Trestle Table with Breadboard Ends

Cut all of the joints before cutting any of the shapes

BY CHARLES DURFEE

The neo-Sears & Roebuck table that you have been dining at since your student days is getting tiresome. And now a big party, months in the planning, is tangibly close. It's time to unveil your woodworking skills for a large and appreciative audience. It's time to build that trestle table you have thought about for years.

First, settle on the size. A dining table for the average family, 3 ft. by 6 ft., will seat six comfortably—seven or eight in a pinch. An 8-ft. model will give you more space. Be sure to allow about 3 ft. all around the table for seating. Trestle-table widths are limited to 3 ft. for structural reasons (more on that later). Next, decide on the type of wood you want. Domestic hardwoods, especially cherry, walnut, birch and maple, work well for this project. If the R.S.V.P.s are coming back, there's no time to lose.

Build the base first

It doesn't really matter whether you build the top or the base first. Starting with the base is a good idea because it takes the bulk of the work (generally true for tables). And if that's all you have done by the day of the party, at least you can slap a piece of plywood down, put a tablecloth over it and still hear plenty of praise. But you should at least skim-plane the top boards at this time to be sure

that you will have sufficient stock to make it wide enough. Allow ¼ in. per piece, after trimming off sap and bad edges, for jointing. Tops have a way of getting narrower as you work them up.

Stop caressing that lovely, thick, cherry stock for which you just liquidated your retirement portfolio, and pick up some cardboard, thin wood or plywood to make patterns. The latter two are better choices because they can be used for pattern-shaping parts on a router table, if you are so inclined. Make patterns for the feet and cleats, as well as for the posts. Although the posts are straight and square, having a pattern for them makes it easier to lay out your rough stock to get the best yield. Make the patterns carefully and accurately. I write construction notes on them also. After seeing the table, your next-door neighbors will want you to build one for them, and the notes will help you remember how you did it.

Patterns make perfect. *Use patterns for the trestle table's foot and cleat Construction reminders written on the patterns help you avoid mistakes and remember salient details. After tracing the patterns on the stock, joint the top and bottom of each piece and then lay out the mortises.*

For the beam, find a nice piece of 6/4 or 8/4 stock, 6 in. wide. The feet and cleats will come out of 8/4 stock, while the posts can be from 6/4 or 8/4 stock. Bear in mind that most of the base assembly will be exposed on all sides, so there is no chance to hide knots, sapwood or other imperfections. (Unless, of course, you choose to make them a design element, which I don't advocate.) You can tuck small flaws up on the inside of the cleats, if necessary.

I have two general rules for ease and efficiency in construction: 1) complete the joinery on each part before cutting out the shapes; and 2) chop the mortises before cutting the tenons. Thus, after jointing and planing the stock to thickness, rough out the feet and cleats on a bandsaw. Joint the flats on the bottoms of the feet and tops of the cleats. Rip these parts to their overall heights on the tablesaw, but don't cut the tapers yet—joinery before shape, remember? Because the posts and beam have no particular shape, the four sides can be cut to size at this time.

Now, lay out the mortises, making sure that they are centered in their respective pieces, then chop them. For chopping I use a vintage, floor-model hol-

Chopping through-mortises by hand.

1 ***Cutting through-mortises requires extra precision.*** *Instead of using his mortising machine for the beam-to-post mortises, the author uses a ⅜-in. bit to rough out the ½-in.-wide mortise from both sides, which he then finishes with chisels.*

2 ***Marking with a razor knife makes for a crisp edge.*** *The through-mortises are 3/16 in. longer on the outside faces of the posts (see the drawing on p. 77). Prior to assembly the tenons will be kerfed on the bandsaw, and during assembly, wedges driven into the kerfs will close the gaps at the top and bottom of the elongated mortises.*

Photos, except where noted: Michael Pekovich; facing page: Dennis Griggs

Sizing tenons

1 ***Mortises first, then tenons.*** *After all of the mortises have been cut, hold a scrap of stock to the mortise and mark the tenon width.*

2 ***Made in the shade with a dado blade.*** *Centered tenons are easy to cut with a dado blade because the blade will cut the same amount of wood from both sides of the stock. The author makes a test cut and then raises or lowers the blade to the premarked pencil line on the scrap stock.*

3 ***Test fit.*** *After cutting the scrap to the marked lines, the author tests the fit in the mortise. When the fit is right-it may take several tries—he cuts tenons on the real stock.*

low-chisel mortising machine that crunches out the slots with authority. But in my earlier days, I would have drilled out the waste and pared the sides with a sharp chisel—an inexpensive method that works very well. Indeed, this latter method is preferred for the post-to-beam through-mortises (see the bottom photo on p. 75) because hand tools will provide the crisp outline you want. For these mortises, mark out on one side and transfer the marks to the other side. Waste and pare halfway in from each face. Slightly lengthen the ends of the slots on the outside faces by 3⁄16 in. top and bottom, which creates a dovetail effect when the beams are wedged.

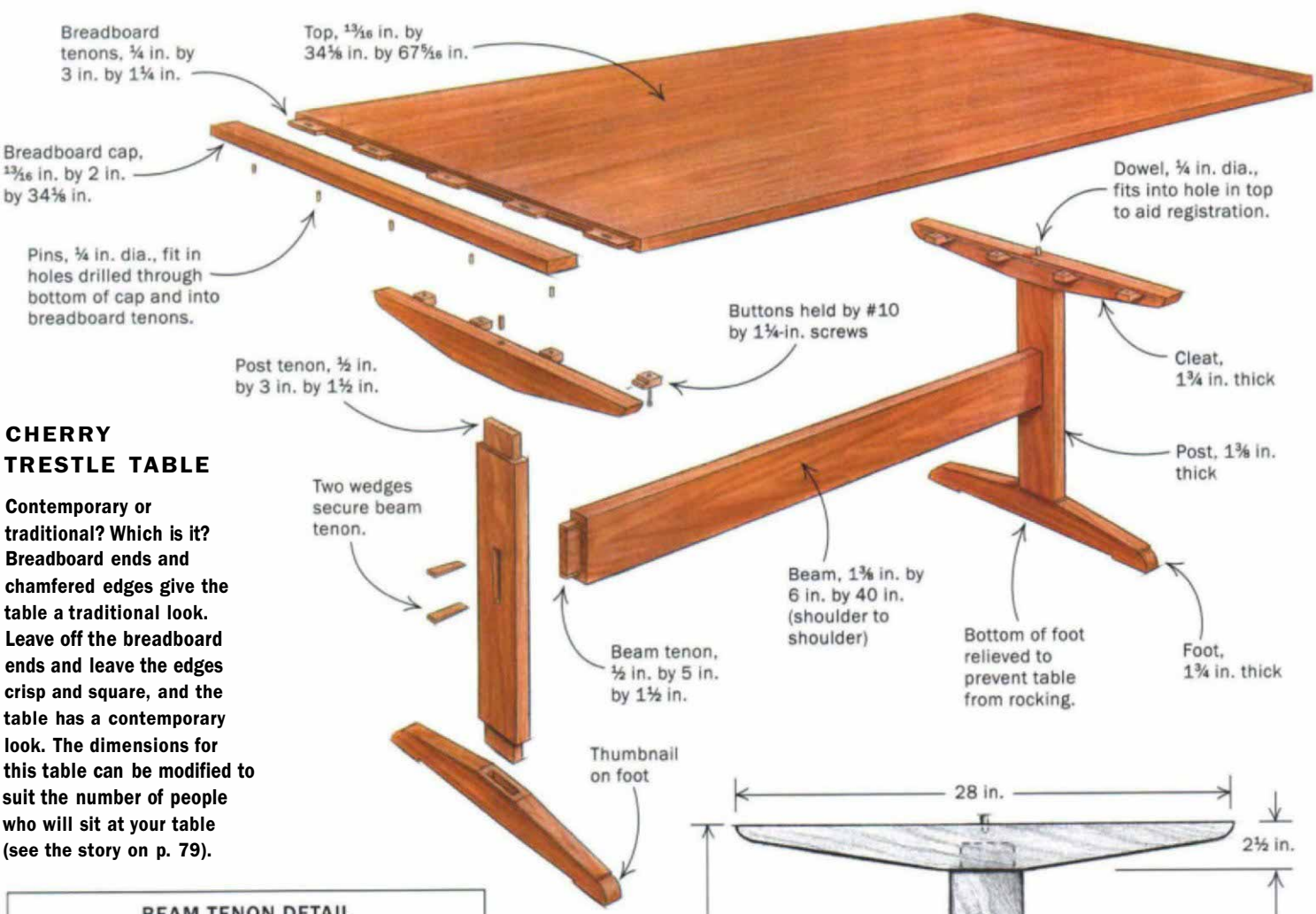
For the layout, mark from the mortised piece onto the to-be-tenoned piece. Tenons can be cut with a handsaw and chisel or by machine. I prefer to cut them laid flat on a tablesaw fitted with a dado head. Use the miter gauge to push the piece across, and the fence as a stop. A sharp dado blade will cut the shoulder and cheeks cleanly in a few passes, with one setup. I don't like standing a piece on end to cut tenons. The thought of a long piece of wood waving about above the sawblade doesn't inspire confidence. And even with a jig to hold the piece, getting the sawcut plumb into the cheeks can be difficult.

It's a good idea to make test cuts in some scrap that's the same thickness as the posts and beams. Set the blade a bit shy of the correct height, and raise it in increments, as needed. Flipping the piece over and cutting off the same amount from both sides will automatically center the tenon.

Test the fit, and if necessary, use a rabbet plane to trim the tenon just right. I often have to do this, no matter how carefully I had done the machine work. You should be able to push the tenon into the mortise simply using hand pressure. If you feel like you have to hammer the tenon into the mortise, don't. Stop, and pare the cheek more. If it drops in with its own weight, it's too loose. In that case, glue a shim of veneer to one cheek and try again. The shoulders can be back-cut slightly to improve their fit.

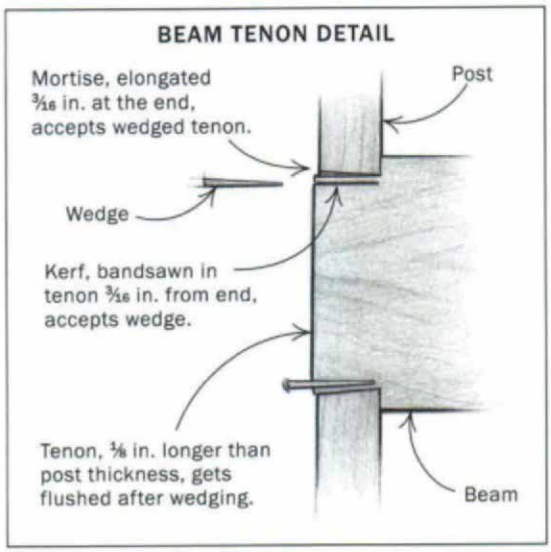
Test-fit the mortise-and-tenon joints, including the beam-to-post ones. Take your time, and have patience to make them right: snug fits for the cheeks, no daylight under the shoulders and everything square. Give yourself a chance to feel the

Handsaw to shape; finish by hand. *Feet and cleats, the only curved parts of the table, are cut on a bandsaw and then finished with a plane and scraper. The ends of the feet are adorned with a thumbnail, which the author shapes with a rasp and file.*



CHERRY TRESTLE TABLE

Contemporary or traditional? Which is it? Breadboard ends and chamfered edges give the table a traditional look. Leave off the breadboard ends and leave the edges crisp and square, and the table has a contemporary look. The dimensions for this table can be modified to suit the number of people who will sit at your table (see the story on p. 79).



SEE ERRATA AT END OF ARTICLE

pride in a job well done--it's worth it!

Shape the feet and cleats with a bandsaw; finish with hand tools

Now shape the feet and cleats. Mark the areas where the post shoulders will land so that you don't cut into these areas. The tapers can be roughed out on the bandsaw and easily finished up using a handplane, rasp and scraper and, if necessary, doing some light sanding. If you're dying to use the router table, attach the pattern to the stock with double-stick tape and trim away using a flush-trimming bit.

It is helpful to clean up the surface on each piece before assembly. Use a handplane or cabinet scraper—both are efficient to use and crisply focus the grain patterns. As a bonus, you can listen to music instead of the loud whine of a power sander. But sand, if you must. Whichever method you use, go lightly in areas where tenon shoulders touch down, so you do not ruin the careful joinery work. (I must confess that I do sand on occasion, but only lightly and after assembly to prepare the surface for finish-

Drawings: Bob La Pointe

Clamp and measure. *After a dry run with clamps, the author spreads glue on the tenon faces and on the mouths of the mortises and clamps together the leg assemblies. Before the glue has time to set, he measures from the tips of the feet to the tips of the cleats, making sure the distances are the same.*

ing. I also sand spots where the grain stubbornly resists being cut cleanly.)

Now use a router to knock off a moderate 3/16-in. chamfer on all of the edges. Just how much you trim from the edges depends on the look you want: Trim more for the antique effect, less for the contemporary.

Begin assembly by putting together each foot-post-cleat unit. After brushing glue on the tenon cheeks and in the mouth of the mortise, press the parts together. Usually, a clamp or two from top to bottom will close the joints nicely. Check that the cleat and foot are square to the post and that the measurements from the cleat tips to feet tips are equal. It's easier to clean up glue now than it is to chisel it out later. Of course, the real trick is to use only enough glue to have a tiny bit of squeeze-out. I have some high-tech tools I use for glue cleanup: an old toothbrush, a corner of a plastic credit card and a sharpened stick wrapped with a damp rag.

After the post assemblies are dry, they can be joined to the beam. Make the wedges and cut the kerfs for them. I use my bandsaw to cut both the wedges and the kerfs in the beams for the wedges.

Now you are ready for the final assembly of the base. Being too impatient to wait for my wife or the UPS man to be on hand, I usually do this step alone. But it's tricky and goes more smoothly with some help. Maybe a dinner guest can come early to help out?

Make a dry run, but don't drive the wedges. Once you're sure everything fits, brush glue around the joinery, assemble the pieces and pull tight. Don't muscle down on the clamps too much, or you risk cracking the posts across the beam. It's best to have one clamp on each side of the beam, as shown in the left photo below.

Once the joints have been pulled tight, you can begin to drive the wedges. Dip the tip of the wedge into the glue and, working quickly before the glue sets, place it into the kerf.

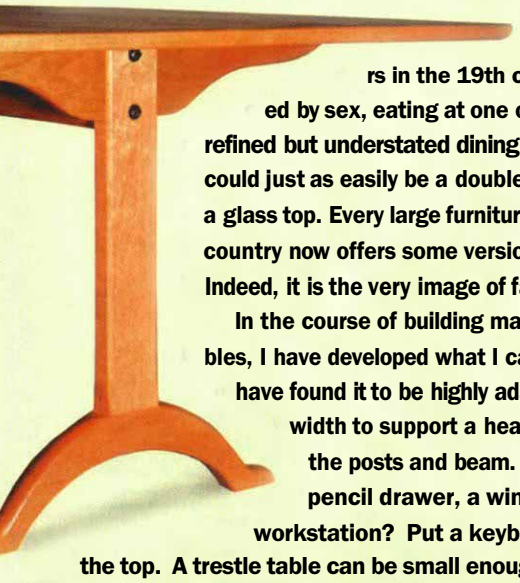
Drive the top and bottom wedges at the same time with the hammer, giving them alternate taps. When the sound of the hammer blows changes from ringing to dull, you know the wedges are home.

Again, clean up glue squeeze-out before it sets in the inside corners. Leave the outside of the wedged mortise and tenon until later; you'll be able to attack it easily. When you do, cut off the protruding wedges, and flush off the whole end with a sharp handplane. A low-angle one works well here. The base

Put clamps near the through-mortises. *Protect the posts from clamp tracks with blocks of wood held by smaller clamps. Do not put the long clamps too high on the posts or on the feet or cleats; there's a danger of bending the posts or, worse yet, splitting the mortises with too much pressure.*

Wedges close the gap. *Remember those mortises you elongated? It's time to close them up with bandsaw-cut wedges. Dip the wedge tips in glue and tap them into the kerfs cut in the beam. Alternate hammer taps: hit one wedge, then the other. You'll know the wedges are home when the sound of the taps changes from ringing to dull.*

Variations on a basic design



Mention the trestle table, and many images come to mind. It could be a Colonial family gathered for dinner around a few rough planks over a crude X-trestle. It could be Shakers in the 19th century, silent and divided by sex, eating at one of their elegant and refined but understated dining tables. For myself, it could just as easily be a double-post trestle supporting a glass top. Every large furniture manufacturer in the country now offers some version of the trestle table. Indeed, it is the very image of family life.

In the course of building many types of trestle tables, I have developed what I call my basic design and have found it to be highly adaptable. Need more width to support a heavy glass top? Double up the posts and beam. Want a desk? Add a pencil drawer, a wing and an organizer. A workstation? Put a keyboard tray underneath the top. A trestle table can be small enough for breakfast or big enough for a grand banquet. By placing extra sets of posts and legs along the way, a table can be stretched out to at least 12 ft., as the Shakers did.

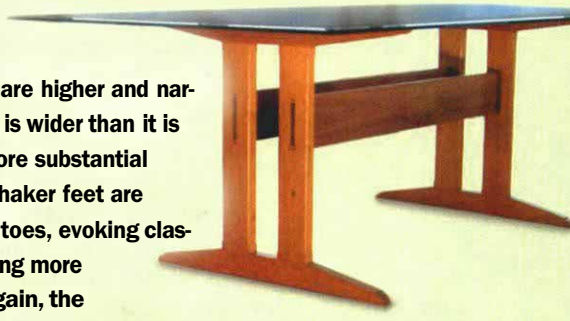
There are limitations, of course. Although not constrained in length, the design is very much so in width. While you need a minimum width of 32 in. to 34 in. for dining—less than that becomes a knee-knocker—a top wider than 36 in. will put too much stress on the post-to-cleat joint. One solution is to adopt a double-post and beam design, which gives the piece a contemporary look. Several years ago, a customer requested a base design to go with a plate-glass top, to be 42 in. by 84 in. Using my basic design, I doubled the posts and beams and made the feet and cleats proportionately longer. The result turned out to be very successful—the glass nicely complemented the openness of the trestle base, which was strong enough to support the weight. A word to the wise, however: As you add width to the table and begin to approach square, the design loses its point of view and should be abandoned in favor of a leg-and-apron, pedestal or other type of base.

Moving out of the dining room and into the office, you can find a lovely cherry trestle table being used as a writing desk. Because you work only from one side, a width of 26 in. is fine. The height can be the same as that of a dining table, i.e., 30 in. Again, the length can be as short or long as desired. A pencil drawer hung under the top provides useful storage, and there is plenty of leg room to stretch out into as you chew on ideas. When I built the first of these desks, typewriters were still in use. Now, typewriters are only at the Smithsonian. But the trestle-table desk can be adapted to the digital age. A keyboard tray can replace the pencil drawer. Or, if you have enough room, keep the main desk for writing and set the monitor on a wing (this time kept flush with the main surface), with the keyboard tray under the wing. Wires can be clipped up under the top. Other computer components can be put on the desk or in a separate piece of furniture.

Design decisions can be made about the base as well. The Shakers raised the standard beam out of harm's way—underneath the top. This idea makes for good leg room and gives the table a wonderfully light, almost floating, effect. You don't need to be an engineer, however, to know that this will make the base less rigid. Indeed, at least one of the Shakers' tables showed trouble in that regard. Their solution to improve this was to use a drawbolt arrangement, as I had in my reproduction of the Hancock table design. The Shakers adopted this system because they could disassemble the table and transport it to another community to be shown as a model. However, when assembled, it was surprisingly solid, with no water spilling when the turkey was being carved.

On my basic design, the beam is about two-thirds of the way off the floor, giving good leg room and avoiding the Shakers' bolted joint. The beam is 6 in. wide, through-mortised and wedged into the post. No water spills.

Many early Colonial trestle tables had feet that were broad and flat, combined with posts nearly square in section. This setup often has problems with rigidity, however. The feet on the basic table are higher and narrower, with a post that is wider than it is thick, which affords more substantial joinery. The Hancock Shaker feet are arched and up on their toes, evoking classical styles and providing more landing for the joint. Again, the posts are wider than they are thick.



A good furniture design will work well in a variety of settings. The music of Bach has been played as jazz and pop, used and abused. So too has the trestle table. But it is healthy, and it endures. Rightfully so.

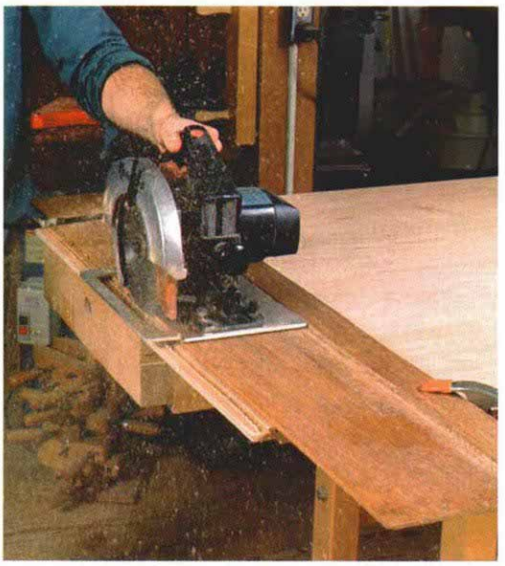
is now done and can be pressed into use for your dinner party.

A good-looking top begins at the lumberyard

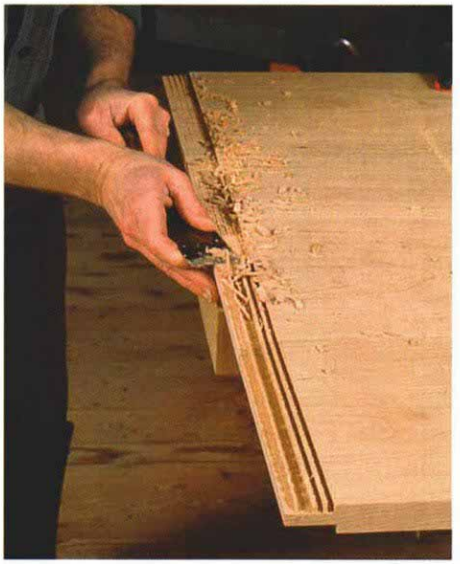
Look for consistency in grain and color in the wood that will make up the top. Sapwood on one face can be turned under, but you'll need the outer two edges clear.

Try to have no boards under 6 in. wide; wider boards are preferable. However, it looks awkward to have one very wide, monster board among some narrower ones, so look for consistency here as well. The lumber can't have much warp or twist, either. Beginning with 4/4 stock, you won't have a lot to give while achieving a clean, flat surface that's 13⁄16 in. to 7⁄8 in. thick.

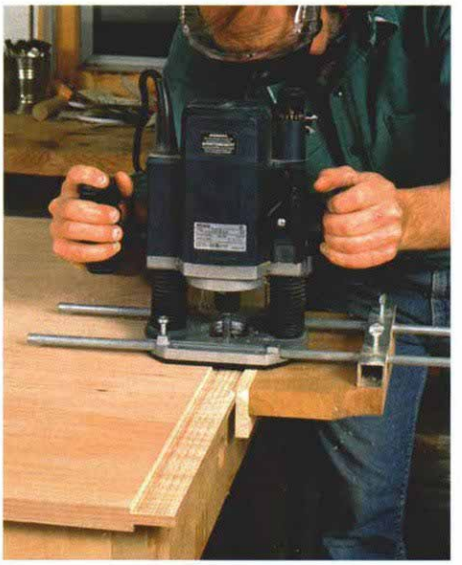
Because you are beginning with rough stock, you can keep design options open. Avoid stock that's already been planed to ¾ in., as you are paying for a barrel of chips, which you may have wanted back on the board. The tabletop will look more



1 ***A circular saw in a woodworker's shop?*** *Using a saw guide made from two strips of ¼-in. plywood, the author roughs out the breadboard tenons by cutting a series of kerfs on both sides of the top.*



2 ***Slick work.*** *A few passes with a wide chisel cleans up the debris between circular-saw kerfs.*



3 ***Plunge-router cleanup.*** *After sawing and chiseling the breadboard tenons to their rough thickness, the author uses a plunge router to get the breadboard tenon to the exact thickness of the mortise he'd previously cut in the breadboard end cap.*

substantial if it is thicker than ¾ in., especially if it is longer than 6 ft. Learn to develop the X-ray vision needed to tell what's under the surface of rough lumber, or buy lumber that has been only skim-planed. If you can't thickness the lumber yourself, have the yard take it down to about ⅞ in., which leaves a whisker for cleanup.

Joint the edges and test clamp. I recommend using biscuits to help align the top boards while gluing. They aren't needed for strength, so there's no need to glue them in. But they will help with the dressing process afterward and will maintain the thickness you want. After glue-up, it's a good idea to take the top to a mill shop with a thickness sander wide enough to accommodate the top's width.

Add breadboard ends for stability-and tradition

Putting breadboard ends, or caps, on a tabletop is time-consuming. At minimum, you should allow a day's work for them. They can be dispensed with, if you wish. The reasons for having them are both aesthetic and structural.

Caps give a rectangular shape an ending point, dressing off the ends of a tabletop, drop-front desk lid or, not surprisingly, a breadboard. The caps help keep the top flat, especially at the ends where it is floating freely. For this table, though, the best reason for caps, in my opinion, is tradition. Put them on, and you have a classic Colonial table. Leave them off, and it looks contemporary. Aesthetically and structurally, a top will do just fine without breadboard ends.

The construction process for caps can be as simple or difficult as you wish. On many antique pieces, the caps were simply nailed onto the ends. The next step on the road to fine joinery is to plow a tongue-and-groove joint, then nail the caps on. Screwing on the caps gives a bit more longevity to the joint. Although this method doesn't accommodate seasonal wood movement, I must confess to having done this years ago on some tables. To this date the caps, after almost 20 years, show no signs of loosening.

However, I prefer to join the caps to the top by cutting a series of tenons, connected by a tongue that is stopped at the ends. The tenons fit into a corresponding series of mortises, and the tongue fits into a dado that also stops short of the ends. The center mortise-and-tenon joint is glued and pinned, The others are pinned and left dry, with the holes in the tenons elongated (see the top right photo on the facing page) to allow for wood movement. This method makes a firmer connection and allows for the top's seasonal expansion and contraction. One final touch is to spring the cap-to-tabletop joint by planing the inside edge of the cap slightly concave. When clamped on to the top, the middle of the cap will be sprung in, holding the ends tightly.

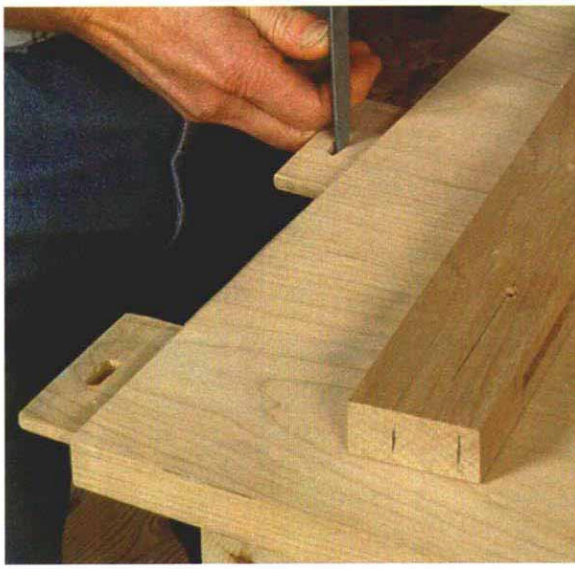
Apply the finish, then attach the top to the base

Dressing the top and base can also be done by hand with planes, scrapers or sandpaper, which will give you a nice workout in preparing a surface for finishing. I find it difficult to see the difference between one sanded to 180 grit and one done to 400 grit. For some reason, the finer grit equals more boasting rights. Typically, my surfaces are handplaned and scraped, and then, if necessary, gone over with 180 grit before finishing. After all, I'm not looking for guitar-body quality in a tabletop that's meant to be used. The color will be lovely, with the grain in focus. The smoothness will be in the finish.

Okay, now it's time for true confessions. How many of you get to this point of a project and go for the quickest, simplest fin-

4 ***Tongues and tenons.*** *A jigsaw quickly cuts the long, single breadboard tenon into a tongue-and-tenon sequence that will fit into mirror-image mortises already cut in the end cap.*

5 ***Extralong cap comes off with a tap.*** *It'll take some fussing and fiddling to get the cap to fit just right. It's a good idea to leave the cap a few inches long on each end while fitting, and then after everything is fit, drilled, glued and pegged, you can cut the caps flush with a handsaw.*



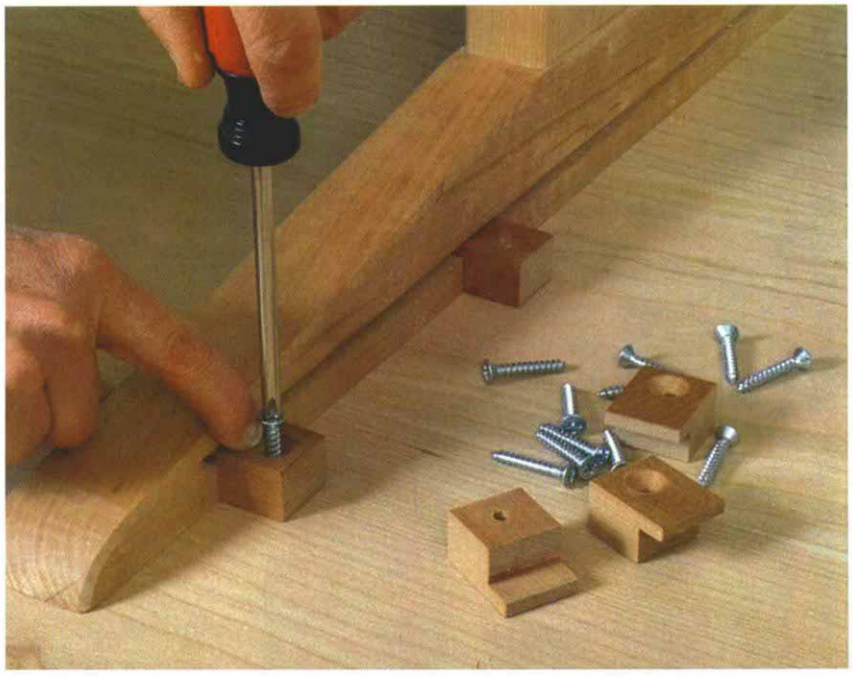
6 ***No glue in the long holes.*** *The* center tenon has a *round hole, which will get glued and pegged during assembly. The other four tenon holes are elongated to allow for wood movement. When assembled, the long holes are pinned without glue.*

ish available? I'm sure many hands are up. Being one of that group, I use an oil-varnish blend. With a bow to those who use varnish, shellac or lacquer, it's hard to beat an oil-varnish finish for ease of use and maintenance and for bringing out the wood's natural tones. Cherry and walnut do especially well with it. The varnish will give some body to the penetrating oil but not any more surface buildup than you want.

Although in the past I've mixed my own brews, I now use, with satisfaction, Minwax Antique Oil Finish. Three coats will generally do the trick. The second and third coats are sanded while wet with 320- or 400-grit wet-or-dry sandpaper before wiping off. The finish is smooth and silky. People will invariably walk up to a table and run their hands over it. The look is plain and informal but handsome.

To allow for expansion, fasten the top to the base using wood buttons (my preference) or metal clips from Rockier (800-279-4441). The slots for these are on the inside edges of each cleat and are easiest to do before assembly with a router or tablesaw. Stop the cuts before each end. Also, to keep the top from slipping sideways, have a short ¼-in. dowel protruding about ⅜ in. from the top center of each cleat. It fits (unglued) into a corresponding hole in the underside of the top.

That does it. Remember to sign your name under the top. It is time to bring the table into the house, just in time to serve dinner to the "oohs" and "aahs" of an impressed audience. □



Four buttons in a long slot. *Cherry tabletop buttons get screwed to the underside of the tabletop and fit into a slot router-cut into the inside of the cleats. Make sure to stop the slot 1 in. back from the end of the cleat.*

Charles Durfee lives in Woolwich, Maine, building furniture since 1978.

ERRATA

The 18 1/2-in. dimension in the black-and-white drawing of Charles Durfee's trestle table (p, 77) should run from the bottom of the foot to the top of the beam mortise, not to the bottom of the beam mortise.