

# A User's Guide to Featherboards

Extra hands make machine cuts safer, cleaner, and more accurate

BY ROLAND JOHNSON

Keeping my fingers attached to my hands and in good working order is a high priority in my woodworking shop. Featherboards help me do it.

A featherboard is simply a board with a series of slits cut into an angled end, forming a row of flexible fingers that move much like the barbs of a feather. The fingers provide constant pressure to hold stock firmly against tabletops and fences, and the angle allows stock to pass in one direction but resists movement in the op-

posite direction. They do this especially well at the tablesaw and router table.

But featherboards also increase the quality of router, tablesaw, and even shaper cuts. They maintain pressure exactly where it is needed to keep the workpiece moving in an unwavering, straight line. They are especially helpful for controlling thin stock safely, a particular problem when feeding stock by hand.

This guide will show you how to make a featherboard, and then outline some

## Shopmade or store-bought?

I like making featherboards because I can do so quickly and cheaply and I can tailor boards to specific tasks. That said, the manufactured featherboards offered by popular woodworking catalogs offer their own advantages.

Ease of adjustment and setup are the biggest lures. Most models are made of high-grade plastic and lock quickly, anywhere along a standard miter slot. A slot cut into the featherboard allows rapid adjustment for stock width and finger pressure. Some models (left) also offer an optional hold-down attachment, a feature that varies in usefulness depending on the width and thickness of your stock. The Bench Dog Feather-Loc (center) preserves its setting when removed from the miter slot.

Magnetic featherboards offer the added advantage of infinitely adjustable setup without the need for clamps or miter slots, although a metal surface is necessary.



**Store-bought models offer ease of use.** Some attach with miter-slot adapters (left) for easily repeatable setups. A magnetic featherboard (right) can be placed anywhere on a metal tabletop.

# A simple setup for ripping narrow stock



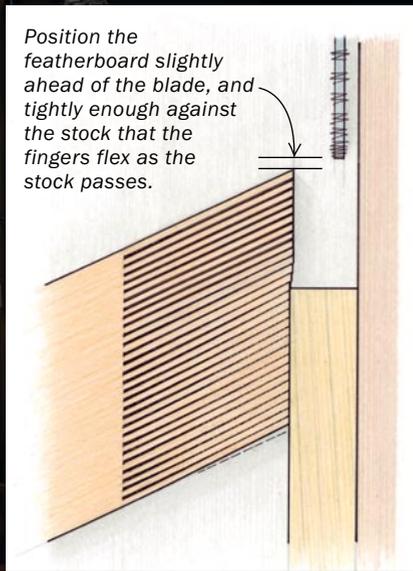
**Start by marking the fence.** Use a pencil line to indicate the front end of the blade. Align the featherboard so that it doesn't reach beyond this line, where it could pinch the blade.



**Clamp the featherboard in place.** Lower the blade and place the stock between the fence and the featherboard. Snug the featherboard against the stock as you tighten the clamp.



**A brace keeps the featherboard from pivoting.** Push this board snugly into position against the featherboard as you tighten the clamp.



essential featherboard setups on the machines where they are used most often.

## Featherboards are easy to make

There are a huge variety of store-bought featherboards, but I like to make my own. It's inexpensive and easy.

Scrap hardwood provides a ready source of material. Flexible woods like ash or hickory make the best featherboards, but any defect-free hardwood will work well.

You could use a softwood like pine, but you'd want to make the fingers slightly thicker. Avoid plywood or medium-density fiberboard (MDF); thin fingers of these materials break too easily.

I make most of my featherboards from  $\frac{3}{4}$ -in. stock. This is thick enough to support most workpieces that require a featherboard. I sometimes use  $\frac{1}{2}$ -in. stock for lighter-duty applications. I vary the length and width of the boards according to my

specific needs, but I rarely need a board wider than 8 in. Longer boards are good for mounting to a table—you'll want the board to reach to the far side of the table so you'll have access with a standard clamp. Shorter boards work better in applications where they'll be clamped to a fence.

The bandsaw is ideal for making the stopped cuts needed for featherboards, because the user can back work easily out of the cut. A table saw blade creates a wider

## Holding stock against a fence

*Simple side pressure helps keep the workpiece secure against the fence on the router table (below) or the tablesaw. To raise featherboards off the table for panels or other tall stock (right), secure them with wood screws to a long clamping block. Make sure the boards sit no higher than the top of the auxiliary fence.*



kerf than I like between the feathers. Of course, you can cut featherboards by hand: Just mount the board in a vise and use a backsaw to cut a series of parallel kerfs.

To make a featherboard, start by cross-cutting the business end of the board at an angle. I find that an angle of about 30° offers the best combination of continuous side pressure and kickback resistance. Cutting the feathers into the board's end grain gives them long-grain strength and flexibility so that they don't snap under pressure. Make the feathers no longer than 3 in.

Keep the feathers thin and the spaces between them narrow. Experiment with what works best for you; I find that the thickest practical feather is about 1/8 in. If the feathers are made any thicker, the bending action becomes too stiff, and it is difficult to feed the stock past them. A thinner feather doesn't give you as much pressure, but on most cutting operations the pressure doesn't need to be great. It just needs to be consistent.

### Proper setup yields smooth, safe cuts

On any machine, start by placing the stock against the fence or on the tabletop. Po-

sition the featherboard firmly against the stock, with the angled end pointing in the feed direction. Secure it to the fence or tabletop with clamps or a miter-slot hold-down. The featherboard should be placed firmly enough to keep the stock against the fence or tight to the tabletop, but not so firmly that it makes it difficult to feed the stock into the cutter or blade. Give the stock a test push to be sure.

Position the featherboards as close to the cutter as possible without putting pressure on the cutter itself. In most cases, placing a featherboard directly opposite the blade or cutter can cause the piece to jam dangerously or even kick back, or the cutter to take too deep a cut. Here are some essential featherboard setups.

**The tablesaw:** Featherboards allow straighter, safer cuts when ripping long, narrow stock, when cutting rabbets or plowing dadoes in narrow stock, or when cutting tall stock like door panels that might rock against the top of the fence.

For ripping, I like to apply side pressure with a long featherboard that I clamp to the tabletop. Downward pressure comes from a push stick. A table-mounted board

applies side pressure only on the infeed side—pressure on the outfeed side will cause the stock to pinch the blade.

When cutting rabbets, I clamp two featherboards onto an auxiliary fence to apply downward pressure at the dado cutter (breaking the direct-pressure rule) and on the outfeed side of it. If your saw has a Biesemeyer-style fence, be sure to clamp down its back end, because the fence's tendency to lift slightly will relieve pressure on the featherboards and could result in a cut of uneven depth. For dadoes (across the grain) or grooves (with the grain) in narrow stock, I use a single fence-mounted featherboard to apply downward pressure on the infeed side of the cutter. I also use a table-mounted featherboard to keep the stock tight against the fence.

Stock that is taller than the fence needs side pressure both before and after the cut to prevent it from pivoting away from the blade. But applying that pressure with tabletop featherboards can cause the stock to tip away from the top of the fence. The solution is to lift the featherboards a couple of inches above the table with a clamping block.

## Holding stock against a table



*Fence-mounted featherboards apply pressure from the top down. This keeps stock firmly against the table for tasks like rabbeting an edge on the tablesaw (right) or cutting a molding profile or edge treatment on the router table (above).*



**The router table:** If the stock is too narrow, wide, or short to work comfortably—in short, if controlling the stock will put fingers close to the cutter—featherboards can make the setup safer. Of course, your best bet for safety and quality of cut is to make router cuts on wide boards, and then rip off the pieces you need. But sometimes narrow or thin stock is unavoidable.

Attach the featherboards to the tabletop and fence to apply downward pressure and side pressure on the infeed side of the cutter. Apply either downward or side pressure after the cutter, depending on how well the stock is supported by the table or fence. Keep the infeed featherboards as close to the cutter as possible. The outfeed pressure can be less than that on the infeed side; the idea is just to keep the stock from vibrating or “fluttering” after the cutterhead. If a second pass is needed on a shaper or router table to cut a molding profile, such as a raised panel, the second pass can't have downward pressure near the cutter. This pressure would tend to tip the work into the cut. □

*Roland Johnson is a contributing editor.*

## Small stock needs both types of support

*Top and side featherboards increase safety and accuracy when working with small, narrow stock. The setup ensures a straight, flat-bottomed dado on the tablesaw (right) and a cleanly cut molding or edge detail on the router table (below).*

