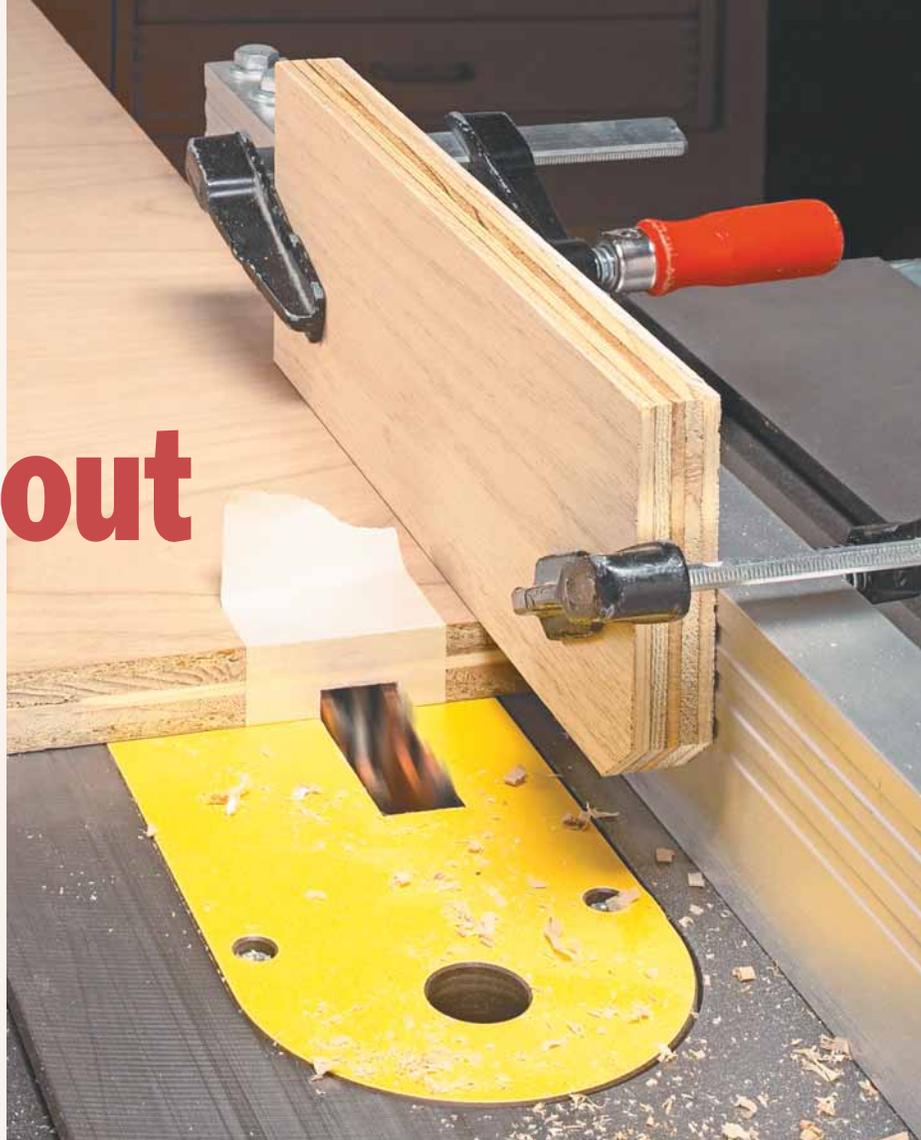


7 sure-fire ways to Avoid Tearout in Dadoes

The secret to clean, crisp dadoes is using a few simple techniques.

■ Cutting dadoes on the table saw with a dado blade is something I do all the time. But I try to never be routine about it. Because I've found that there's a nasty problem that can pop up. You can set up, carefully make the cut, and then flip the workpiece only to find that the shoulders on both the face and the end of the cut are rough and ragged with tearout. This can be a problem on any type of wood, but plywood can really give you fits.

Why Tearout in Dadoes? There are a couple reasons why tearout



occurs on dado cuts. They both have to do with the dado blade and how it cuts. As the drawing below shows, a cut with a dado blade isn't a through cut. The blade is essentially trapped in the workpiece, surrounded by wood on all sides. This makes it harder for the blade

to clear chips and dust from the cut. To compensate for this, a dado blade usually has fewer teeth and wider gullets on the outer, scoring blades. But fewer teeth on the blades can mean a rougher cut.

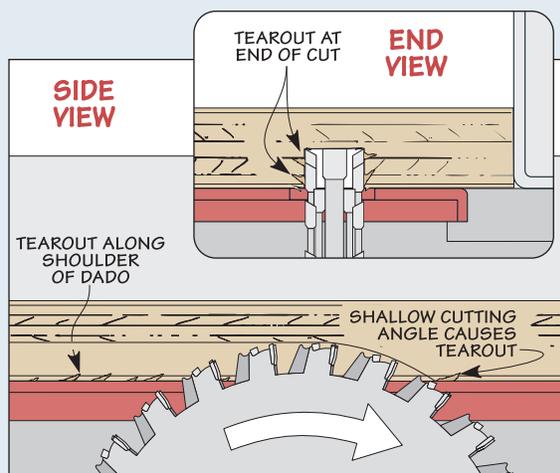
And then consider the cutting angle of a dado blade. For a dado,

the cutting angle will be shallow and the blade ends up pushing forward into the wood instead of cutting down on it. This hammering action is more likely to blow out the wood fibers instead of severing them cleanly.

The good news is that no matter what kind of dado blade you use, there are some quick and easy precautions you can take to avoid tearout.

Anatomy of Dado Tearout

Chances are, if you've ever cut a dado on the table saw, you've been a victim of "dado" tearout. It shows up on the surface of the workpiece along the shoulders of the dado cut (Side View at right) and on the edge of the workpiece where the blade exits the cut (End View at right). The symptoms are pretty obvious — chips of wood that are roughly pulled loose from the surface instead of being cleanly cut. When the joint is going to be exposed on the project, this can end up being a lot more than just a minor aggravation.



THE SETUP

When I'm getting ready to cut dados, the first item on my checklist is proper setup of the table saw. You'll find the better-quality cut is well worth the little bit of extra effort.

1 Zero-Clearance Insert. One of the easiest ways I can think of to ensure a clean dado cut is to use a zero-clearance throat insert as shown in the photo at left. What a zero-

clearance insert does is support the workpiece right up to the edge of the cut. It essentially acts as a back-up to the workpiece. This allows the blade to cleanly slice the wood fibers at the shoulders of the dado instead of raggedly tearing them.

2 Hold-down. When possible, I always clamp a hold-down to the rip fence of the saw for a dado

cut. First off, it keeps the workpiece snug to the surface of the table saw so that the zero-clearance insert can do its job. And next, it helps control any vibration or chatter of the workpiece that may cause a rough cut.

The simplest hold-down can be a scrap of wood that rubs the workpiece, as in the photo at left. But a featherboard can also do the job.

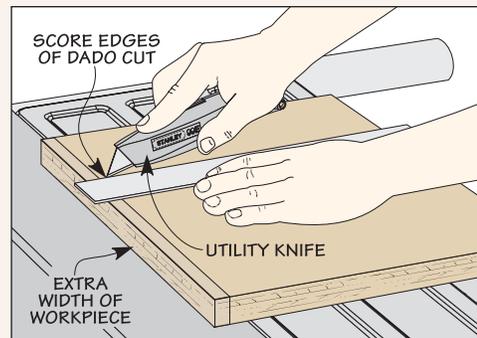
THE WORKPIECE

The focus of the effort here is on ending up with a perfect workpiece. So it makes good sense to spend some time getting the workpiece ready for the cut. And there are simple ways to do this.

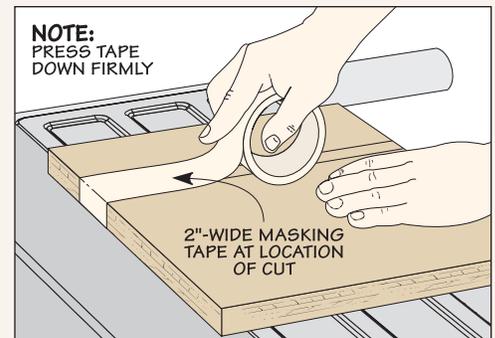
3 Extra-Wide Workpiece. When the ends of your dados are going to be exposed, you want them to be crisp and clean. Tearout as the blade exits the cut ruins this effect. But the fix here is simple.

I'll start with a workpiece that's slightly oversized, as shown in the first drawing at right. Then I can cut the dado without too much worry about tearout at the edges. After the cut is completed, the extra width can be trimmed off, leaving crisp, sharp edges.

4 Scoring. One of the oldest tricks in the book is to score your cut with a sharp knife before you make it (left drawing above). This is a good way to prevent tearout on



▲ **Two Remedies.** An oversized workpiece can be trimmed to remove tearout. Scoring the cut at the edges keeps it from occurring.



▲ **Tape Reinforcement.** Masking tape pressed firmly onto the workpiece will reinforce the wood for a chip-free cut.

both the face and the edge of the workpiece. What you're doing is pre-cutting the fibers on the surface so that the dado blade can't tear them when you make the cut.

It only takes shallow cuts to do the job, but they need to be accurate. If they're inside the lines of the cut, they won't do any good.

5 Masking Tape. I always keep a roll of masking tape at hand when I have the dado blade on the

saw. As shown in the right drawing above, a piece of tape pressed firmly over the line of the cut acts like a back-up "veneer" to reinforce the wood fibers. This is surprisingly effective at keeping both the shoulders and the ends of the cut sharp and clean.

Just be careful when removing the remaining tape. Peel toward the cut to avoid pulling any of the wood fibers away with the tape.

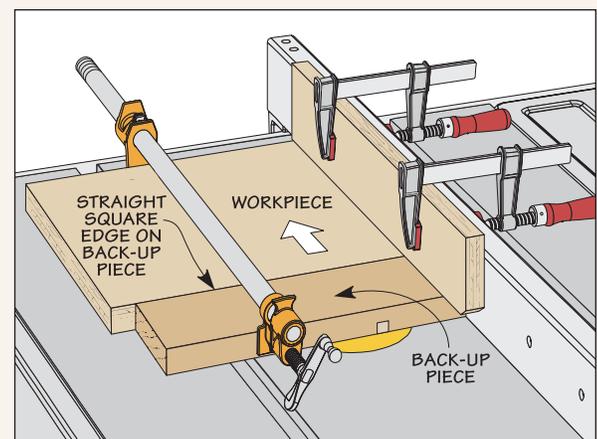
MAKING THE CUT

When it's time to make the cut, there are a couple of really effective strategies you can use to get good results.

6 A Shallow Pass. I sometimes use an initial, shallow scoring pass to establish a cleanly cut line along the shoulders. To do this, raise the blade only $\frac{1}{32}$ " to $\frac{1}{16}$ " above the saw table, just high enough to score the shoulders without chipping them. Then apply good downward pressure on the workpiece during the cut. After this initial pass, you can raise the blade to the full height of the dado and complete the cut.

7 Provide Backup. A great way to avoid a rough exit to the cut is to back up the workpiece with a scrap (right drawing). Since the blade is cutting directly from the workpiece into the scrap piece, there's no chance of tearout.

To do its job, the back-up piece needs to be in firm contact with the workpiece. So use a scrap with a straight, square edge and, when possible, clamp the back-up piece to the workpiece. This allows you to concentrate on the cut and not on holding the scrap in place. 🛠️



▲ **Back Up the Cut.** A back-up piece clamped to the workpiece is a very simple way to prevent tearout at the edge as the blade exits the cut.