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Library Table

A project plan
for building an
Arts & Crafts
library table
with three
drawers



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An Arts and Crafts Library Table



A nontraditional approach
to building a desk with drawers

BY ERIC KEIL

I've never seen the virtues of building a table with drawers in the traditional way—with a double-tenoned stretcher below the drawer and a dovetailed top rail. It just seems like unnecessary work. I've developed methods for building a table with drawers that are faster and, to my mind, stronger. It's the same approach I use when building a chest of drawers. I build frames to go over and under the

drawers, then simply attach them to pre-assembled ends. This approach makes the entire project more manageable and all but guarantees a smooth and square glue-up.

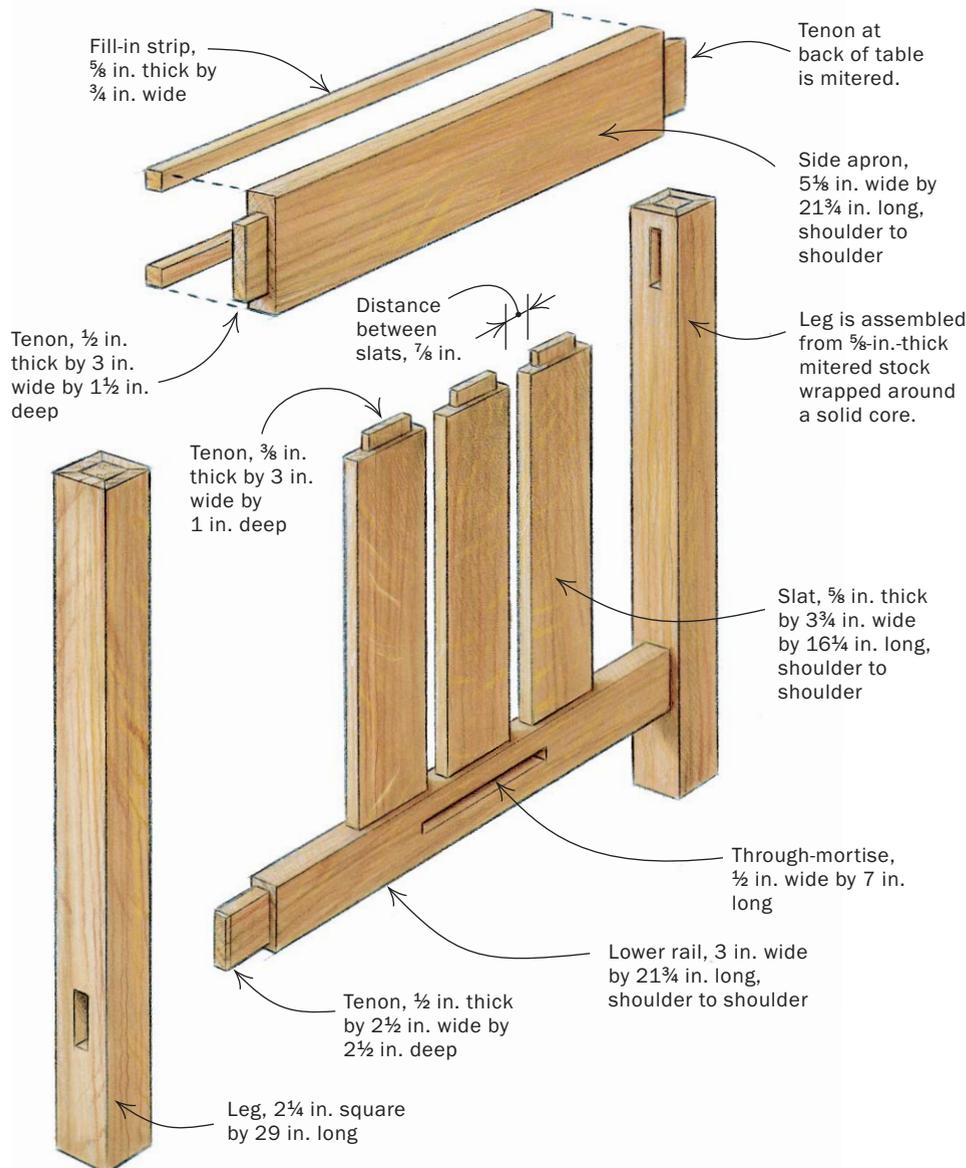
This library table is adapted from various Stickley catalogs from the turn of the 20th century. It would work well as a writing desk or as a reading table. My approach to the construction of this traditional Arts and Crafts piece is straightforward. I used quar-

tersawn stock, hand-hammered hardware and a slightly lighter finish than is customary for this style.

The best boards go on top

For this project, I ordered 100 bd. ft. of oak, then riffled through to choose boards for specific parts. Once all of the boards had been surfaced, I designated the best of the lot for the tabletop, which I typically glue

Table-end glue-up



up first so that I know what I'm working toward. I also sorted all of the other lumber, denoted which pieces will be used where and milled them to their finished thickness.

The less-attractive lumber was designated for interior parts, such as the two frames. These frames are identical to face frames on an ordinary plywood cabinet, but they have a very different use. Just as on a chest of drawers, the frames span the two ends, and drawers are housed between them. I built the frames using biscuit joinery, but mortise-and-tenon joinery would work, too. Once installed, the frames will be joined in so many ways that the chance of their failing is negligible, if not impossible. I left the frames slightly oversized to be squared up later.

Assemble the ends

Building the ends was the first big task of this job. I started with the legs. To ensure figured surfaces on all four sides, I ripped four matching quartersawn boards 2 1/4 in. wide, then mitered the edges at 45°. The easiest way to make the legs was to miter the four faces first, see that they fit together square, then cut a solid core. The solid core helps keep the assembly square during glue-up and supports and strengthens the mortise-and-tenon joinery of the apron. I cut the core piece slightly undersized (a small 1/2 in. or so) to ensure that all of the joints would close up and to avoid failure of the leg joints during seasonal expansion.

I placed the mitered faces side by side and taped up the corners, making sure that there were no gaps between the pieces. Then I flipped over the assembly, spread

LEGS WITH QUARTERSAWN FIGURE ON FOUR SIDES



Four mitered pieces are required for each leg. Choose quartersawn stock with matching fleck patterns, then miter both edges.



Strips of masking tape act as clamps. Set the mitered edges of the legs tightly against each other, then tape them together.



Wrap up the leg. Spread glue on all of the interior surfaces, including the core. Then wrap the four mitered sections around the core and secure the assembly with additional tape.



Rout the mortises. Using an edge guide on a plunge router, drop the bit a little at a time until you reach the desired depth.

glue in the V-grooves and on the inside faces. I simply set the core in place, rolled up the entire thing and bound the last corner with tape. If the joinery is cut with care, the pieces should close up without any trouble. Slight gaps can be coerced shut with the use of a clamp or two.

I allowed the legs to cure overnight, then cut all of the leg mortises with a 1/2-in. straight bit mounted in a plunge router outfitted with an edge guide. Even the through-mortises can be cut this way. To handle the through-mortises on the thick legs, though, I plunged from each side of the leg rather than all the way through the leg from one side.

The rest of the end assembly was fairly simple. All of the mortises were cut with a router and squared up with a chisel.

I cut the tenons on the tablesaw. First I established the shoulder cuts with the board held horizontally and then the trimmed the cheeks with the workpiece held upright. For efficiency, I cut all of the mortises and tenons for the entire table at the same time. I then angled the blade to 45° and chamfered the ends of the through-tenons.

Attach the frames and shelf

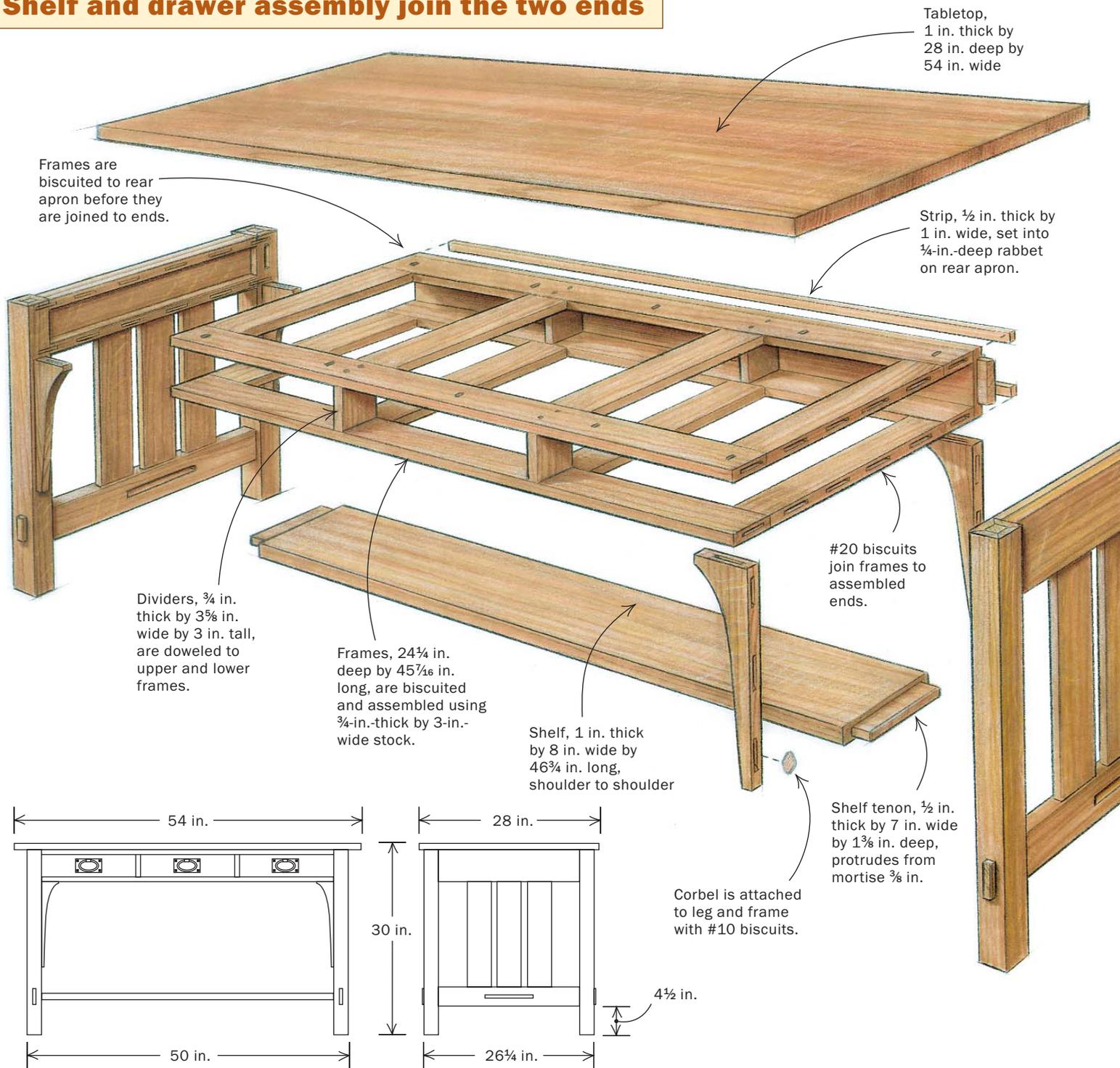
I scratched my head for some time trying to figure out how to handle the rear apron of this table. I wanted the corbels to be a full 1 in. thick, but that meant they would be flush with the rear apron, which neither mimicked the drawer fronts nor provided a necessary shadow line between the apron and corbel. In the end, I decided to build out the top and bottom of the rear apron to



Assemble the ends. First fit the slats to the apron and lower rail, then set the assembly into the mortises on the legs.

Biscuits make for foolproof alignment. After the insides of the ends are blocked out flush with the legs, biscuit slots are cut to accept the frames.

Shelf and drawer assembly join the two ends



echo the top and bottom frames on the front of the desk.

After cutting the tenons on the rear apron, I ran a rabbet $\frac{1}{4}$ in. wide and $\frac{1}{4}$ in. deep along the outside edges. After assembly, $\frac{1}{2}$ -in.-thick strips will be added to create raised areas that mimic the front and provide a necessary change in thickness where the corbel abuts the leg and apron.

Because the frames were to be biscuited

to the ends, I added fill-in strips to the inside of the apron at top and bottom, making sure that the strips were flush with the front and rear legs. The strips can be attached with glue or with glue and screws.

Once the fill-in strips were in place, I squared up the frames using a large sled at the tablesaw, using the length of the rear apron as a reference. I then drilled holes for the tabletop. While I could have

let the drawer dividers into sliding dovetails, I simply cut them to size, set them in place at the front and back of the frames and doweled them from above and below. Once the drawer glides are installed, the dividers will be locked in place by about five different joints.

I used #20 biscuits to join the frames to the two ends and to the rear apron. To accommodate the corbels, I cut #10 biscuit



Frames are the starting point. The author constructs two frames that will go above and below the drawers. The frames are simply biscuitted together.



The rear apron is biscuitted to the frame assembly. Note that the drawer dividers are already in place.

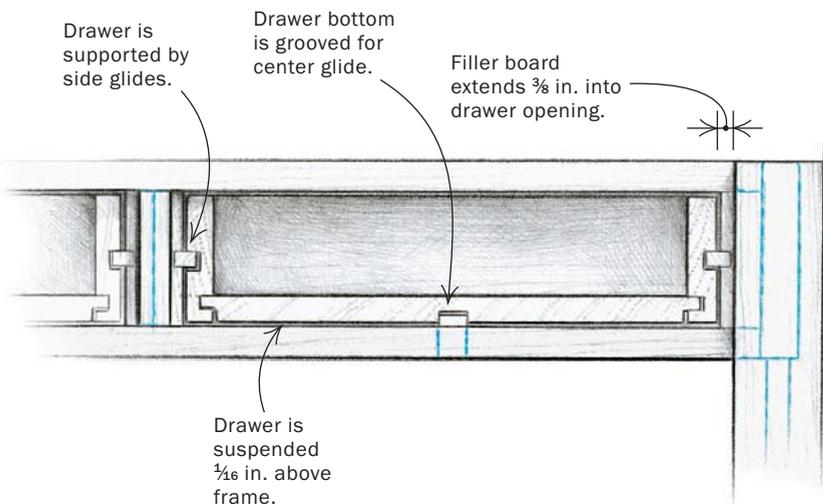
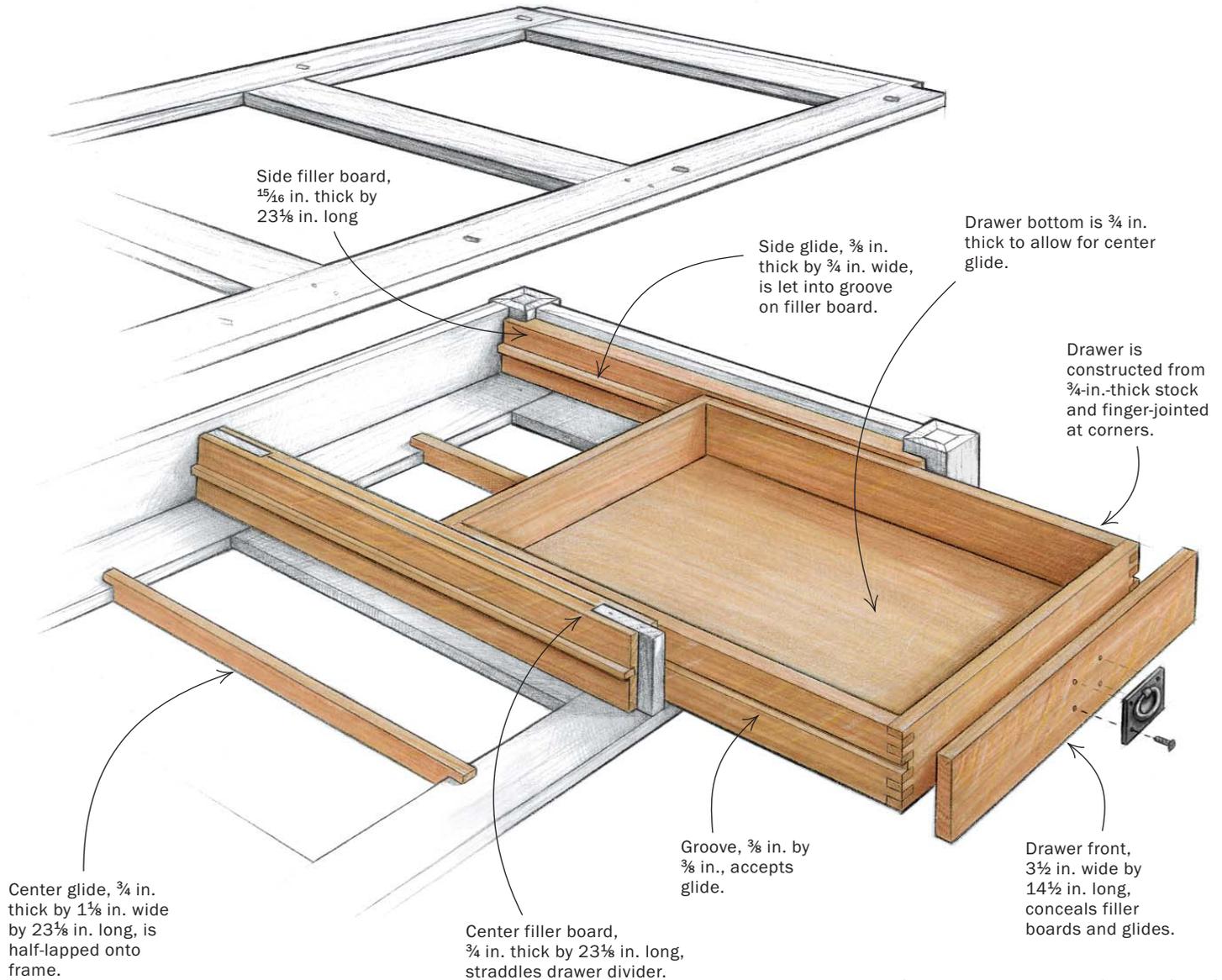


Bring it all together. The through-tenoned shelf, the biscuitted frames and the ends are all assembled in one operation. The glue-up proceeds easily when it is done with the table upside down on a flat surface.

slots underneath the frame and along the inside of the legs.

I dry-fit the assembly to be sure that the shelf and the frames fit onto the ends and closed up squarely. Once I was confident there wouldn't be any surprises, I glued the rear apron to the frames, making sure that the ends of the apron aligned exactly with the ends of the frames. Then I was finally ready for the entire assembly to go

Install drawer blocking and glides last



together. It was easiest to glue up the table upside down on a flat surface. One nice thing about using preassembled frames is that, at glue-up, it took only a few clamps to pull everything closed.

Install the drawer glides

I know that secondary woods and plywood drawer bottoms might be acceptable when building furniture, but I can't help myself—I love the sound and feel of a heavy oak drawer seating itself smoothly into place. And, as I mentioned before, I ordered the lumber in bulk, so using oak as the secondary wood allowed me to use up some of the less-desirable pieces.

The method I use for building and installing drawers is one I've relied on many times. While I could have let the drawers



Block out the ends. The ends of the table are blocked out with a board grooved to accept the drawer glides.



Glides span the dividers. Center dividers are sandwiched between two filler boards that house the drawer glides.



Insert the drawer glides and install the center glide. Glue the drawer glides in place and mount the center glide on the lower drawer frame. The center glide ensures that the drawer tracks correctly.

ride on the frames alone, I prefer drawers that have a bottom glide and are side-hung. Using three wooden glides, it is simple to make small adjustments to the fit and to the drawer reveal, even before anything is installed.

My first step was to make the drawers themselves. I used a box-joint sled on a tablesaw (see *FWW* #148, pp. 60-63) to construct simple finger-jointed boxes that will receive false fronts once installed. I left the drawers about 1 in. shy of full length (from front apron to rear apron) to accommodate the drawer fronts and to allow some room for adjustments.

Once the drawers were glued up—and it is essential that there be no twist in the drawer—I used a dado setup on the tablesaw to plow grooves in the two sides and

along the center of the $\frac{3}{4}$ -in.-thick drawer bottom. After that, it was time to install the glides. Essentially, I was simply blocking out the ends and the voids between the dividers, then setting glides into grooves. The glides can be sized and adjusted to fit the drawers before any glue has been applied, but it's important to get a perfect fit before securing them permanently. A few small screws or brads are all it takes to attach the glides. Once everything is in place, the grooved drawers should ride smoothly along the glides. Then it was a simple matter of gluing the drawer fronts to the drawer boxes.

Because I use a spray setup for finishing, I sprayed the top and base separately, because it's easier to spray the base when you don't have to work into corners or

worry about overspray. I coated the piece with a mix of Minwax stains and let it sit for a week. I then sprayed on two coats of flat lacquer.

The tabletop itself was screwed directly to the frames. It was fixed at the center with screws, and then the front and back were screwed into elongated holes—which allow for seasonal movement—through the upper frame. The drawer fronts, likewise, were simply attached with screws.

A final touch was the hand-hammered copper pulls (see the back cover) from Gerald Rucks. With the solid drawers, smooth-running glides and the authentic pulls, the desk is a pleasure to use. □

Eric Keil builds custom furniture and cabinetry in Wilkes-Barre, Pa.