

Get More From Your Router

A veteran carpenter shares his secrets

BY KIT CAMP

I'm a little embarrassed to admit just how many routers I own, from small laminate trimmers to 3-hp monsters. Let's just say it's more than a dozen, and less than two dozen. For someone buying their first router, I would recommend a combination kit with a plunge and a fixed base. These are available with either full-size (1½-hp to 2-hp) or trim-router size (1-hp to 1¼-hp) motors. My favorite full-size combo kit is the DeWalt DW618PK (\$200), which I have been using since I tested router kits for the magazine a number of years ago. For day-to-day finish-carpentry tasks, I'm quite partial to the trim-router size. My favorite in this category is another DeWalt combo kit, the DWP611PK (\$170).

I use routers in three main ways: to add decorative details, for precise tasks like hinge-mortising and joinery, and for creating complex curved shapes.

This article shows just a sample of what you can do with a handheld router. The tasks you can tackle are limited only by your imagination—and your collection of routers, jigs, and bits. □

Former finish carpenter Kit Camp teaches woodworking to students in grades 6 to 12 in Portland, Ore. Photos by Asa Christiana, except where noted.

Five tips to get you started



1 START WITH GOOD BITS
I use high-quality bits from Amana, Whiteside, Onsrud, and Freud. Their slightly greater cost is offset by significantly better construction and performance. I've seen some cheap hardware-store bits blow apart during use.



Amana 53407-1
3-wing slot cutter

Freud 32-504
rabbeting bit

LMT Onsrud
52-367 spiral
upcut bit



CMT 801.128.11B
mortising bit

2 DON'T HIT BOTTOM
Safe, effective router use starts with how you install a router bit in the collet. Push the bit to the bottom of the collet and then pull it back up slightly to make sure the collet can fully tighten down on the shank.



4 HOLD STEADY
Another must-have is a teardrop-shaped oversized acrylic base plate. The bigger base allows you to focus your pressure on the inboard side when the base is overhanging an edge, which is especially helpful around corners.



3 CHECK DEPTH
A 6-in. ruler with graduations on the end (leevalley.com) is a must-have accessory. It makes it easy to set the bit to the exact projection needed.



5 TRAVEL WITH A GUIDE
Most mainstream routers can be fitted with guide bushings, also called template guides. These inexpensive accessories allow you to follow a pattern without a guide bearing on the bit.

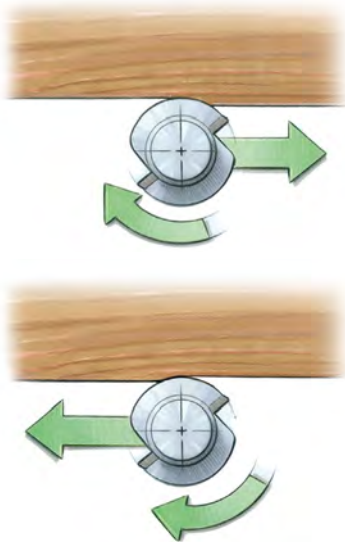
Crisp edge profiles

I have two small routers with 1/8-in.- and 1/4-in.-radius roundover bits permanently installed because I use them so often. These profiles—especially the 1/8-in. setup—touch up the edges of stock coming off the tablesaw and soften the edges of face frames and closet shelves faster than a block plane or sanding block. I also have a box full of beading bits, cove bits, chamfer bits, and fluting bits that allow me to match edge profiles or create moldings on site. The two main issues that come up when edge-routing are chipout and burning. Burning is the easiest to avoid. Assuming your bit is sharp and free of pitch, the trick is moving at a steady pace without slowing or lingering. For deep profiles, make a series of passes, saving a light pass for last. To avoid chipout, rout with the grain when you can, or try climb-cutting (see below).

TWO TYPES OF CUTS

Conventional cut

Generally you should move a router against the bit's rotation, but sometimes moving the bit in this direction tears the wood fibers deeper than the profile will cover. Some woods are especially prone to tearout, and grain direction plays a big part.

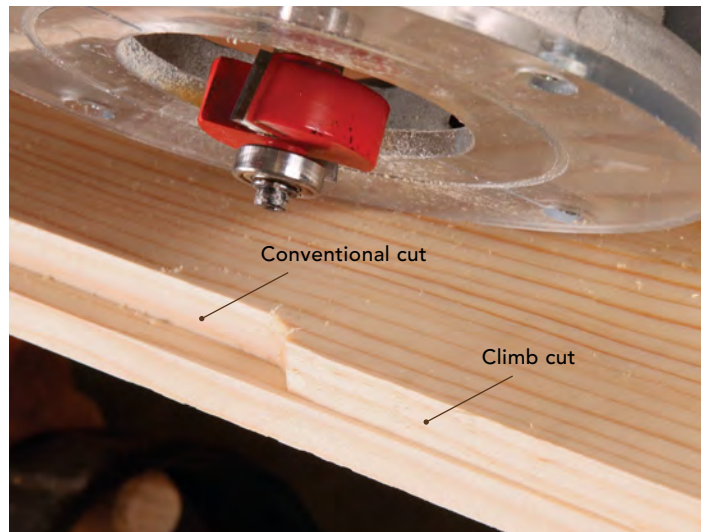


Climb cut

Going the other way—cutting with the rotation—is called climb-cutting, and can eliminate tearout. It's a self-limiting way to make a deep, bearing-guided cut in a series of passes without adjusting the bit depth. When climb-cutting, make a series of light passes and hold on tight to the router.



Start with climb cuts. Use one or two climb cuts to remove most of the material. The bearing is not yet touching the wood, so these cuts are made by feel, which is easier than it seems. Finish up the profile with a conventional cut with the bearing riding the edge. If necessary, lower the depth for a very light final pass.



Crisp rabbets. Climb cuts can also be used to cut clean rabbets. I like a big Freud rabbeting bit (32-504) that includes multiple bearings for different-size rabbets. Start with a light climb cut to break the edge; finish with a pass in the conventional direction.

Perfect hardware mortises

I use a trim router to make fast, accurate mortises for hinges and other types of door and cabinet hardware. I almost always use my own shopmade templates together with a short, top-bearing, pattern-routing bit. To keep the bearing in touch with the edge of template, you have to start the router at full depth. To do that, you can either tilt the spinning bit into the cut or build templates with extra room in the opening for starting the bit.



Quick jigs. By ripping 1/2-in. birch plywood to precise widths and joining it with staples, you can build a precise template around a strike plate or hinge leaf. Glue the edges and drive staples across the joints on both sides.




Line it up and go. Use centerlines on the jig and workpiece to align them, and make sure the jig is long enough for clamping without impeding the router. Attach a fence to the bottom to register the jig on future workpieces.

Sturdy splines

I use spline slots for wrapping beams and posts with finish material, changing directions with tongue-and-groove flooring, and making solid-wood panels of all kinds. I prefer splines over biscuits, as the splines are guaranteed to fit tightly and bring slightly warped boards into perfect alignment.

A router works better than a tablesaw for spline slots because it rides over any curve in the workpiece, keeping the slot a uniform distance from the face, and it lets me start and stop the bit short of the board ends, hiding the splines in the finished work. A slot cutter (such as the Amana 53407) can also cut excellent biscuit slots.



Clamp and go. Clamp the board to the bench, and start and end each cut a little short of the end of the board so the splines stay hidden. Make sure you run the router on the top face of each board, so the face stays aligned even if the boards vary in thickness.



Increase your footprint. Use an extended base for stability and keep the router base on the front of the material for all the grooves or slots you need. This corrects for variations in material thickness, and ensures that the faces of the boards will be flush.



Make snug-fitting splines. Rip off your spline stock on the tablesaw, making sure everything comes together perfectly before applying glue. Snug splines will bring the boards into alignment, even if they are slightly warped.



No-worry glue up. Before gluing, have the clamps close by and adjusted to the proper length. The splines keep the boards aligned during glue up, but alternate the pipe clamps top and bottom to keep the panel from bowing up or down.



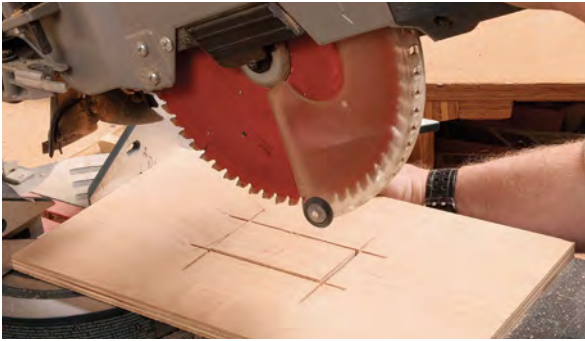
Work clockwise. I use a top-bearing, flush-trim bit (CMT 801.128.11B) in a fixed-base router. Set the depth so it matches the thickness of the hinge or strike and make the mortise in one pass. Move clockwise around the template to hug the outside, and then crisscross the middle to finish the job.

Flawless results. After squaring the corners with a chisel, drop the strike into place and drill pilot holes using a self-centering bit. I save the templates that I think I'll use again, though making a replacement only takes a few minutes.



Deep mortises

With a plunge base, straight bit, guide bushing, and template, you can excavate deep, smooth mortises in a series of passes. The finished mortise is smaller than the template due to the bushing offset, but it's easy to cut tenons to fit. To keep chips from packing the mortise, attach a vac to the router, pause often to suck out the chips, or tip the router upward so the motor blast blows chips out.



Make a template. I made this jig from $\frac{3}{4}$ -in. veneer plywood with four plunge cuts on my sliding miter saw and fastened it to the stock on the layout lines with a pair of finish nails and a clamp.



Dig a hole. Rout the 2-in.-deep mortise with a large upspiral bit (LMT Onsrud 52-367) in a series of $\frac{1}{4}$ -in.-deep passes. Move clockwise around the jig and then back and forth across the middle before plunging again. Do this until you reach the final depth, set with a stop on the router.

Straight sides.

The guide bushing stays engaged with the template no matter the depth of the cut, so the sides of the hole are as smooth and straight as those made by big industrial machines.



Snug fit. Make matching tenons on the tablesaw using a dado set or tenoning jig. Go for a snug fit and then round the corners with a chisel or wood rasp.



Fast, accurate casework

I use routers for a variety of cabinetmaking tasks, like making dados for shelves and flush-trimming solid edgebanding. To make dados, I make a plywood T-square jig that clamps to the workpiece. I run the router on top of the jig, using a top-bearing bit that rides against the fence. This way, the jig can be aligned directly with the layout marks, and having the jig on one edge of the dado prevents chipping. It also helps to rout on the right side of the fence, so the cutting action pulls the bearing against the fence, rather than wandering away.

Flush-trimming. Both face frames and solid edgebanding can be trimmed quickly and accurately with a bottom-bearing, flush-trimming bit. To steady the router, keep the bit projection to a minimum and keep your grip low. To prevent chipout, use one or more climb cuts.

Production curves

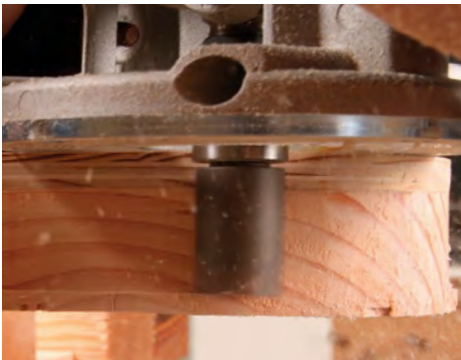
You can use a router with a shopmade template to replicate curved shapes like rafter tails or head casing. I lay out the shape and then I cut out the template with a jigsaw or bandsaw, leaving $\frac{1}{8}$ in. to sand off. A smooth pattern is critical, as any bump or dip in the template will be followed by the bearing and reflected in every workpiece. To fill a small flaw in the edge, try a little Bondo. Also, to give the bearing a smooth exit or entry to the cut, I make my patterns wider or longer than the workpiece.



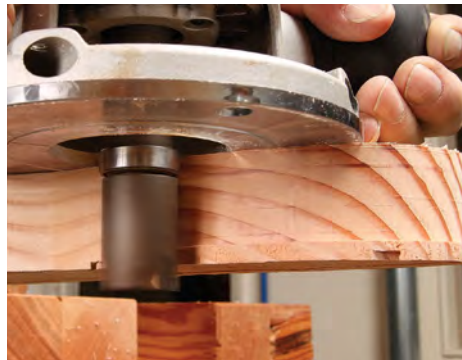
Cut and smooth the template. On the job site, I usually saw the pattern with a jigsaw and smooth it with a belt sander. The front wheel of the belt sander can be helpful in tight curves. Sand by hand, backing the paper with whatever works to match the shape.



Rough out the cut. Use the template to trace the outline on each piece, and then rough them all out with a jigsaw, leaving a scant $\frac{1}{8}$ in. or so to rout off. That amount of waste makes for a nice, clean cut.



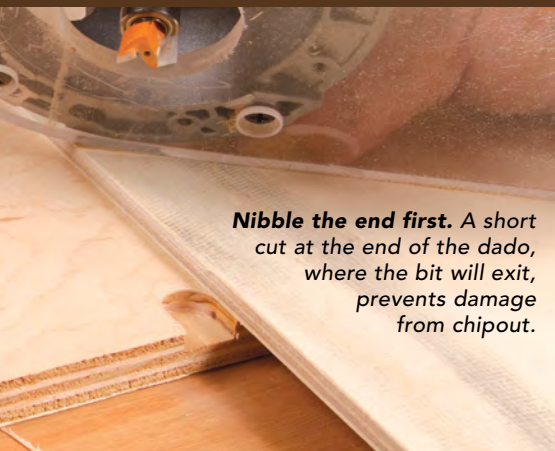
Rout as much as you can. Start with a top-bearing flush-cutting bit (Amana 45368), with the router riding the top of the jig. Set the depth of cut so the bearing is riding on the template.



Plunge and proceed. Remove the jig and use the same bit to shape the rest of the edge, with the bearing riding the area you just routed. If the bit still can't reach the bottom edge of the workpiece, switch to a bottom-bearing bit and rout from the other side.



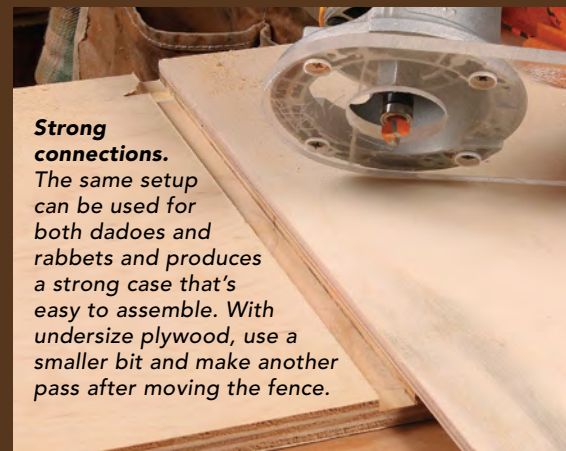
Clean curves. If you've cut away most of the waste before routing, and used a sharp bit, you will typically have very little sanding to do. With the template in hand, it takes less than an hour to produce a dozen curved rafter tails like this.



Nibble the end first. A short cut at the end of the dado, where the bit will exit, prevents damage from chipout.



Make the full cut. Use a smooth, steady speed that doesn't bog down the motor. Because these dados are usually shallow, you can make them in one pass.



Strong connections. The same setup can be used for both dados and rabbets and produces a strong case that's easy to assemble. With undersize plywood, use a smaller bit and make another pass after moving the fence.