Essential hand-tool kit

ONE FURNITURE MAKER'S APPROACH

BY DAN FAIA

I've done all sorts of woodworking in my career, but hand tools have always played a large role. I cannot do my best work without them.

Whether working in the big shop at North Bennet Street School, where I teach, using an equal balance of power and hand, or working in my home shop almost exclusively at the bench, my set of essential hand tools is surprisingly similar.

While I was designing the compact tool rack featured on pp. 50-57, I gave serious thought to just which tools I rely on, the ones I reach for on a regular basis. Granted, I am a period furniture maker by trade, and I probably work with more curves and carving than the average woodworker. So you might be able to get away without a couple of the items on my list. And some woodworkers will want to add a block plane, for trimming small surfaces and making shaping cuts. I prefer to handle these tasks with the other tools in my kit, but the block plane can be very helpful. To see my kit in action, turn to the tool-rack project.

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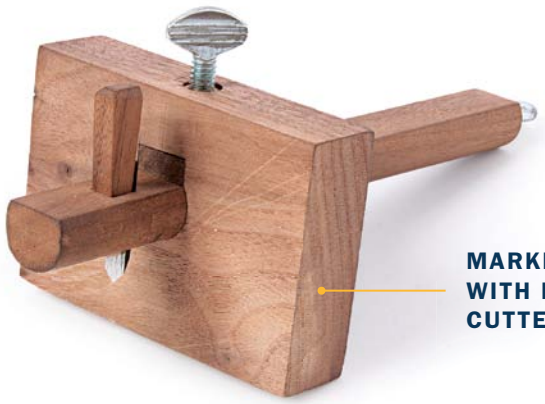
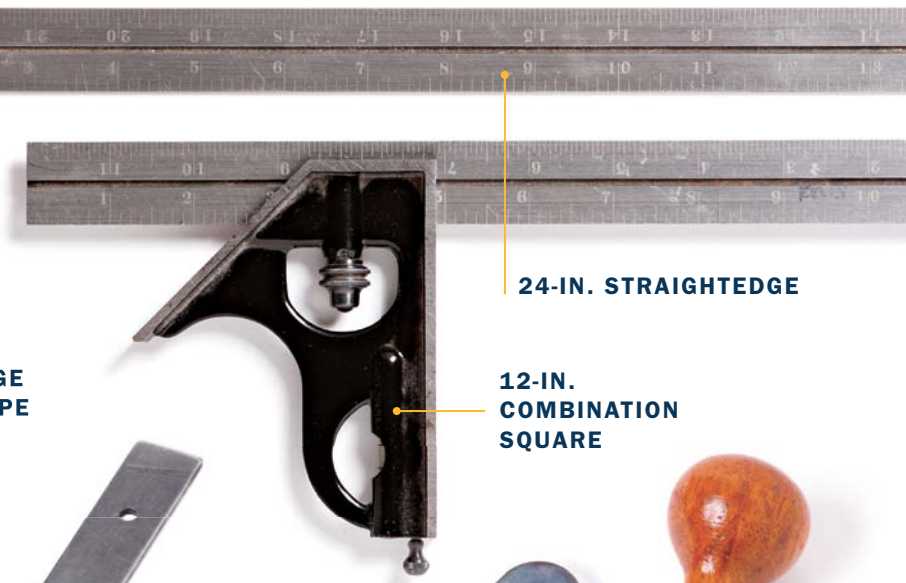
Photos: Asa Christiana

Layout

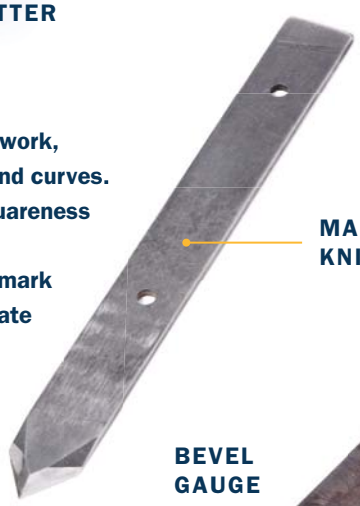


MARKING GAUGE WITH KNIFE-TYPE CUTTER



24-IN. STRAIGHTEDGE

12-IN. COMBINATION SQUARE



MARKING KNIFE

BEVEL GAUGE

AWL

DIVIDERS

COMPASS

Layout tools are the foundation for accurate work, helping me create precise joinery, angles, and curves. They also serve as important references for squareness and flatness.

The combination square is the primary benchmark in the shop. A machinist-quality model is accurate and easy to read. Its many tasks include measuring workpieces, checking them for flatness and squareness, laying out joinery, and setting up machinery.

At times I attach a 24-in. rule to my square, doubling its length for squaring the ends of wide boards and checking their overall flatness as well.

A traditional marking gauge uses a round pin, which can leave a jagged, inaccurate cut across the grain. Mine, called a cutting gauge, has a small, removable knife that is easily sharpened and slices wood fibers cleanly, leaving a perfect pocket to drop a chisel into for final paring. I also use it to cut inlay pieces from veneer.

Used often with the combination square, a marking knife performs the layout tasks that the marking gauge can't handle, leaving the same crisp, incised line. I like a double-beveled tip, which cuts in both directions.

While the combination square lays out 90° and 45° angles, the bevel gauge does everything in between. I use it when laying out dovetails, angled tenons, and beveled edges.

A pair of dividers is used to transfer dimensions or to space a series of marks evenly, for dovetail layout, for example. Any size or type is OK. The compass looks like dividers, but has a different job. It lays out circles and arcs, leaving a pencil line to guide my handwork.

I use the fine point of an awl to make a dent at the center of a hole, making it easy to drill in an exact location. The awl is also indispensable for precise screw locations when installing hardware.

Surface prep

Nothing prepares surfaces for finishing better or faster than hand tools. The No. 4 handplane is a shop workhorse that touches almost every surface. Unlike sandpaper, the plane maintains a flat surface and leaves a pristine cut, and does it quickly. I also like its mass and momentum for squaring and beveling edges, and shaping convex surfaces.

NO. 4 HANDPLANE

NO. 7 HANDPLANE

When lengths and widths of workpieces outmatch the No. 4, the No. 7 gets the job done. The long sole creates flawless edge joints on long pieces, and is great for truing doors and frames. This big plane is ideal for flattening large panels quickly.

For ornery grain, when the handplanes are leaving too much tearout, the card scraper steps in, reducing the amount of sanding required. It is also invaluable for flushing veneers and inlay without damaging the surrounding surface. I use curved card scrapers (called gooseneck scrapers) to smooth moldings and other curves.

CARD SCRAPER

A cabinet scraper, based on the Stanley No. 80, scrapes in a more systematic way than the humble card scraper, making it easier to maintain a flat surface. It is not an everyday player in the kit, but it does an incredible job on large surfaces with difficult grain.

CABINET SCRAPER

To sharpen scrapers of all kinds, you need a burnisher. They come in many shapes: round, triangular, and teardrop. I prefer the round, tapered type, which has a pointed tip that I use to realign the burr.

BURNISHER

Joinery

Forming joinery is job one for the following list of tools, which make a wide variety of helpful cuts.

To make straight joinery cuts, you need two saws. The dovetail saw cuts cleanly and efficiently with the grain. I use it mostly to cut dovetails and tenon cheeks. The carcase saw handles bigger jobs that require more cutting length and depth. I use it to cut tenon shoulders and dadoes, and also to cut parts to length, mitered or square.

Not as precise as the first two saws, the coping saw is a highly underrated tool. It is great for removing rough material when cutting joints, but it's also useful for cutting curves. A good-quality blade makes all the difference. I recommend the Stanley Trojan blades, with 15 tpi (teeth per inch). They work well on both hardwoods and softwoods.

A set of five chisels (¼ in., ⅜ in., ½ in., ¾ in., and 1 in.) is adequate for most tasks in the shop, from chopping and paring joinery to shaping wood. By far, the 1-in. chisel is the most used in my set. Round out your basic chisel kit with a 1-in. paring chisel. Its longer, thinner blade fits into tight quarters and reaches far beyond a standard chisel. I use it to trim tenon cheeks, and for all sorts of shaping cuts, from curves to chamfers.

Fitting joinery is one of the most important and fundamental tasks in furniture making. A shoulder plane, designed to pare surfaces precisely all the way into a corner, brings a wonderful level of precision to this task, making it easy to fit tenons, rabbets, and much more. It will become a go-to tool in your kit.

The router plane is a very versatile tool. Its sole rests on the surface of the work, with a cutter hanging down to produce a surface parallel to the top one. It's great for cutting pockets for inlay, refining the bottoms of dadoes, and relieving the background of a carving. I use a large model for larger areas, and a small model with a ⅛-in.-wide cutter. The small plane can ride on narrower surfaces for more delicate inlay and hardware jobs.

Shaping

The following tools shape wood in various ways, from rough to refined. If your work doesn't involve many 3-D curves, you can probably get away without the drawknife and rasp.

The drawknife is good for more than shaping green wood, its traditional job. It makes quick work of bevels, roughing them out before a shave or plane takes over. And it's great for sculpting 3-D surfaces such as a cabriole leg.

A standard metal-bodied spokeshave is a planing tool with a short, flat sole, ideal for smoothing and refining the curved cuts of a bandsaw, coping saw, or drawknife.

The cabinetmaker's rasp is used like a drawknife or spokeshave to form and refine curves of any shape, but its abrading cut makes it better on difficult grain. Use a half-round file to refine the surface left by the rasp, or simply to shape a surface where the rasp would be too aggressive. I like the double-cut pattern.

A second file, the mill file, is a must-have for the inevitable metalwork in a woodworking shop, like tuning up hand tools and modifying hardware. It also leaves a smooth surface on wood.