") around the drawer front, a task suited for a block plane.

With the drawer fit, attach the knob. I like to screw a piece of scrap on the top edge of the drawer back to prevent the drawer from being pulled all the way out of the table (unless you mean to). It's a small detail that I'm fond of.

Cleaning Up

Break all the edges with #120-grit sandpaper and disassemble the table for finishing. With cherry, I think it's worth the extra effort to accelerate its darkening by applying a couple of coats of boiled linseed oil and putting the table out in the sun for a day. Then you can brush or wipe on your favorite film finish. I prefer a satin lacquer.

The first time I built this table, I was going to give it away to my sister as a wedding gift. But when it was complete, it sparked something rare in me: envy. So I kept the table and it sits by my bedside as a reminder of the rewards of good design. My sister can have the next one. WM

— Christopher Schwarz

Supplies

Rockler
800-279-4441 or rockler.com

1 • Cherry Shaker 7⁄8" knob, 3⁄8" tenon, #78493, $2.59/pair

Price as of publication deadline.

The entire top is riding across the blade on a ½"-wide edge, so take care when cutting the bevel.

Thin the sides of the drawer until you get a smooth fit. A sander can do the job, but a hand plane removes material in a much more predictable (if slightly slower) manner.

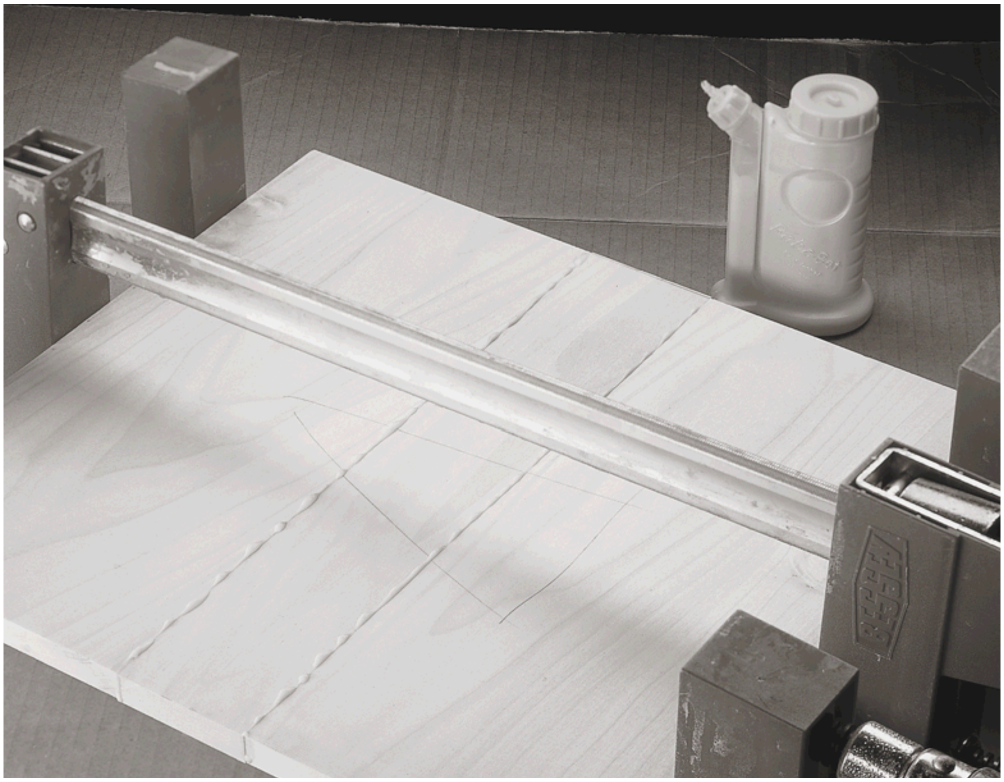
Gluing up Flat Panels

Three easy steps – joint, glue and clamp – help you create perfect panels.

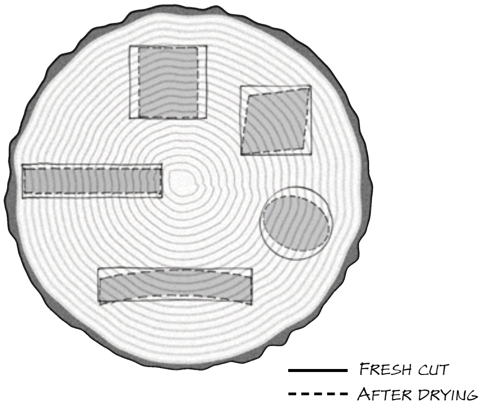
Wood panels are an essential component in making almost every piece of furniture. While a flat panel less than 6" wide can be made by simply crosscutting a board, a panel wider than that will require gluing a few boards together edge to edge. Keeping those panels flat, straight and attractive is easily learned and will make all of your projects much more successful.

First let's get rid of a common myth: To make sure a panel stays flat, it's not necessary to rip the individual boards to 2" or 3" widths and then reglue them. All this does is create more work and an ugly panel.

Wood moves primarily because of changes in moisture content. After being felled and cut, the wood from a tree slowly acclimates to its environment as the moisture in the wood evaporates. Because of the shape and orientation of the fibers in a board, some will shrink more than others. Even when kiln-dried and assembled into a project, lumber will continue to react to changes in humidity by cupping and warping. The illustration (below) shows how wood will move as it dries and should help you choose the right orientation of growth rings. A trick is to try to leave the wood's heartwood side showing on your panels.



Proper preparation, technique and tools are all required to make a perfectly flat panel.



The first step in gluing up a flat panel is reading the wood. The end view of a board (or log, as above) shows the different shrinkage pattern for different cuts of lumber. Knowing how your lumber will react to humidity changes will help you with your panel layouts.

Proper wood preparation also can help you avoid warping. When planing boards to final thickness, remove material evenly from both sides to allow grain tension in the board to remain stable.

When you rough-cut your wood, leave the boards a little long and wide (so the panel glue-up is 1" oversize in both directions). Cut them to finished size after your glue-up. This lets you cut around imperfections near the edges.

Also, pay careful attention to the appearance of each board. Even though we have to use more than one board to make our panels, we want to make the panels look like they're still one piece. Matching the cathedrals or the straight-grain patterns at the joint (as well as matching the color of the wood) will make for a better-looking finished panel. Try to get all of your panel pieces from a single board length. Color- and grain-matching is much easier then.

Once you've determined where your joints should occur, you must make those edges mate perfectly. The jointer is designed to produce an edge that is perpendicular to the face of the board. But if the fence is slightly off, the edge will be, too. Each board needs to be flat and have at least one perpendicular edge (interior boards need two) to achieve a flat panel. The bottom left photo on page 23 shows a trick to make sure your boards meet flat at the edge every time.

Now let's talk about glue – either yellow or white glue will work fine for a simple edge joint. Glue isn't intended to fill gaps between two pieces of wood, but rather to bond two pieces together. Only use enough glue – about .001" thick – to form a locking layer between the two surfaces. Too much glue creates a weak joint. Insufficient or partially dried glue results in inadequate bonding strength.

Now you're ready to glue up your panel, but there's still lots to know. Let's start with clamping pressure and proper clamp orientation. Clamps are designed to produce tremendous pressure, and that's great, but it doesn't mean you should use that pressure to force an open joint closed during glue-up. If you have to do that then your edges weren't properly joined to begin with. Even with a perfect joint, applying maximum clamp pressure can cause the panel to twist.

You should be able to close the joint using only hand pressure. A slight gap at the center of the joint, called a "sprung" joint, is acceptable (some woodworkers say preferable). This adds tension at the ends of the joint, which can separate as the wood dries. But if the gaps occur at the ends of the panel, problems with the joint pulling open later could occur.

With the glue properly applied, it's time to add clamps. No matter what type of clamp you are using, it's good practice to alternate the bars above and below the panel. You should also space them about 6" - 8" apart on panels made with narrow boards and farther apart (up to 12") on panels made with wider boards. Clamping pressure radiates out from the clamp face at a 45° angle. That radiant pressure should overlap at the glue joint. The order that clamps are applied will help as well. (See photo at bottom right.)

If you're gluing up a panel with many boards (such as a kitchen tabletop with six boards) you can make the glue-up much easier by being a little patient. First glue up three two-board panels, then join those three panels together. Aligning two glue joints is much easier than aligning five.

Another suggestion during clamping is to use your clamps' bars to keep the panel flat. With the panel resting against the bar, the bar adds support (from both sides) to keep the panel flat. But when you use your clamps in this manner, the steel of the bar (if not plated) can react to the glue and leave black marks on your panel. Either slide a piece of paper between the clamp and glue joint or make sure you use clamps with plated bars.

Apply enough clamp pressure so the boards don't slide around at the joint. You likely will have to apply some side pressure to slide the boards. If you need extra leverage to level up the joints, twist the unclamped ends of the boards. When the seam is flush between the clamp heads, apply enough clamping pressure to make glue squeeze out of the joint and close the gap to about .001" wide. Again, don't overtighten the clamp. If you're getting good glue squeeze-out and the joint is tight, that's when it's time to stop.

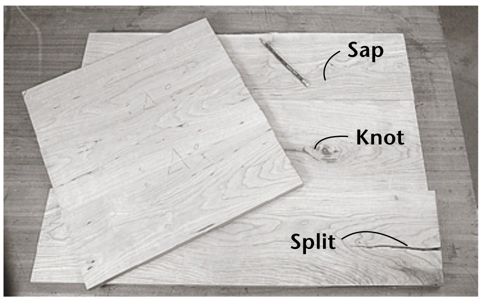
About that excess glue: Before you set the panel aside to dry (that's at least 30 minutes before you can take the clamps off and an hour before you should apply pressure to the joint), take a damp cloth (not wet) and wipe along the joint in short swipes, cleaning off the glue completely.

One myth is that adding water to a glue joint will dilute the glue, weakening the joint – not so. The amount of water involved in the cleaning process will have no affect on joint strength and save a lot of torn fibers if you try to remove the dried glue from the panel later.

Once the clamps are removed, it should only be necessary to plane or sand the joint lightly to smooth it flush on your panel.

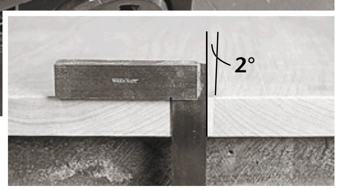
And that's all there is to making perfect flat panels. It's the backbone of any woodworking project and when done correctly, it's also one place to let the beauty of the wood show through. WM

– David Thiel

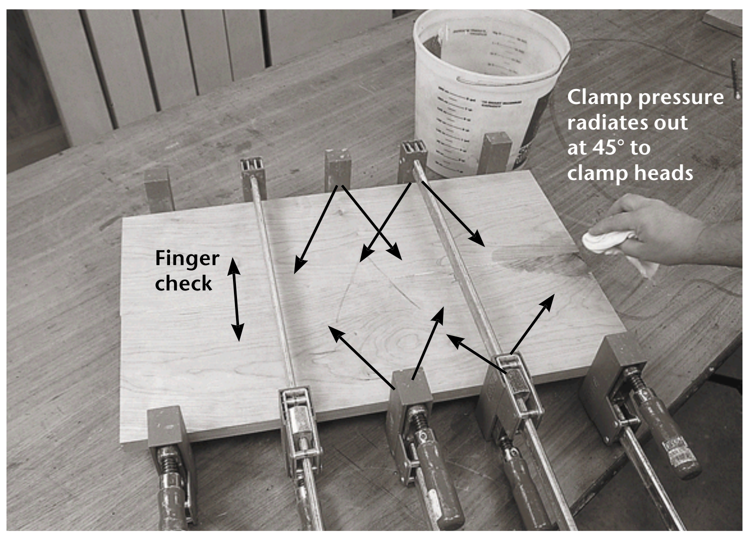


This three-board panel (on top) shows nicely matching grain patterns, making the transition between the boards invisible. The three boards underneath the panel exhibit some problems that can arise in matching grain.

A good glue joint starts with a thin, even coat of glue. Glue will penetrate wood until it starts to cure, then it only lays on the surface of the wood. So for fast glue-ups, putting glue on one surface of the joint is adequate. For multiple or long (24") joints, spread glue on both surfaces.



With your finished faces showing, mark one board with an "⊠" and the other board with an "⊠." Also mark the joint on both boards to avoid confusion. Take the board marked with an "⊠" and place that marked face "in," against the jointer fence, and make your pass. Take the "⊠" board and set it with that face "out," away from the jointer fence, and make your pass. Even if your jointer fence was out by 2° or 3°, by producing complementary angles at the joint you will have a square joint. And it works for as many boards as necessary to make up your panel. The inset photo shows the flat panel with the 2° offset at the joint.



When clamping, it's easiest to start at the center of the joint with your first clamp. As you apply pressure, make sure that the faces are aligned as perfectly as possible by running your finger across the joint. Wipe off the glue with a wet rag. You want to remove the glue entirely, not push the glue further into the grain, so wipe well.

Simple & Fast Rabbeted Drawers

It takes only one setup on the table saw to cut every joint you need to make a solid drawer. Without a doubt, this is as easy as it gets.

PHOTO BY AL PARRISH

Along the road to comfortably referring to yourself as a "woodworker," there are a few important milestones you must reach. One of these is building your first drawer. For some reason, this project causes more antacid-popping than almost any other project.

A drawer is just a box. The tricky part is that the box must fit accurately into a hole and move smoothly. There are three steps to a successful drawer: precise measuring, accurate joining and careful fitting. This article shows you the tricks we use to successfully complete all three steps.

Measuring Like a Pro

Let's say you're building an end table with a drawer. Knowing the size of the drawer's hole is the first critical piece of information. Seeing how that space is made and understanding how the drawer will "run" in the table is the next step. In traditional case construction, the drawer is just slightly smaller than its hole (which is the technique we're showing here). In modern cabinets, the drawer is considerably smaller than its hole to make room for mechanical slides or glides.

In our traditional case, the drawer hole must be clear of obstructions or corners that the drawer can hang up on. For that reason, the sides of the drawer are traditionally kept in check by "drawer guides," which are simply pieces of wood inside the carcase that are parallel to the sides of the drawer. Essentially, the guides create a smooth sleeve for the drawer to run in and out of.

With the guides in place, you're ready to measure the opening for the drawer. You want to build a drawer that fits the largest part of its opening.

First measure the height of the drawer opening at the left side, right side and in the middle to make sure your case is square. The drawer for the "Simple Shaker End Table" on page 16 is an "inset drawer," which means the drawer front doesn't have a lip that covers the gap between the drawer and case. (Drawers with a lip are called "overlay" drawers, by the way.) Because this is an inset drawer, you should end up with a small gap all the way around the drawer front, called the "reveal." The reveal must be equal on all four sides of the drawer front. Next, measure the width of the drawer opening at the top and bottom. Finally, measure the depth of the drawer space.

Now comes a tricky decision: Do you build the drawer to fit the space exactly and then trim it down with a hand plane to allow for proper movement? Or do you trust yourself to build the drawer so that there is exactly $^1/_{16}$" of space between the drawer and its guides?

We like to err on the side of caution. Build your drawer to fit the opening exactly and trim it to fit. If your drawer opening happens to be out of square, trimming the drawer is the easiest way to compensate. So build to fill the space, then work down to a smooth operational size.

One Setup Cuts All the Joints

Now that you know the size of your drawer, you're ready to build it. Mill all your stock to size (see the cutting list on page 18 for the Shaker end table drawer), paying particular attention to its thickness. The thickness of the sides and bottom must be exactly 1/2" for this operation to work well.

We're going to build our drawer exactly the size of our opening, except for the depth. The drawer's depth will be 1/2" shy of the depth of the opening to allow us to fit the drawer flush with its opening, which we'll explain shortly.

The drawings on page 26 show how we build simple drawers using one setup on the table saw. You won't have to change the blade height or move the fence as you cut these three joints:

- The 1/2"-wide x 1/4"-deep rabbets that join the sides to the front and back.
- The 1/4" x 1/4" groove on the sides and front that holds the bottom in place.
- And the 1/4" x 1/4" rabbets on the bottom that allows it to slip neatly into the grooves.

It may not be the way you'll build all your drawers, but it's simple and nearly foolproof. The 1/2"-wide x 1/4"-deep rabbets at the corners – when reinforced with brads – make the drawer resist racking and tension. While this can't compare to a stout dovetailed drawer, it's more than adequate for most furniture applications.

To make the drawer a one-setup operation, you'll need a dado stack. Dado stacks traditionally have two 6"- or 8"-diameter saw blades that cut a 1/8" kerf – plus a variety of "chippers" that can be inserted between the two outside blades to adjust the width of the groove to be cut. For our drawer, we're going to use only the two 1/8" outside blades to achieve a 1/4" groove.

> *"Yes, risk-taking is inherently failure-prone. Otherwise, it would be called sure-thing-taking."*
> — Tim McMahan (1949 –)
> international business speaker, author, photographer

(Note: If you don't have a dado stack, you can use an 1/8"-kerf rip blade. You'll have to make a few extra passes over the blade, and you will need to move the fence, but only once.)

Now install a new zero-clearance throat insert to be used for this operation alone. (You can buy one from any tool supplier or make one using your saw's stock insert as a template; your saw's manual should show you how.) Without this new insert, rabbeting the bottom using your stock insert can be dangerous, especially with a left-tilt saw. The opening will be too big and your work could tip into the blades.

With the two dado blades installed on your saw's arbor, raise them so they are exactly 1/4" above the new insert. Set your saw's rip fence so it is exactly 1/4" away from the dado stack. Confirm your setup with some test cuts and dial calipers.

Use the drawings to walk through the simple rabbeting steps for the front and back, and the grooves for the bottom.

If you use a 1/4"-thick plywood bottom instead of solid wood, you're done at the saw. If you're using a 1/2"-thick hardwood bottom, you need to cut the rabbet on its edges so it slides in place.

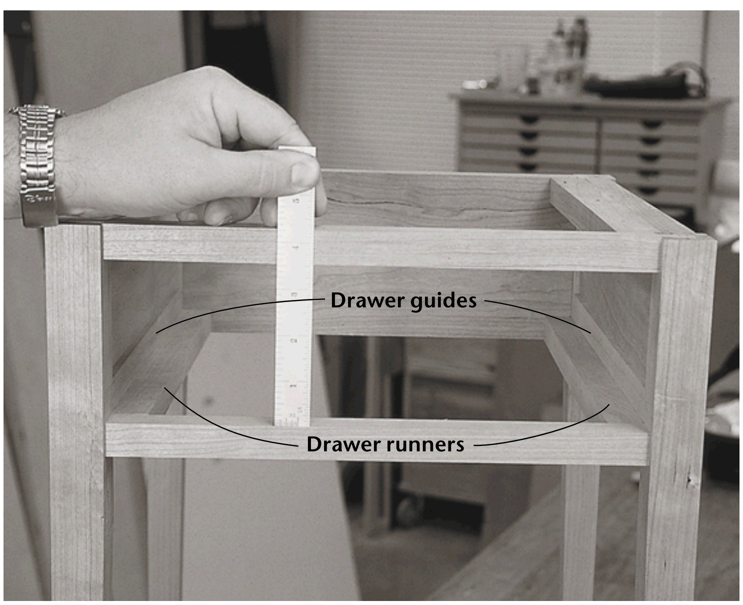
We've shown two different ways to make a bottom here. In the drawings, we show a bottom that actually extends past the back. The back is cut 1/2" narrower than the front. This has several advantages: You can remove the drawer bottom for finishing and easily replace it if it ever gets damaged. It's necessary to build drawers this way when they are deeper than 12" to allow the solid-wood bottom to expand and contract without binding or busting the drawer.

Second, in the photos we've shown a bottom that is completely captured by the groove on the sides, front and bottom. In small drawers such as this one, wood expansion isn't a major concern and this method allows all the drawer pieces to be the same width.

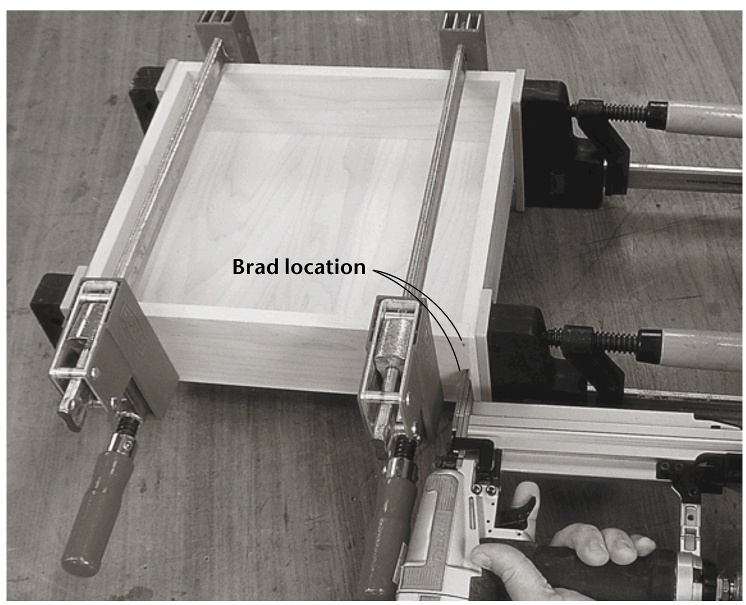
Fine-tuning and Assembly

Before assembling the drawer, dry-fit the parts to ensure everything will go together easily. The rabbets should fit easily, but the bottom needs to slide into its groove without forcing, and you need to make sure the bottom isn't keeping the corner rabbet joints from closing tightly.

If the bottom is too tight you have a few options. You can head back to the saw and move the fence a little closer (1/32", or at most 1/16") to the dado stack and rerun the four edges to thin the rabbet. A couple of passes with a bullnose or shoulder plane will also thin down the rabbet quickly. If the bottom is holding the corner joints open, raise the height of the dado stack (1/16" is fine) and, re-run the edges of the bottom. Then keep checking your fit and adjusting until you're ready to assemble.



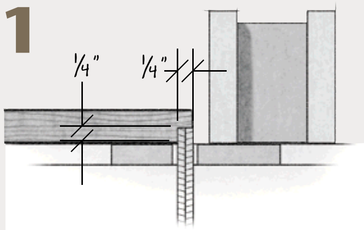
Here I'm measuring the height of the drawer opening near the center. You should also measure the height at both ends of the opening. The width also needs to be measured at top and bottom. Also shown in the photo are the drawer guides and runners in a typical case.



When building a drawer with a captured bottom, clamps are placed to apply pressure in both directions with the bottom in place. Note that the clamps are placed just behind the rabbet to apply as much direct pressure to the joint (without interfering with it) as possible. Brads add strength.

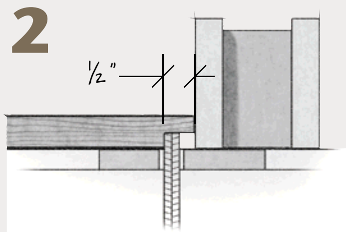
Build a Drawer with One Saw Setup

1

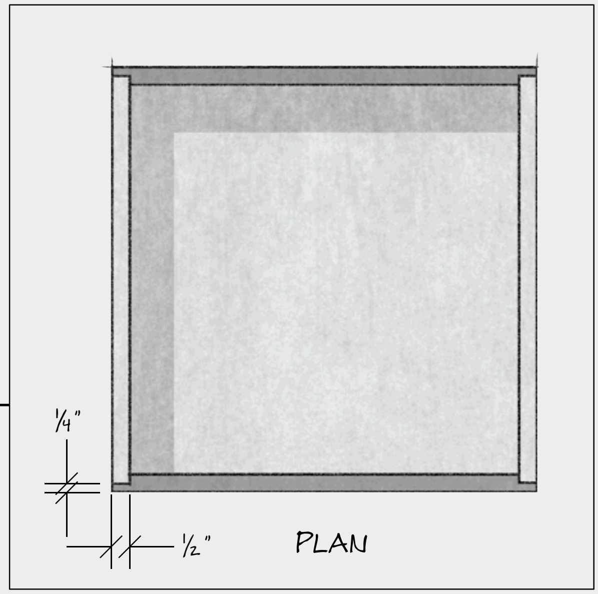


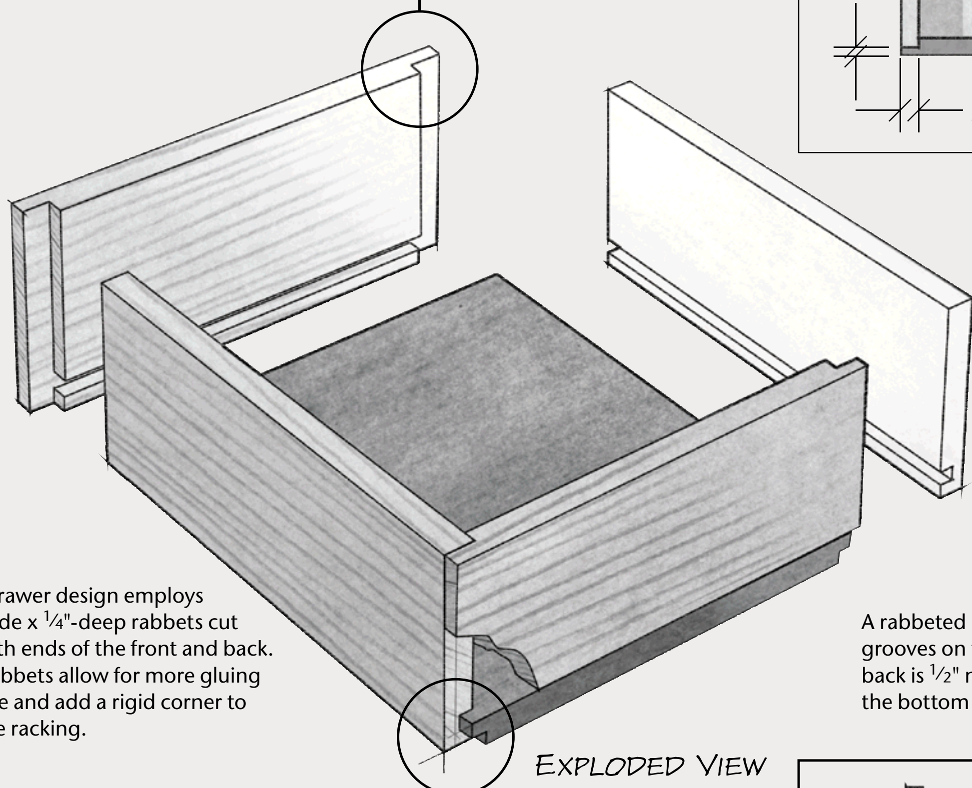
Set your ¼"-wide dado stack at ¼" high and ¼" away from the fence. All of the crosscuts are made using the miter gauge to support the work. The first cut trims ¼" off the end of the piece. Make this same cut on both ends of the front and back.

2



Make the second cut with the end of the piece pressed tight against the fence, which will create the full ½" width of the rabbet. Repeat this cut on both ends of the front and back.

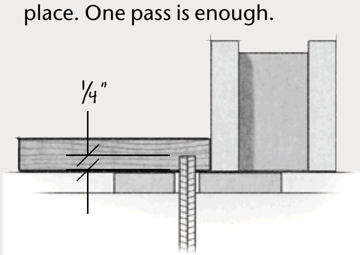


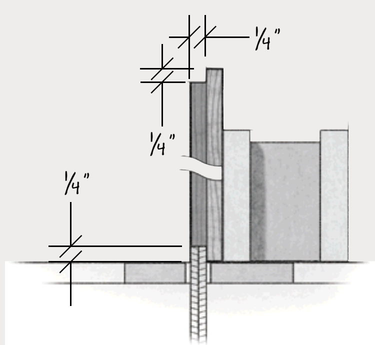


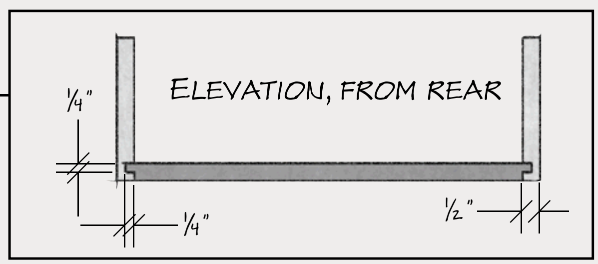
This drawer design employs ½"-wide x ¼"-deep rabbets cut on both ends of the front and back. The rabbets allow for more gluing surface and add a rigid corner to reduce racking.

A rabbeted bottom fits into the ¼" x ¼" grooves on the sides and front. Note that the back is ½" narrower than the front to allow the bottom to slip in place under the back.

3 Keep your saw at the same setting to cut the ¼" x ¼" groove in the sides and front that holds the bottom in place. One pass is enough.







4 Finally, cutting a rabbet will allow the bottom to fit into the grooves. Make this cut with the bottom on edge as shown at left. This operation is dangerous without a zero-clearance insert in your table saw. Featherboards help keep the bottom tight against the fence during the cut.

Use glue and 5⁄8" brads to attach the sides to the front and back. Apply glue to the rabbets at the corners. If you're using a solid-wood bottom, don't place glue in the grooves. The bottom should be allowed to expand and contract (unless you're using plywood).

Slip your bottom into the groove and clamp the drawer. Place your clamps as shown in the photo on page 25. If you're adding brads to the joints, drive them through the sides into the rabbets in the front and back.

Fitting the Drawer in its Space

When the glue is dry, take the drawer out of the clamps and try to fit it in its opening. It probably won't fit. This is OK. The first step in getting it to fit is to take your block plane and remove material from the top edge of the sides, front and back, checking the fit as you go. You can easily gauge your progress by first marking a 1⁄16" line around the outside of the drawer. As you plane, use this line as a reference.

Check the fit of the drawer at the top and bottom by inserting one corner of the drawer in the opening so you don't have to worry about the side-to-side fit. When the drawer fits at the top and bottom, check the side-to-side fit.

Removing material from the sides can be done with a plane or a power sander. If you're planing, remember to work in from both the front and back to avoid tear-out on the end grain that shows on this surface. Remove material slowly and work both sides evenly. It shouldn't take much to get the drawer to slip into place.

You may notice at this point that the reveal around the drawer looks OK at the top and the sides, but the bottom is a tight fit. Here's a little trick: Take your block plane and lightly bevel the bottom front edge to give the appearance of a gap to match the top space. Continue to trim the front with your block plane until the reveal is consistent all around the drawer front.

If you're having trouble planing the end grain on the sides of the front, here's another little tip: Wet the end grain with some mineral spirits. This will make it easier to slice.

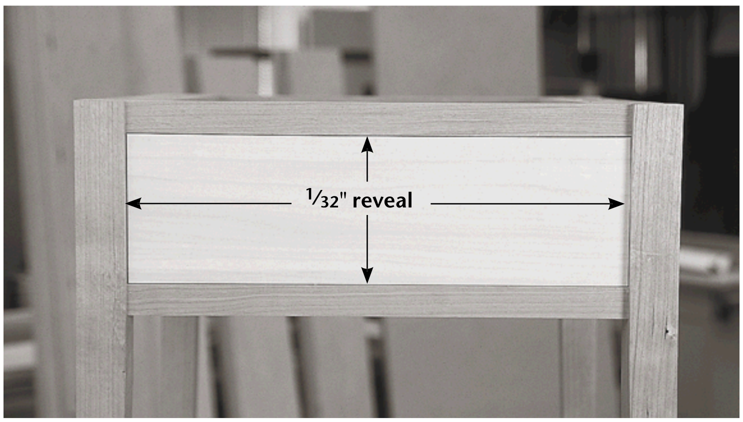
Now it's time to fit the depth. Because we made the drawer 1⁄2" shorter than its opening, it will slip in past the front edge of the table. Slide the drawer all the way in, and measure how far in it went. Then predrill and drive two #8 x 1"-long roundhead screws (one on either side) in the drawer back. By adjusting the depth of the screws, you can fit the drawer front flush to the table.

With these basic skills in place, you can now use different material thicknesses. And as you become more comfortable with your skills, you can try a new drawer joint on occasion. But you'll always be able to make a simple one-setup drawer that fits perfectly with these rabbets. WM

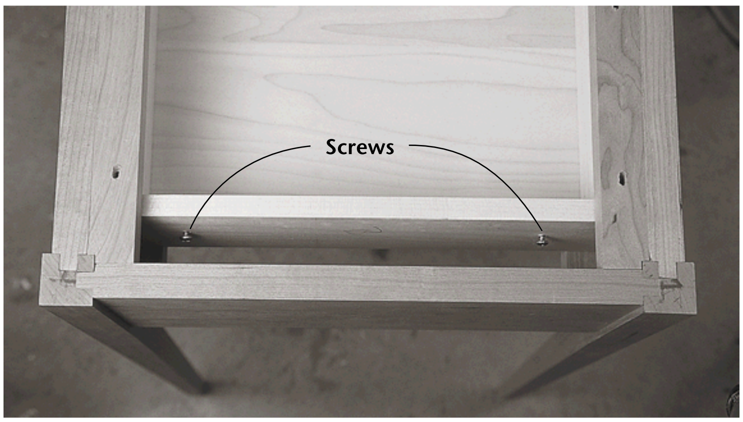
– David Thiel

The first step in fitting the drawer is to trim the height. A simple block plane can be used to take off a little bit at a time until the fit is perfect.

Next, a larger jack plane removes material from both sides until the drawer slides in smoothly.



With the drawer in place, you can see the reveal at both sides, on top and on bottom. By beveling the lower edge of the drawer front with a block plane, the spacing appears to match on all four sides.



Another trick to fitting a drawer is to use screws in the back to help adjust the depth. The two screws can be adjusted in and out to fit the drawer front flush in the opening.

Drawer Primer: Sliding-lid Box

We discovered that our drawer-building technique is an ideal method to make sturdy storage boxes.

This simple box uses the same saw setups and rabbeting techniques for building the drawer shown on page 24, and it's good practice for building the "Simple Shaker End Table" on page 16.

However, there are a couple of differences. Unlike a drawer, this box has a sliding lid that's cut using the same joinery we used to make the bottom. We also added a notched piece of wood inside to organize the box's contents (for us, it's chisels). And there is a small amount of detailing anyone can try: The lid's bevel and thumb pull are made with a chisel, rasp and small gouge.

To make the box, first choose wood with straight grain for the sides, front and back, and wood with nice figure for the lid. We built ours from a hybrid called Lyptus (see page 32). Dress (joint and plane) your lumber, then cut the parts to finished size, except for the tool holder.

Cut the rabbets on your side pieces next, then cut all the grooves. These grooves capture the box's bottom and guide the sliding lid. Finally, cut the rabbets on your bottom and lid.

Lay out the 11⁄16"-wide x 1⁄4"-deep bevel on the lid and shape it using a rasp. Once you get close to your layout lines, finish the job with a block plane or #120-grit sandpaper and a sanding block.

Lay out the location of the thumb pull on the lid. Define all the edges using a straight chisel and a gouge for the curved area. Chop out the straight section with a chisel and use the gouge to remove the waste. Hand plane or sand all the parts. If you wish to make a tool holder, do so now. To make the slots for our chisels, we drilled five evenly spaced 1⁄2" holes, then cut out the remaining material with a hand saw or a band saw.

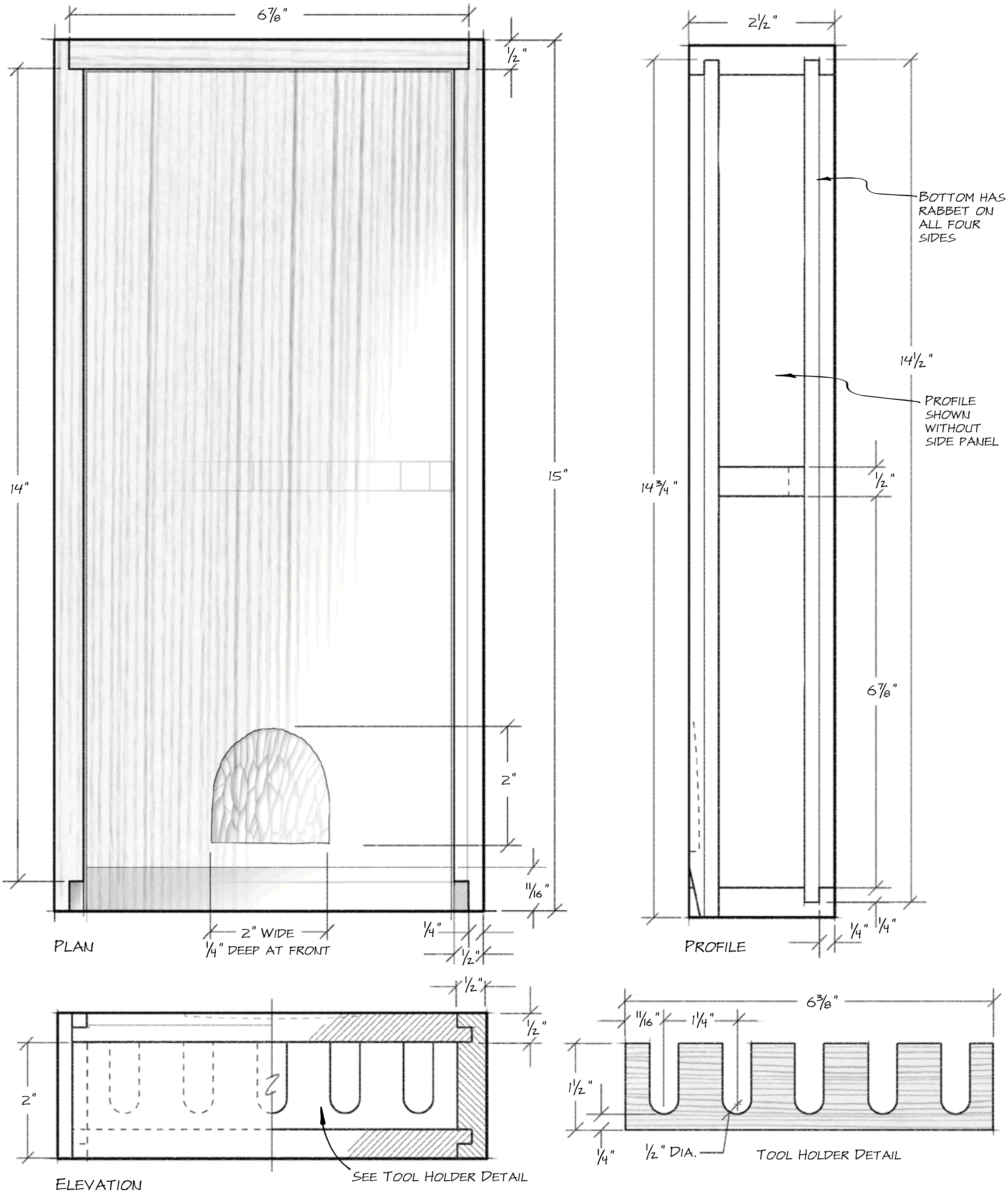
Dry assemble the box. Once satisfied, glue the sides to the front and back. The bottom floats in its groove and the lid (obviously) slides. Reinforce each joint with 5⁄8" brad nails. We finished our box with garnet shellac. WM

— Christopher Schwarz and Kara Gebhart

PHOTO BY AL PARRISH

Sliding-lid Box

	NO.	PART	SIZES (INCHES) T	W	L	NOTES
❑	1	Front	1⁄2	2	6 7⁄8	1⁄4" x 1⁄4" groove on bottom
❑	1	Back	1⁄2	2 1⁄2	6 7⁄8	1⁄4" x 1⁄4" groove on top and bottom
❑	2	Sides	1⁄2	2 1⁄2	15	1⁄2"-wide x 1⁄4"-deep rabbet on ends; 1⁄4" x 1⁄4" groove on top and bottom
❑	1	Bottom	1⁄2	6 7⁄8	14 1⁄2	1⁄4" x 1⁄4" rabbet on all sides
❑	1	Lid	1⁄2	6 7⁄8	14 3⁄4	1⁄4" x 1⁄4" rabbet on sides and back
❑	1	Tool holder	1⁄2	1 1⁄2	6 3⁄8	Varies depending on your usage



SLIDING-LID BOX

Brushing Lacquer

Considered by many to be difficult to use, this fast-drying finish is worth the effort.

Until recently, only two manufacturers (Deft and McClosky) offered a brushing lacquer for the home woodworker and finisher. If that doesn't indicate the lack of interest in the product, perhaps this little fact will: Deft didn't even label its product as a lacquer until a few years ago. It was simply called "Clear Wood Finish." Today, however, in smaller type, the label refers to the contents as "Your Finest Brushing Lacquer." Score one for this marvelous, although mysterious, finishing product.

Brushing lacquer is racking up more points now with relatively new products from Watco and the finishing industry giant, Minwax. With more products coming to market with greater frequency, the time is right to learn about the advantages and disadvantages this finish has to offer.

Home woodworkers used to steer clear of lacquer because of its worst hazards: fumes and flammability. But lacquer was the finish of choice for the commercial woodworking industry. Factories equipped with sophisticated spray equipment, spray booths to evacuate the noxious, volatile fumes and automatic fire-suppression equipment were able to overcome lacquer's hazards.

Some home woodworkers may find the odors, which are stronger than odors emitted by oil-based paints and varnishes, too objectionable. Precautions must be taken when storing, handling and using lacquer because a build-up of fumes in an enclosed space can be explosive. You need good ventilation, no open flames (think water heaters or furnaces) or sparks, and to avoid prolonged contact with skin. While daunting, these disadvantages can be dealt with and brushing lacquer can be used safely.

PHOTO BY AL PARRISH

Proper technique, including using as few strokes as possible, is key to a good lacquer finish.

Why Use Lacquer at All?

Lacquer has a number of built-in characteristics that give it advantages over oil- and water-based finish materials. One of the biggest is the amazing speed at which it dries. A straight-from-the-can brushed coat will dry tack-free in less than 15 minutes and work can be handled in 30 minutes; surfaces can be recoated in less than two hours. Quick drying means far less time for airborne dust or insects to land in a wet or tacky finish and cause imperfections.

Lacquer is in a class of finish products where each new coat actually dissolves the top portion of the previous coat so that all coats form a single continuous film. Other finishes, such as oil-based varnish and polyurethane, form coats of successive layers, with each coat merely "sticking" to the coat below it. Failure to properly sand these finishes between coats can result in finish adhesion problems. Sanding through a coat of varnish or polyurethane to the layer below can cause an unsightly blemish.

By comparison, lacquer sands easily between coats, making a flawless, glass-like finish much easier to achieve. Brushing lacquers that are now available are referred to as "water white," which means they are free of any color that might change the natural color of the wood. Furthermore, because lacquer contains no oils, it will not cause yellowing of the wood or finish over time. This can be very important in preserving the color of many lighter woods such as maple, yellow birch, white ash and pine.

Of course, the bane of a brushed finish is the brush marks left in the wet finish that don't "level" or "flow out" as the finish dries. While brushing lacquer is formulated to have a somewhat slower drying time and is thicker than spraying lacquer, it still is thinner than other oil-based varnishes, polyurethanes and water-based finishes.

To illustrate this, we checked the viscosity (which means its resistance to pouring) of a variety of products. A high viscosity indicates a thicker liquid while a low viscosity indicates a thinner one. We did this using a conventional viscosity cup – essentially a cup with a small hole in the bottom. The procedure is simple: fill the cup while placing a finger over the hole, then time how long it takes for the liquid to run out. The time measurement starts with the removal of the finger and ends when the stream flowing through the hole breaks its continuous stream. Ordinary water took 11.7 seconds for the 3.5 ounces to break stream. The Deft brushing lacquer took 30.5 seconds, while the Watco took 31.1 seconds. Minwax's Fast Dry Polyurethane, an oil-based finish, required 40.98 seconds. McClosky's Heirloom Varnish, another oil-based finish, took 1:32.88, while another Minwax product, a water-based Polycrylic, required 32.88 seconds.

These readings indicate how the finishes will perform when being brushed. The thinner lacquers and water-based materials will level better than the varnish and the Fast Dry poly. Brush marks will be even less of a problem if good brushing technique is used; this is a requirement because lacquers are thinner and more apt to run or sag if too much finish is applied to any surface other than a horizontal one.

Using a Brush

Applying any finish material with a brush requires the right techniques to avoid the occasional self-inflicted surface imperfections.

Start with a decent and appropriately sized brush for the job. A brush that's 2"-2½" wide should be used for all the large, flat surfaces. Choose a 1" brush for smaller work or jobs that have more details, such as turned objects with multiple beads or other irregular shapes.

Use a natural China bristle brush with bristles that have been "flagged" (these are roughly equivalent to human hair split-ends). The tip of the brush should be chisel-shaped. These two features allow the brush to carry more finish material to the surface and spread the material more finely as it flows off the brush. Avoid the temptation to use foam brushes because the lacquer solvents will break down the adhesives that hold the brush together.

Make sure the contents of the can are thoroughly mixed by stirring or, in spite of the can's label warning against it, shaking. Shaking the can doesn't cause bubbles in your wet finish. The primary reason bubbles appear is from overbrushing during application. Turbulence occurs at the point of contact between the bristle tips and the surface being finished. This turbulence is the cause of bubble formation, not the transfer of bubbles from the can to the surface. This is another reason why a continuous, gentle stroke is superior to back-and-forth brushing.

A fresh can of lacquer is not likely to require any thinning. However, a can that has been open for a period of time or is half-empty may need a small amount of lacquer thinner added.

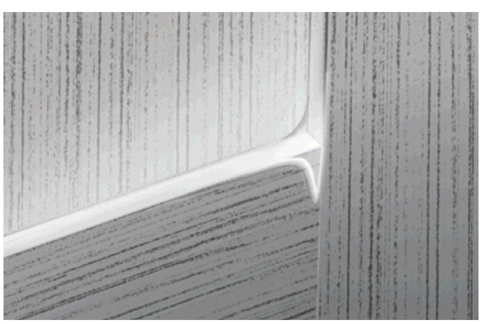
Load the brush with lacquer by dipping it into the can and begin brushing flat surfaces with as few strokes as possible, using only the tip of the brush. Consider the brushing as more of a dragging motion along a straight line than actual back-and-forth strokes. Also, start brushing at an edge and move in the direction of the grain.

When the lacquer stops flowing off the bristles, lift the brush, turn it over, then restart just an inch or two back from where you stopped. Continue as before until the material stops flowing off the brush, then reload the brush and continue. When you come to the end of the first row, lift the brush off the surface. Think of it as a "take-off" from an aircraft carrier.

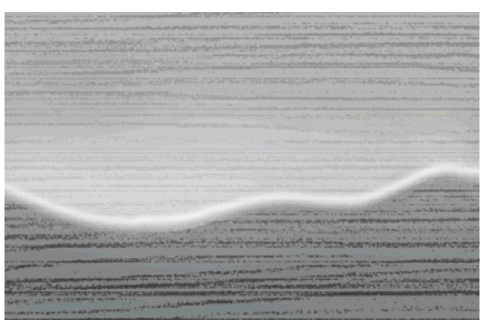
With a full wet row applied, go over the row again in one continuous stroke, holding the brush 90° to the surface using just the very tip of brush. This technique, called "tipping off," will eliminate most of the bubbles in the finish and level out any brush marks, including where a pick-up brush stroke began.

With one full row of finish applied, begin the second row using the same technique. For each successive row, overlap the previous row only a small amount – just enough to blend the two rows together. Continue until the surface is done, then move on to the next unfinished area.

The amount of lacquer to apply as a wet coat will depend on what you are brushing: either a horizontal surface, such as a tabletop, or a vertical surface, such as a cabinet side. With vertical surfaces, less material must be applied or it will develop runs or sags. Experimentation and experience will guide you. A sound brushing technique and paying close attention to the work is the best prevention against brush marks, sags and runs.



If the coat of lacquer is still very wet, you can brush out a run, such as the one shown here.



A sound brushing technique will deter a sag, such as the one shown here.

"Show us a man who never makes a mistake and we will show a man who never makes anything. The capacity for occasional blundering is inseparable from the capacity to bring things to pass."

Herman Lincoln Wayland (1830 - 1898)
author

If you detect a run and the coat is still very wet, you can brush it out. Keep in mind that you need to work with "deliberate speed" so the fresh coat doesn't start to set up before you go back over an edge when lapping one row to the next, or during the "tipping off" stroke. One factor that will, in part, determine the speed of work is the thickness of the coat, because a heavier coat will take longer to set up than a light one.

Three Coats are Typical

After the first coat dries, it will likely be somewhat rough to the touch. This is easily remedied with a light sanding using #360-grit lubricated sandpaper, such as Norton abrasives 3X brand or 3M's Tri-M-Ite. These lubricated papers will prevent the finish from clogging the abrasives on the sandpaper. If you're working over a stained surface, be careful not to sand through the finish and cut into the stain color.

After sanding, the second coat will apply more smoothly with very few bubbles produced (less turbulence). After the second coat, sand as necessary to smooth the finish once again. The third coat should be left unsanded.

Three coats of a lacquer finish applied with a brush will produce a smooth, durable, near-piano-quality finish with the least amount of work, compared to other brushing materials. It's easy to work and dries exceedingly quickly, which means you can finish most projects in a single day. Used safely with ample ventilation in an area free of open flames or sparks, lacquer could become your finish of choice – if the odor isn't too objectionable. If it is, a respirator can easily solve that problem.

As a final note, some brushing lacquer brands offer a lacquer sanding sealer to be used as a first coat. Using it is optional. Sanding sealers contain a substance that makes sanding them easier than sanding regular lacquer. This is a convenience and certainly does no harm. However, the very property that makes it easy to sand also makes the material softer. Don't make the mistake of trying to use a sanding sealer as a complete finish, as it offers far less protection than when it is used appropriately as a first coat. WM

— Steve Shanesy

PHOTO BY AL PARRISH

Lyptus: A Wood Worth Working?

Woodworkers who are concerned about the rainforests tend to avoid using exotic species such as mahogany, purpleheart and rosewood, to name three. While some of these are harvested responsibly, others aren't. And exactly where your wood came from can be a real headache to sort out at the lumberyard on a Saturday morning.

The latest solution to this problem is a hybrid wood sold as Lyptus. It's a cross between two species of eucalyptus (*Eucalyptus grandis* and *E. urophylla*) that's grown on Brazilian plantations. Lyptus trees are fast-growing, and they can be harvested after about 15 years of growth – compare that to 40 years for the North American maple. Weyerhaeuser, the company that developed Lyptus (the name is a registered trademark, by the way), touts the timber as being produced in a sustainable and ecologically sensitive manner. And it's marketed as a good substitute for cherry or mahogany.

Rainforest politics aside, I was interested in how the wood actually behaved in the shop using a variety of power and hand tools. So I went to a local lumberyard and picked out some typical Lyptus. The price? About $6 a board foot for surfaced 4/4 material – about the same as cherry and mahogany in most markets. (Lyptus is also available as flooring or in plywood sheets.)

Most of the boards I examined were in 6" and 8" widths, which I'm told is pretty typical. That makes it generally as wide or wider than you'll find cherry. But it's a bit narrower than what you can find in the mahogany rack – I see that species in 20" widths on a regular basis.

The stack of Lyptus we picked through had some boards with occasional knots, but nothing you wouldn't find in a similar stack of cabinet-grade hardwood maple or cherry.

A Mahogany Look-alike

Lyptus looks a lot like the American or Honduras mahogany that has passed through our shop, though the Lyptus varies in color a bit more.

Though Weyerhaeuser's literature compares the wood's density to hard maple or red oak, it seemed more lightweight as I was machining it. But my hunch was wrong. I weighed identically sized samples ($\frac{1}{2}$" x $3\frac{1}{2}$" x 12") of Lyptus, red oak and hard maple on a digital postal scale. The results? Lyptus weighed in at 10 ounces, red oak at 9.7 ounces and hard maple at 7.4 ounces.

The face grain of Lyptus looks like a mellow reddish mahogany, though the end grain doesn't. It has stripes of a darker red. Throughout most of the board, the grain of the Lyptus was straight and mild, though it did change direction regularly, which gave me some fits as you'll see.

Easy on the Machines

Lyptus behaved reasonably well on the jointer, planer and table saw. When I dressed the wood on the jointer and planer, I had just a few localized areas of tear-out – nothing I wouldn't expect from typical cherry or maple.

Because the grain changed direction so much, I was worried the Lyptus would cause trouble when ripped on the table saw. Some boards with internal tension can bind a blade or twist unacceptably as the cut releases these stresses. But Lyptus ripped easily. The edge scorched in a couple of places, but it was minor compared to what you see in cherry, which scorches easily.

But similar to Philippine mahogany, Lyptus is stringy. When routed, the grain sometimes tears unacceptably, even with backing boards. So pay attention to the direction of the grain as much as possible before routing. Routing with the grain will give you less trouble.

Lyptus Challenges Some Hand Tools

The wood was difficult to plane and scrape. Because of the frequent grain reversals, standard bench planes (with irons bedded at 45°) and low-angle block planes (bedded at 37°) would frequently tear-out. I eliminated most of this by using a high-angle plane bedded at 50°.

Scraping was difficult at times because the grain is soft like mahogany; scrapers prefer harder timber. Fortunately, Lyptus sands well, so you can easily fix any grain defects from your planing. The wood behaved well under a rasp and file, and took detail quite sharply.

When finishing, the pores soak up pigment, which can be ugly if you don't use a paste filler first. To see some finished examples of the wood, turn to the Contents page in this issue and look at the bottom right corner of the page. In that photo, the topmost board has a mahogany stain and lacquer on one side and clear lacquer on the other. The smaller board below has shellac only. And the board they are both sitting on is a piece of cherry with shellac for comparison.

The Verdict on Lyptus

I think it's unfair to compare Lyptus to cherry. Except for its reddish cast, Lyptus just doesn't have the same gorgeous tight grain – it's clearly an open-pored exotic-looking wood.

But Lyptus is a fair substitute for mahogany in appearance and workability. So if you want the appearance of mahogany without the nagging political or environmental questions, give Lyptus a long look. WM

– Christopher Schwarz

FOR MORE INFORMATION

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Extras

"Believe one who has tried it."
— Virgil (70 B.C. - 19 B.C.), Roman author and poet

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