Don't Let Router Bits Overheat Your Workpiece

These five easy steps put a stop to router-bit burning and the black edges that come with it.

Want to prevent those annoying burn marks that leave your routed edges black and your face red? Keep cool by putting the following tips to work.

Keep it clean...

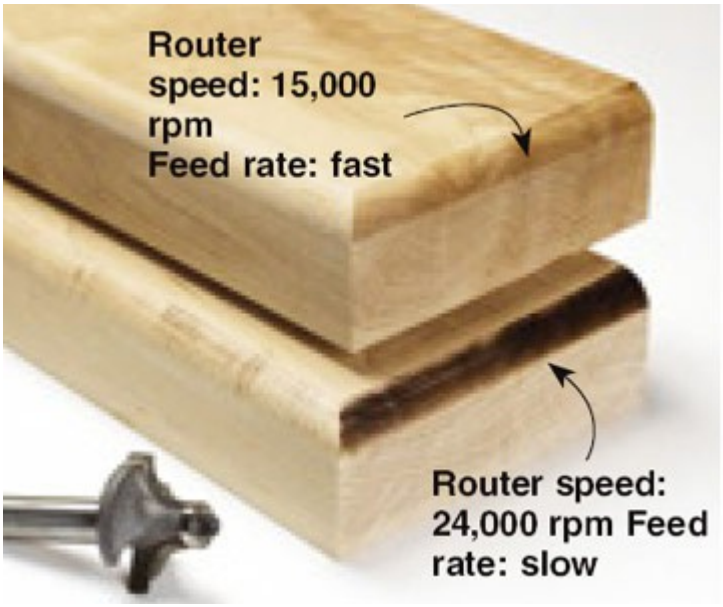
Ideally, you should wipe your bits clean after each use. Most of us, though, just drop them back in their holders and walk away. Unfortunately, resins and dust build up that cause bits to get hotter faster, making them more likely to burn the wood. If your bits are covered with sawdust, wipe them with a dry cloth. Remove the stubborn build-up with a blade-and-bit cleaner. The benefit: Clean bits stay sharp longer because excessive heat breaks down carbide cutters.

Stay sharp...

A dull bit cuts poorly and builds up heat doing so. If you can run the cutter over your fingernail without shearing off a shaving, then your bit needs sharpening.

To freshen up router bit cutting edges with diamond lapping stones, hone only the flat surfaces. Count your strokes to make sure you remove the same amount of material from each cutter to keep the bit balanced. It only takes a half-dozen or so strokes with each stone. If that doesn't restore cutting ability, have the bit sharpened by a pro or replace it.

Set speed limits...



Router bits spin up to 24,000 revolutions per minute (rpm). And most bits have two cutters, so they take up to 48,000 bites every minute. Think of it that way and you see why bits and wood heat up in a hurry. To keep things cool, set your router speed according to the chart, below *right.* If your router doesn't have variable speed, you can get a plug-in controller for less than $25. You can keep heat in check too by controlling how fast you feed the bit into the workpiece. A slow feed rate generates more heat. Use a fast and consistent feed rate to keep the bit and wood cool.

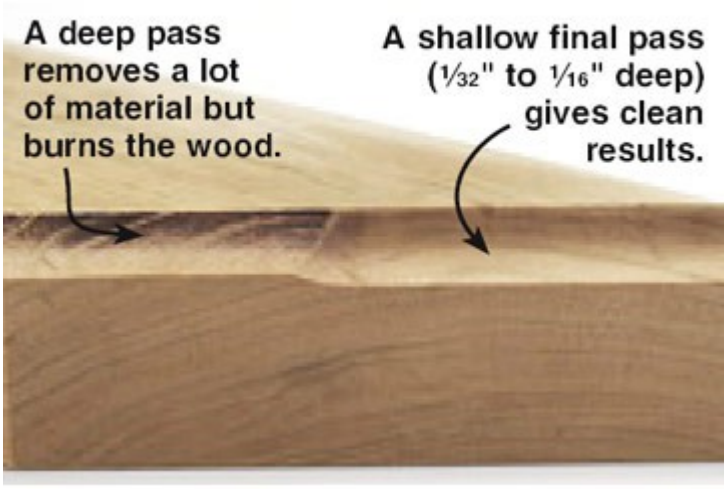
Watch your woods...

MAXIMUM ROUTER SPEED

Bit diameter	Max. Speed (rpm)
Up to 1"	Up to 24,000
1 to 1¼"	16,000 to 18,000
1¼ to 2¼"	12,000 to 16,000
2¼ to 3½"	12,000

Some woods, such as oak, don't easily burn. Maple and cherry burn notoriously because of their density and the oils and extractives they contain. Among softwoods, pine can be troublesome in areas that contain pitch pockets. With these species, slow the router and increase feed rate to minimize burning.

Take it one step at a time...



Powerful routers and sharp carbide-tipped bits are capable of hogging out large cuts in even the hardest of woods. But doing so stresses the bit, causes tear-out, and leads to burning. When removing more than 1/4" of material, make multiple shallow passes....