

Wipe Out Chip-Out

When fibres, splinters, or even sizable chunks of wood break away from your work piece while you're cutting or shaping it, that's chip-out. Fortunately, you can avoid nearly all of that surface damage by taking a moment to prepare before you cut, rout, or joint a piece of wood.

Follow two basic rules to prevent chip-out: Use sharp cutting tools, and provide solid backing for surfaces that are likely to be damaged. We'll describe here some of the best ways to lend that support, no matter which cutting tool you use.

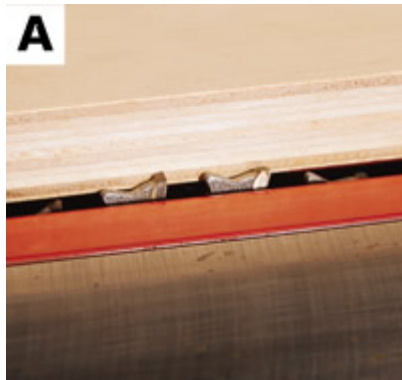
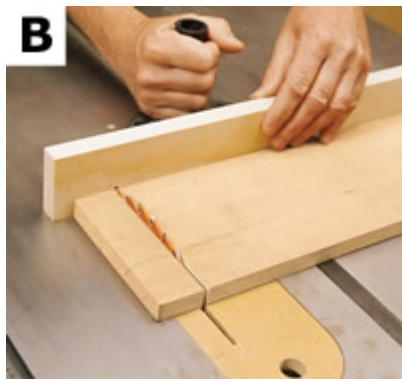


Table saw tactics

Start with a "scoring" cut on furniture-grade plywood or solid wood that shows a tendency to chip out. Set the blade just 1/8" above the table, as in **Photo A**, and run the work piece through. Then raise the blade and make the final cut.

You'll get cleaner results because in a scoring cut the blade's teeth meet the wood at a shearing angle, rather than pushing down on the bottom surface of the stock. Also, shallow cuts produce better results than deep ones because you're not forcing as much sawdust through the kerf.



When crosscutting with a mitre gauge, use an auxiliary wooden fence to back the work piece in line with the blade, as in **Photo B**. Most traditional mitre gauges include screw holes that you can use to add an auxiliary fence. If you have an extruded-aluminium fence on your mitre gauge, use double-stick tape to attach a temporary wooden fence.

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C Router know-how

The best way to avoid chip-out when routing an edge profile is to make several shallow cuts, rather than cutting the finished shape in one massive, wood-chewing pass. If you're working on the end grain of a solid board or a rail-and-stile assembly, which also requires you to handle some end grain, clamp a backer board alongside the end grain, as in **Photo C**.

Or, rout the edges that include end grain first, and then do the ones that are all edge grain. That way, if you knock some slivers loose while pushing across the end grain, you'll clean up that spot with the edge-grain pass.



D If your work piece displays a tendency to splinter when you begin routing an edge profile, it's time for climb cutting. This can be a tricky operation, so exercise extra caution. Here's how it works.

Typically, you rout an edge profile by pushing the router forward with the work piece to your left. Because the bit spins clockwise, this action pushes the cutting edge into the wood. To climb-cut, keep the work piece at your left, but start the router at the far end of the cut and pull it toward you, as in **Photo D**. Now the bit's cutting action pulls the grain down, instead of lifting it up, and that reduces the likelihood of chip-out.

The router thrusts toward you when you climb-cut, so clamp the work piece securely, take a balanced stance, grip the router firmly with both hands, and make light cuts. Remove no more than 1/8" of stock per pass when using small bits and only about 1/16" with larger ones. Don't climb-cut with bits over 2" in diameter, which create a tremendous amount of torque. Don't make climb cuts on the router table, either, where the work piece is likely to shoot out of your grasp.

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Jointer tricks

Sometimes you need to trim the ends of a rail-and-stile frame, and the jointer can do that in a jiffy. But it's almost certain to splinter the edges of the stiles unless you take precautions.

One method is to hold or clamp a block of wood against the rear edge of the work piece. We show another approach in **Photo E**. Push the piece far enough to trim all of the first stile, then pick it up, flip it around, and finish the cut from the opposite end. These same principles apply to hand planes, too.

Basic base plates

Band saws, scroll saws, jigsaws, and portable circular saws will give you a much smoother cut if outfitted with a zero-clearance base plate to provide backing on both sides of the kerf. As an example, here's how to prepare a circular saw.

Cut a piece of 1/4" hardboard or plywood to the size and shape of your saw's base. Drill holes in the board to match the base's existing holes and attach it with countersunk machine screws and nuts. Our saw has holes only along one edge of the base, so we secured the other edge with cloth-backed, double-stick tape.



Retract the blade, and set the saw on a double thickness of 3/4" plywood so that you don't saw into your workbench. Switch on the saw, lower the blade, and you'll get the result shown in **Photo F**.

You can't guide the saw by eye with this base plate attached, so you'll have to rely on edge guides. Or, you can make the base plate with clear Plexiglas or polycarbonate plastic.

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More anti-chip tips

Different situations call for different measures to beat chip-out. Here are some more tips:

- Score the topside of plywood with a utility knife and a straightedge before cutting with a circular saw. The side of the saw blade against the "keeper" edge should run in the scored cut.
- When routing a hinge mortise, first make a knife cut at the point where the bit will emerge from the wood.
- If you do get minor chip-out with the table saw, clean it up at the router table. The ideal bit for this step is an up/down cut spiral bit.
- Apply a thin coat of the finish you'll use later. It hardens the surface of the wood, and can be scraped or sanded off if necessary.
- Use a backer board when using the drill press, and move the board along with the work piece for multiple holes. That way, you'll always have solid support underneath.