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- Tips to help you complete the project and become a better woodworker.



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Easy Chair Side Tables



\$7.95

WJ157

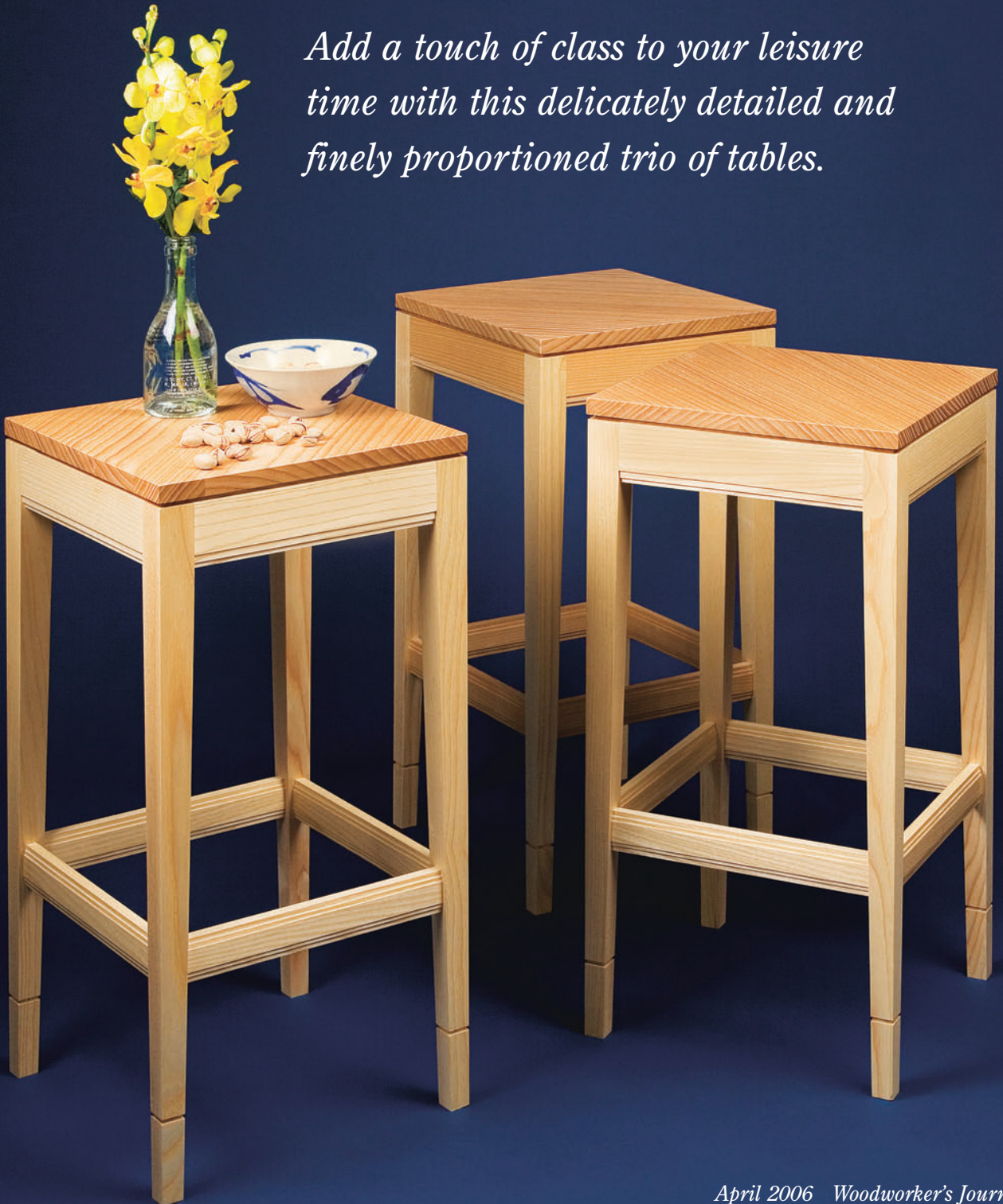
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Easy-chair Side Tables

By Ian Kirby

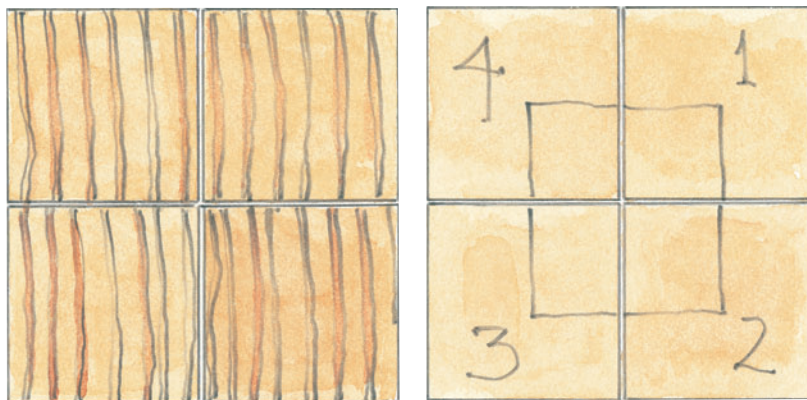
Add a touch of class to your leisure time with this delicately detailed and finely proportioned trio of tables.



The table is 22" high with an 11" square top intended to stand beside an easy chair to accommodate the accompaniments to leisure seating, such as snacks, drinks, and reading materials.

The proportion of the whole and its parts are supported by details, all of which come from a table saw. These details include the tapered legs, rabbeted top, double-rabbeted top and bottom rails, and the groove around the legs that forms the foot. If the execution of these details is not challenging enough, there's also the flush joint between the top rail and the leg and the angled shoulder on the lower rail that promise to advance your furniture making skills to a more sophisticated level.

These challenges take on yet another dimension when you make three at once. Generally, I make three of any project in order to get the necessary photographs shot in one day. It was only after starting the work that I realized that any living room would be better served with multiples of the table.



To keep track of which legs go where, arrange them in sets of four, mark them with a square and then number them clockwise. If you are making three tables as the author did, number the next set 5,6,7,8 and the third set 9,10,11,12.

Selecting the Materials

Legs: The classic aim on a square leg is to get the end grain on the diagonal so that the vertical grain looks similar on all four sides of the leg. With the flatsawn material I had available this wasn't possible, so I arranged the end grain of all four legs in one direction.

Rails: I worked hard to align the grain and had to cut some parts at an angle to the board's edge. Color also was a problem, but I managed to get all the rails on a particular table from the same board.

Tops: The tops were from a totally different parcel of very wide boards that had quarter figure on the edges and cathedral figure in the center. This allowed me to make some good transitions in choosing parts.

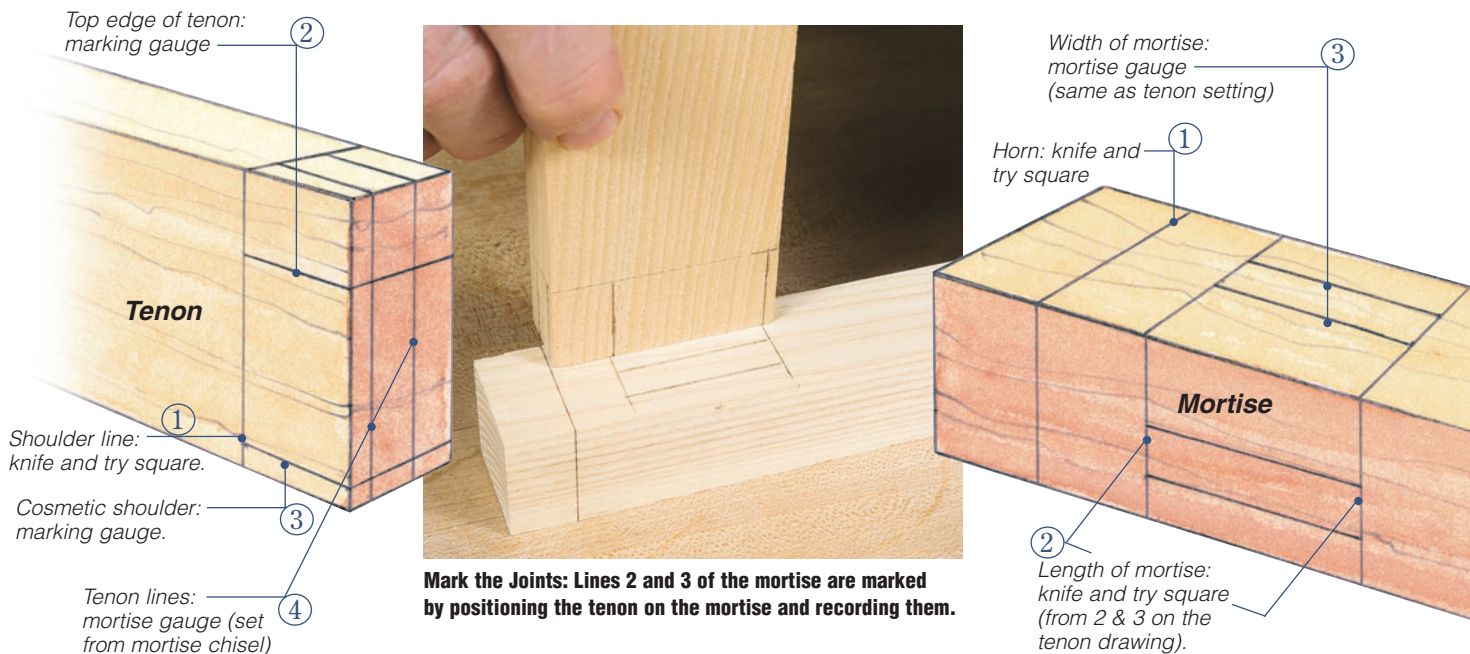
Preparing the Stock

Bring each piece to dimension and geometric accuracy on all six faces. Mark the inside faces — the less attractive faces — with a face side and face edge mark, then move onto the "Mark the Joints" phase of your critical path (see the drawings and photos below as well as the *Drawings* on page 27).

Cutting the Joints

There are three stages to making the joints: (1) chop the mortise; (2) saw the tenons; (3) fit the joints.

Begin by chopping all the mortises one after another. Square the ends and leave them ready to go. Next, saw all the tenons: saw off the cheeks, but *don't chisel the shoulders yet* because this is the first step of fitting the joints.



Square-leg Mortises



When chopping an adjacent second mortise, it's difficult to clean the bottom once you break through. Use a bench chisel instead of a mortise chisel for this task. Don't remodel the sides of the mortise at this stage. Make any necessary adjustments when you fit the joint.

next task is to fit the joints, which also implies finalizing the rail-to-leg relationship as originally planned, back when marking the end grain of the legs. (Refer to "Selecting the Materials: Legs,"

edge in the event that you undercut the shoulders. However, it leaves a little castellated turret at each corner, which is easily removed with a shearing chisel cut.

Once the shoulders are cleaned up, make the joint a tight push-fit: check that the shoulders are tight and the leg-rail combination is aligned. Make any necessary adjustments, then record the location of the two parts by incising a letter or symbol with a 1/4" chisel.



Chop the Mortise: Chop the first mortise 1/8" short of the full depth. Make the ends square and clean.

Saw the Tenons: After the rail is put in the vise to make tenon cuts 1 and 2, it's repositioned twice to make cuts 3 and 4. When forming the shoulders, saw as close to the shoulder lines as possible to make cutting to the line with a chisel easier.

Fit the Joints: Once all the mortises and tenons are made, the

on the previous page.)

Once you have decided what part goes where, begin by cutting the tenon shoulders at one end of a rail. Use a wide chisel and slot it into the knifeline, but don't cut the last 1/16" on each side of the shoulder.

To cut the shoulders at the top and bottom edge of the tenon, use a chisel that is 1/8" narrower than the thickness of the workpiece. This technique protects the outer "show"



With cuts 1 and 2 completed, move onto the next step. You can only accurately saw down one line at a time. Blow the sawdust out of each cut.

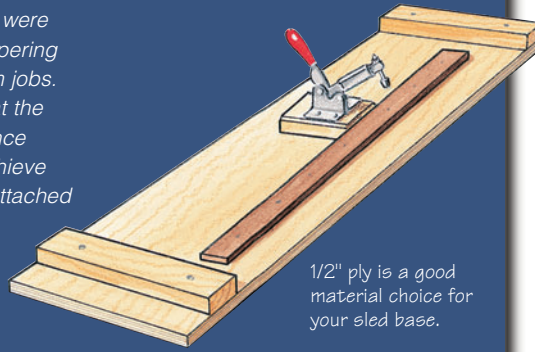


Wait to cut the last 1/16" on each side of the shoulder. Careful paring with a very sharp bench chisel avoids any undercutting that would show after assembly.

Cut the shoulders, top and bottom, with a chisel 1/8" narrower than the thickness of the workpiece (upper). Then remove the castellated turret with a shearing chisel cut (lower photo).

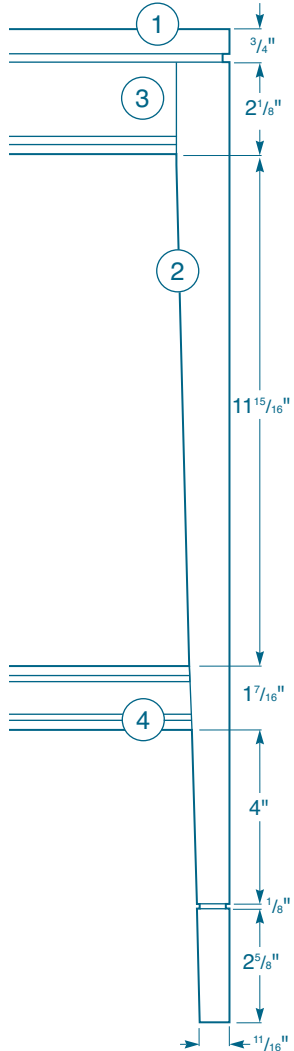
Tapering Jig

The tapers on the legs of this table were formed on the table saw using a tapering jig, which is easily made for custom jobs. The author used a jig like the one at the right. It consists of a sled with a fence attached at the correct angle to achieve the taper. Blocks at each end are attached at an angle to position the leg and form a tight fit. A toggle clamp holds the leg firmly in place so you can safely slide the jig across the table saw.

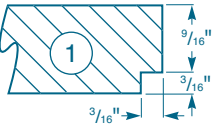


1/2" ply is a good material choice for your sled base.

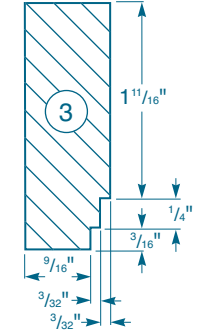
Table Elevation
(Front View)



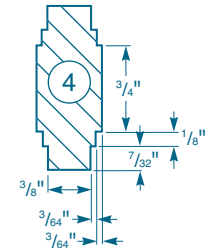
Top
(Section View)



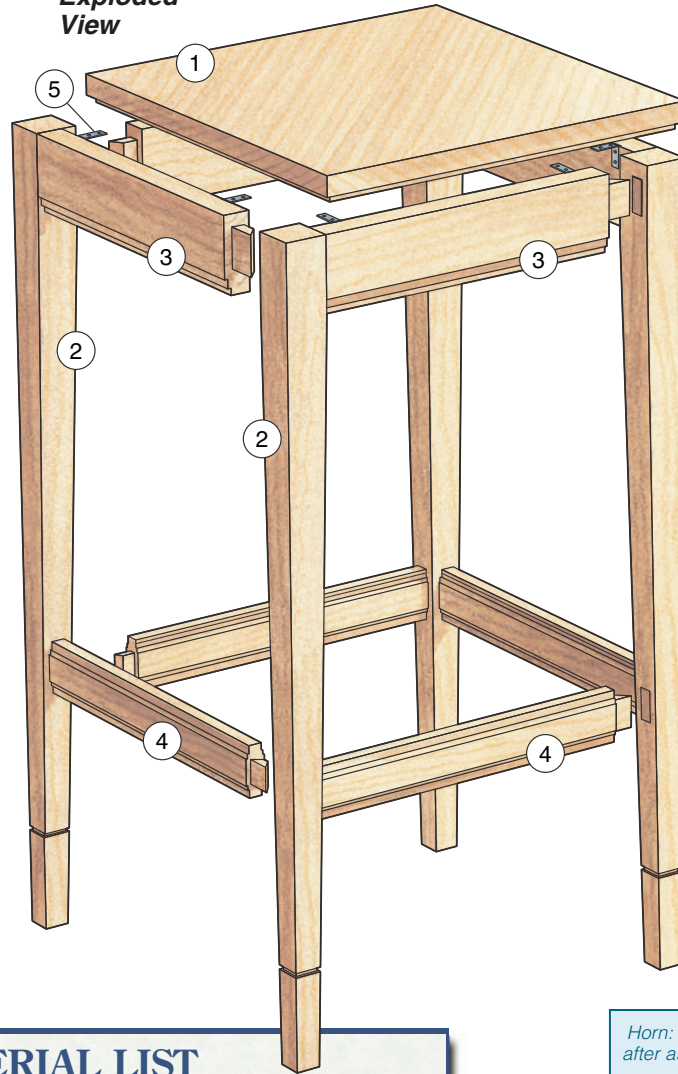
Top Rail
(Section View)



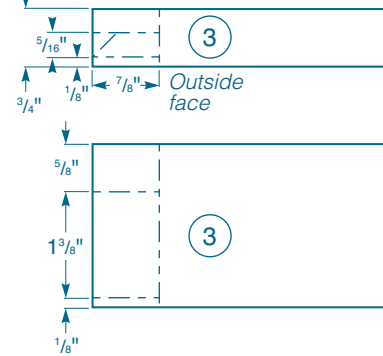
Bottom Rail
(Section View)



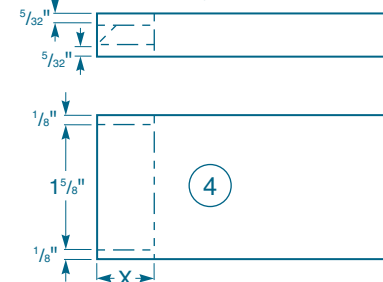
Exploded View



Top Rail
(Top and Face Views)



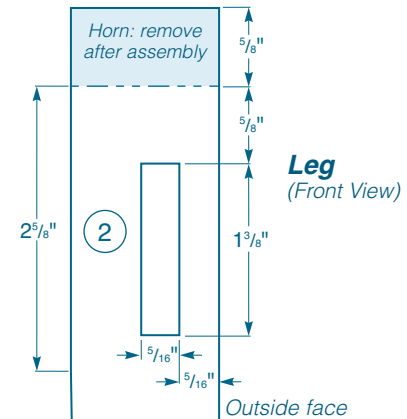
Bottom Rail
(Top and Face Views)



X represents the angled shoulder of the tenon. See "mark out the lower rail" on page 29.

MATERIAL LIST

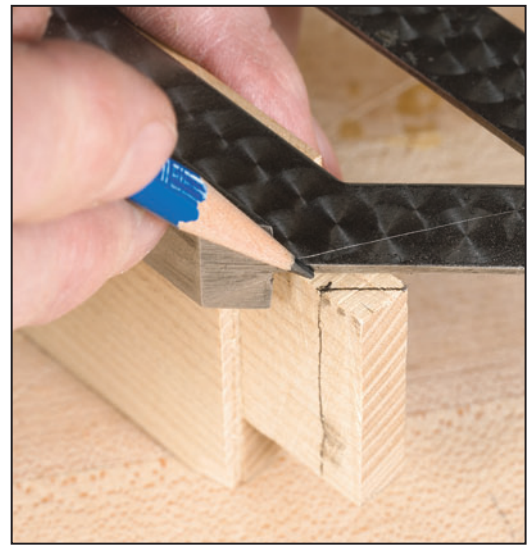
	T x W x L
1 Top (1)	3/4" x 12" x 12"
2 Legs (4)	1 3/16" x 1 3/16" x 22 7/8"
3 Top Rails (4)	3/4" x 2 1/8" x 10 3/8"
4 Bottom Rails (4)	9/16" x 1 7/8" x 10 1/2"
5 Tabletop Fasteners (8)	1/2" x 2" x 2"





After clamping one side together and checking the fit, mark the tenon from the inside corner of the mortise (left) in order to cut the miter.

The author uses a Japanese miter square to mark the miter (right) and employs the crisp outside corner of the tenon to guide the saw cut.



Next, fit the tenon at the other end of the rail to the correct leg. If you used an X to mark the first joint, then use two Xs to mark the other end.

I make the left and right sides of the table, so two rails and four legs are fitted at this stage. Before you can fit the other two rails, you have to miter the ends of each tenon.

Put one side together, clamp it tightly and check the fit.

After you have mitered the tenons (photos, above) and carefully fitted all the rails, clamp them together as a table to confirm that everything fits correctly.

Shaping the Parts

At this stage you need to taper the legs in order to make the lower rail.

First, make a taper jig. Position the taper fence to give the leg exactly the required overhang and staple it in place. To ensure the workpiece is securely held, adjust the toggle clamp so firm pressure is required to close it. Set the table saw fence so that the jig baseboard is a rub-fit to the blade, which is raised so the gullets clear the workpiece.

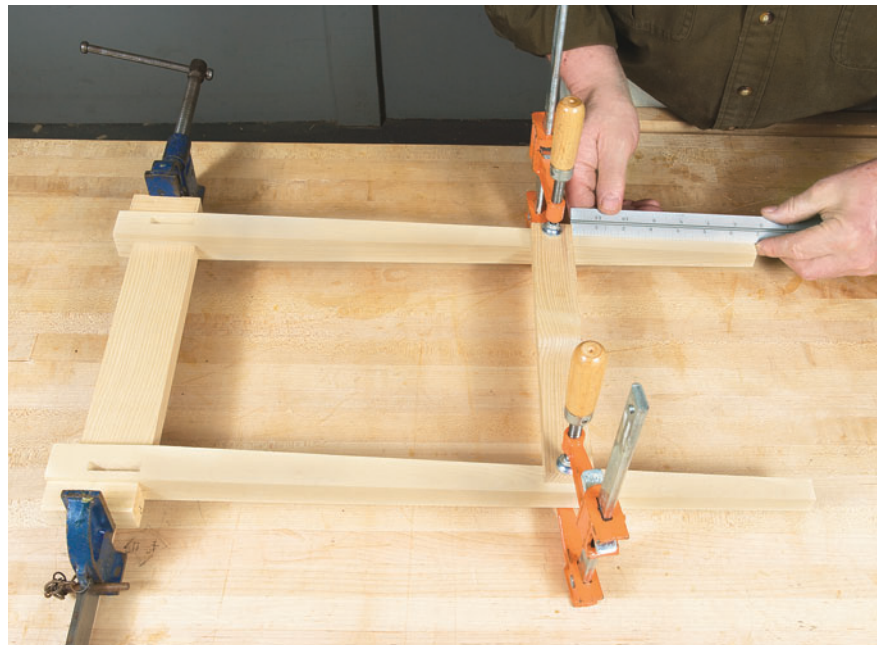
On the second taper, use an offcut from the first cut as a clamping block to ensure the toggle clamp

will hold the leg securely in place. Convert the sawn tapered surfaces to smooth and square with two or three passes with a sharp, finely-set plane.

Positioning the Lower Rail

To determine the distance between shoulders and the shoulder angle, follow the *photo* sequence below.

You now have three required measurements: (1) The *position* of the rail on the leg; (2) the *distance between shoulders*; and (3) the *shoulder angle* of the rail. Complete the marking out as shown at right.



After tapering the legs on the table saw, clamp one frame together (upper photo, left). Make sure the frame is out of twist and that the distance at the outside of the bottom of the legs is exactly equal to the outside top. Next, mark 6 5/8" from the bottom of each leg: this is the location of the bottom edge of the lower rail (lower photo, left). Use the marks to clamp the rail in place (above).

Tapered Legs: Angled Rail Shoulders



To begin fitting and forming the lower rails, lightly mark the top and bottom of each lower rail on the leg, using a knife.



Next, again using a knife, mark a line on each end of the rail, using the inside face of the leg as your guide.



Carefully set a sliding bevel gauge to the shoulder angle so that you can mark all the subsequent rails.



Unclamp the rail and knife around it using a try square and the sliding bevel. Use this rail as a rod from which to mark all the other rails.

Mark Out the Lower Rail Joints:

Mark the tenons as shown in the *photo* sequences on this page.

Cut the Lower Rail Joints: This is essentially the same procedure as for the top rails.

Plane the Joints Flush: Because the top rails are to be molded with small rabbets, any overhang or a not-entirely-flush joint is best made flush at this point. Once all joints have been planed flush, mold all the rabbets.

Mold the Rail Rabbets: Find the dimensions for these cuts in the *Drawings* on page 27. Mold the top and bottom rails using a zero-clearance insert and an auxiliary wood fence.

Shape the Foot: Set the blade 3/32" high and the pulled-back fence to 2 5/8". Put the non-tapered outside faces on the bed and fence. Make cut 1. Turn the leg towards yourself to make each subsequent cut.

For cuts 2 and 3, a tapered face is against the fence. Adjust the miter gauge fence so that the front edge of the workpiece is at right angles to the blade. Make cuts 2 and 3.

For cut 4, a non-tapered face is against the fence, but a tapered face is on the bed. This angle obliges you to make a minute adjustment by eye, looking down over the top of the blade.

Clean Up and Polish the Inside Faces

Remove one or two fine shavings to clean every surface that cannot be planed after a glue-up: the bottom rail, the top rail inside and bottom edge. (The tapered legs were cleaned before making the joints.)

Then polish those same surfaces before you begin to assemble the frames. I used Zinsser SealCoat™ as a barrier for the beeswax because it's water-white and won't yellow the wood. The wax is by Clapham's.



To complete the process of marking out for the lower rail joints, start by setting a 1/4" mortise chisel to a mortise gauge.



Center the mortise gauge on the rail and mark the rail with the gauge. Set a marking gauge to 1/8" and make a cosmetic shoulder on the top and bottom of the tenon.



Working from the non-tapered outside face, reset the mortise gauge to center it on the leg. Mark the mortise.



Set the rail between the marks you made on the leg and, using the cosmetic shoulder points, mark the leg. Use this leg as a rod to mark all the other legs.



To form the rabbets on the rails, the author used a cleaned Freud combination ATB blade with every fifth tooth a flat top. These shapes are purposefully placed to create depth through the interplay of light and shadow.

Subassembly Glue-up

Clamp the two opposite frames dry and check for square, alignment and twist.

Squeeze a puddle of glue onto a piece of scrap. Paddle glue onto the tenons and into the mortise. Avoid too much glue. I apply it to all joint surfaces, smooth it out, and then scrape off the excess. Clamp the subassembly and repeat the checks you made dry. Don't try to wipe off glue squeeze-out. When dry, it's easily lifted from the polished surfaces with a sharp chisel.

Final Assembly

Clamp the assembly dry to check for square and twist and to ensure the joints will close.

Apply glue methodically. There are eight tenons and eight mortises to glue, but yellow glue provides ample open time. With clamps and clamping blocks at the ready, close the assembly initially using a block and hammer.

Final Cleanup and Polish

Once the glue has cured and the clamps are removed, saw off the horns. There's a knife line around the leg to guide you; be careful not to rub the saw teeth into the top rail. Once the horn is removed, chisel a chamfer on the projecting part. Flush plane the top edge of the rails and the end of the leg.

The flush top joints should be right or a hair from right since you flush planed each one before making the rabbets. Some 250-grit sandpaper should rectify any subsequent misalignment.

Screw the 1/2" x 2" metal plates into each corner of the rails, 3/4" from the leg. I marked around the plate and cut the recess as you would a hinge gain.

Selecting and Clamping the Top

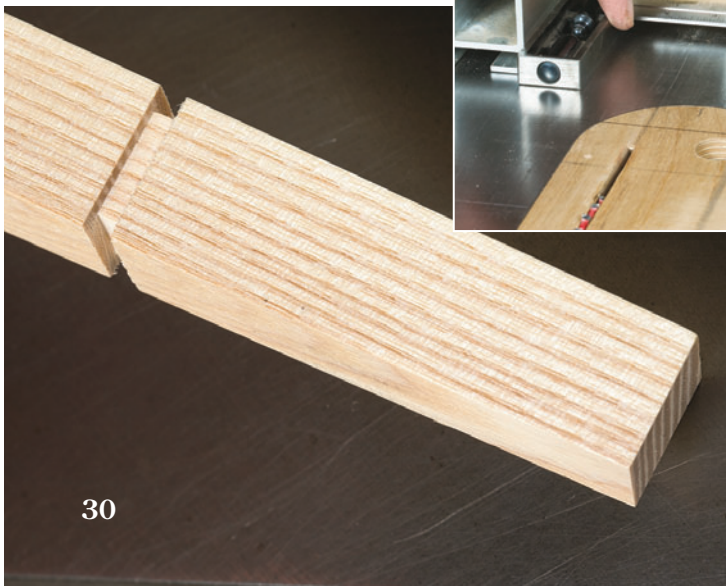
I chose to have the grain of the 12" x 12" top on the diagonal because its appearance is visually more cohesive: each edge looks similar rather than one end grain contrasting with one edge grain.

You can make the square with a glue line or a board on the hypotenuse. Either way, you can best make measurements when harvesting the parts from a larger board if you know that the hypotenuse of a right triangle is the length of the side multiplied by 1.414. The length of the hypotenuse of a 12" square is 16.96" — call it 17". Match the boards and make the necessary butt joints.

Draw an 11 1/4" square on the boards as a guide, then make small right angle notches for the clamp heads. If you use a center clamp, don't apply too much pressure.



With the saw blade set at 3/32" above the table, incise rabbets to form the foot. The author describes the cutting sequence in the text "Shape the Foot."





Through careful sorting and selection of available boards, the author was able to make subtle transitions from one board to another and create three unified square tops. Can you detect the joint lines? (Editor's note: this process was discussed and well illustrated in Ian's article "Harvesting the Parts" back in the April 2005 issue of *Woodworker's Journal*.)

When the board is out of clamps, begin the sizing. Mark the hypotenuse clearly. The first two sides should be at 45° to the hypotenuse and meet it at the corner. The edges plane beautifully, so you should have no difficulty making these first two sides accurate. Sides 3 and 4 can be largely trimmed on the table saw, then planed to dimension, which is 1/16" larger than the underframe; that is, 1/32" larger on each edge than the underframe.

Plane both surfaces smooth, flat and out of twist, and then saw the reveal of 3/16" x 3/16" around the top. Sand the reveal and move onto finishing. Apply sanding sealer and wax the top.

Attaching the Top to the Underframe

You cannot get the two parts accurately positioned unless you firmly clamp them together upside-down on the corner of a bench. For best results, use roundhead screws and drill centered pilot holes.

Now all you need to do is put the table next to your favorite easy chair and relax with a few sips of your favorite libation.

Ian Kirby is a master woodworker and designer and a frequent contributor to Woodworker's Journal.



The author polishes ("applies a finish" on this side of the pond) the surfaces, which would be a challenge to work on once the table is assembled, before he begins the glue-up. For this project he chose Zinsser SealCoat™ (a clear sanding sealer) as the barrier for Clapham's Beeswax.



As the assembly continues, the author rigorously checks to be certain that all the parts are properly positioned, square, flat and out of twist. This is a step of "no return."