

Upgrade Your Router with Shop-Built Bases

Four custom bases unlock the tool's versatility

BY JEFF MILLER

A router is a very simple woodworking machine; at its most basic, it's a device that spins a cutting tool. This simplicity is a virtue, however, and is the reason the router is so incredibly versatile.

But the router needs some help to unleash its full power. One way is with custom bases. Once you realize you can attach your own sub-base to a router, you open up many possibilities.

The simple bases in this article help with a variety of tasks: They stabilize the router for otherwise risky cuts, they quickly and cleanly trim furniture components flush, and they make mortising a snap. The cost for this added versatility is a few scraps from your wood bin, and the few minutes it takes to put each base together.

An oversize base for edge profiles

One common routing problem involves cutting edge profiles, an operation that puts more than half the router off the edge of your workpiece. This is manageable when the edge profile is small, but can be quite unstable with a larger router bit.

You gain a great deal of control over the operation with an oversize base, which helps prevent the router from tipping off the edge. This is important because even a small wobble can cause the bit to dig in and dent your perfect profile.

Start with a piece of plywood roughly 9 in. by 12 in. and drill or rout a 3½-in.-dia. hole about 2¼ in. from one end. Drill and countersink holes in the plywood so you can attach it to the router, with the collet centered over the base's opening. If you remove the router's existing plastic sub-base, you can use the holes in it as a template for drilling



1

Wide base for edge-profiling



For better balance, a bigger footprint. An oversize base gives you greater control when routing an edge with large profile bits. Use the router's plastic sub-base as a template for drilling the mounting holes.



2&3

Two bases for flush-trimming

TRIM EDGE-BANDING



Elevate the base. Adding a partial bottom layer (above) prevents the base from bumping into the projections you want to trim flush, like the solid edging on the veneered panel at right.

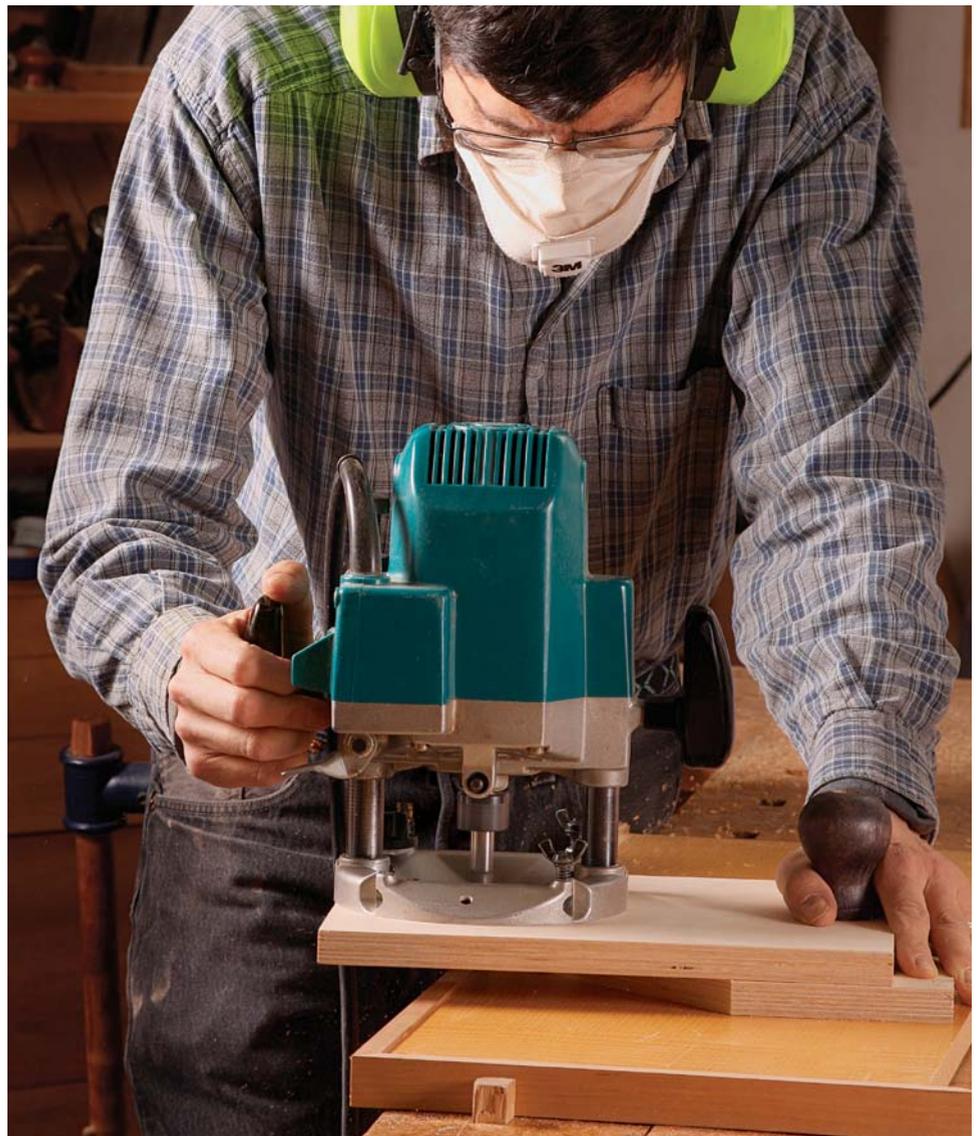
holes in the plywood. You'll need some longer screws that match the thread size on the ones that attach the existing sub-base; bring one with you to the hardware store to be sure you get the right size.

Once you've attached the plywood to the router, add a handle to the top side of the plywood, roughly 2 in. from the end opposite the router. I bolted on a knob from an old router, but a knob from a hand-plane or the like is perfect, too. Smooth and then wax the bottom of the jig, or use melamine board, or even a scrap of solid-surface countertop material (such as Corian) so the base will move easily on a surface. Rounding over the edges a bit helps, too.

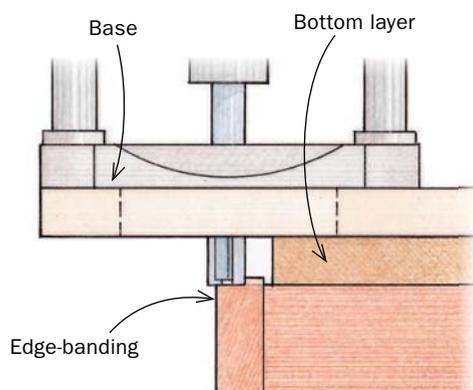
Now you have a base that will give you the leverage to keep the router upright while cutting those edge profiles.

Two bases that simplify flush-trimming

The oversize base can be modified for trimming a row of projecting dovetails or



Trim solid edging. The angled front on the bottom layer lets Miller work all the way into the corners on this veneered top. He starts with a climb cut on the outermost edge to reduce tearout. The bit is set to leave just a bit of edging to be scraped and sanded flush.

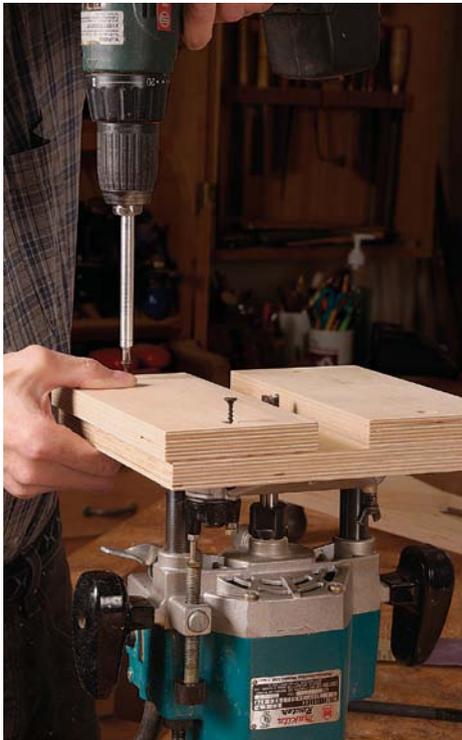


TIP A CLEAN CUT FOR DOVETAILS



A bottom layer with a straight front edge is great for flush-trimming dovetails.

TRIM PLUGS AND TENONS



Smaller flush-trimming base. This square base is great for flush-trimming tenons and pegs. It offers support for the router on both sides of the bit.

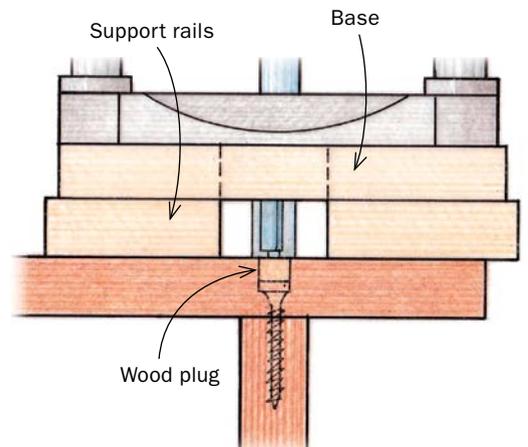
through-tenons on the face of a board. Just add another layer to the bottom of the jig that extends all the way from the side where the handle is to about an inch shy of where the router bit will be. You'll have to press down securely on the handle, but this will give you access to rout off projections, where a standard router base would just bump up against them.

When you need to flush-trim in the middle of a workpiece, make a thicker sub-base that is square and just a little bigger than the base of your router. I made mine out of $\frac{3}{4}$ -in. plywood, first attaching a square layer and then screwing blocks on either side of the bit to create a channel about $\frac{3}{4}$ in. wide (these dimensions will vary based on the specifics of the task). Set the router bit so it is just above the surface you're trimming down to.

This sub-base will support the router on both sides and prevent any tipping down onto the surface while you level wood



Sure-footed. The base straddles a series of screw-hole plugs, for example, with the twin support rails preventing the bit from tipping into the work surface.

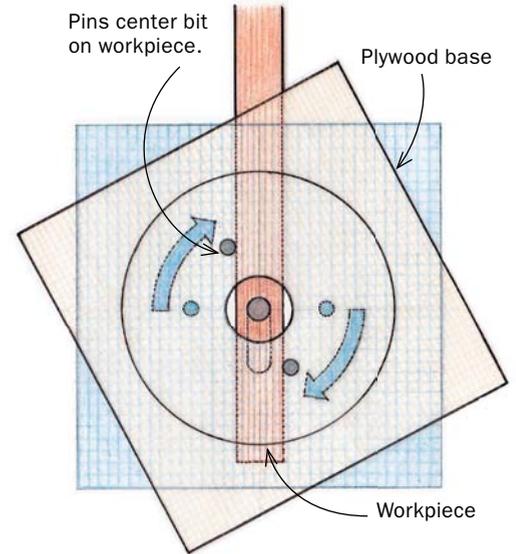


4 Make a mortising base



A SELF-CENTERING MORTISING BASE

In use, rotate the router until each pin touches the workpiece for a perfectly centered cut. For mortises near the end of a workpiece, you might need to leave some extra length at first to support the pins.



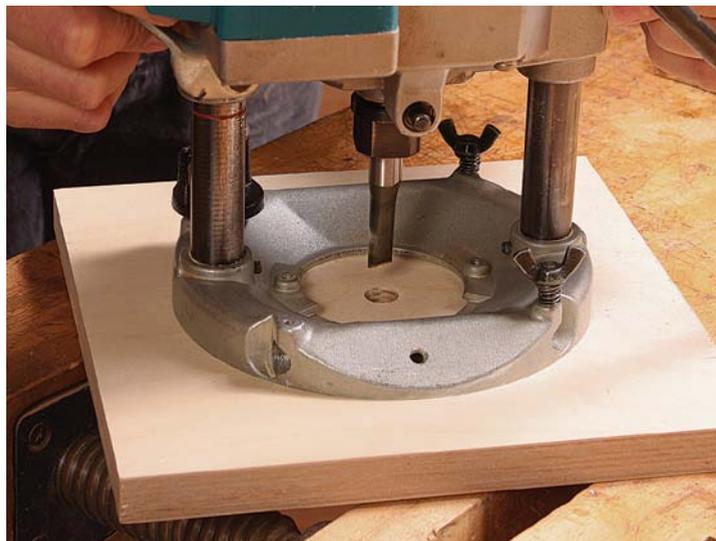
Rotate the router. When the pins touch the sides of the workpiece, the router bit is centered.

plugs, for example. This base is also handy for pegs or other projections on a narrower surface like a table leg.

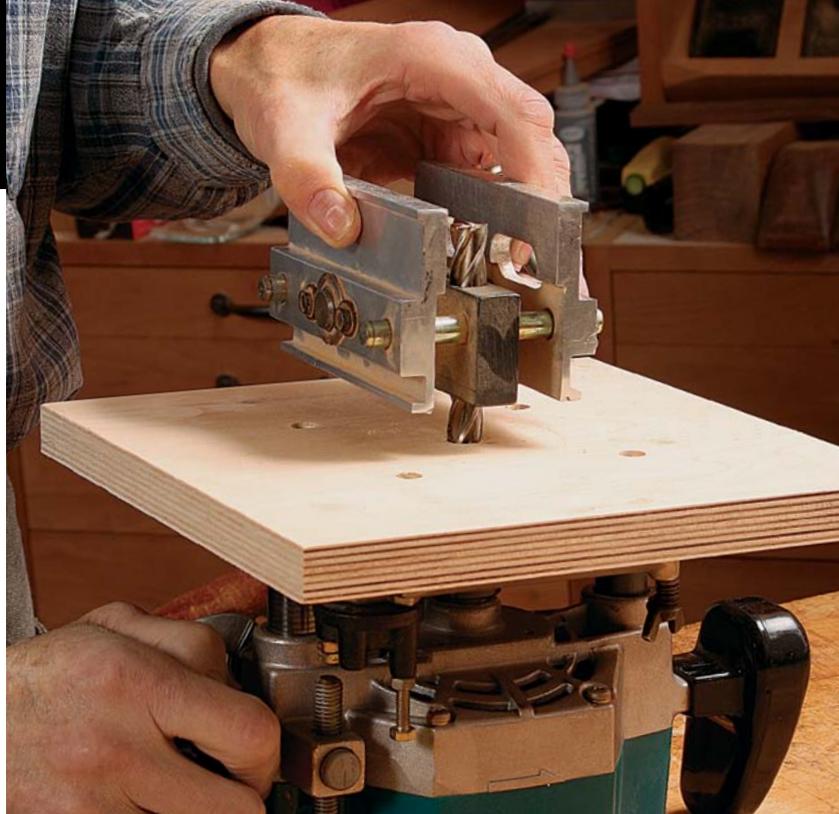
Centering base makes mortising quick

Another base, used with a plunge router, makes it easy to center a mortise on a leg or post. The base has two downward projecting pins at equal distances from the bit on opposite sides. The concept is elegantly simple: When you rotate the router so that the pins are touching the sides of the workpiece, the router bit is centered.

SIMPLE METHOD FOR ACCURATE PINS



First, plunge through a square base. Put a 1/2-in., plunge-cutting bit in the collet, and plunge down through the base.



An unlikely layout tool. With a 1/2-in. drill bit chucked in the router, Miller uses a doweling jig to locate and drill the pin holes directly opposite one another and equidistant from the bit.

When building the base, it's crucial to locate the pins accurately. Do this after the base is attached to the router and a hole for the router bit has been plunged through. The distance between the pins should exceed the widest part you're likely to use it for. With the locations marked, remove the base and drill the holes on a drill press. Finally, insert smooth dowels—not the kind with ridges—or metal pins into the holes.

A better way to locate the holes is with a self-centering dowel jig, used in an unconventional way. With the base attached and the center hole plunged, chuck a 1/2-in. drill bit in your router (you won't be running the router with this, it's just a reference), then place the 1/2-in. bushing of the doweling jig over the bit. Align the 3/8-in. bushing hole so that it is either across or in line with the axis of the router handles, then position a straightedge against the jig and clamp the straightedge to the base. Drill through the 3/8-in. bushing into the base. Then swing the dowel jig around to the opposite side, use the straightedge to align it, and drill the other hole. You can then enlarge the hole for the router bit to whatever you need. □

Jeff Miller builds furniture and teaches woodworking in Chicago.

www.finewoodworking.com



Register the jig on a straight strip. Clamp the strip in place and align the jig with it before marking and drilling the first hole.



Rotate the jig. After drilling the first hole, spin the jig 180° to locate the opposite hole.



Pins center the router. Add some glue, drive in two 3/8-in. dowels or metal pins, and the jig is done.