Fine Woodworking's art director, the magazine's design consultant, and one of the show's hosts, Christine, designed this simple but professional-quality workbench without any complicated curves that speed up as they move (as opposed to radius curves that can seem mechanical). At the top are general (as opposed to V-shaped) inner filler curves, three types, each irregular and organic, with contrasting wood, like walnut, and the front and back portions and elegant curves.

By As "Simple, Sturdy Workbench"

The only tools needed to make this bench are a drill/driver, a circular saw, and a hand iron woodworking vise, which is an essential tool in any woodworking shop. There is room at one end for a lower stretcher, and the other a short batten, one extending end to end on the side, another perpendicular to it, which is also extending end to end, and the ends of the batten fit a variety of handy bolts and short dowels. The fiberboard, cut from a single sheet, with dadoes, and the back and back-stretcher receive dog holes, sized roughly 3 in. long by 3 in. wide. Front jaw of vise can be extended to fit a variety of handy bolts and short dowels. The base is simply with long bolts and short dowels. The fiberboard (as opposed to plywood), cut from a single sheet, with dadoes, and the back and back-stretcher receive dog holes, sized roughly 3 in. long by 3 in. wide.

Build an Oak Bookcase

From Getting Started in Woodworking, Season 2

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Lumber and hardware List

Part Qty size material

1 Box of 1/4-in.-dia., 2 1/8-in.-dia. dowels, roughly 3 in. long
1 Bottle of yellow glue
1 7-in. Groz Rapid-Acjoint Woodworking Vise (www.woodcraft.com)
1 4x8 sheet of MDF
1/4-in.-long drywall screws 1/4-in. washers for attaching shelves
2 Hardwood pieces for vise jaws, 7 in. thick and the rear jaw is 3/4 in. thick and the rear jaw is 3/4 in. long by 3 in. wide. Front jaw can be extended to fit a variety of handy bolts and short dowels. For attaching vise, 62 in. long by 4 in. wide by 6 in. long
1 1/4 in. x 27 1/2 in. x 45 3/4 in. Oak veneer
1 3/4 in. x 11 in. x 52 in. Oak
1 3/4 in. thick plywood, 4 in. wide by 6 in. long
2 6-ft. lengths of 3/4-in.-dia. threaded rod
1 2-in.-long, 3/8-in.-dia. dowels, roughly 3 in. long
2 2-in.-long 3/8-in.-dia. dowels, roughly 3 in. long
3 1/4-in.-dia., 2 1/4-in.-dia. dowels, roughly 3 in. long
2 1/4-in.-dia., 2 1/4-in.-dia. dowels, roughly 3 in. long
16 -20 bolts, nuts, washers for attaching shelves
3/8-in.-long lag screws and washers, for attaching vise
1/4-in.-long lag screws and washers, for attaching vise
3/8-in.-long nuts for attaching vise
2 1-in.-dia. threaded rod
3/8-in.-dia. threaded rod
1/4-in.-dia. threaded rod
1 1/4 in. x 27 1/2 in. x 45 3/4 in. Oak veneer
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16 -20 bolts, nuts, washers for attaching f
Three options for frames

BUILT-UP MOLDING FROM TRIM STOCK

Often a piece of ready-made molding will provide the inspiration for you to build a similar design from trim stock. Architectural trim moldings come in a large range of sizes and styles, but in most cases you will have to create a base and a rabbet. In this example, I started with a piece of poplar \(\frac{3}{4}\) in. thick by \(\frac{3}{4}\) in. wide. I cut a rabbet \(\frac{1}{4}\) in. wide by \(\frac{1}{2}\) in. deep on the tablesaw, and on the other side I routed a rabbet \(\frac{1}{4}\) in. wide by \(\frac{1}{2}\) in. deep to hold the art. I then glued egg-and-dart trim to the wider rabbet and a strip of beading to the top surface.

Because the trim pieces may not match, paint is a better finishing option than stain. I sprayed a coat of gesso (a combination of plaster and glue) on this frame, followed by black and then bronze paint. After it dried, I rubbed the frame with 000 steel wool, then applied black wax to “age” it.

Photos: Mark Schofield
the mat and the backing board. The additional charge is worth the protection it affords your artwork. Once you have all of these pieces cut to size, only then can you calculate the frame’s dimensions.

Frame size refers to the dimensions of the artwork, not the outer size of the frame itself. When determining the size of a frame, measure to the inside of the rabbet. To allow for wiggle room, add an extra 1/8 in. in each direction. For example, a 16-in. by 20-in. piece of art gets a frame sized 16 1/8 in. by 20 1/8 in. When cutting the molding to rough length, add twice the width of the frame molding plus an inch or two as a safety margin.

Your picture frame must have a rabbet deep enough to secure the thickness of what you intend to frame. Mat board is 1/16 in. thick, backing typically is 3/16 in. thick, and glass is 1/8 in. thick. Most commercial frames have a rabbet depth of about 1/2 in. to allow for double mats and to leave enough space for fasteners to keep the contents in the frame. The standard width of the rabbet is 1/4 in.

**Miter corners on a special sled**

Two factors are crucial for making mitered corners that fit perfectly. First, the 45° angles must be accurate. Second, the molding pieces that are opposite each other must be exactly the same length.

Cutting picture-frame miters on a tablesaw using a standard miter gauge is a real challenge. Problems include small amounts of play in the miter gauge and lack of support for the molding.
Cut perfect miters on the tablesaw

Unlike most tablesaw sleds, this one has two fences of different lengths. A short fence is used to make the first cut on the right-hand side of the molding; a long fence is used to cut the left-hand miter. The longer fence incorporates a ruler and a stop block that allow moldings to be cut to precise and repeatable lengths. Hold-downs support stock over its entire length.

My jig (see the drawings above) is designed to miter picture frames. Rather than the typical square board, it is a rectangle, aligned to the miter-gauge slots at a 45° angle. Instead of two fences of equal length, one is short near the blade. The traditional solution has been to build a miter sled or a sliding miter jig that eliminates any movement and supports the full length of the workpiece up to the blade. Clamps or hold-downs add to the jig’s accuracy. You may have a jig already, but to cut picture-frame molding, you need a jig with two further attributes: It must provide an accurate way to measure and cut the lengths of molding so that the opposing sides are exactly the same, and it must be designed to cut the outside edge of the molding first to eliminate splintering on the most visible edge of the frame.

When cutting frame molding, always cut the longer sides first. If you should err, you still will be able to cut the longer piece into a shorter side. With your rough-cut section of molding secured to the short fence, miter the right-hand end. Move the molding to the long fence, using the ruler to establish the desired length. Clamp the molding and set the adjustable stop at the end of the molding. Cut the left-hand miter. The parallel section of molding is cut in the same way,
but now you have a stop, making the two sections identical in length.

**Glue and strengthen the frame**

With all four sides cut, you're now ready to assemble the frame. Most of the strength in the miter joint comes from the glue but only if the pieces are clamped together firmly and accurately. My favorite clamping method is a miter vise, but other methods include a strap clamp, especially with the use of corner blocks, and a four-corner clamp that uses threaded rods.

Nails can be added to reinforce the joint. Most framers drill a hole using a slightly smaller nail chucked in an electric drill. Nails can be added while the frame is secured in a miter clamp, or with the frame braced to absorb the blows of the hammer. To lessen the chance
Two options for gluing miters

The best clamp. An old-fashioned heavy-duty miter clamp works best to glue frames together (right). A pair of clamps allows you to glue a frame in two steps. For smaller frames, threaded rods and corner blocks are the clamping method of choice (below).

Reinforce the miter joint. Use a nail to drill a hole horizontally in each corner of the frame. Then hammer in a nail slightly larger than the hole. A miter clamp lets you nail the joint while the glue dries.

of splitting the wood, make sure the nail is driven with the dominant edge perpendicular to the grain.

Fit the artwork into the frame

Your framing project is not done until it is hanging on the wall. A painting on canvas will require fastening only into the rabbet from the back of the frame. Picture framers call this “fitting.” Fitting items with mats and glass is slightly different: Lay the glass, mat, picture, and backing board faceup while you clean the glass. Spray a nonammonia cleaner onto a section of folded paper towel and wipe the glass from the center toward your other hand that is holding the edge of the package to prevent movement. Turn over the glass by the edges and repeat until it is free of specks. Then place the frame over the package, slide it to the edge of the table, grip the whole thing, and flip it over.

Fastening everything into the frame is easiest with a point driver, especially if it is a hardwood frame. The hand tool looks like a staple gun, but it shoots a 5/8-in.-long point out the front into the inside of the rabbet. Alternative methods include using a brad setter, glazing points, or S-clips (see the left photos on the facing page).

Seal the back with gummed-paper box tape to prevent insects and dust from getting into the frame enclosure. Moisten the tape, press it into place, and trim any excess. Do not use self-adhesive tape because the oils soak into the frame and backing board, and the tape eventually comes off.

To wire the back of the frame, use two screw eyelets and twisted picture wire. Hardware stores sell these in packages rated for different picture weights. About a quarter to a third of the way from the top of the frame, puncture the back with an awl. Start the eyelet in the hole and then, using the awl inserted into the eye, turn the eyelet into the frame until it is secure. In softer woods, screw the eyelet all the way down. Loop the wire through the eye twice and wrap the small excess around the wire. The other end gets the same treatment, after the wire is pulled tight to eliminate slack. You have the correct tension if only two of your fingers can fit between the wire and the back of the frame. Now you are ready to hang your work for all to enjoy.

Robert Hamon is a professional picture framer in Mission, Kan.

SOURCES OF SUPPLY

Dick Blick
800-828-4548
www.dickblick.com

Lee Valley Tools Ltd.
800-871-8158; www.leevalley.com

Van Dyke’s Restorers
800-558-1234; www.vandykes.com

Woodworker’s Supply
800-645-9292; www.woodworker.com
Secure the artwork in the frame

FOUR WAYS TO FASTEN EVERYTHING INSIDE

**Points.** The easiest way to fasten the art is to use a point driver, which inserts arrow-headed points into the frame.

**Brads.** Using a brad setter rather than a hammer lessens the chances of damaging the frame.

**Glazing points.** Drive glazing points into the frame with a broad-tipped screwdriver. A block braces the pressure on the frame.

**S-clips.** These clips are available in different sizes to match the distance the artwork is below the back of the frame.

**First, clean the glass.** Clean both sides of the glass with nonammonia-based glass cleaner. Then lower the frame onto the art package. Slide the art-and-frame combination to the edge of the table and flip it over to add the fasteners (left).

**Then seal in the artwork.** Attach gummed-paper box tape to the back of the frame to prevent dust or insects from getting into the framing.

**Now hang it by a wire.** The picture is hung using eyelets and twisted picture wire. Tension the wire until you can just fit two fingers under it.