

Do-It-Yourself Framing

It's not exactly easy, but it's not as hard as it looks either. A skilled woodworker shows you how to construct beautiful wood frames yourself—and save money in the process.

BY KEITH MEALY

You rely on your framer as you entrust the fruits of your labor to a fellow craftsman—trusting that he will frame your work in a way that both protects the art and enhances its beauty. Since the framer knows what he's doing and does it well, why even attempt to learn how to frame work yourself? A simple reason: to save money. It may seem now that dropping your pictures off to the framer is an unavoidable necessity, but it's an expensive one. What are you paying for exactly? Wood isn't that costly; you're paying for the framer's knowledge and labor, certainly, but you're also contributing to his shop's overhead. While no one wants to put framers out of business, buying a few tools and learning a few skills can make you self-sufficient as an artist—ready, willing and soon proficient enough to frame your works on your own.

If you're unsure about wielding a saw or cutting glass, be assured that you can work your way slowly into the craft. You can buy components premade until you have the interest, skills, tools and materials to do the tasks yourself. After framing just a few pictures, you'll find that you've saved enough cash to buy all the equipment you need and, as you accumulate skills and equipment, your framing

will go faster and the process will become more pleasurable.

Speaking the language

You'll need to have a few products on hand (see sidebar below), and you'll have to understand some terms and phrases:

- **Frame stock or molding:** strips of wood or metal that make the four sides of the frame.
- **Layout:** the dimensions for each of the parts in your framing project.
- **Package size:** the outside dimensions of the top matboard, the glass and the backer. The package size determines the frame size.
- **Rabbet:** the groove cut into the inside edge of the frame. This recess forms a lip that will hold the painting.
- **Backer:** a high quality matboard or foam board that's placed behind the artwork for support.
- **Framer's points:** small, noncorrosive metal tabs that are shot out of a point driver tool into the inside edge of the rabbet to hold the framing package in the wooden frame. Shorter versions of these and manually inserted versions are called glazier's points. Either will work. (A glazier is a name for a person that cuts and fits glass.)
- **Miter:** a cut at an acute angle to the length of the molding. Adjoining miters meet to make a corner. Normally, you will miter at 45 degrees to make a 90-degree (square or right-angle) corner.
- **Miter saw:** a saw, either hand- or electric-powered, that accurately cuts a miter.
- **Picture framing vise:** a device that clamps molding at a 90-degree angle so you can assemble the frame's corners.

You'll also need a worktable big enough to hold the frame or the mat cutter, whichever is larger.

What's in a frame?

A basic framing project consists of three components:

- The frame
 - The "package," from front to back: glass, mat, artwork, backing
 - The dust cover and hanging hardware
- Tip: Always allow the 1/8-inch "magic gap" between the package and the inside edge of the

frame. This allows for slightly miscut or out-of-square components and also allows for expansion and contraction of the parts.

Determining the dimensions

First, figure out the layout dimensions. These are the dimensions for the mat pieces and molding pieces. Getting the layout right is the first step—and one that will save you the most grief when you get to the assembly phase and find that everything, in fact, does fit together. Let me say that it's difficult, if not impossible, to adjust dimensions late in the process, so spend a couple of extra minutes up front. Double-check your math and it will pay off.

The "package size" is the first thing to determine. (This will be a key dimension throughout your process.) The package size is simply the outside dimensions of the top matboard, the glass and the backer board. The package size determines the frame size.

So take careful measurements and be sure to leave the magic 1/8-inch gap between the package and the inside edge of the frame. This small

What You Need Supplies

Basic tools:

- Ruler or tape measure
- Pencil
- Hammer and nail set
- Drill
- Sandpaper
- Artist's eraser
- Single-edge razor blade

Specialized tools:

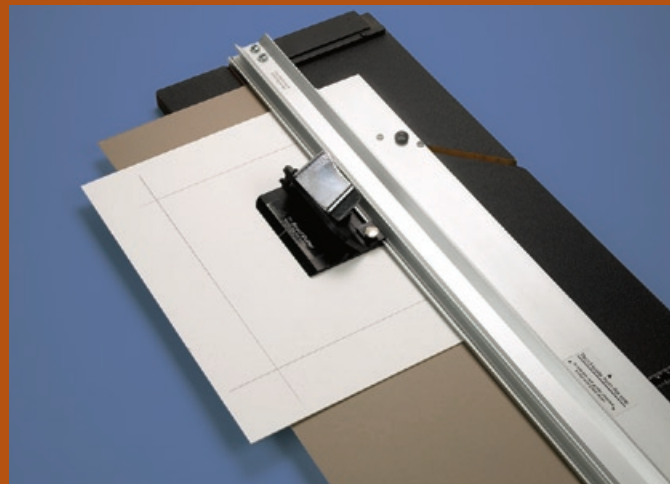
- Miter saw (power or hand)
- Mat cutter
- Framing vise (miter vise)
- Bone mat burnisher
- Adhesive transfer gun (ATG)
- Glass cutter
- Point driver

Materials:

- Brads
- White or yellow carpenter's glue

- Acid-free framer's tape
- Adhesive transfer tape for using by hand or with ATG (adhesive transfer gun)
- Kraft paper
- Hanging hardware
- Matboard
- Glass or sheet acrylic (Plexiglas®, for example)
- Furniture touch-up pen

Tip: If you create any nicks or dings, you can get a furniture touch-up pen, which contains colored finish in a felt-tip pen. Lightly dab the blemish and, if necessary, wipe immediately with a rag to blend it in. You can also use the touch-up pen across the miter-cut edges to conceal any white wood that might be exposed.



Cutting the frame and the mat

Shown above on the left is a miter saw cutting a piece of frame molding. At the right is a picture-framing vise that holds the frame in position for drilling, gluing and nailing the corners. At the top of the next page is the mat cutter. Notice how the required window dimensions are described by pencil lines.

gap allows for slightly miscut or out-of-square components and also allows for expansion and contraction.

Cutting the frame

Perhaps the hardest part is determining where to cut the molding. The easiest place to measure for the cut is on the outside edge of the molding, that is, the longest dimension, to the tip of the miter. You need to add together:

- The “package size” dimensions
- Twice the width of the back side of the frame
- 1/8 inch for a gap

This becomes the outside (or longest) edge dimension of the frame piece. So I don’t make mistakes in the layout, I’ve made myself a framing worksheet that I use as my blueprint for a framing project. (For an example, visit www.artistsmagazine.com and click on *Technical Q&A*.) Fill in the dimensions, add them up, and you will have all the numbers you need.

Power miter saws will produce a fine cut and enable you to nibble a little off a frame side. But with careful use and a little more time,

If you’re unsure about wielding a saw or cutting glass, be assured that you can work your way slowly into the craft.

a hand miter box will get you good results. When I taught a picture-framing class once, a student expressed disappointment that he hadn’t cut a perfect miter. I told him careful layout and practice are all that anyone needs.

Once you have a good layout and have double-checked your dimensions and math, it’s time to start making the frame. For a rectangular frame, each miter cut must be 45 degrees.

Be sure to clamp your frame stock in the miter saw. It will not only keep your hands safe; it will also keep the stock from creeping when you cut it.

The “size” of the frame is the size of the package that you will insert, but you need to cut the frame members to allow for the package to fit. For example, a package size of 8x10 will need a larger outside dimension frame so the package fits where it belongs.

There are two important criteria to keep in mind:

- The angles must 45 degrees. Any variation will show a gap.
- Opposite frame parts must be the same length.

Cut the parts and check the length. Clean up any splintered wood fibers with a light sanding.

Fastening the frame corners

You will need some way to fasten the corners. Professional shops use “underpinners” that shoot a V-shaped connector across the miters. The do-it-yourself alternative is to put brads (tiny, small-headed nails) into the outside corners, two from each direction, and secure the joint with glue. For years before the underpinner came along, framers used brads and wood-working glue.

On the picture-framing vise, insert two adjacent frame parts. It does matter which piece goes where, if only to have the corresponding pieces (long and short) opposite each other. The way I avoid errors is to start with “long on the left” for the initial corner. Add a bead of glue to the miter cut surface.

Line up the corners perfectly and make the back of the frame flat on the vise’s table. Pre-drill the nail holes with a drill using a same-size brad for a drill bit. Be sure to offset the

holes so the brads don’t hit each other. Hammer the brads in, stopping just before they are flush with the surface. Set the brads just below the surface with a nail set, a tool like a punch. Wipe off any glue squeeze-out with a damp rag. Repeat for the opposite corner (long on the left, again). Then finally do the remaining two corners. Set the assembled frame on a flat surface and let the glue dry at least 30 minutes; overnight is better. When the glue is dry, get a colored wax stick and fill in the nail holes. Use a piece of grocery bag or Kraft paper to buff out the excess wax.

Buying “chops”

A shortcut is to buy pre-mitered picture frame stock known as “chops.” You buy a pair for the vertical side and another pair for the horizontal side, and the dimension is the corresponding dimension for your “package size.” Some hobby stores have various sizes of chops in stock. Framing suppliers offer chops cut to your length specification. Some frame shops order all their stock as chops, so don’t feel you are cheating.

The mat: single or double?

You use acid-free matboard to frame your artwork, complement the colors and give the artwork some visual and air space. There are few hard and fast rules for mat selection, but normally the bigger the package, the wider the mat border. The size of your artwork determines the inner dimensions for the mat’s window. You should allow at least a 1/4-inch overlap of mat over the edges of your artwork. This means your window will be at least 1/2 inch smaller in each direction than your artwork. For some artwork, particularly small pieces, or those in which detail is very close to the edge,

you might have to squeeze this to 1/8 inch.

According to the style current in contemporary framing, the lower portion of the mat border is larger than the other three sides to put the artwork slightly above center. Sometimes you may want the mat margin (or border) to be the same all around: 2-3 inches is a good choice for average-size

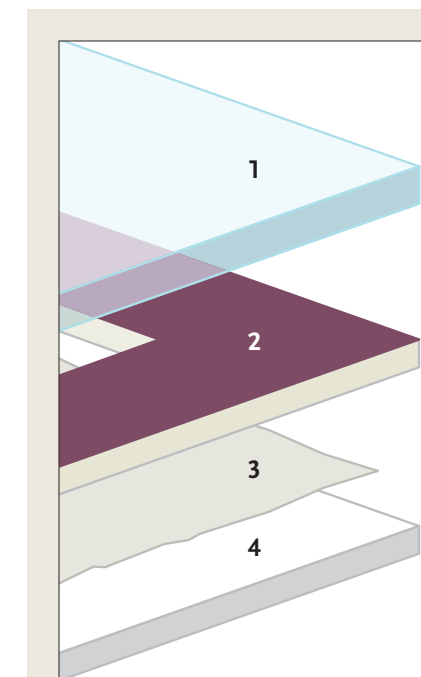
artwork. Remember, too, that some part of the mat is going to be covered by the lip on the frame.

If you are double or triple matting, you should allow at least 1/4-inch reveal between the layers. Triple mats look best if the reveals are unequal to avoid a “stair-step” look.

Cutting the mat

You can cut mat with anything from a knife and straightedge to a computer-controlled CNC (computer numerical control) machine. They all result in the same thing. Mat cutters come in a wide range of prices. If you spend more, you will get more features, more capacity and more “craftsmanship of certainty.”

First, cut the top mat to the package size. If



Layer upon Layer Building and assembling the package

Again, the package is the sandwich of glass (1), mat (2), art (3), and backer (4) that you assemble. After you have all the components measured and cut, you’re ready to assemble the package.

Handy tool

At the left is an ATG (adhesive transfer gun) that will make cutting multiple mats a quicker and easier process.

you are using multiple layers of mat, the lower layers should be about 1 inch less in width and height than the front, or top, mat. Cut all of the mat and backer board to dimension before starting to cut the windows.

You cut windows in a mat from the back. Most matboard will have the manufacturer's name and item number printed on the back. On a few colors of mat, the mat is sold as reversible with slightly different texture or color on opposite sides. Set the fence on the mat cutter to the width of the mat that you are cutting. Mat cutters vary, so follow the instructions for the one you're using. With a pencil, draw the cut lines on all 4 edges to outline the "window" you are going to cut. This gives you start and stop positions. Some mat cutters have built-in stops that you use to set your start and stop points. You should also put a scrap piece



of mat as a backing sheet underneath the mat you are cutting to get the cleanest cut. Using the angled mat cutter, plunge the blade into the back of the mat and carefully push the cutter to the other corner. Pull the blade out, rotate the mat to the next side and repeat for all four sides. Be sure to keep a sharp blade in your cutter; switch to a fresh blade after cutting two or three mats.

If you've cut the mat just right, the waste piece in the center ("fall-out") will release and you'll have a nice window in your mat. If your cuts are a bit short, use a single-edge razor blade and trim the final bit into the corner. Remember the mat cutter is at an angle to give a beveled cut, so hold your razor blade at that angle.

If your cuts are slightly long, you'll have some over-cuts on the front that you can burnish down with a bone tool. You will see over-cuts as little cut lines on the front of the matboard that you can rub back into place.

Cutting multiple mats

If you are doing a single mat, your mat is complete. If you are doing multiple layer mats, you'll need to know the technique. Position the waste fall-out back into the top mat in exactly the same position. Working from the back of the mat, lay a line of adhesive from your adhesive transfer gun (ATG) down around the window and put a spot in the middle of the fall-out. Position the lower level mat onto the adhesive and press down to secure. You made this lower level mat smaller so that you have the original mat edges as your reference surface for all cuts.

If you don't yet have an ATG, you can buy the tape, cut it to length with scissors, press it on one side and peel off the paper. This low-tech method is just as effective, but a little more

Where to Go

Sources of supplies

United Mfrs. Supplies Inc. (www.unitedmfrs.com)

800/645-7260

Frame stock, chops, mat, tools, books and supplies.

Logan Graphic Products Inc. (www.logangraphic.com)

800/331-6232

Framing tools including the Frame-It-Yourself picture-framing system.

Free online videos and tutorials on the Web site.

The Fletcher-Terry Company (www.startframing.com)

Tool manufacturer. Web site features how-to guides.

Alto's EZ Mat Inc. (www.altosezmat.com)

800/225-2497

Mat cutting tools.

Rockler Woodworking and Hardware (www.rockler.com)

800/279-4441 or local stores in major cities across the United States.

Framing and mat cutting tools.

The Art of Creative Matting by Sean Hunt and Valerie McClure

A notebook of advanced matting techniques (www.unitedmfrs.com or www.amazon.com).



Even more tools

The photograph at the top left shows some of the tools you'll need to cut glass: lubricant (oil or WD40), a straightedge, heavy gloves, a glass cutter, and a Sharpie pen. Once your package is ready, you can secure it.

The photograph at the top right shows a point driver, a specialized tool that works like a staple gun, shooting framing points.

time consuming. The transfer tape works well because it bonds immediately, but you can reposition it if you haven't pressed down too hard. Use an artist's eraser with a light touch to clean up any smudges on the front of your matboard.

Double or triple

Reset the fence on the mat cutter for the width of your under-mat and repeat the same process to cut the window as before. You're cutting through one layer of mat and into the waste fall-out piece. Trim or burnish corners just as before. You should now have a double mat where the reveal is parallel and even all around.

For a triple mat, just repeat the process, using the two-layer fall-out and a third matboard.

A shortcut, if you want one

Most framing shops or hobby stores will custom-cut mats for you. Some will stock standard sizes, for example 8x10 mats, though colors and sizes will be limited.

Cutting the backer and the glass

The backer is something to support the artwork from the back. You can use leftover pieces of matboard or Fome-Cor (foam board). Cut the

backer the same size as your "package size."

Most artwork, except works in oil on canvas or wood, should have glass in front of it. Choose a glass suitable for art work: single-strength window glass, UV blocking glass,

antiglare glass, or acrylic plastic sheet. To cut glass you need a glass cutter and straightedge. I like to use a piece of old commercial carpet to catch the shards. Glass cutting is not difficult, but the best way to learn it is to get some glass and practice, but be very careful with edges of cut glass. Wear heavy gloves and eye protection when cutting and handling freshly cut glass.

Put a drop of oil on the cutting wheel. Take one long firm stroke from edge to edge with a glass cutter against a straightedge. Using work gloves and wearing safety glasses pick the glass up along the cut line and gently snap it with your hands.

Thoroughly clean both sides of the glass with window cleaner and paper towels. Double-check for streaks or fingerprints. You should not use ammonia-based cleaners (like Windex®) on UV blocking glass.

The acrylic option

For large frames, you can use 1/8- or 1/4-inch acrylic sheets; Plexiglas® is one common trade name. You can cut a sheet of Plexiglas with a woodworking saw. The advantages of acrylic are that it's lighter, safer and more shatter-resistant than glass; however, it's more flexible and susceptible to scratches. For that reason, you should leave on the protective masking until you are finished with the cutting. This practice will help you avoid scratches. If you have trouble getting the masking off, heat it with a hair dryer to soften up the adhesive.

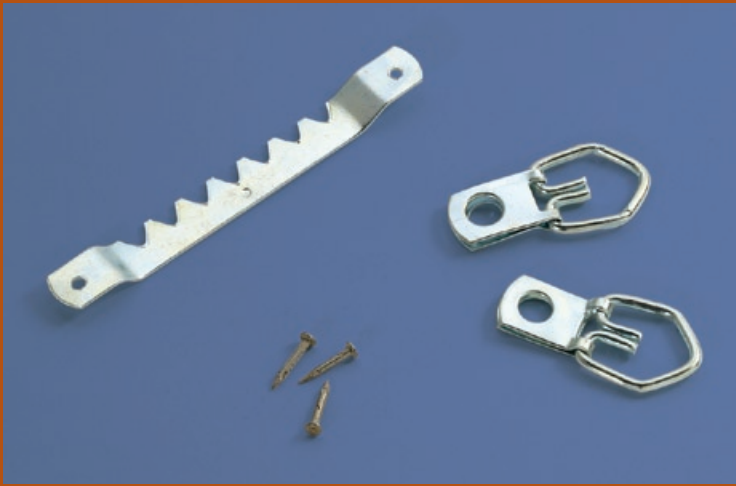
Now add the artwork

Build your package from back to front. Lay down the backer. On the back side of the artwork, across the top, add an overlapping 2-inch-long section of acid-free framer's tape (sticky side up). With the artwork face side up,

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Another shortcut

A local glass shop or hardware store can cut glass or acrylic to your dimensions. For best results, complete your frame and take it with you and have the worker cut the glass to fit. That way, if it doesn't fit, he'll recut a piece so you won't end up with a useless piece of glass.



Final touches

Above are the elements of hardware that will finish your framing job. The sawtooth hanger on the left is good for small frames; the hanging hooks on the right allow you to insert wire for larger frames.

lower the matboard over the artwork, centering and leveling it. When it looks right, press the mat down onto the tape and secure. Brush off any dust or lint, and lay down the glass.

Now invert and secure

Double-check for any foreign matter now and remove it. When you're happy, lay your frame over the package and, grabbing from underneath with both hands, carefully invert it all.

The quickest and easiest way to secure the package in the frame is with a specialized tool called a point driver, which works like a staple gun, but shoots out the front instead of down. It shoots small pieces of metal called framing points. Shoot a point every 6-8 inches around the perimeter of your frame.

If you don't have a point driver, you can secure the package with either brads into the frame or with glazier's points that are used in windows and doors to hold the glass in place. You can push them in with a special setting tool, putty knife or wide screwdriver, but buying a point driving tool will save you much time.

Another Option

Metal frames

Metal frames are even easier to put together. Buy them in "chops" form. Each corner will have an L-bracket that secures with screws. Insert your package (made the same way) and screw together the corners. Metal frames normally need both hooks for a picture frame wire and spring steel retainers (instead of glazier's points) to keep the package to the front of the frame.

Adding a dustcover

You will want a dustcover across the back to keep out dust, dirt and little crawlies. Cut a piece of Kraft paper slightly oversize. Lay down adhesive transfer tape across the back edges of the frame. Stretch and lay down the paper across the back of the frame. Trim the edge of the paper backing with a single-edge razor blade, keeping about $\frac{1}{16}$ - $\frac{1}{8}$ inch from the edge of the frame.

Hanging hardware at last

Now it's time to determine the type of hanger you want. I use two types, a sawtooth hanger for small frames and wire for larger ones (see above left).

To install a sawtooth hanger, center the hanger on the back of the top of the frame, and hammer in the little nails that come with it. Make sure there's enough depth to the wood frame so the nails don't come poking through the front. Don't forget to double-check to make sure which side of the frame is the top.

The second way is using framing wire. About $\frac{1}{3}$ of the way down from the top, insert a screw eye or hanging hook into each of the side pieces of the frame. Measure to make them the same distance from the top. Insert one end of the wire into one loop, wrap and insert again, then leave about 2 inches of tail to wrap around itself. Measure to the other screw eye (allowing some extra wire), use pliers or diagonal cutters to cut the wire, and repeat the process. Be sure the top arc of the wire is below the top edge of the frame. Most hardware and wire will have a stated load limit. Use what is adequate for the size of your complete frame.

From now on, it will be easier

At this point you can feel pride in doing your own framing. The first frame is the hardest. Consider your job well done and look forward to building more frames and saving money, as you have achieved another step in self-sufficiency as an artist. ♦

KEITH MEALY is a master woodworker who teaches classes in basic framing. A frequent contributor to *Popular Woodworking* magazine, he lives in Cincinnati, Ohio.