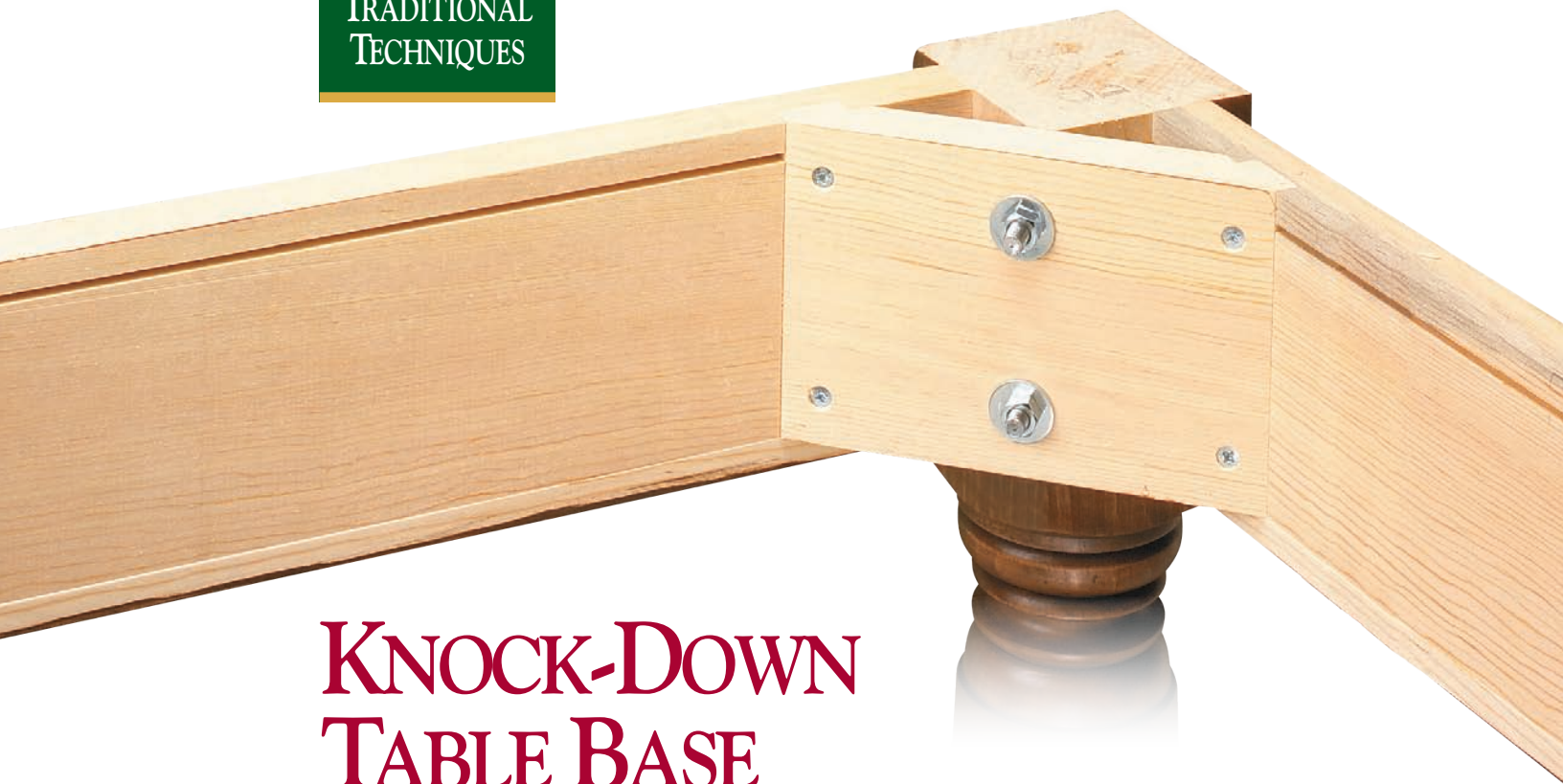




Woodsmith **PLANS**

# HEIRLOOM TABLES





# KNOCK-DOWN TABLE BASE

Traditional knock-down table construction has been around for a long time. And once you try it, the reasons become obvious. First, it can really simplify the joinery without sacrificing strength. Second, it makes the assembly of the frame a leisurely process and pretty much foolproof. And last but not least, it allows you to disassemble a table into manageable pieces for moving or storage.

## HOW IT WORKS

At first glance, you'd be hard pressed to tell that a knock-down table wasn't

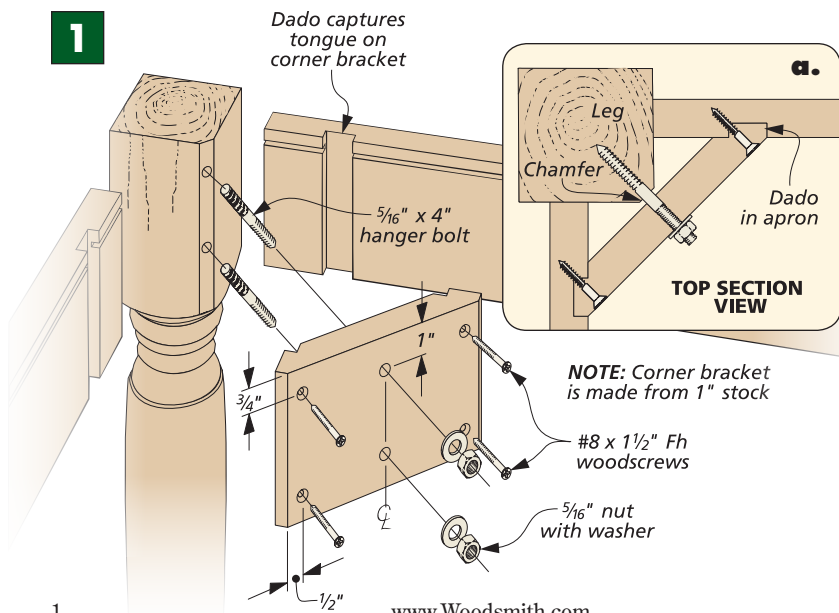
built with mortise and tenon joinery. But the key here is that there isn't any joinery between the legs and the apron. On a traditional knock-down base, stout, wood corner brackets are fixed between the apron pieces to create a rigid frame. Hanger bolts inserted into the legs mate with holes in the brackets (Fig. 1). And when the nuts are snugged down, the legs and apron are pulled into a tight, square base (Fig. 1a).

**THE LEGS.** The usual place to start the joinery of a table base is with the legs, and in this case it's an easy job. All you

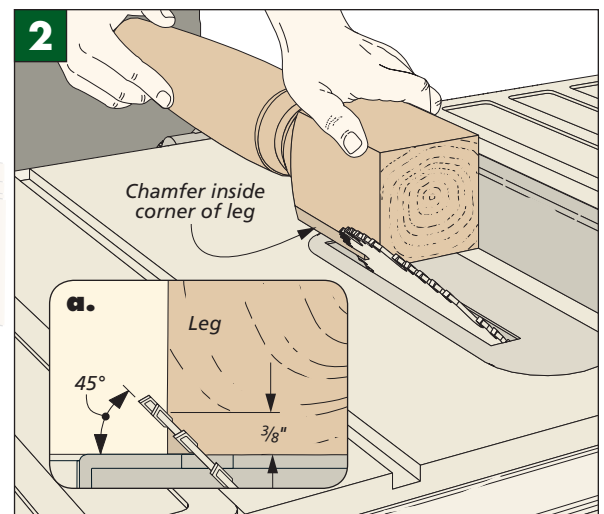
need to do is to chamfer the inside, top corner of each leg as shown in Figs. 2 and 2a. This serves a couple purposes. It'll give you clearance for the corner brackets and a flat surface in which to install the hanger bolts.

**THE APRONS.** The work on the aprons is almost as easy as the legs. You can get started by cutting them to width. And since you won't be cutting any tenons on the ends of the aprons, their length will be the distance separating the top ends of the legs. Just make sure the apron ends are clean and square.

1



2





To give the corner brackets a better grip on the apron, I cut a wide dado at each end of the apron pieces. These dados capture a 1"-wide tongue on the ends of the corner brackets. The result is an extremely rigid base (Fig. 1a).

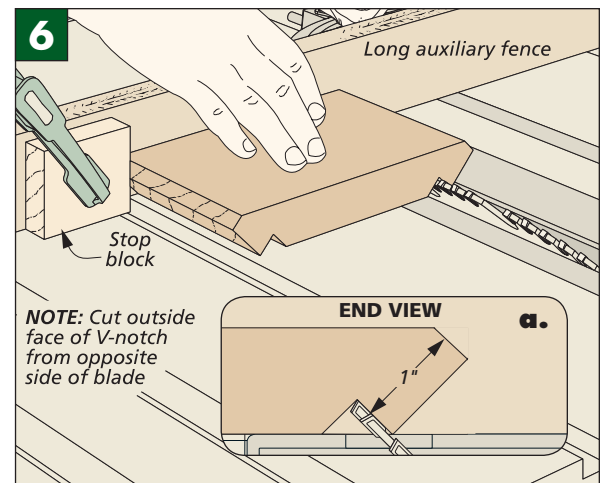
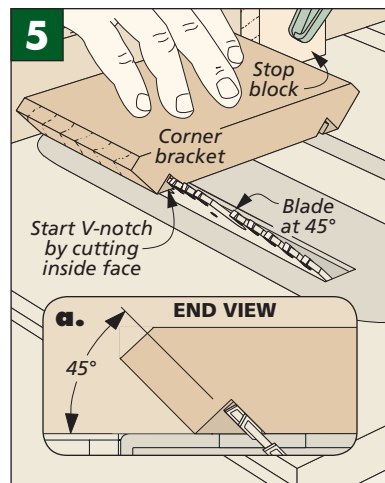
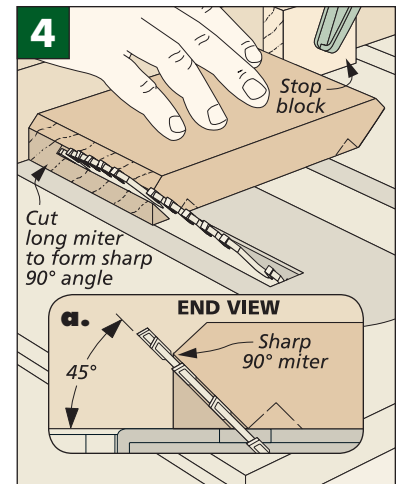
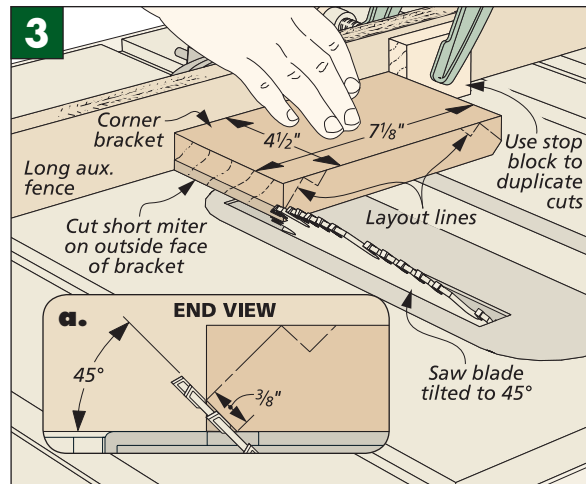
**MAKING THE CORNER BRACKETS.** With the work completed on the legs and the aprons, all you need now are the corner brackets. And to ensure the frame ends up true and square, you want all four brackets to be identical. But with a simple step-by-step process, this isn't difficult.

You can get started by cutting the four bracket blocks to size from 1" stock (Fig. 3). Next, lay out all the cuts on just one block — your set-up piece. You'll use this piece to make your initial cuts. A stop block on the miter gauge will make duplicating the cuts in the other pieces a cinch.

**FIRST CUT.** Fig. 3 shows how to get started by cutting the short 45° miter on the outside face. Just sneak up on the layout line, adjusting the stop block as you go. When your cut is right on the line, you can flip the piece end for end to make the opposite cut. Then cut the other pieces.

**SECOND CUT.** Now reset the stop block to make the long 45° cut on the inside face using the same steps as before (Figs. 4 and 4a).

**THE TONGUE.** The final two cuts on the brackets will form a V-notch and complete the tongue. Again, using a stop block I first cut the inside face of the V-notch (Figs. 5 and 5a).

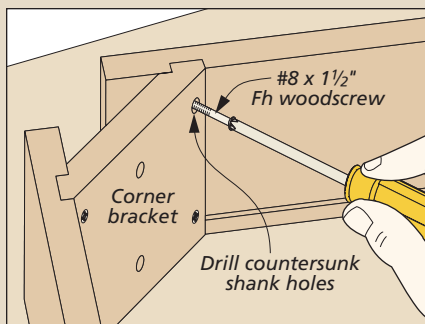


To complete the tongue, you'll have to make the final cut from the opposite side of the blade (Figs. 6 and 6a). The long auxiliary fence on the miter gauge makes it possible. Remember that the goal is a snug-fitting tongue, so check the fit in the dados as you sneak up to the layout line.

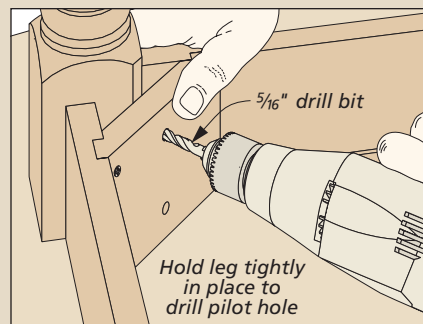
**HOLES.** One more task and the base is ready to assemble. This is just to drill two oversized holes in each corner bracket to hold the 5/16" hanger bolts (McFeelys.com, HB-3140).

**ASSEMBLY.** At this point you're ready to put the pieces together. The box below shows the simple steps.

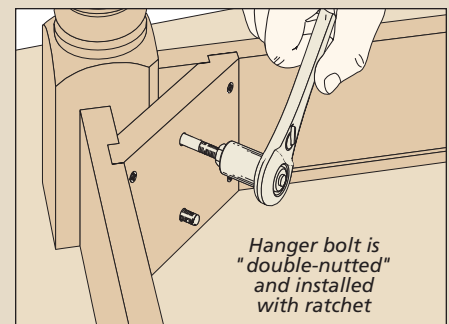
## EASY UPSIDE-DOWN ASSEMBLY



**1** The base can go together corner by corner. First, a bracket is fastened to the aprons with woodscrews.



**2** Next, the predrilled holes in the corner brackets are used to drill pilot holes in the legs for the hanger bolts.



**3** Finally, the hanger bolts are installed. Tightening down the nut draws the leg and apron tightly together.



# HEIRLOOM TABLES

## 3 DESIGNS FROM ONE MASTER TECHNIQUE





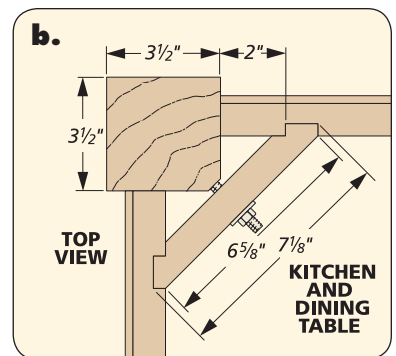
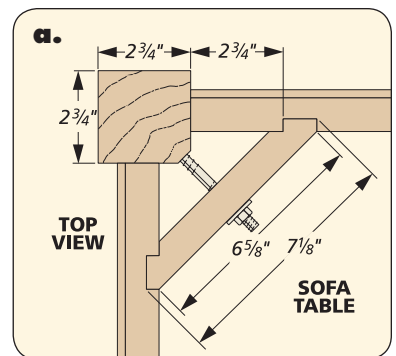
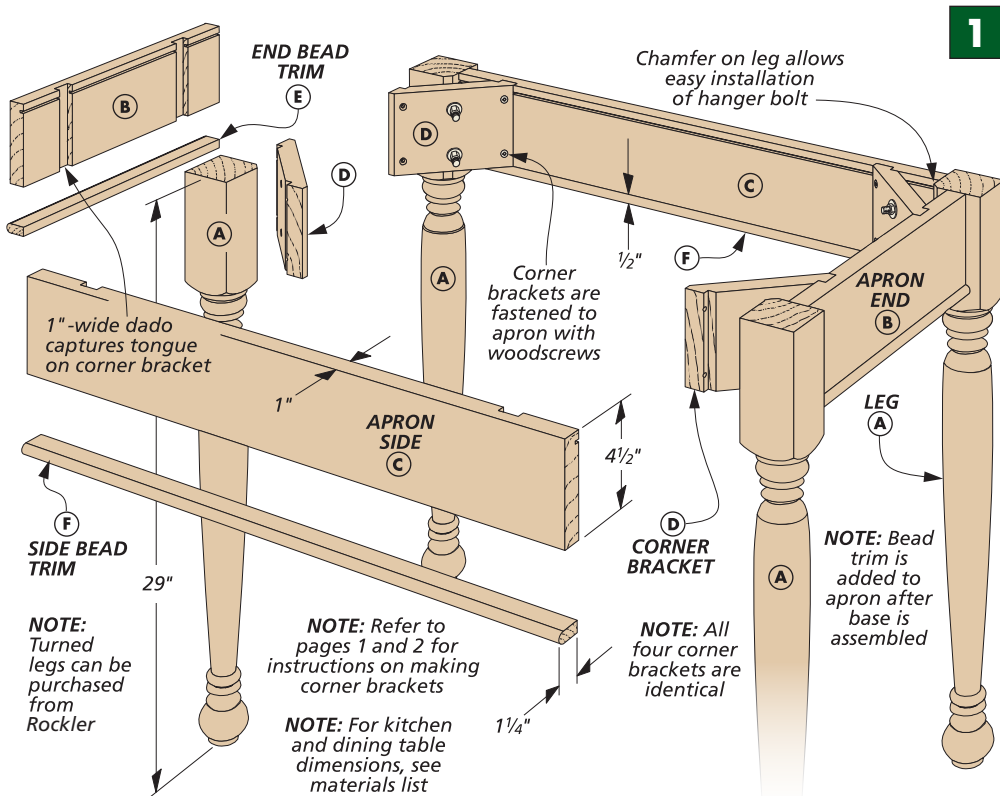


I've always enjoyed designing and building tables. With just a little bit of effort, you can come up with a table that's not only functional but also attractive. And the choices can be endless. That's what helps make this three-table lineup so interesting.

All three of the tables share the same style of knock-down base. You just start with the nicely detailed, purchased legs and the rest is a snap. The technique here is so straightforward, don't be surprised if your base is assembled in a day. But you might want to slow things down a little and include a drawer. It's really only a little more work and it gives you the chance to customize a bit.

Finally, you can add a top to make each table unique. The plank and cleat top on the maple sofa table at right is about as easy to build as they come. And while the thick pine top on the kitchen table above is pretty standard, it looks right at home. The breadboard-end top on the oak dining table gives you some different challenges and a classic look. But I'm guessing you'll only have one difficulty with these tables, deciding which one to build.





## 1 Technique — 3 Table Bases

One of the nicest things about the knock-down technique I used for these tables is that the process is so easy. And it can be used on just about any size or style of table. And as you can see from the photos on pages 3 and 4, the results can't be beat.

The three tables that I built using the knock-down technique have bases that are all pretty much identical in style. I just varied the sizes of the bases (and legs) and then I added a detail or two for interest. Pages 1 and 2 of this article explained all the basics of the knock-down technique, so from here on out, I won't get into

the construction details of each base. I'll just try to point out some of the differences and the finer points.

**THE BASE.** Fig. 1 shows the breakdown of the base for the maple sofa table. All three of the bases follow this same design. Only the dimensions and one minor, but important, detail are different.

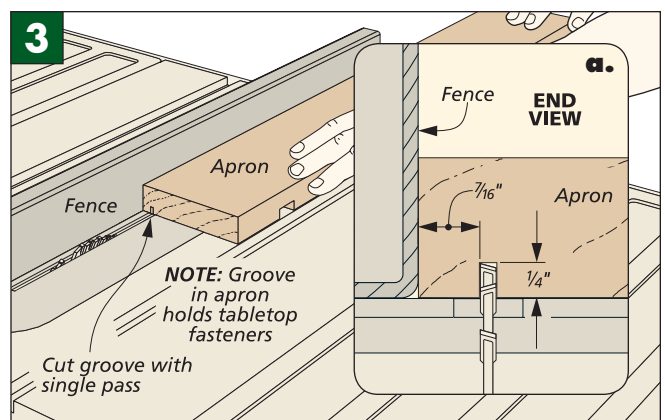
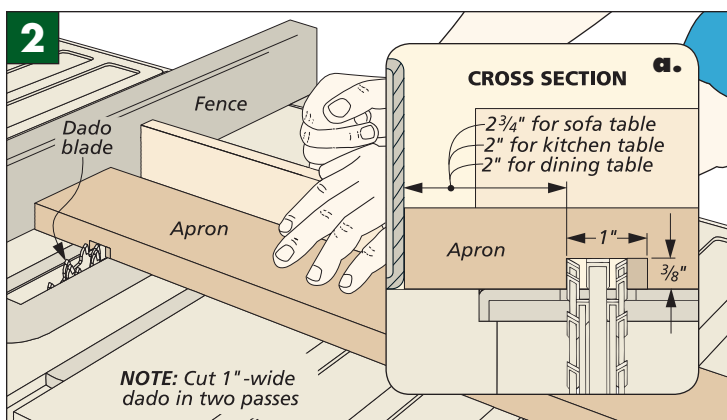
**DADO POSITION.** If you take a close look at Figs. 1a and 1b, you'll see that the position of the dados in the aprons is different. The reason is simple. I purchased legs from *Rockler* for all three tables rather than turning them myself. And because the tables

vary in size (and material), the legs I selected do too.

Note: I used 3 1/2"-dia. oak legs (65943) to build the dining table and 3 1/2"-dia. pine legs (65951) for the kitchen table. In order to keep the legs in scale with the smaller sofa table, I used 2 3/4"-dia ones, which are made of maple (65967). You can order any of these from *Rockler.com*.

Rather than change the size of the corner brackets for the sofa table, it made more sense to just reposition the dados in the aprons.

The dados that hold the corner brackets are 1" wide, refer to Fig. 2a.

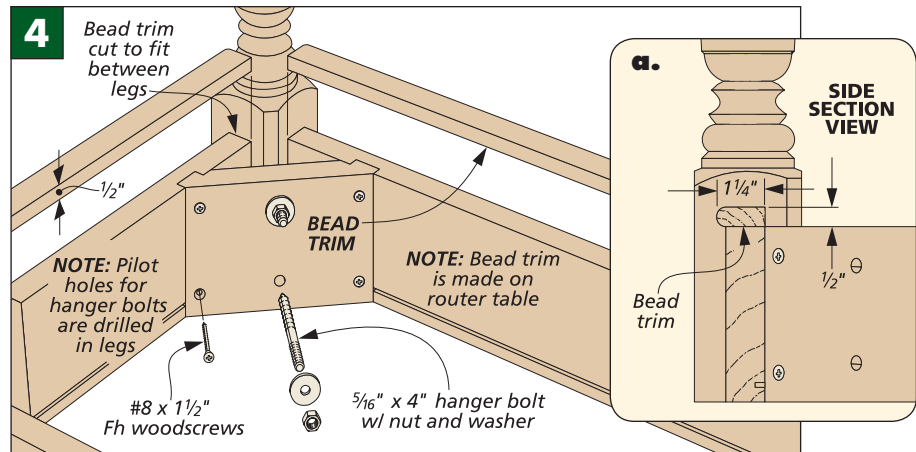




This means you'll have to make a couple of passes with a dado blade to get the full width. You can set the fence for the first pass as shown in Fig. 2. And after each apron piece is cut with this setting, just reposition the fence to end up with a 1"-wide dado.

**FASTENER GROOVE.** When the time came to fasten the top to the frame, I wanted it to be quick and easy. To prepare for that, I cut a groove around the top, inside edges of the apron pieces (Figs. 3 and 3a) that will hold metal tabletop fasteners.

**WOODSCREWS AND ANCHOR BOLTS.** After you've made the corner blocks (refer to page 2), you're ready to put it all together like you see in Fig. 4. About the only tools you'll need for the assembly are a drill, a screwdriver, and a wrench. The first two pages of this plan give you a complete

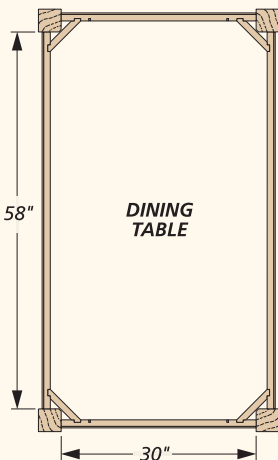
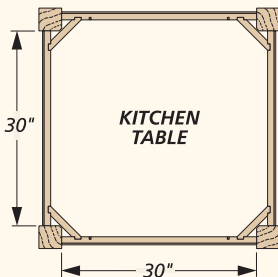
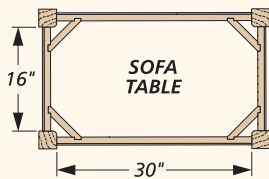


play-by-play on this technique. It's a nice sight when you tighten the nuts on the anchor bolts and the legs and the apron closes up tightly.

**ADD A BEAD.** I thought the apron needed just a little detail, and a simple way to accomplish this was

to add 1/2" bead molding around the bottom edge (Figs. 4 and 4a). You can make the bead molding with a 1/4" roundover bit in the router table. Then it's just a matter of cutting the pieces to fit snug between the legs and gluing them in place.

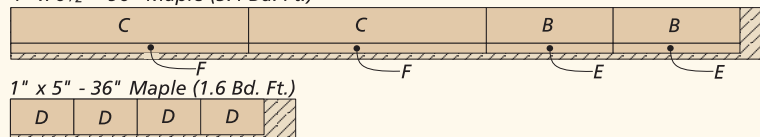
## MATERIALS, SUPPLIES, & CUTTING DIAGRAMS



### SOFA TABLE BASE

- A Legs (4) 2<sup>3</sup>/<sub>4</sub> x 2<sup>3</sup>/<sub>4</sub> - 29
- B Apron Ends (2) 1 x 4<sup>1</sup>/<sub>2</sub> - 16
- C Apron Sides (2) 1 x 4<sup>1</sup>/<sub>2</sub> - 30
- D Corner Brackets (4) 1 x 4<sup>1</sup>/<sub>2</sub> - 7<sup>1</sup>/<sub>8</sub>

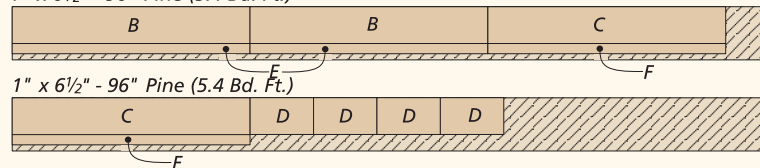
1" x 6<sup>1</sup>/<sub>2</sub>" - 96" Maple (5.4 Bd. Ft.)



### KITCHEN TABLE BASE

- A Legs (4) 3<sup>1</sup>/<sub>2</sub> x 3<sup>1</sup>/<sub>2</sub> - 29
- B Apron Ends (2) 1 x 4<sup>1</sup>/<sub>2</sub> - 30
- C Apron Sides (2) 1 x 4<sup>1</sup>/<sub>2</sub> - 30
- D Corner Brackets (4) 1 x 4<sup>1</sup>/<sub>2</sub> - 7<sup>1</sup>/<sub>8</sub>

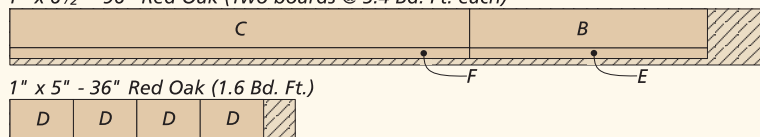
1" x 6<sup>1</sup>/<sub>2</sub>" - 96" Pine (5.4 Bd. Ft.)



### DINING TABLE BASE

- A Legs (4) 3<sup>1</sup>/<sub>2</sub> x 3<sup>1</sup>/<sub>2</sub> - 29
- B Apron Ends (2) 1 x 4<sup>1</sup>/<sub>2</sub> - 30
- C Apron Sides (2) 1 x 4<sup>1</sup>/<sub>2</sub> - 58
- D Corner Brackets (4) 1 x 4<sup>1</sup>/<sub>2</sub> - 7<sup>1</sup>/<sub>8</sub>

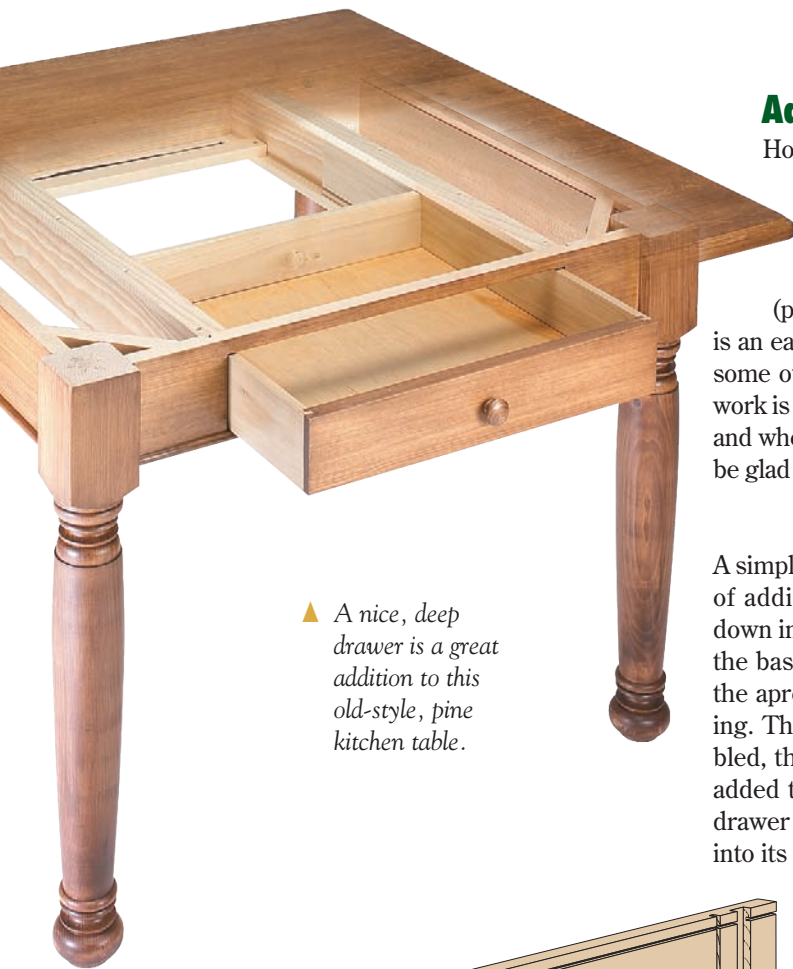
1" x 6<sup>1</sup>/<sub>2</sub>" - 96" Red Oak (Two boards @ 5.4 Bd. Ft. each)



- E End Bead Trim (2) 1/2 x 1<sup>1</sup>/<sub>4</sub> - 16
- F Side Bead Trim (2) 1/2 x 1<sup>1</sup>/<sub>4</sub> - 30
- (16) #8 x 1<sup>1</sup>/<sub>2</sub>" Fh woodscrews
- (8) 5/16" x 4" Hanger Bolts w/Nuts & Washers

- E End Bead Trim (2) 1/2 x 1<sup>1</sup>/<sub>4</sub> - 30
- F Side Bead Trim (2) 1/2 x 1<sup>1</sup>/<sub>4</sub> - 30
- (16) #8 x 1<sup>1</sup>/<sub>2</sub>" Fh woodscrews
- (8) 5/16" x 4" Hanger Bolts w/Nuts & Washers

- E End Bead Trim (2) 1/2 x 1<sup>1</sup>/<sub>4</sub> - 30
- F Side Bead Trim (2) 1/2 x 1<sup>1</sup>/<sub>4</sub> - 58
- (16) #8 x 1<sup>1</sup>/<sub>2</sub>" Fh woodscrews
- (8) 5/16" x 4" Hanger Bolts w/Nuts & Washers



▲ A nice, deep drawer is a great addition to this old-style, pine kitchen table.

## Add a Drawer

How do you make a great looking table a little more practical? Just add a drawer. For the kitchen table shown at left or the oak dining table (page 3), it looks natural and is an easy way to make good use of some otherwise wasted space. The work is really pretty straightforward and when you're done, I think you'll be glad you tackled it.

### THREE EASY STEPS

A simple way to look at the process of adding a drawer is to break it down into three steps. First, before the base is assembled, you modify the apron to create a drawer opening. Then once the base is assembled, the guide rail assemblies are added to the base. And finally, the drawer can be put together and fit into its opening.

**THE APRON.** I wanted to add a drawer, but didn't want it to break up the

clean lines of the table apron. So I made a couple of design decisions. First, the drawer front is flush with the apron. And then second, I cut the drawer front and the apron ends from a single piece of wood. With a flush front and perfect grain match, the drawer blends right in.

To create the drawer opening, you'll want to start with a slightly oversized blank ( $\frac{1}{4}$ " extra in length and width). First, rip a  $\frac{3}{4}$ "-wide apron top from one edge. Then cut this piece to the final apron length. Now size the two apron ends and the drawer front from the remaining piece (in sequence) of the blank (Figs. 5 and 8). When you glue the apron ends to the apron top, you'll have a perfectly-sized opening.

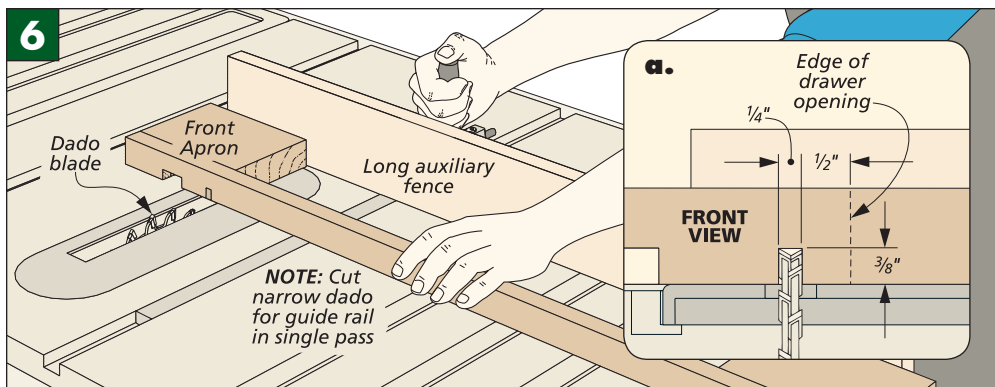
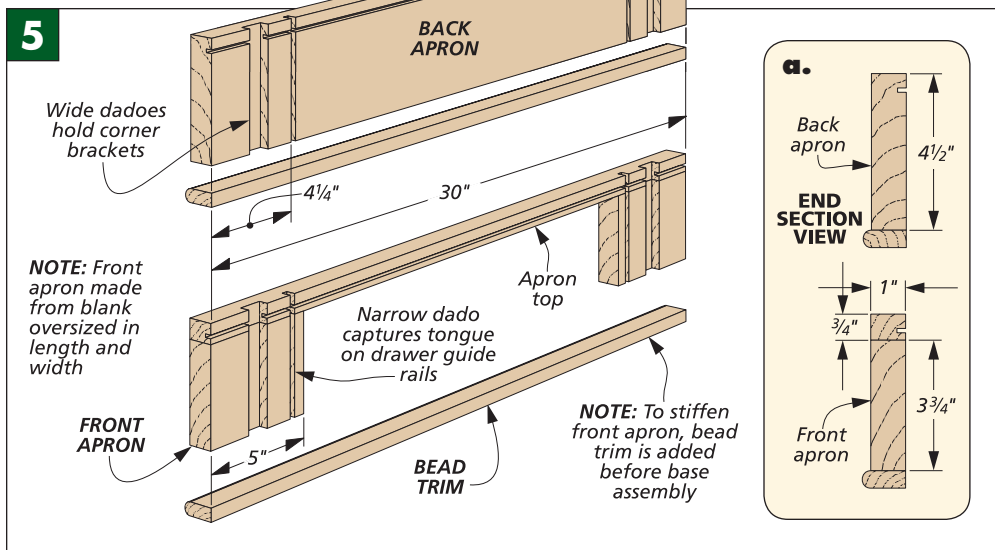
Next, you can take all the apron pieces back to the table saw to cut the dados for the joinery. You'll notice in Fig. 5 that both the front and the back aprons have a second set of narrow dados. These will hold the drawer guide rail assemblies. A long auxiliary fence will help you make these cuts in the front apron piece (Figs. 6 and 6a).

After the dados are cut, you can go ahead and add the decorative bead to the bottom edge of the apron pieces (Fig. 5a). The bead is needed to stiffen the front apron during assembly and act as a lower stop when the guide rails are added.

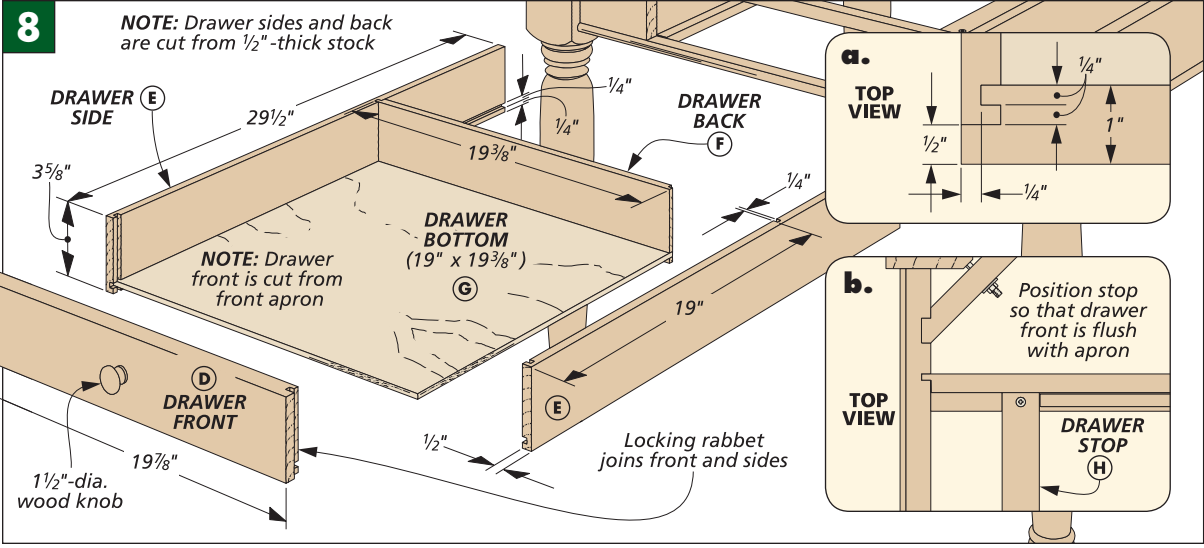
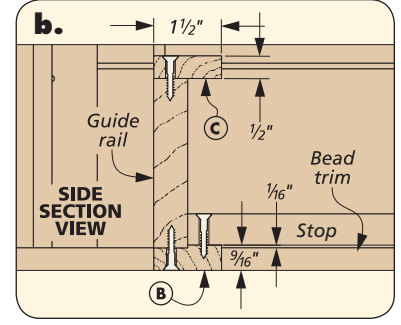
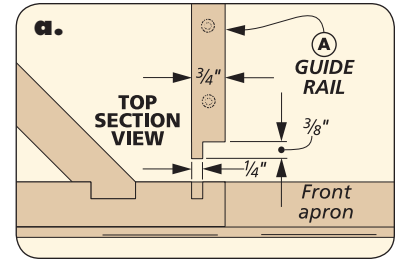
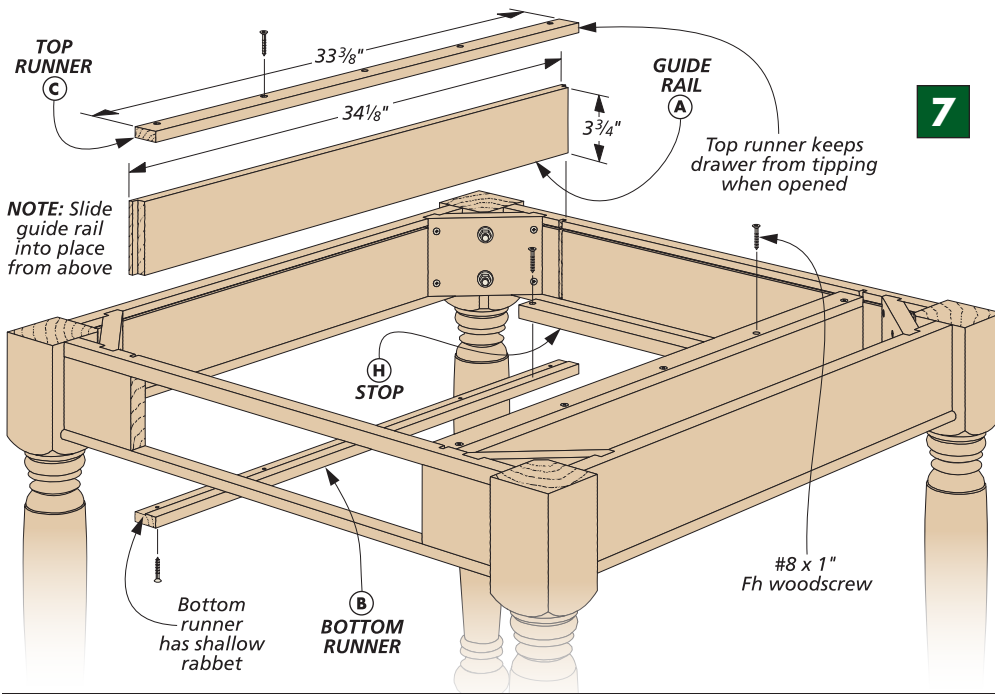
**ADD SUPPORT RAILS.** Once the base is assembled, the guide rail assemblies come next. A look at Fig. 7 shows how these three-piece assemblies are installed. Each one is just a  $\frac{3}{4}$ "-thick guide rail capped with a top and bottom runner.

I started by cutting the guide rails to size and then creating a tongue on each end to fit the narrow dados in the apron pieces (Fig. 7a). When the guide rails are ready to install, they simply slide in from above. A little glue and the bead molding will hold them in place.

Next comes the two drawer runners. The bottom runner is slightly thicker ( $\frac{9}{16}$ ") than the top runner and has a  $\frac{1}{16}$ " rabbet that fits over the guide rail (Fig. 7b). This allows







the drawer to sit above the decorative apron bead and will save some wear and tear on the apron. After the runners are screwed and glued to the guide rails, you're ready to build a drawer.

**BUILD A DRAWER.** As you can see in Fig. 8, this drawer is a little unusual.

The sides of the drawer extend far beyond the back. This is a handy trick that allows you to easily get at stuff buried at the back of the drawer without the risk of it falling out.

The drawer joinery is pretty standard. A locking rabbet (Fig. 8a) joins the drawer front and the

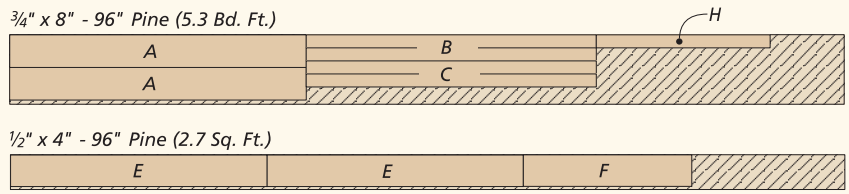
drawer sides. A tongue and dado joins the drawer back to the sides (Fig. 8). The 1/4" plywood drawer bottom fits in a groove.

After the drawer was assembled, I added a 1 1/4"-dia. wood knob. Finally, position a drawer stop across the guide rails, as shown in Fig. 8b.

▲ A drawer lock router bit makes quick work of preparing the joints.

## MATERIALS, SUPPLIES, & CUTTING DIAGRAM

- A Guide Rails (2) 3/4 x 3 3/4 - 34 1/8
  - B Bottom Runners (2) 9/16 x 1 1/2 - 33 3/8
  - C Top Runners (2) 1/2 x 1 1/2 - 33 1/8
  - D Drawer Front (1) 1 x 3 5/8 - 19 7/8
  - E Drawer Sides (2) 1/2 x 3 5/8 - 29 1/2
  - F Drawer Back (1) 1/2 x 3 5/8 - 19 3/8
  - G Drawer Bottom (1) 19 3/8 x 19 - 1/4 ply.
  - H Drawer Stop (1) 3/4 x 1 1/2 - 20
- (22) #8 x 1" Fh woodscrews  
 (1) 1 1/4"-dia. Wood Knob w/Screw



**NOTE:** Drawer front (D) is cut from apron piece

**ALSO NEEDED:** 1/4" plywood for drawer bottom

# 3 CLASSIC TABLETOPS

An easy way to give a table its own interesting look is with a top that's a bit unique. So for each table base, I tried a different approach to the top.

For the maple sofa table, I tried something "old" — a top made from individual boards fastened together

with cleats and woodscrews. It's a great style and it's easy to build.

A kitchen table needs a large, functional (and easily cleaned) surface that will hold up to some heavy use. A top glued up from thick stock involves a little bit of work but will

look great on this classic table and stand the test of time.

The breadboard-end top on the dining table has a more elegant look. It may look like a challenge. But with a plywood center panel and simple joinery, it goes together easily.



▲ A simple plank and cleat top creates an age-old look.

## Plank And Cleat Top

I would wager a guess that most of the earliest tabletops were made with plank and cleat construction. And that's one reason why I chose this technique for the maple sofa table. I should also mention that this type of top is appealing from a building standpoint. It doesn't require a lot of exacting work, so making this style of tabletop look good is an easy job.

**THREE PLANKS.** Fig. 9 shows how this top goes together. You can keep the glue bottle on the shelf. All you have

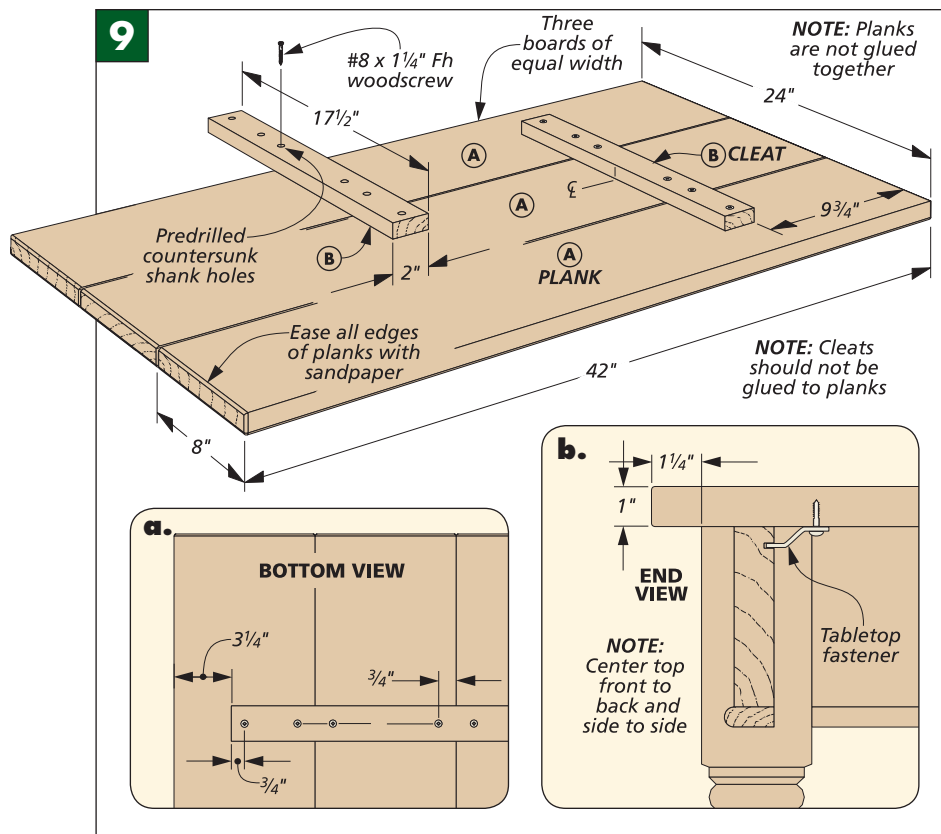
here are three planks fastened together with cleats and woodscrews.

The first task is to cut the three planks to size. Why three planks and not two or four? Well, traditionally, wide boards were used for this type of top. It only made sense — the wider the boards the fewer the number needed and the fewer the spaces between them. So I used wide stock and the two "joint lines" give the top just the right look.

**SAND AND EASE THE EDGES.** Once the planks are ready, you can pick up some sandpaper. Since the planks are pre-cut to size and won't be glued together, you can do a lot of the sanding before assembly. I made sure to knock off all the sharp edges and corners of each plank. I wanted the look of three individual boards, not one smooth top.

**ATTACH THE CLEATS.** With the planks prepared, they can be connected to make a top. The two cleats can be cut to size from  $\frac{3}{4}$ " stock and then the countersunk shank holes are predrilled (Figs. 9 and 9a). Now just carefully line up the planks (you might want to tighten a clamp across them) and position the cleats (Fig. 9a). Use the predrilled shankholes to drill some pilot holes in the planks and add the woodscrews. Don't be tempted to glue the planks to the cleats, they need to be able to move with changes in the humidity.

**FASTEN IT TO THE BASE.** That's the long and short of it. Finally I used a handful of metal tabletop fasteners to hold the top to the base (Fig. 9b).





## A Glued Slab Top

The base that I built for the pine kitchen table has a solid, old farmhouse feel to it. So it needed a top to match. The choice was pretty obvious. A solid top, glued up out of thick, pine stock (1"), would look right at home on this frame.

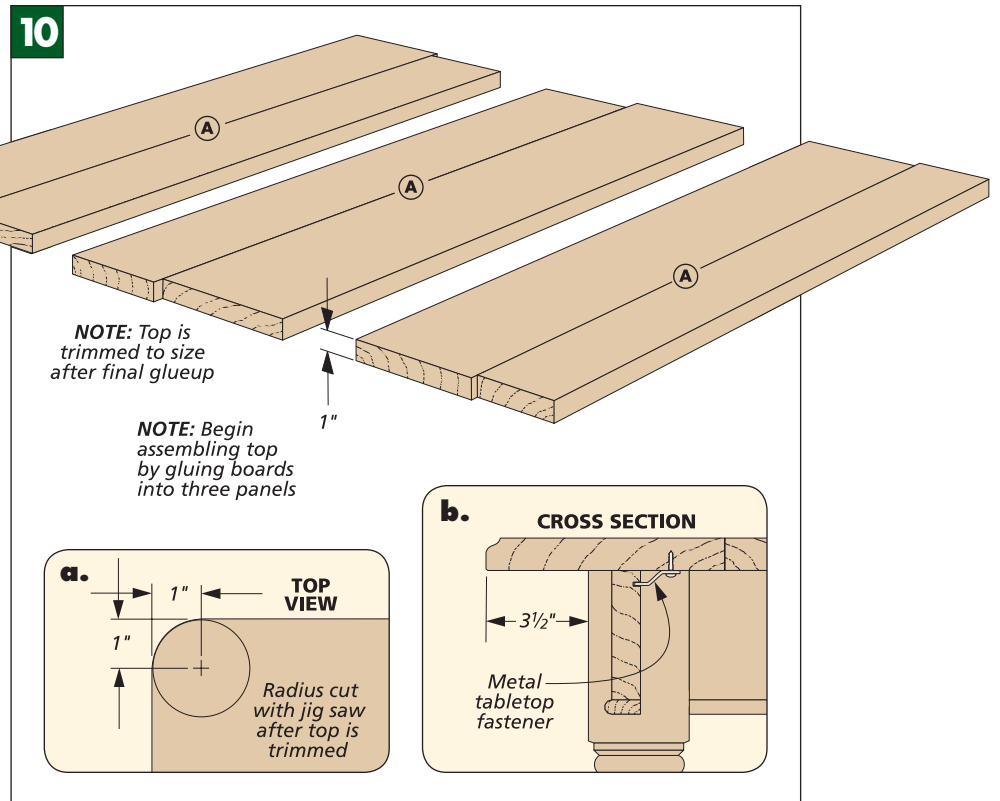
**A WIDE GLUEUP IN THREE PARTS.** The top that I built for this table was 44" square. Honestly, it's one of the widest glueups I've ever had to do. So to do a good job of it, I used a couple of simple tricks. Fig. 10 shows the first. I cut all the boards needed to rough length and then glued them into three narrower panels.

Once all three of the narrow individual sections are ready, you can complete the job by gluing them together. But keeping a large panel flat during this process takes a little doing. Fig. 11 shows a simple solution. A couple of long, wide cauls clamped across the ends of the glueup will keep it perfectly flat while the glue dries.

**TRIM THE TOP.** I was pleased with how my rough glued-up top turned out. After a short spell with the belt sander, it was ready to be trimmed to size. But not many table saws will accommodate a panel this size, so I resorted to a circular saw with a shop-made guide for this job.

**THE IMPORTANT DETAILS.** Once the top is cut to size, the hard part is behind you. All you have left are a couple of simple but important tasks.

► This top, glued up from thick pine, is the perfect match for the solid kitchen table base.

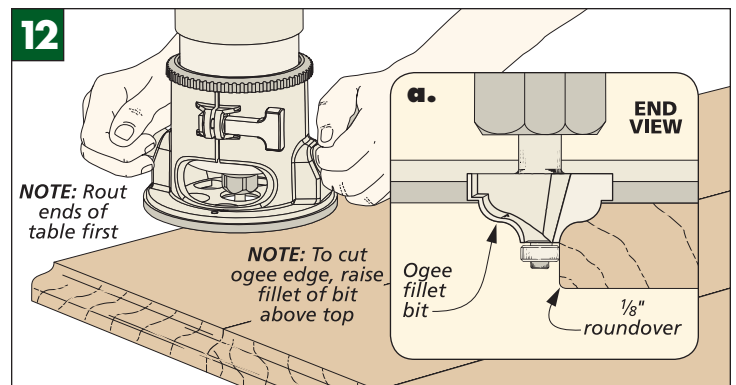
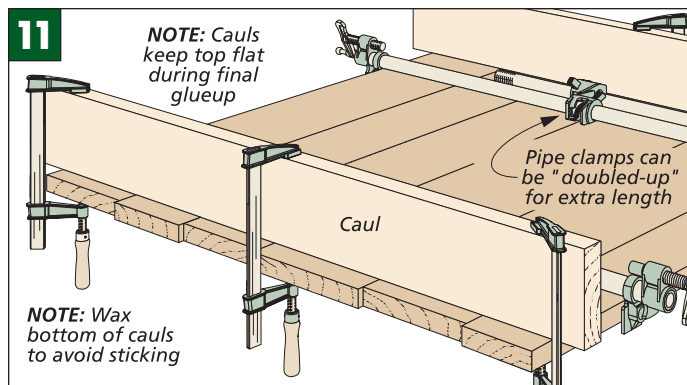


A kitchen table is certainly going to get a lot of use and abuse, so any sharp edges and corners wouldn't hold up for long. You can easily solve this problem and add a couple of nice details at the same time.

First, I picked up a jig saw and cut a 1" radius on all four corners of the top (Fig. 10a). And then after they were sanded smooth, I used a hand-held router to add a profile to

both the upper and lower edges of the top. The lower edge can simply be eased with an 1/8" roundover. The upper edge gets a classic ogee profile, as shown in Fig. 12a.

Attaching the top is the last step. You should have an even overhang on all four sides of the base (Fig. 10b). And if you work with the table upside down, attaching the tabletop fasteners goes a lot smoother.





▲ Breadboard ends are a great way to add distinction to a tabletop.

## Breadboard-End Top

A large dining table needs a top with a little bit of style. Something maybe just a bit more formal and with a little more detail than a table for everyday use. But to match the simple look of the base for the oak dining table, you don't want to get carried away. I think the breadboard-end top in the photo above hits the nail on the head.

Breadboard end construction has been used on tabletops for a long time,

so it fits right in with the traditional look of the table base. A breadboard end refers to the stout piece fixed across the end of the top (it was commonly used on breadboards). The idea was that a breadboard end would help keep a wide tabletop flat over time. To me, it not only serves this practical purpose, but it also gives an otherwise large, flat surface a more interesting look.

### HOW TO BUILD IT

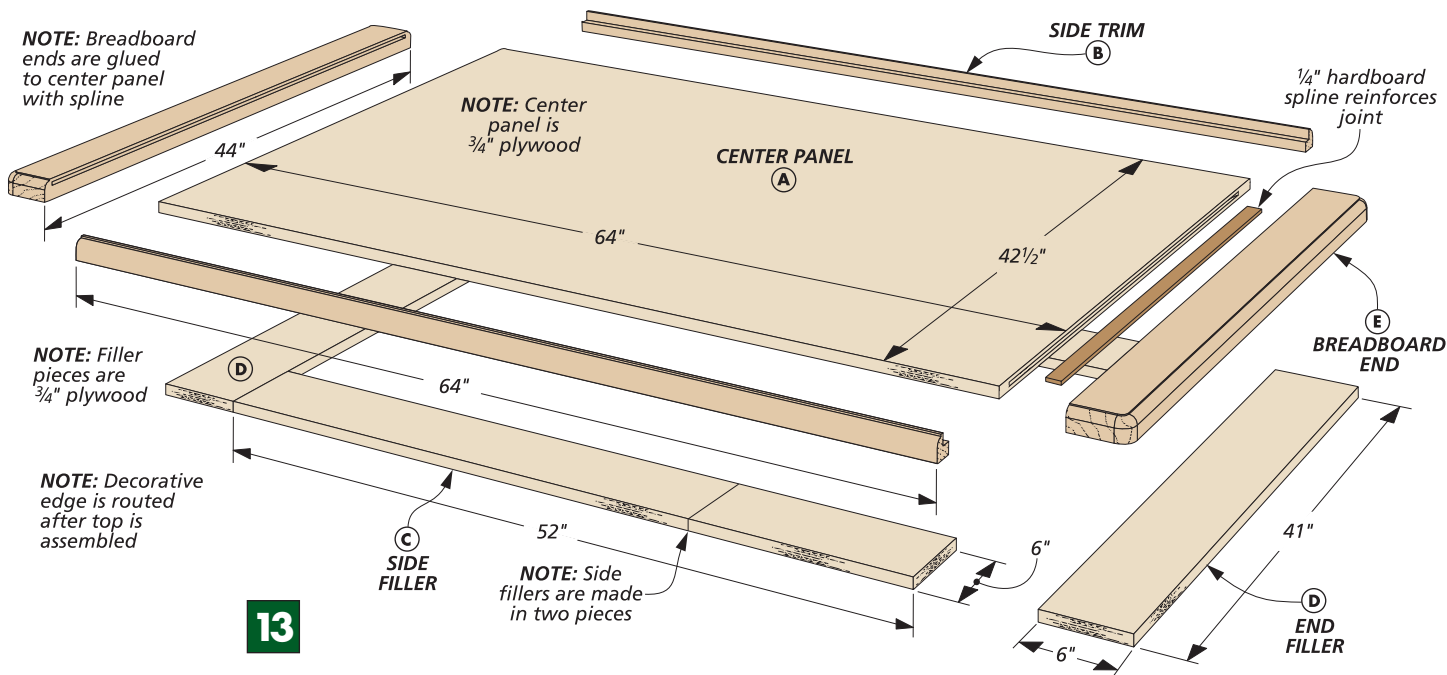
The top needed for the dining table is pretty large, so I ruled out solid wood. A glueup of this size would be too difficult. A top made from a nice piece of straight-grained  $\frac{3}{4}$ " oak plywood made a lot more sense. When you use plywood for the center panel of the top, you eliminate a lot of the hard work and add quality at the same time. You'll have a consistent color

and grain pattern, and attaching the breadboard ends "cross grain" won't cause a problem.

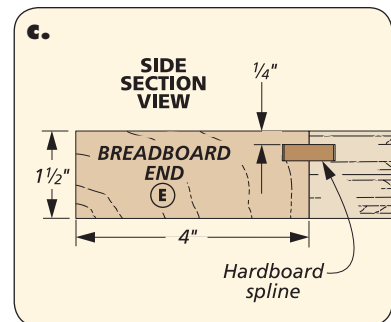
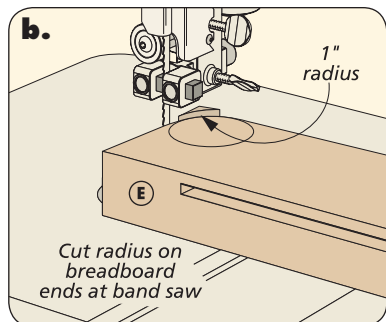
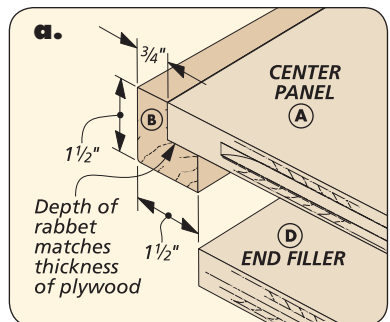
When you take a look at Fig. 13, you can see how the top is put together. You have a center panel that's trimmed on the long sides and "capped" on both ends. Some filler pieces beneath the center panel beef-up the thickness. It's simple.

**THE CENTER PANEL.** The first thing to do is to cut the  $\frac{3}{4}$ " plywood center panel to size. You want crisp, square edges so the trim pieces and breadboard ends will fit well.

**SIDE TRIM.** Now you can start hiding the edges of the plywood. Fig. 13a shows how I added a couple of rabbeted side trim pieces. The rabbet wraps around the edge of the table and provides more glue surface. Only a narrow band of wood will show from above.



13



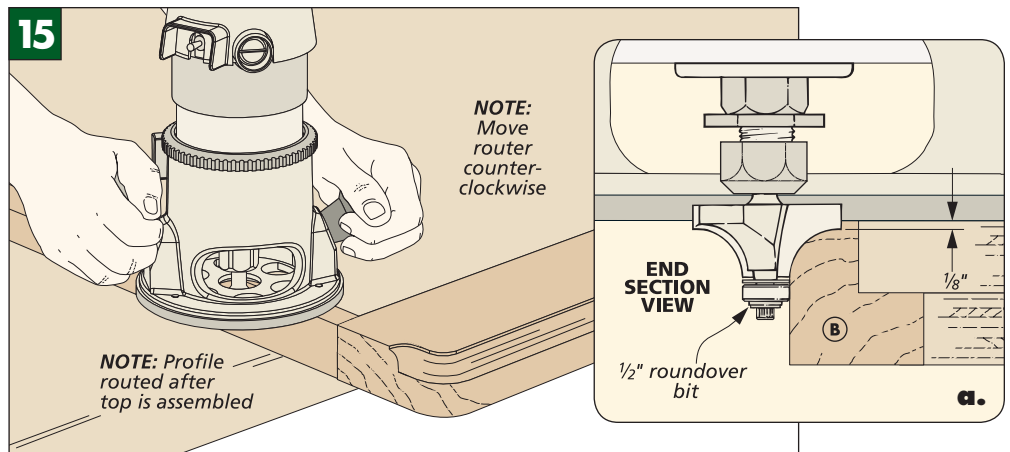
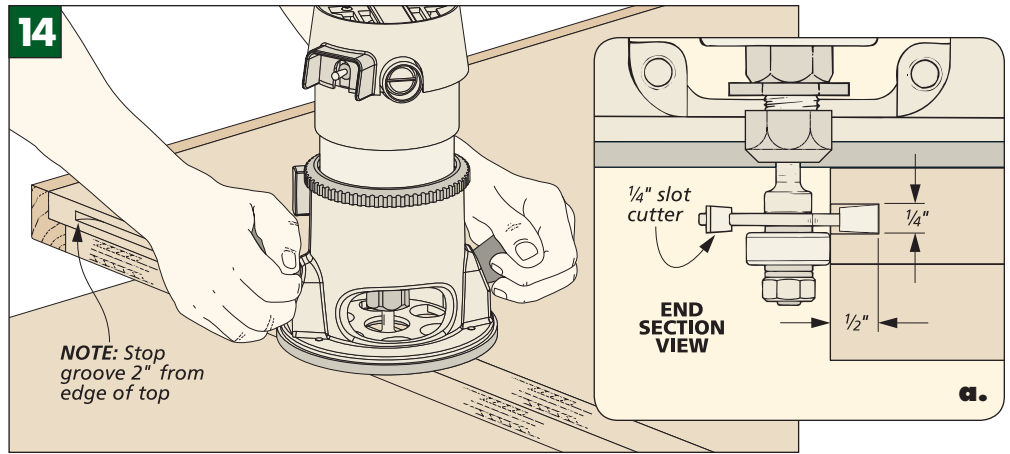


**ADD THE FILLERS.** Once the side trim is added, you can cut the plywood side fillers and end fillers to size and glue them in place. Just snug the side fillers up to the side trim and then add the end fillers flush to the ends of the center panel.

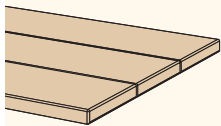
**ADD THE ENDS.** Now the top is ready for its breadboard end pieces. After you've cut the two breadboard ends to size, there's some simple joinery to work on. Fig. 13c shows how I fit a "blind" hardboard spline across this joint to add strength.

A 1/4" slot cutter in a hand-held router makes cutting the stopped grooves for the splines easy. Figs. 14 and 14a show the details for the plywood center panel. You'll also need to rout a similar slot in each of the breadboard ends.

**NICE DETAIL.** Before I glued the breadboard ends in place, I cut a radius on the outside corners, as shown in Fig. 13b. And the final detail is a 1/2" roundover with a shoulder, like you see in Figs. 15 and 15a. The completed top can then be attached and the table is ready for a finish.



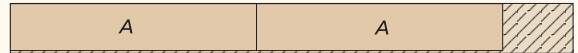
## MATERIALS, SUPPLIES, & CUTTING DIAGRAMS



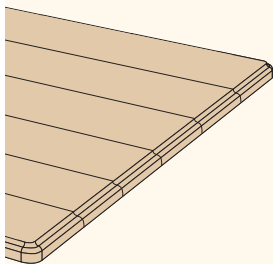
### PLANK AND CLEAT TOP

- A** Planks (3) 1 x 8 - 42  
**B** Cleats (2) 3/4 x 2 - 17 1/2  
 (6) Metal Tabletop Fasteners w/Screws  
 (12) #8 x 1 1/4" Fh Woodscrews

1" x 8 1/2" - 96" Maple (7.1 Bd. Ft.)



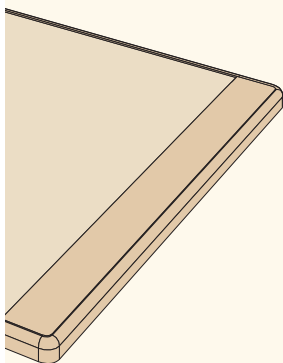
1" x 8 1/2" - 96" Maple (7.1 Bd. Ft.)



### GLUED SLAB TOP

- A** Top (1) 1 x 44 - 44  
 (8) Metal Tabletop Fasteners w/Screws

1" x 8 1/2" - 96" Pine (Three Boards @ 7.1 Bd. Ft. each)



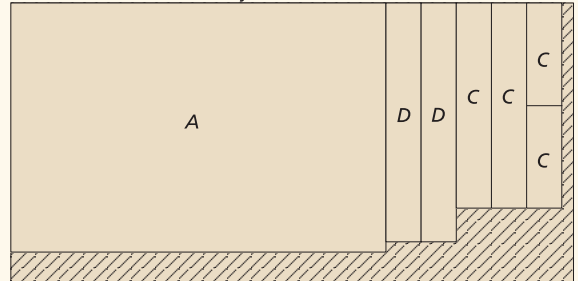
### BREADBOARD-END TOP

- A** Center Panel (1) 64 x 42 1/2 - 3/4 ply.  
**B** Side Trim (2) 1 1/2 x 1 1/2 - 64  
**C** Side Fillers (2) 52 x 6 - 3/4 ply.  
**D** End Fillers (2) 41 x 6 - 3/4 ply.  
**E** Breadboard Ends (2) 1 1/2 x 4 - 44  
 (10) Metal Tabletop Fasteners w/Screws

1 1/2" x 8" - 96" Red Oak (10.6 Bd. Ft.)



48" x 96" - 3/4" Red Oak Plywood



**ALSO NEEDED:** 1/4" hardboard for splines