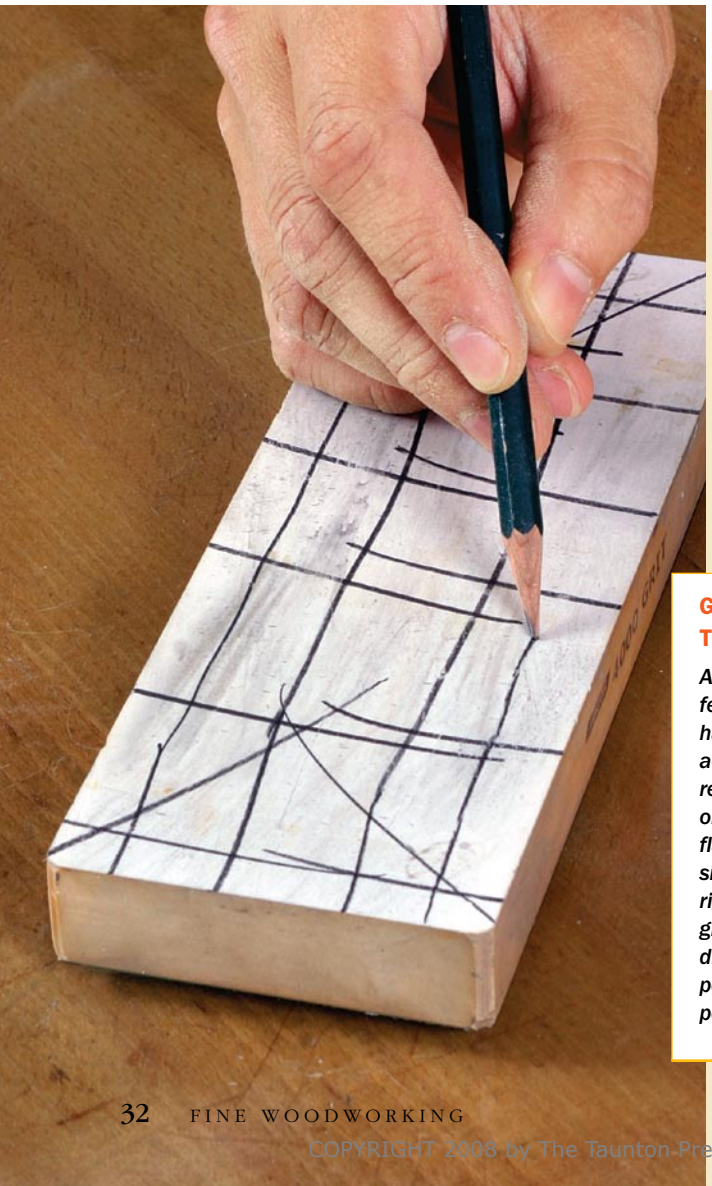
Pencil and paper

WORK PRECISELY BY USING THESE SIMPLE TOOLS IN UNCONVENTIONAL WAYS

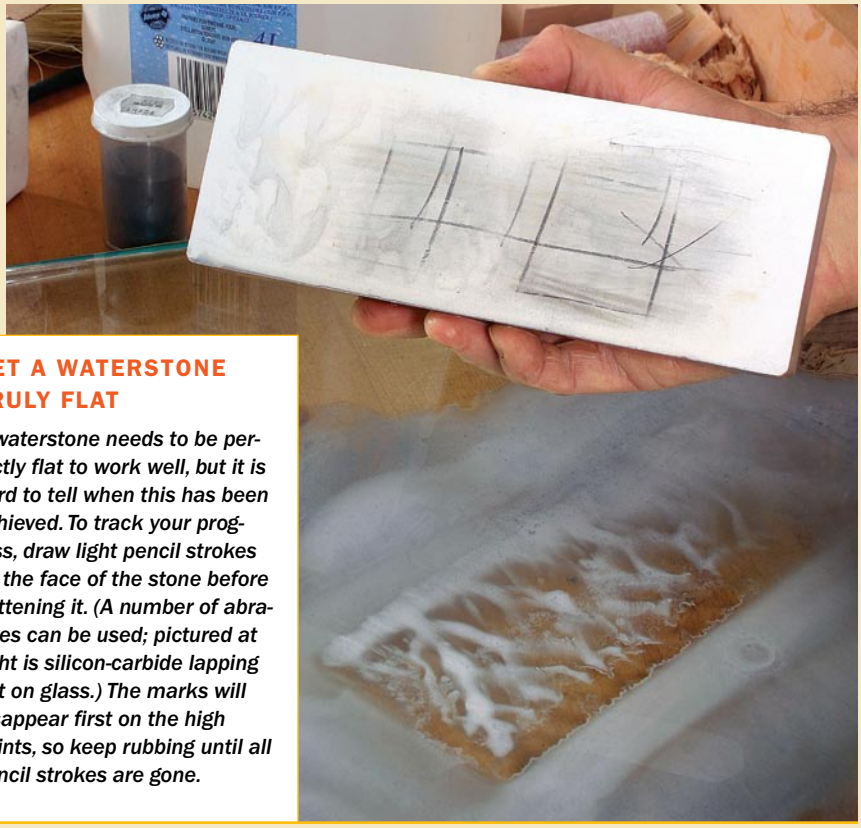
BY HENDRIK VARJU

You don't need to be high-tech to achieve high precision. Whether you need to move your tablesaw fence a few thousandths of an inch or craft a perfectly fitted mortise-and-tenon joint, you can see and control nearly invisible differences by using two of the most common and ancient tools around—a pencil and paper. The next time you want to dial in a higher level of accuracy, don't reach for your credit card to buy the latest alignment gadget. Instead, pull a few business cards from your wallet and a pencil from your tool belt.



Pencil strokes highlight your progress

Whether sharpening, planing, or routing, sometimes the amount that needs to be removed is so little it's hard to see with the naked eye. Drawing pencil lines on the workpiece or the tool can make your progress easily visible.



GET A WATERSTONE TRULY FLAT

A waterstone needs to be perfectly flat to work well, but it is hard to tell when this has been achieved. To track your progress, draw light pencil strokes on the face of the stone before flattening it. (A number of abrasives can be used; pictured at right is silicon-carbide lapping grit on glass.) The marks will disappear first on the high points, so keep rubbing until all pencil strokes are gone.

Photos: Mark Schofield

AVOID TAPERING TOO FAR

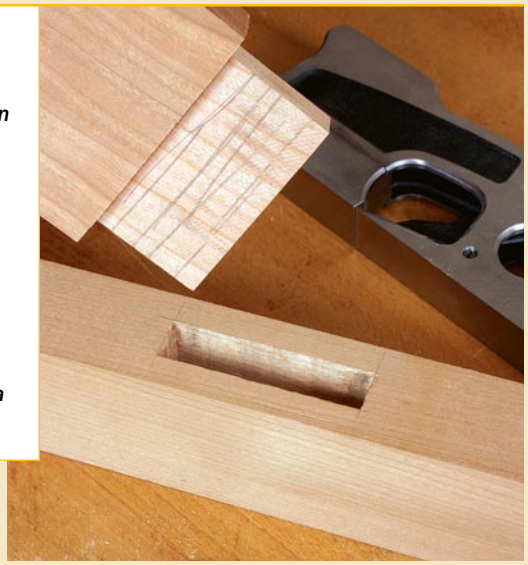
A jointer or handplane is used to refine table-sawn tapers on a leg, with each pass extending the taper farther up the leg. But stray into the designated flat area, and you'll see a gap when the apron is attached to the leg. A few pencil strokes near the start of the taper highlight when to stop planing.

SEE WHERE YOU'RE PLANING

If you're flattening a glued-up panel, start by finding all of the high areas using a straightedge and marking them with pencil strokes. This way you can concentrate on the areas that need the most wood removed. You'll also be able to track any places you missed. Use a different pattern of pencil strokes in the lowest spots as a warning to avoid planing these areas.

FIT A MORTISE AND TENON

When fitting a tenon to its mortise, it can be difficult to assess where the tenon is too thick. Pencil strokes on the tenon cheeks will rub off where the fit is too tight, showing where to pare the tenon for a proper fit.



SET A ROUTER'S DEPTH PRECISELY

When bringing trim or a plug level with its surroundings, you need to set a straight bit to cut exactly level with the surface. Mark a piece of plywood with some heavy pencil strokes, then gradually lower the bit until the pencil marks get lighter but are just visible. While this might sound difficult to attain, a good microadjust system on your router will easily allow you to dial in just a couple of thousandths of an inch at a time. If you go too deep, back off, draw some more lines, and try again.

Paper shims

I constantly need to adjust a setup, fence, or workpiece by a few thousandths of an inch to achieve perfect accuracy. Paper is a great way to make precise adjustments. A non-embossed business card is typically 0.011 in. to 0.012 in. thick, standard 24-lb. printer paper is 0.005 in., and phone-directory paper 0.002 in. to 0.003 in.

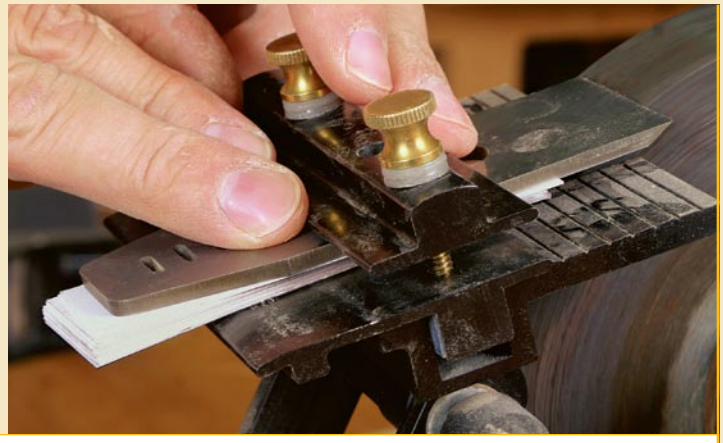
PRECISION DADOES AND RABBETS

If you need to widen a dado or rabbet by a very small amount (1), moving the tablesaw fence a few thousandths of an inch isn't an easy task. Clamp a straight piece of milled stock behind the fence, but with a few business cards sandwiched between them (both at the front and back of the fence to keep it from racking) (2). After making a test cut, remove or add business cards or paper shims to move the fence one way or the other by precise amounts, and make the cut (3). The width of the dado or rabbet will be perfect (4).


1


3


4



BUSINESS CARDS CHANGE GRINDING ANGLES

Adjusting the tool rest to a specific angle on a grinder can be an experimental task. Now I change the angle by placing shims between the tool rest and the tool. On my 6-in. grinding wheel, I've found that adding seven business cards lowers the grinding angle by about 2.5°. I have my tool rest set at a standard 30° angle, but when I need 25° for my low-angle block plane iron, I simply install 14 business cards and tighten the clamping mechanism, and the job is done.

SET UP A HOLLOW-CHISEL MORTISER

You need a space between the chisel and its mating auger bit. Place business cards between the top of the mortising bit and its holder when inserting both auger bit and chisel. With the auger secure, release the chisel holder, remove the business cards, and raise the chisel before retightening it. Use three cards for the ½-in. chisel, two for the ⅜-in. size, and one for the ¼-in. chisel.

SNUG-FITTING LAP JOINTS

A lap joint must be cut to precisely the width of its mating part. Set a stop block on the auxiliary miter gauge so that the cut will end up fractionally wide, but then place a number of paper or business-card shims in front of the block so that the cut will be too narrow. Remove the shims one at a time until the cut matches the desired width.

FLUSH JOINTS START WITH SHIMS

Where the face of one board must end up flush with the end grain of another, place a couple of business cards under the face-grain board when cutting the joint either with biscuits or dowels. This will guarantee that the end grain ends up fractionally proud. Now flush the joint using a low-angle block plane.