Build a Perfect Picture Frame



The key to success is mastering the splined miter

BY MICHAEL CULLEN

hen I was starting out in furniture making in the 1980s, some of my first commissions were for picture frames. I made frames mostly for artists, and they appreciated the care I took selecting choice wood, cutting spot-on miters, and reinforcing them with exposed splines. And I really appreciated the commissions—for the money, which I was in dire need of, but also for the opportunity to consolidate some of the fundamental skills I was learning. In the years since then I've built many more frames, tweaking my technique along the way and arriving at solid methods for building strong, understated, elegant frames.

A BASIC MOLDING Frame stock, ³/₄ in.



Rabbet, ¹⁄4 in. wide by ³⁄4 in. deep, holds artwork package.

Run the rabbet. Two ripcuts on the tablesaw shape the rabbet that will hold the art.

FINE WOODWORKING

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Time for molding. An oval edge bit on the router table produces in one pass the slightly pillowed surface Cullen wants on the front of the frame.

> Oval edge bit (Whiteside #1478)



Photos: Jonathan Binzen; drawings: Dan Thornton

MAKE SURE OF THE MITER





Start with the sled. Before angling the blade, check to be sure the miter gauge is set exactly at 90° to the line of cut.

Testing, 1, 2... Cullen dials in the blade angle by making test cuts in two extra pieces of frame stock (far left). Using a miter clamp to hold the joint and a framing square to test the resulting angle, Cullen zeros in on the tablesaw blade's tilt angle (left).

Laser focus on the miter

Developing a method for cutting flawless miters without a fuss is a key milestone for a furniture maker, and a steady source of pride and pleasure once it's mastered.

Whenever possible, I cut my miters with the tablesaw's blade tilted and the workpiece in regular crosscut position, either on a sled, a miter gauge, or a sliding table. I think this approach produces a better cut, because the cutting action is less labored and doesn't tend to move the workpiece. It also enables you to use stop blocks more easily, and it works just as well for long workpieces as short ones.

Cutting at exactly 45° is non-negotiable, of course. Some joints might have a little margin for error, but not miters; over time the flaw will tell. To get a perfect 45°, I use scrap stock milled at the same time as the real parts. With a miter clamp to hold the test miters and an accurate framing square to assess the outcome, you can quickly dial in the right blade tilt.



Miter the real molding. Cutting miters with a crosscut setup and a tilted blade makes for clean cuts and easy use of stop blocks. A sacrificial spacer fills the rabbet, stabilizing the workpiece during the cut.

MITER GLUE-UP



Keep some cutoffs. Cullen uses scraps of the frame stock as clamping blocks, adhering them with glue and finger pressure. Just before assembly, they serve as stands while he applies glue to the miters (right).





Pressure in the right place. The clamping blocks enable you to exert pressure perpendicular to the miter joint (above). Be sure they are placed so you can keep the tips of the miters tight. After the glueup, bandsaw away the bulk of each block (right). Then remove the rest with a handplane.



Sometimes special gizmos are good

To glue up my best frames I use clamping blocks, but if I'm in a hurry or have a batch to do I sometimes reach for my Merle band clamp (\$29.95, mlcswoodworking .com). You just wrap the band around the assembly and tighten. You can't apply pressure directly across the joints or adjust pressure for each corner as you can with clamping blocks, but still it works quite well—and it's hard to beat for speed.

—М.С.



INSERT THE SPLINES



Slotting for the splines. Cullen cuts spline grooves with a slot-cutter at the router table. A piece of scrap stock cut at a 45° angle and drilled to accept clamps guides the frame through the cut.







Spline insertion.

The splines, made from the same wood as the frame, are cut so their long grain crosses the miter joint. Cullen rough-cuts the excess at the bandsaw, then planes the splines flush.

Splines for strength

Most commercial frames are held together with nails or corrugated fasteners, but if you want to keep solid-wood miters tight for the long term—and give your frame a furniture maker's flourish—I recommend using splines to reinforce the miter joint. I usually cut the grooves for them with a slot-cutter at the router table, which produces a perfectly flat-bottomed kerf. For wide frames that require grooves too deep to cut with the router, I'll use a cradle jig at the tablesaw, then square up the bottom of the groove with a chisel.

Once the splines are glued in, all that remains is the pleasurable task of flushing them off, and your frame is just about ready for art (see Fundamentals, p. 82).□

Michael Cullen makes custom furniture, sculpture, boxes, and frames in Petaluma, Calif.



Finished frame. Cullen pads on shellac in thin coats, building to a low luster.