

# Back to Basics



by Paul Cascio

## *Getting Great Results From Your Underpinner*

To most professional picture framers, the frame joining machine known as an underpinner, v-nailer, or back-nailer, is as indispensable as a mat cutter, glass cutter, or mounting press is.

With a little practice and an understanding of how to get the best results, an underpinner enables you to assemble a frame in minutes while producing clean tight joints. Because its v-shaped nails are inserted into the back of the frame, an underpinner does its work invisibly, eliminating the nail holes found on side-nailed frames.

With this combination of speed, quality, and convenience, the underpinner is almost perfect. Unfortunately, the frame materials it assembles are not. Wood moulding may be warped, mitered angles can be slightly off, and cut pieces may suffer minute variations in length. The precision needed to produce a perfect frame is much greater than many framers—and framing customers—realize. No only must opposite sides of a frame be identical in length, but the sum of the angles of the eight mitered cuts (for a four-sided frame) must equal exactly 360°. The slightest deviation produces gaps in the corners.

It is so difficult to get perfect results that some framers have taken to pre-joining their frames with glue, using a strap clamp and then nailing after the glue has dried. Strap clamps distribute variations in each corner among the other three corners, making gaps less visible. In some cases, complementary flaws can even cancel out each other.

Unfortunately, the force applied during nailing may cause the glue joints to break apart, leaving the nails as the only source of support to hold the frame together. For that reason, I don't recommend this technique.

While in some instances it may be necessary to pre-join frames in this way, many joining problems can be eliminated without this extra step. Regardless of which brand underpinner you use, the following tips can help you improve results and reduce the number of imperfect corners you get when joining frames.

### **Eliminate Cutting Problems First**

If you cut your own frames, and are consistently experiencing poor corners, the first place to seek a solution is your cutting equipment. Your saw or chopper may be the real culprit. If so, the fix is often simple.

Begin by checking the blades. Are they sharp? If you're unsure, change to a new or freshly sharpened set of blades. Dull blades produce poor cuts. They can also compress the frame moulding rather than cutting through it. This compression can cause the frame to move or change shape just enough to create problems. Also, be sure the sharpening service you use is one recommended by your local supplier to ensure you are receiving quality service.

Next, check for sawdust and debris accumulation that can affect angles. (Keep all surfaces free of debris.)

Finally, check the angle of the measuring fence. I recommend recalibrating all cutting and joining equipment at least twice each year.

If you are using a touch-up sander, clean and re-calibrate it too.

Incidentally, if you are buying chops, keep a record of the source of any frames you are having problems with, as well as the moulding number, to determine if a particular supplier or frame is at fault. Notify your supplier of problems immediately so they can correct the problem.

One thing I emphasize to my students at my framing school is that many joining problems are actually the result of cutting or sanding problems. Eliminate them and your joining problems will disappear too.

## Servicing Your Underpinner

After eliminating the saw or chopper as a potential source of trouble, it's time to focus on the underpinner. Underpinners vary slightly from manufacturer to manufacturer and model to model, but the tune-up steps are fairly uniform.

Servicing an underpinner begins with removing glue build-up on the fence (pay particular attention to the corner) and top surface. Glue build-up is a common problem. Check and clean your underpinner each day before you begin using it.

Apply an occasional, light coating of WD-40 to the fence and top surface of the underpinner to help prevent glue build-up.

Check calibration to ensure that fence angles are correct and nails are properly aligned with the centerline of the frame corner. Different manufacturers recommend different procedures, so check your owner's manual for detailed information on the correct procedure to use.

Check your air compressor too. Be sure you have adequate air entering the underpinner. Typically, you'll need 100 pounds or more of air pressure entering the underpinner. This is necessary regardless of the wood you are nailing. Again, refer to the owner's manual of your underpinner for a further explanation of this commonly misunderstood, but very important, specification.

Once you are certain that your cutting and joining equipment is clean, calibrated, and operating properly, you can shift focus to joining procedures and techniques.

## Choosing the Right Nail

All nails are not created equal. Selecting the right nail for the material you are joining is extremely important. Nails vary in thickness and sharpness (grind). Interest-

ingly, nails designed for joining softwood frames are actually sharper (to cut through the wood fibers) than those made to join hardwoods, which are thicker and duller in order to crush through the harder fibers.

Using the wrong nail can produce disastrous results. The duller grind of hardwood nails can force the corners apart on softwood frames. Thin softwood nails can deflect or bend when used on hardwood frames. There's no excuse for using the wrong type nail.

How can you tell which type wood you are joining? Simple. Press your fingernail against the cut surface of the miter. If it leaves an indentation, it's softwood.

Select a nail size that provides coverage of about 80 percent of the frame height. When necessary, stack nails to achieve proper coverage. Be aware, however, that the ability to stack nails in hardwoods is limited to about two nails.

## More Tips

- When joining taller profiles, such as shadow box frames, use the underpinner first to join the bottom. Next, side nail the upper portion with a pneumatic brad nailer.
- Always use glue to ensure tight joints and a near-seamless appearance in the corners. This will also reduce the need to use putty to touch up corner gaps.
- Position nails horizontally so the backmost nail is about 10 percent from the back of the frame and the frontmost nail is about 10 percent from the inside edge. For taller profiles, move nail position slightly farther from the edges.
- "Long on the Left"—Develop a habit of placing the longer frame sides to the left when creating frame halves. This avoids the unpleasant experience of attempting to join the two halves and discovering they don't equal a frame. (Picture frame moulding makes for expensive firewood.)
- A very small percentage of frames simply do not join well with an underpinner. Bite the bullet and use a vice and nail gun to join these frames.

The underpinner is one of a framer's most valuable and time saving tools. Take care of it and learn how to use it properly and it will take care of you. ■

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