



Safe Ripping on the Tablesaw

Mastering this fundamental task
requires understanding
and finesse

BY BOB VAN DYKE

BEFORE YOU BEGIN

PREP THE STOCK

It is never a good idea to cut roughsawn wood on the tablesaw. Instead, turn to the bandsaw to rough cut stock for milling. Then, to avoid kickback from warped boards, joint the face that will ride on the saw table and the edge that will be against the fence.



SET UP THE SAW



Install a splitter and rip blade. Because ripping requires more force than crosscutting, a blade with fewer teeth and larger gullets is typically used. Behind it should be a riving knife or splitter, a crucial piece of safety equipment that minimizes the chance of kickback when ripping.



Square the fence. Use a combination square to check that the rip fence is parallel to the miter slot, or heeled out slightly so the gap between the fence and the slot is no more than $\frac{1}{64}$ in. wider at the back than at the front. This assumes that the blade is parallel to the miter slot.

A tablesaw is the best tool for ripping a board's edges parallel, but safe and successful ripping on the tablesaw depends on understanding a handful of essential techniques and practices. This article will explore and explain these factors so that you can master the mechanics of ripping.

One important concept to keep in mind is the rotation of the blade. Think of the blade as having a front and a back and remember that as they cut, the teeth in the front push the wood down onto the saw table. At the back, the teeth are rotating up away from the table, and if wood contacts these rising teeth, they'll exert upward pressure, creating the possibility of kickback. Kickback happens when the back of the blade contacts the edge of the wood with enough force that it grabs the stock and propels it back straight toward



RIPPING 101

Standing in the right place and positioning your hands correctly will keep your rips true and your body out of harm's way.

The right stance is to the left. Stand close to the front of the saw and a little to the left of the blade. This makes it easier to support the board as you begin the cut and easier to hold the board against the fence the whole way through. Because you are standing slightly to the left at this point, you won't be hit by a kickback, which typically goes straight back when ripping.



Handwork. The left hand, which remains stationary, exerts pressure downward and toward the fence. Position the hand about 1 in. in front of the throat plate and keep it there until the cut is nearly complete. The right hand, palm up and fingers under the board, holds the stock until the fingers hit the fence rail.

you at great speed. I once saw a piece of molding shoot 20 feet across the shop before going completely through two pieces of 3/4-in.-thick particleboard. Fortunately, as long as certain practices are followed, kickback is easy to avoid and should never be common.

Another important concept is that ripping requires more force than crosscutting. Picture the board's grain as a bundle of straws. Cutting across the bundle does not require as much force because once cut, the fibers don't exert pressure against the blade.

When ripping, however, the blade cuts lengthwise through the straws. Because the grain is not always straight, picture a bundle of bendy straws instead of straight

ones. This irregularity, plus the fact that these fibers are usually under tension, means that as the fibers are cut, the tensions within the board change and it can push against the blade, thus requiring more force to cut through the wood. To overcome this, install a more aggressive blade for rips, one that has fewer teeth (24 is standard for a rip blade) and larger gullets.

Stock must be flat and straight

For safe, clean ripping, the face of the board that rides on the table and the edge riding the fence must be flat and straight. If they're not, the stock can easily move during the cut and kick back. Avoiding this is easy. Always use the bandsaw to break

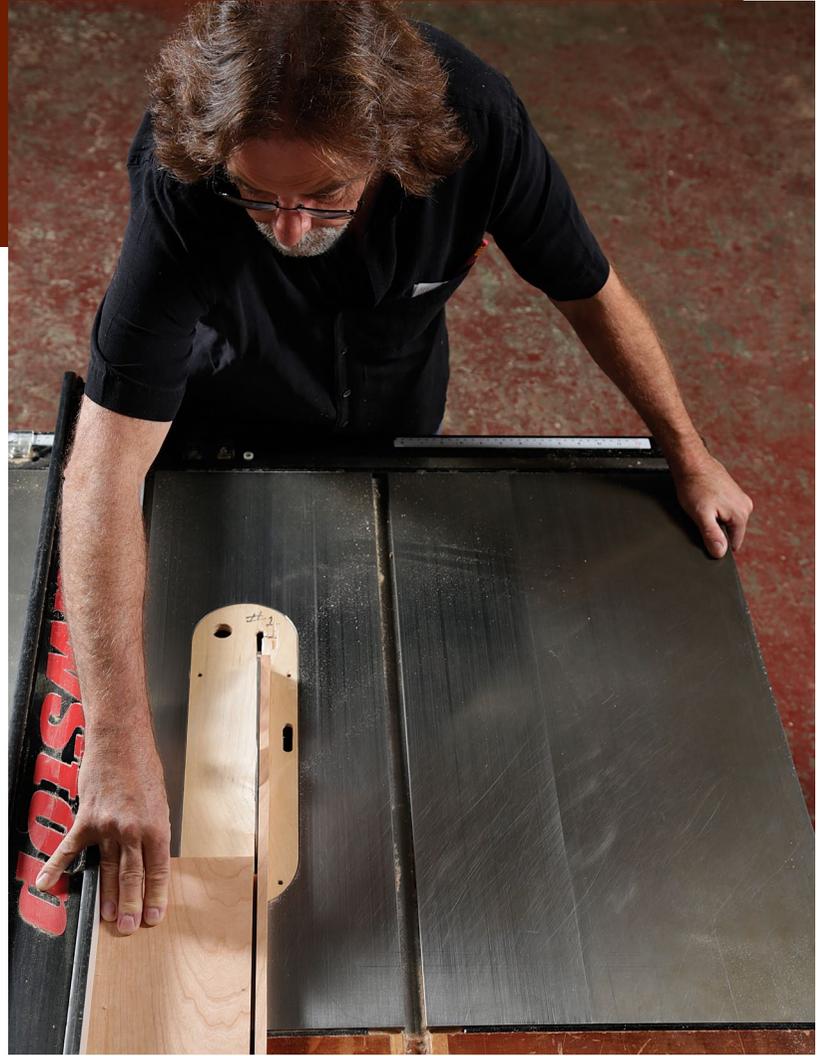
down roughsawn stock. And then joint the face that will be against the saw table and the edge that will be against the fence.

The adjustment of the saw's fence is also crucial. Never assume that a saw coming from the manufacturer is correctly adjusted, and be aware that all saws can go out of adjustment over time. The rip fence must be parallel to the blade or heeled out slightly at the back.

Essential equipment—The splitter or the riving knife (depending on the design of your saw) is the one critical safety device that should always be on the saw when ripping. Positioned directly behind the blade, it fits into the kerf and prevents the stock from drifting off the fence, which could result in kickback. It also prevents the kerf



Hook a ride on the fence. When the fingers of the right hand hit the rail, pivot the hand around so your pinkie is hooked on the fence; your ring, middle, and index fingers are pushing the board down and slightly toward the fence (and so is your left hand). Your right thumb is on the end of the board midway between the blade and the fence.



Hand off. As the end of the stock approaches the throat plate, making the risk of kickback minimal, move your left hand to hold onto the left edge of the saw, giving you a firm stance as you push the board through the rest of the cut with your right hand. Unless the board is wider than 8 in., the right hand stays hooked on the fence. If it's wider, position your hand midway between the fence and blade. Do not release the board until it is completely past the blade and riving knife.

from closing up on the back of the blade—another common cause of kickback.

How to stand, hold, and push

There is only one correct way to stand to easily ensure the edge of the board remains against the fence at all times: close to the front of the saw and a little to the left of the blade. This makes it easier to support the board as it enters the cut and easier to hold the board against the fence the whole way through the cut. Standing a little to the left also keeps you clear of a potential kickback.

The left hand—The left hand pushes the board against the fence and down onto the saw table simultaneously. Position your left hand about 1 in. in front of the

throat plate and keep it there until the cut is nearly finished. Never move your left hand beyond the front of the throat plate. When the end of the stock nears the plate, move your left hand to hold onto the left edge of the saw. Holding here gives you a very firm stance as you lean forward and move to the right to complete the cut with your right hand.

The right hand—At the start of the cut, cup the end of the stock with your right hand and push forward. When your fingers meet the rail, pivot the hand so your pinkie is on the fence, your next three fingers are holding the board down and toward the fence, and your thumb is on the end. Do not release the board until it is past the riving knife. When ripping a board wider

than 8 in., have the whole hand on the board to keep it against the fence.

Essential accessories

While your hands alone give you the most control when ripping, there are times when some accessories are crucial.

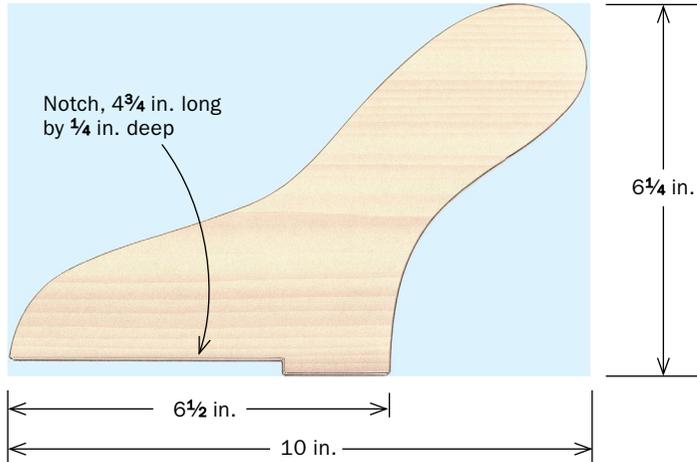
Push sticks—Push sticks keep your right hand safe when ripping narrow stock. Be mindful, though: While push sticks do a good job pushing, they can't exert as much lateral pressure toward the fence as your hand. To determine if a cut requires a push stick, simply make a fist. If your fist fits between the blade and the fence (be sure to turn off the saw before making this test!), use your hand. If not, pick up a push stick.

PUSH STICKS AND PADS

For rips narrower than your fist or wider than 15 in., pick up a push stick or push pad, respectively.



Push stick for narrow rips. Start the rip as you normally would (1). As the end of the board reaches the table, hold it in place with your left hand as you pick up the push stick (2). Remove your left hand and use the push stick to finish the cut while adding lateral pressure to keep the stock against the fence (3).



Grout float handles wide stock. When ripping wide stock, Van Dyke uses a grout float as a push pad. Unlike some push pads sold for woodworking, its spongy pad is very grippy and enables him to exert lateral and forward pressure. To make sure he can reach it when necessary, he places it on top of the stock before starting the rip.



Before the cut, make sure the push stick is next to—not on top of—the fence so it's easy to grab. Never use a push stick while the end of the board is off the table, unsupported. Wait until the end of the stock is almost at the throat plate.

I make my own push sticks out of scrap plywood (see drawing, top left). These work better than the ones that come with saws, which are typically just a plastic stick with a small V at the end. And since my push sticks are made from scrap, I don't have to worry about cutting into them during narrow rips.

Featherboards—Featherboards are designed to take the place of the left hand. Positioned in front of the blade, they hold the stock against the fence.

Featherboards are helpful when making repetitive cuts and when cutting large or awkward pieces. For more information about them, see my Fundamentals, “Work more safely with featherboards,” in *FWW* #224.

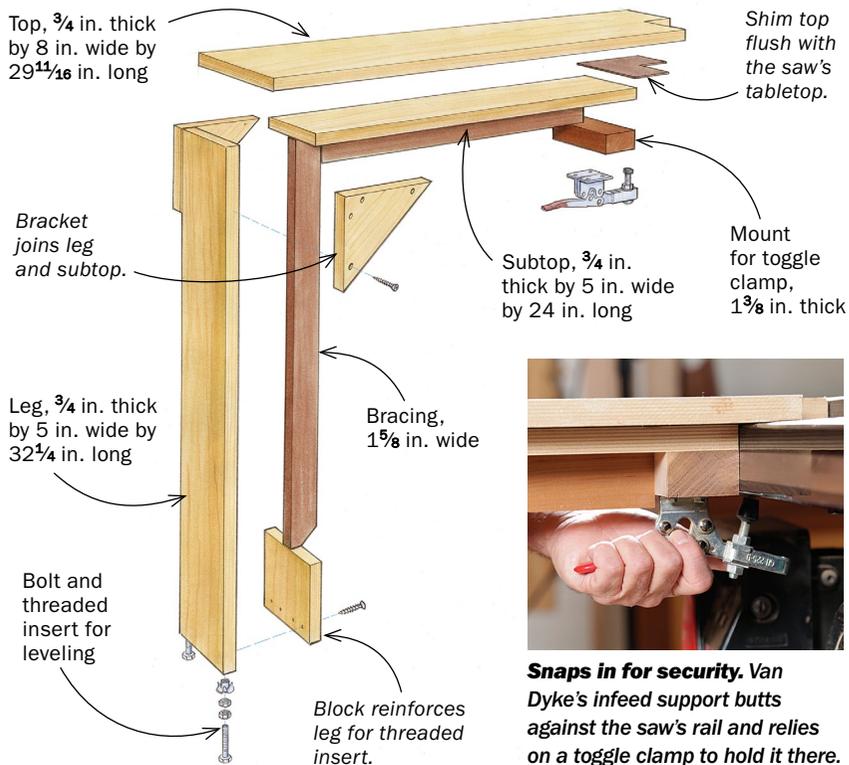
Special circumstances

Occasionally, the size or shape of the board being ripped will require you to change tactics.

If the board is too long to comfortably hold on the end, your right hand should hold its right edge until enough stock has gone through the blade that you can comfortably move your right hand to the end of the board. I also like to use a removable infeed support for ripping long stock (see drawing, opposite).

A HELPING HAND FOR LONG STOCK

This removable infeed support, made from scrap, supports long stock so you can focus on ripping. Adapt the dimensions to your saw if necessary.



Snaps in for security. Van Dyke's infeed support butts against the saw's rail and relies on a toggle clamp to hold it there.

As a rule of thumb, if you have a wide piece that is shorter than the width of the blade projecting out of the saw table, rip it using a sled or miter gauge. It is unsafe to rip these using the fence because the extra width will tend to drag the back edge of the board away from the fence and into the back of the blade.

Ripping plywood is usually a lot simpler than solid stock, as there is no grain direction to consider. Nevertheless, when ripping wide pieces of plywood, it's easy for the stock to come away from the fence—which can cause a kickback that acts differently. Rather than heading straight back, it will arc across the blade, putting your right hand in extreme danger. Luckily, the riving knife or splitter prevents this situation. Also, a very effective aid for controlling wide plywood is a grout float. The spongy surface gives you a nonslip grip, making it a lot easier to hold the stock against the fence.

Ripping is a basic and necessary function on the tablesaw that requires your total respect and undivided attention. It should never cause paralyzing fear. If you simply understand that the board must stay against the table and rip fence, you will be on your way toward success. □

Bob Van Dyke runs the Connecticut Valley School of Woodworking and teaches at other guilds and schools. See him at Fine Woodworking Live 2018 (finewoodworkinglive.com).



Stable setup. Feeding long stock into a tablesaw can be difficult without the proper support, so Van Dyke uses a specially made infeed support (left) that holds his stock at the right height, leaving him one less thing to worry about. If a board is so long you can't comfortably reach your right hand back to the end, grip the right edge of the board (center) and push until enough stock has gone through the blade that you can comfortably move your hand to the end of the board. Then the rip proceeds like any other (right).