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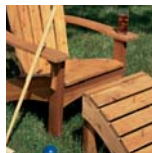
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# GETTING A FLAT-BOTTOM DADO

The best way to get a flat-bottom dado on a table saw is to use a router.

When it comes to cutting dados, I usually turn to the table saw. The main reason is I can cut full-depth dados quickly. The table saw is also pretty easy to setup — it's just a matter of setting the rip fence or adjusting the miter gauge.

**THE PROBLEM.** That doesn't mean the table saw is perfect. Take a look

at the photos below and you can see what I mean. Inexpensive adjustable or "wobble" dado sets will leave a rounded bottom, as shown in the left photo.

While the quality of cut is better with more expensive "stacked" dados, the bottom can still be uneven and the blades often leave

score marks on the bottom of the dado, as in the middle photo. This isn't a big deal if the ends of the joint will be covered. But when it's exposed, you want it to be perfectly flat and smooth.

**THE SOLUTION.** So how do you do it? I've found the best solution to be a combination of a hand-held router



▲ **Bad.** A wobble dado set leaves a concave surface which can create large, unsightly gaps. Not only is this ugly, but the joint is not as strong.



▲ **Better.** With stacked dado sets, the outside blades can leave score marks on the sides of the dado. While this doesn't weaken the joint, it's still noticeable.



▲ **Best.** To get the tightest, best-looking dado joint, use a dado clean-out bit in a hand-held router. The top-bearing bit is guided by the sides of the dado.

and a table saw, as you can see in the top photo on page 1. The secret behind this technique is an inexpensive router bit.

The bits are called dado clean-out bits. And as the name implies, they have one purpose and one purpose only — to cut perfectly clean and flat dadoes. To do that, the bottom of each bit has two cutting flutes that are ground dead flat. But what makes them different is that the carbide-tipped flutes are short (only  $\frac{3}{16}$ " ), as shown in the photo at right. Making the cutter length so short reduces the vibration, giving you a cleaner cut.

**CHOOSING THE RIGHT BIT.** The bits come in three cutting diameters ( $\frac{1}{2}$ " ,  $\frac{5}{8}$ " ,  $\frac{3}{4}$ " ) to fit a variety of dado sizes. I like to use a bit that's a little narrower than the dado. This way, I can rout up and down both sides cleaning up the bottom of the dado. Trying to use a bit the same size as the dado could cause it to bind.

What makes this technique so easy is that the sides of the dado cut on the table saw act as a template for the guide bearing. Here's how it works: Because of the short

cutting length, you only need a shallow dado for the bearing to ride on. The great thing about this is that I don't have to make any jigs and there's very little setup.

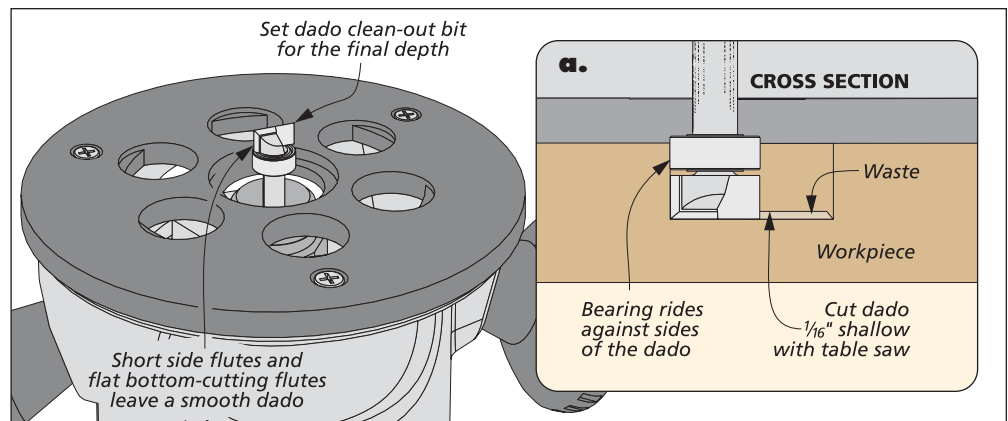
**TRIMMING A DADO.** Cutting a dado this way takes advantage of the strengths of both the table saw and the router. To cut a flat-bottom dado, start by using the table saw with a dado set to quickly remove most of the waste. It will also cut flat, smooth sides that will guide the router bit. The only thing you'll do differently is to cut the dado slightly shallower than final depth of the dado (about  $\frac{1}{16}$ " ).

Next, install the router bit and



set it for the final depth of the dado, as shown in the drawing below. Then set the router on the workpiece and turn it on. Bring the bit into the dado with the bearing riding on the edge of the dado, as illustrated in detail 'a.' Make a pass up one side and back down the other. That's all there is to it. **W**

▲ The flat-bottom dado clean-out bits come in several sizes to match the width of the dado.



## Shop Tool: Dado-Cutting Bit

After using the dado clean-out bits shown above, I came across a similar bit that can be used to rout the entire dado. As you can see in the photo at right, this dado-cutting bit doesn't look all that different from the dado clean-out bits.

But there's an important difference to notice. The side cutting flutes are longer, which lets you take a bigger bite while routing dadoes. Yet it's still much shorter than straight bits to reduce vibration, resulting in a cleaner cut.

**TAKING OUT THE GUESSWORK.** One of the challenges of using an ordinary straight bit to rout dadoes is calculating the offset from the edge guide to the layout line. But with the top-mounted bearing on the

dado bits, the edge guide can be placed right on the layout line, as illustrated in the drawing below.

Like the clean-out bit, you can get the bits in several cutting diameters ( $\frac{1}{2}$ " ,  $\frac{5}{8}$ " ,  $\frac{3}{4}$ " , 1" ), so you can match the bit to your dado size.

**CUTTING A DADO.** To rout a dado, set the depth just slightly less than the full cutting depth of the bit and take the first pass, as illustrated in detail 'a.' If your dado needs to be deeper, you can lower the bit and make another pass.

▲ The dado bit is guided by a top-mounted bearing and has a longer cutting length than the clean-out bit.

