# Rock-Solid Router Table

## Easy to build, this workhorse can handle any routing task

BY J. PETER SCHLEBECKER

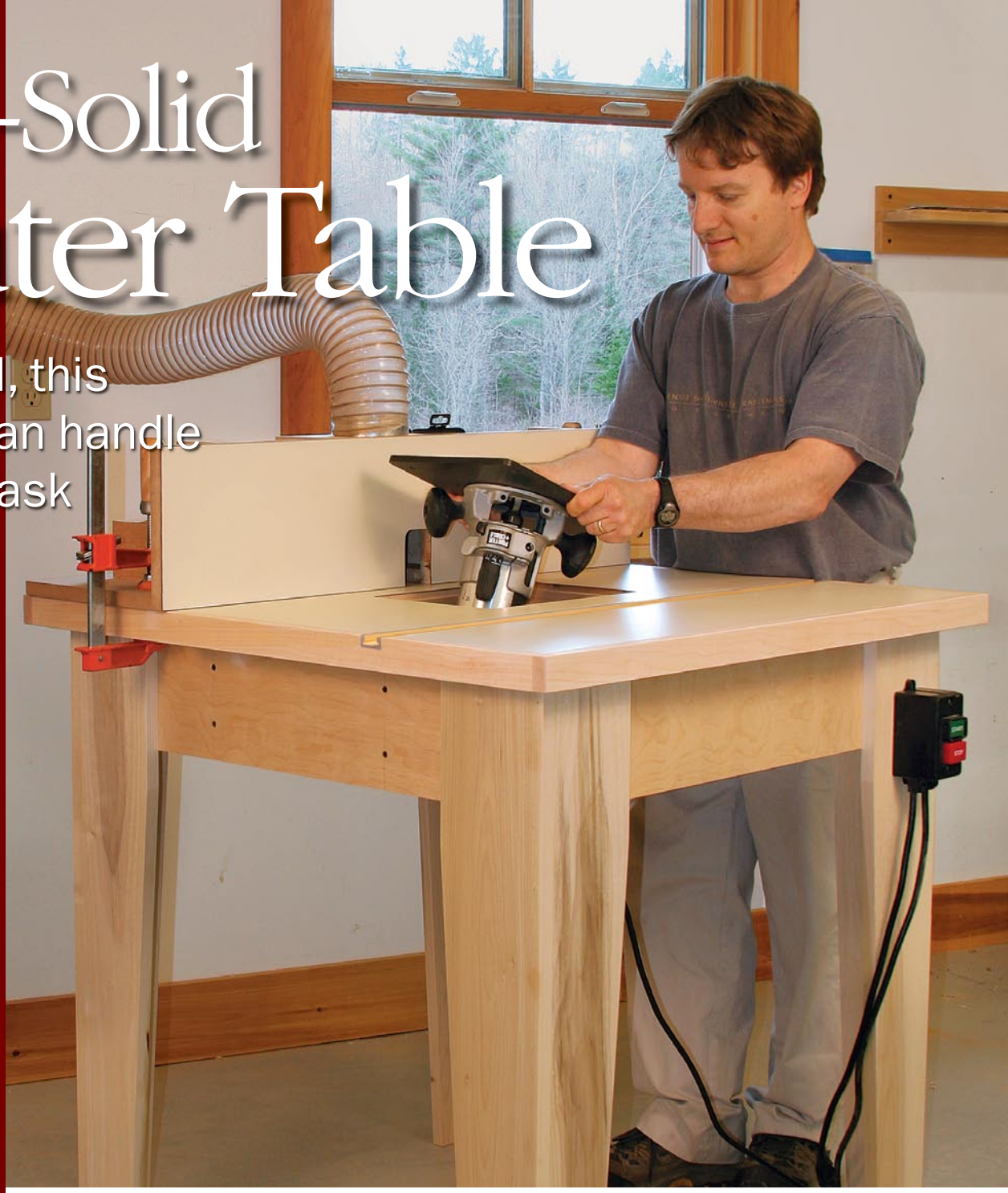
PANEL RAISING

TEMPLATE ROUTING

ROUTER JOINERY

**READY TO WORK**

The high fence fully supports tall workpieces as they pass the bit. The large surface accommodates small workpieces as well as tabletops, and the T-slide can be useful in creating joinery.



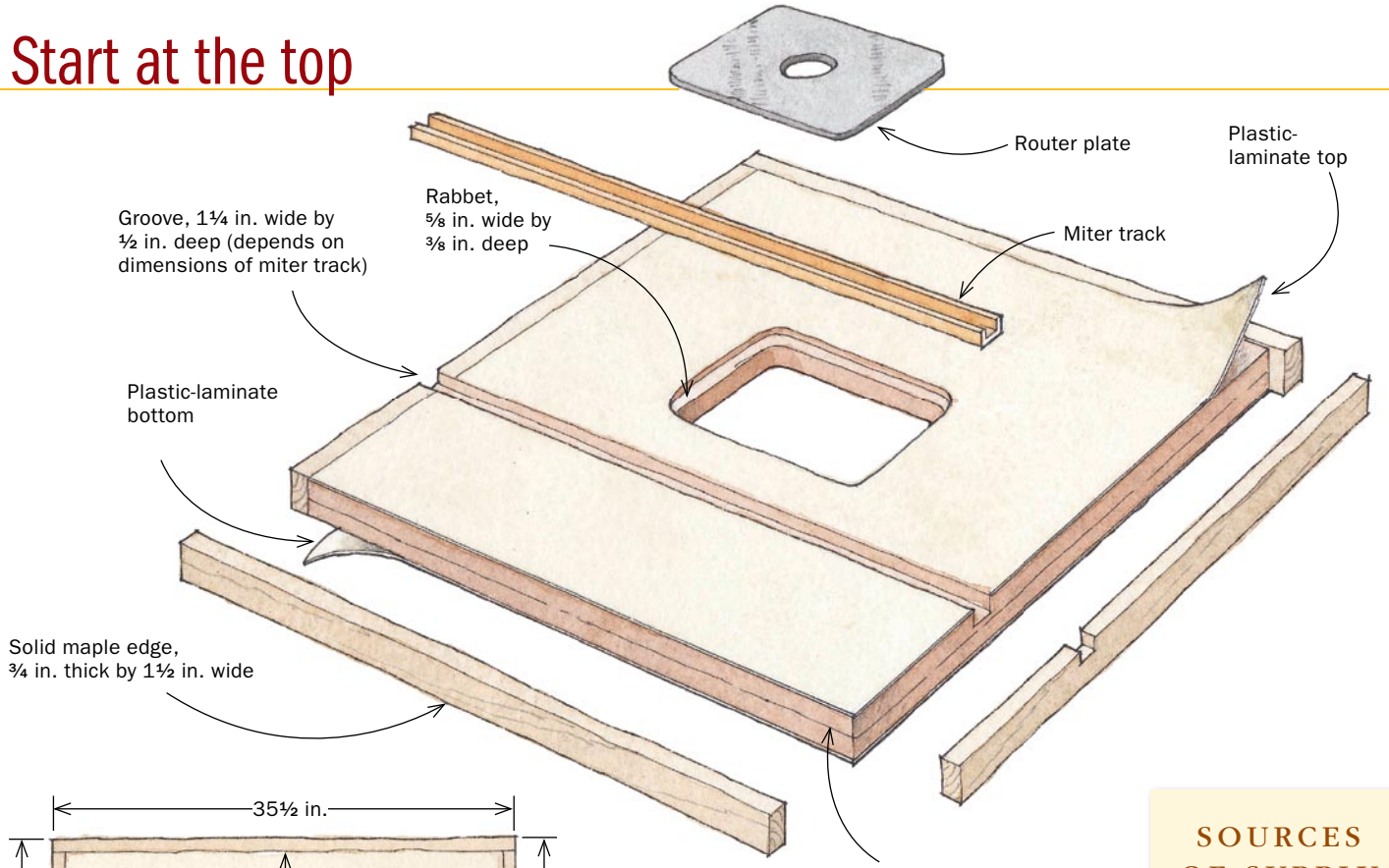
One of the first assignments I was given as the new facilities manager at the Center for Furniture Craftsmanship was to design and build the best router table I could using common woodworking materials. I started by coming up with a list of must-have features.

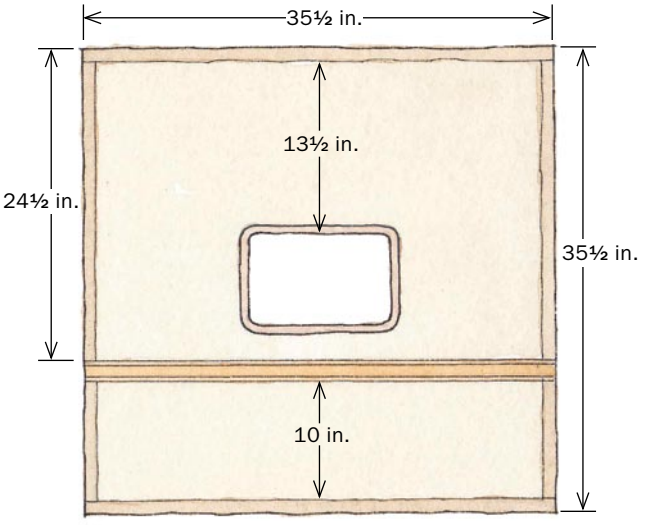
First, the table surface had to be big enough to accommodate large workpieces such as pattern templates for bending forms, angle-cutting sleds, frame-and-panel rails on the miter gauge, longer lengths of stock requiring featherboards, and inside curves. It had to be wide enough to resist tipping and shimmying when subjected to sideways forces. Also, the tabletop had to be extremely flat as a reference surface, and it could not respond to the extreme changes in humidity that we get in Maine. It had to remain flat and could not deflect over the years or when heavy downward pressure was applied.

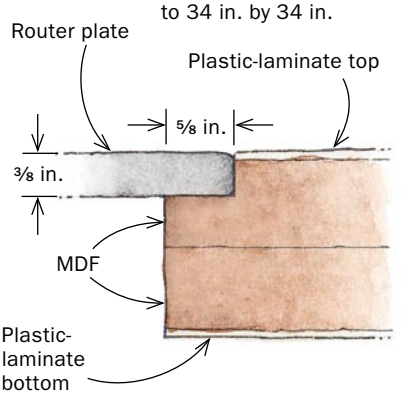
The top needed a durable, smooth, low-friction surface that would withstand the vagaries of student use. And I wanted the table-edge overhang large enough to support a clamp, without any deviations in thickness that would make it hard to get a clamp to hold properly. My list of basic considerations went

Photos: Anissa Kapsales; drawings: Jim Richey

# Start at the top



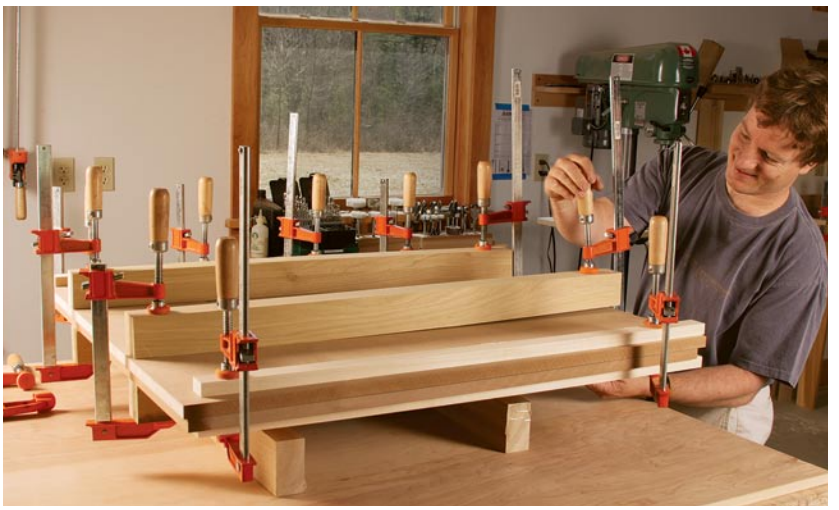




## SOURCES OF SUPPLY

**MITER TRACK**
Bench Dog Tools
www.benchdog.com
800-786-8902

**ROUTER PLATE**
Woodpeckers
www.woodpeck.com
800-752-0725

Woodcraft
www.woodcraft.com
800-225-1153



***Glue two oversize MDF pieces together.*** *Curved cauls help distribute pressure to the center while clamping at the ends. Trim this substrate square and to size afterward.*

***Make an opening for the router.*** *Drill starter holes in the corners and use a jigsaw to cut to a layout line. Make the opening 1¼ in. smaller than your router plate in both directions.*

on: The table had to be a good work height, and it had to be easy to change bits in the router and make fine adjustments. The fence needed to be flat and rigid, stay at 90° to the table, be easy to set and remove, have good dust collection, and be large enough to support large workpieces and the attachment of jigs and featherboards. The on/off switch had to be large and easily accessible for emergency shutoff, and the whole table had to be easy to clean, especially underneath.

We have had three of these router tables under nonstop use by students at the school for three years, and other than the routers being dropped occasionally, the tables have proved extremely durable.

### Common materials, used wisely

The materials list for this router table is short: ¾-in. medium-density fiberboard (MDF), plastic laminate, plywood, maple, and poplar. For the tabletop substrate, I used a double layer of ¾-in. MDF because it is flat and strong. The MDF is sandwiched between two layers of horizontal grade (thick) plastic laminate, which is extremely durable and seals the MDF from moisture. Using a light color makes it possible to draw pencil lines for reference marks that are easily washed off.

The aprons and cross-braces make up a torsion box that supports the top and legs, and are made out of cabinet-grade birch plywood for strength, dimensional stability, and the ability to hold screws well. The legs are solid poplar for strength and nice edge appearance, and the design resists racking without stretchers.

I recommend a ⅜-in.-thick aluminum router plate that does not flex and has variable throat-size inserts to accommodate large and small bits. With an aluminum plate, you can be sure that the mounting screws won't pull through the mounting material. I use a router that can be adjusted through the base, thereby eliminat-

## Laminate the top

***Apply the laminate top and trim all the edges.*** *Dowels or narrow strips of wood (1) prevent the laminate from inadvertently sticking to the contact cement. Working from one end to the other, pull the strips out one at a time (2) while you smooth the laminate onto the MDF. Use a rubber roller (3) to apply even pressure across the top. The adhesive sets almost immediately, so make sure you have pressed the entire surface. Using a laminate trimmer (4), go around the outside edges, and use a starter hole to trim around the router opening.*

## Recess the router plate

***Make a template.*** *Surround the plate with four pieces of MDF and glue them together. Make sure the template is large enough to reach the edges of the tabletop for clamping.*

***Cut a rabbet to hold the router plate.*** *Choose the correct bit. With a ¾-in.-thick template, you'll need a short flush-trimming bit. Practice on some scrap first to set the bit depth to the exact depth of the plate. Then center the template on the opening and cut the rabbet.*

ing the need for a router-lift base (see "Routers for Router Tables," *FWW* #189, pp. 54-59). On the other hand, router-lift bases can accommodate a router you already have, and are very accurate (see "Router Lifts," *FWW* #155, pp. 56-61).

### A simple top solidifies the table

Constructing the top is easy. You simply glue the two pieces of MDF together, add the laminate, create a rabbet to hold the router plate, and rout a groove for the miter track. First, cut the two layers of MDF about ¼ in. oversize so you can trim the whole thing once it is glued up. Use a few small nails in the MDF to prevent slippage (the nails can stay in as long as the heads are set), and clamp it in a vacuum press or with clamps and cauls. After the glue is set (yellow glue is fine) trim the top to size, maintaining squareness. Lay out the position of the router plate in the center of the top. Measure ⅝ in. inside this line to lay out the hole through the top. Now drill starter holes at the corners and use a jigsaw to cut along the inner line.

Next, cut two pieces of plastic laminate about ¼ in. oversize all around. Use two coats of contact adhesive on each surface to glue the top and bottom, letting the first coat dry until it is no longer tacky to the touch but moving quickly once the second coat is applied. Trim all the edges, including the opening.

**Router plate needs a perfect rabbet—**Make a template from ¾-in. MDF to cut the rabbet for the router plate. Surround the actual plate with four pieces, making sure the final template is wide enough to clamp to the tabletop. Using a plunge router and a top-bearing flush-trimming bit with the same radius as the corners of the plate, cut the rabbet for the router plate. But first do test cuts, using the template over scrap MDF, until you get the plate just flush.

Edging the top with ¾-in.-thick solid maple seals the edges and provides a durable, softened edge. After applying the edging, the final step is routing the groove for the miter track. This can be done with a fence clamped to the top and a router

## Add a miter track

***Cut a groove for the miter track.*** *The miter track should fit snugly in the groove and sit flush with the tabletop. Various tracks call for epoxy or screws to keep them in place.*

# Assemble the base

***Glue and screw the sides and cross braces together.*** *It's helpful to tack the pieces in place with brads first so they don't shift.*

***Add corner blocks.*** *These provide strength and a solid place to attach the top with screws.*

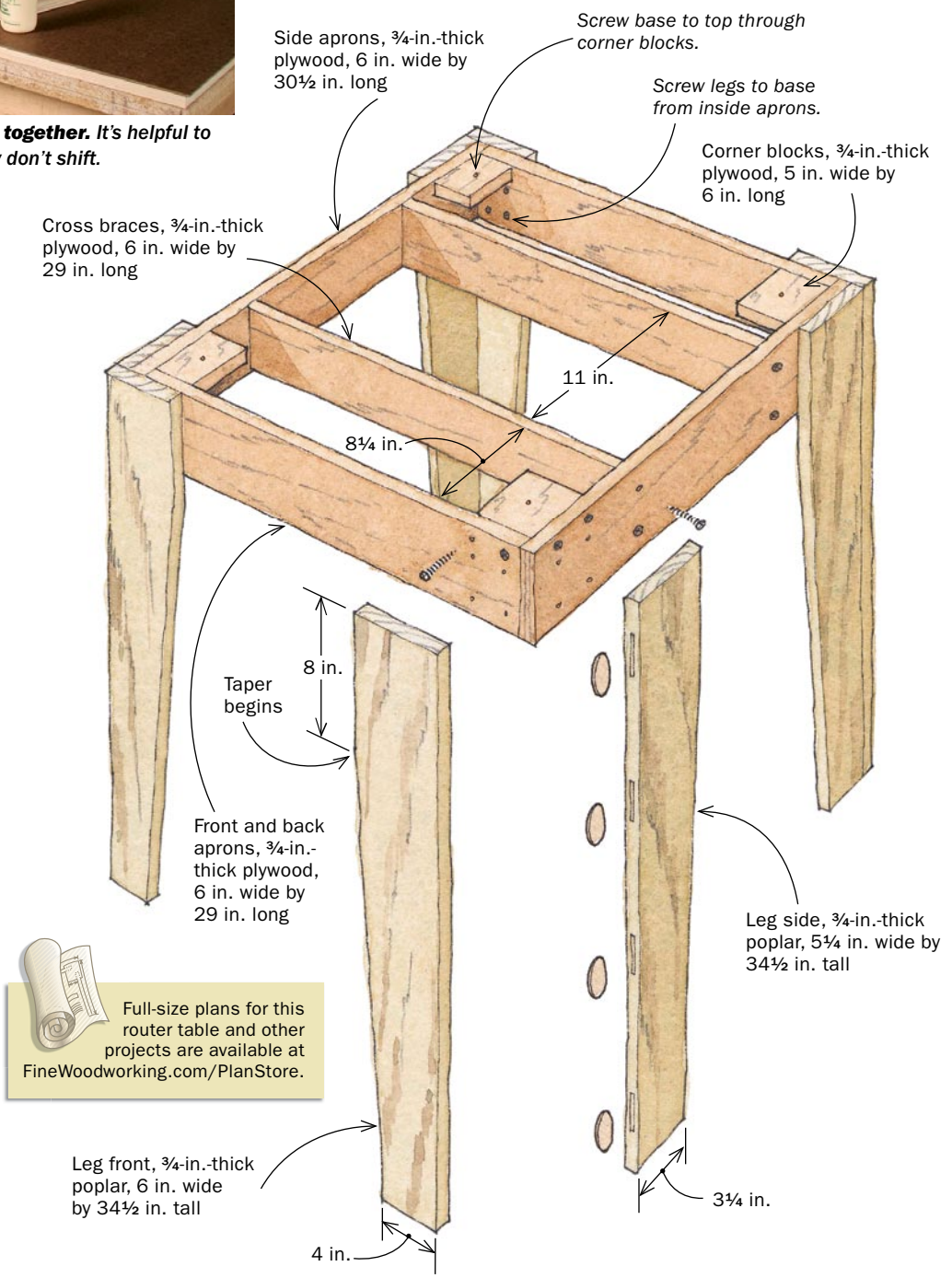
***Attach the legs.*** *Glue and clamp the legs in place before screwing them to the base from the inside.*

with a straight bit. The width and depth of the groove depend on the track you purchase.

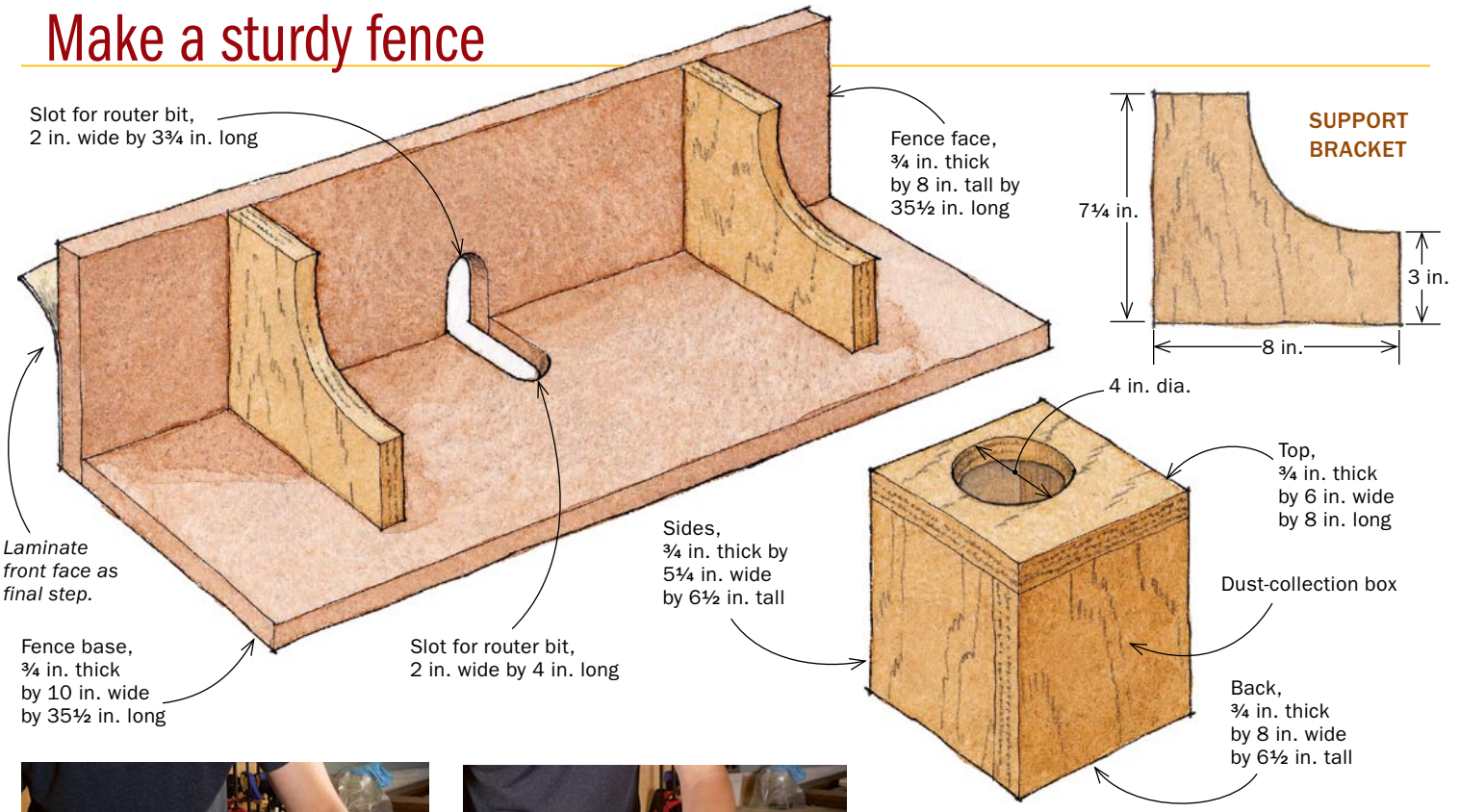
### The apron and legs are basic and strong

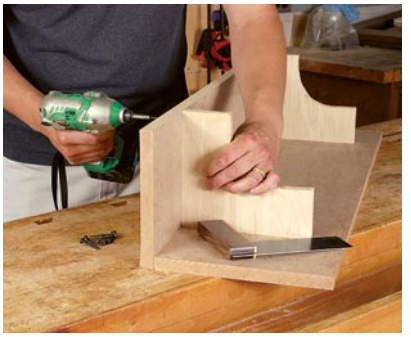
The plywood for the apron-and-cross-brace box should be cut very straight and square to create a level, flat torsion-box frame. I just glue and screw this together. It helps to use a pneumatic nailer to pin the pieces in place to prevent misalignment before the screws are piloted and sunk. Glue and screw in corner blocks for bracing and to provide a place to anchor the top with screws.

Mill up ¾-in. poplar for the legs. For visual appeal, I like to do a taper cut on the inside of the legs. We use this leg design on many of our worktables at the school, and it is very strong. Use biscuits to join the leg sections, and then glue and screw the legs to the apron from the inside to hide the screws.



# Make a sturdy fence



***Start with the bottom and face.*** *Glue and screws are a fast, strong, and easy way to secure the face to the bottom. Squareness is vital to the fence's function, so check for square as you secure the buttresses.*

***Simple dust collection.*** *Four pieces of ¾-in. plywood make up the dust-collection system. A hole in the top piece allows you to connect a dust hose.*

When you attach the tabletop to the base, screwing through the corner blocks from below, make sure that the pilot holes through the lower layer of plastic laminate are chamfered; otherwise, it will crack. Now mount the router to the plate and install the external switch.

## A high, square fence with good dust collection

A good fence is essential. It should be carefully constructed of MDF to be straight and square. I cut the bottom and face pieces out of ¾-in. MDF, and the buttresses out of ¾-in.-thick plywood. Bandsaw openings for the largest bit you expect to use. You can always reduce the size of the opening with a zero-clearance auxiliary fence made of ¼-in.-thick material. The top of the dust-collection box should have a hole cut into it to accept the fitting for the dust hose.

Glue and screw the bottom and face together, and then attach the buttresses in the same way, making sure they force the bottom and face into a perfect 90° angle. Now add the pieces for the box using glue and a nail gun or screws. Be sure to drill pilot holes for screws to avoid splitting. The final step is to glue a piece of plastic laminate to the face using contact adhesive. The fence clamps to the table, so dedicate a couple of good clamps to it.

It's a good idea to add some useful jigs to go with the table: featherboards for narrow or long pieces, a corner dust chute for collecting dust when cutting an inside radius, an overhead pin guide for templates mounted to the top of a workpiece, and an angle sled for presenting the work at various angles. □

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