

11 Essential Measuring and Marking Tools

Accurate layouts become routine when the right tools are close at hand

BY CHRIS GOCHNOUR

12-in. combination square

The 12-in. combination square is an 8-in-1 tool that I find indispensable. Its versatility comes from the unique shape of its head and an adjustable blade that's incrementally marked as a rule.

A 12-in. combination square can be used as a long- or short-bladed try square, as well as a miter square. The adjustable rule enables it to serve as a depth gauge to verify the depth of a mortise, dado, or hole. It also can be set up as a height gauge to check tablesaw-blade or router-bit height. Used with a pencil, it can scribe lines parallel to board edges, much like a marking gauge.

A glass level vial, set in its head, verifies that things are plumb and level. As a final benefit, the blade can be removed altogether and used as a precision rule or straightedge.

Inexpensive, discount-store varieties are usually not well marked or machined. To get the most from a combination square, it's best to purchase one from a reputable maker of precision engineer's tools.



A square and more. Perfect for scribing a square line on boards up to a foot wide, this tool has several other features that come in handy.

Careful layout is important to every woodworking project. Measure or mark a part inaccurately and it almost certainly will cause problems along the way.

That point was driven home recently as I taught a woodworking class where students used mostly hand tools to build a Hepplewhite writing desk. As the class progressed, the correlation between effective layout and successful woodworking was clear. Students who carefully laid out their projects with crisp, concise markings built their desks quickly and efficiently, with fewer setbacks. Students who laid out their projects with faint and irregular markings had to work at a slower, less productive pace. Not surprisingly, the latter group took longer to complete their desks, and the quality level was not up to that of the other students.

All that led me to consider my favorite measuring and marking tools, the ones I keep within easy reach and use nearly every day. These 11 tools are as important to my work as any hand or powered cutting tool. A well-equipped workshop, I feel, should include one of each.

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Framing square for bigger jobs. When scribing a line across a wide workpiece, like a panel, a framing square is Gochmour's tool of choice.

Framing square

Another square I find useful, particularly for large-scale work, is the framing square. Although generally viewed as a carpenter's tool, it is extremely useful in the woodshop. Made from one piece of aluminum or steel, roughly $\frac{1}{8}$ in. thick, with one arm incrementally marked to 16 in. and the other to 24 in., it serves as a jumbo try square for larger work.

Among other tasks, I use mine to lay out cut lines on panels or wide lumber, to define joinery across wide case pieces, to test the corners of panels to verify accuracy, and to check case assemblies for squareness during glue-ups.

Although framing squares are not expensive and generally are not viewed as precision tools, I've used the same one for 20 years and have never had to true it up. I treat it with care, and like an old friend, it has never let me down.

4-in. engineer's square

A 4-in. engineer's square is great for setting up or checking machinery blades, fences, or tables for accuracy. It also helps in verifying that stock is square and true. I use it for layout tasks where pencil or knife marks are scribed on board edges or narrow faces, as in door, chair, or frame construction. It also can be used to verify the squareness of smaller assemblies, such as doors, drawers, cases, and the like.

Made of precision-milled steel, engineer's squares are dead accurate. And they stay that way indefinitely, given proper care. They are relatively inexpensive, and the little extra spent on a reputable brand will pay for itself in the long run.



Compact and precise. Small enough to fit into the pocket of a shop apron, a 4-in. engineer's square has a lot of good uses in the shop, including, as shown, scribing the end lines on dovetail joints.



12-ft. tape measure

I use a steel tape for many of my day-to-day measuring tasks. Tapes range in length from 8 ft. to 25 ft.; the blade widths run from $\frac{1}{2}$ in. to 1 in. I like a 12-ft. tape. It's long enough for most furniture-making needs, but not so heavy as to weigh down my pocket or belt.

I prefer a $\frac{3}{4}$ -in.-wide blade, simply because it is more rigid than the $\frac{1}{2}$ -in. That's useful when the blade must extend unsupported in order to make a measurement. The blade markings should be clear and easy to read.

I use a tape for most inside and outside measuring tasks. The hook on the tape end is designed to move in or out its exact thickness, enabling the tape to read inside and outside measurements accurately. If the hook is bent, the measurement will be inaccurate. Periodically check the hook against an accurate rule, and correct as needed.

If real precision is required, I like to bypass the tape's hook and line up the tape on the 10-in. mark, take the reading, and then subtract 10 in.



Tape measure gives all-around accuracy. As workpieces get bigger, a tape measure is the ticket to long measurements.



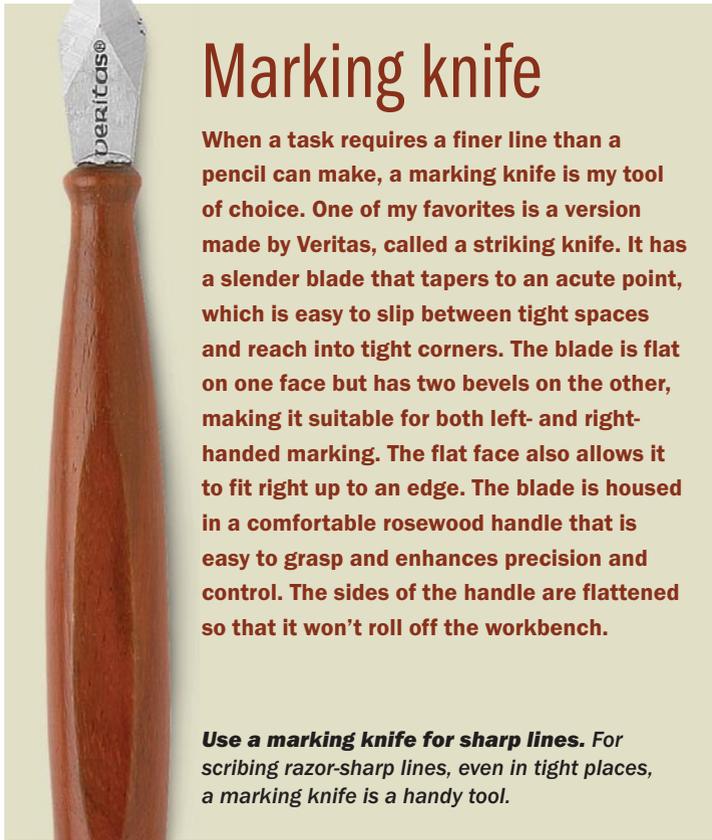
6-in. steel rule

A 6-in. steel rule is handy for setting the fences on tablesaws, routers, marking gauges, or plow planes. I also use it to set up blade or bit heights and to check stock thickness. It's great for laying out the full range of joinery, from mortise-and-tenon and dovetail joints to dowels and biscuits.

Look for a rule with markings etched into the steel, as they generally are easier to read. The markings should run from end to end so that you can measure from an inside corner. A rule that also has marks parallel to one end (not shown) is a plus, as it makes some height adjustments easier.



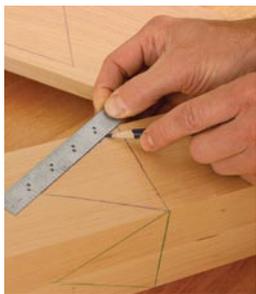
Easy to use. A short, easy-to-read, 6-in. steel rule is perfect for precise measuring and marking.



Marking knife

When a task requires a finer line than a pencil can make, a marking knife is my tool of choice. One of my favorites is a version made by Veritas, called a striking knife. It has a slender blade that tapers to an acute point, which is easy to slip between tight spaces and reach into tight corners. The blade is flat on one face but has two bevels on the other, making it suitable for both left- and right-handed marking. The flat face also allows it to fit right up to an edge. The blade is housed in a comfortable rosewood handle that is easy to grasp and enhances precision and control. The sides of the handle are flattened so that it won't roll off the workbench.

Use a marking knife for sharp lines. For scribing razor-sharp lines, even in tight places, a marking knife is a handy tool.



Pencils

I use a variety of pencils, each suited to a particular task, such as marking boards for rough dimensions, basic joinery layout, designating waste areas, and shop math. For general shop use, I prefer a No. 2 pencil, sharpened to a point with a conventional sharpener. For jobs such as dovetailing, where a finer, more precise line is needed, I use a

Colored pencils offer good visibility. Using pencils of different colors can help distinguish between similar parts. Also, lines from a white-lead pencil tend to show better on dark-colored woods.

No. 3 pencil because it has harder lead. I shape the point with a block plane and sandpaper to create a fine, knifelike edge.

Colored pencils also are useful. For dark-colored woods like walnut and wenge, the mark from a white-lead pencil is easier to see. I use other colors on all wood types to define and designate cabinet or chair parts.

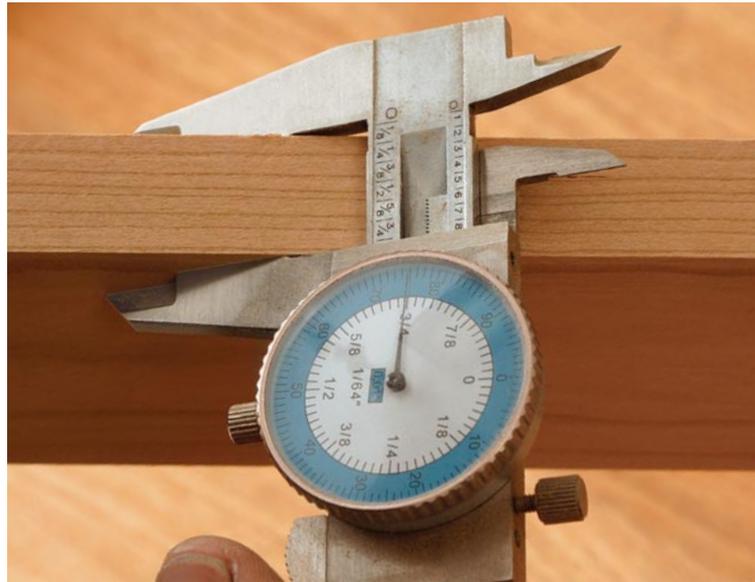


A cleaner line. Gochnour uses a No. 3 pencil when it's important to get an extrafine mark or line, but first he shaves the wooden end to a flat point on his handplane and then further hones the lead on a piece of fine sandpaper.



Fractional dial caliper

Dial calipers generally are viewed as machinists' tools, but they are great in the woodshop. They are capable of inside, outside, and depth measurements. A thumbscrew locks the jaws for measurement transfer. I find dial calipers helpful for verifying stock thickness, checking joinery size and spacing, and measuring turned parts. Unless you enjoy reading conversion charts, I would recommend the type with a dial incrementally marked in both fractions and decimals.



When precision is a must. When it comes to fine measuring, few woodworking tools match a good dial caliper. The decimal scale can measure to within 0.001 in.; the fractional scale to 1/64 in.



Parallel lines. The combination gauge shines when you need to scribe a number of identical mortises.

Marking gauge

A combination-type marking gauge offers the user two options. One side of the gauge has a single pin, the other has a pair of pins. It is important to sharpen all the pins to a keen edge that will produce a knifelike cut.

The single pin is used to scribe lines parallel to a board edge. It's used across the grain for such tasks as scribing a baseline for dovetails or a tenon shoulder. Working with the grain, the single pin on a combination gauge can define a rabbet cut, or scribe a reference line to work to while preparing stock with hand tools.

The side with two pins can serve as a mortise gauge, allowing you to scribe simultaneously two lines parallel to a board's edge.





Scratch awl

Traditionally, an awl was used for scribing lines with the grain or on end grain where knife marks are more difficult to see. I like to use an awl to mark the center of drill-hole locations. The impression left by this pointed tool helps to center the bit and ensure precise drilling whether you use a twist, brad-point, or auger bit. It also can be used to locate or start a center for lathe work.

Awls come in all shapes and sizes. The bottom line is to get one with a comfortable handle. I like it to have a few flat spots to keep it from rolling off the bench and a tapered, cylindrical shaft that terminates in a sharp conical point. Plain or fancy, take your pick.

Center-point marker. Although it can be used to scribe lines, the awl is especially useful for marking hole center points.



Bevel gauge

A bevel gauge, or sliding T-bevel, adjusts to lay out or transfer a full range of angles. The gauge consists of a fence and an adjustable, slotted blade that can be locked securely at the required angle. The fence is typically wood, metal, or a combination, with plastic used on the cheaper models. The blade is generally steel. Various means are used to lock the blade in the fence, ranging from a simple wing or knurled nut to a locking cam lever or a thumbscrew on the fence end.

Look for a lock that holds the blade securely in the fence and doesn't interfere with the bevel when the tool is lying on its side. A bevel gauge is useful for laying out dovetail and angled mortise-and-tenon joinery, and particularly for transferring angles from a working drawing or an existing part to machinery blades, fences, or tables for angled cuts.



For marking angles. A bevel gauge comes in handy when you need to scribe an angled line.

