Finishing Secrets for Furniture-Grade Trim

Whether you're staining a door, built-in cabinetry, or the millwork in between, follow these steps for a flawless finish

BY TIM LEAHY

As far as work in the trades is concerned, I'm a lucky guy. For the past 12 years, I've spent my days as a finish foreman with a company that remodels and restores historic mansions and builds new homes in Newport, R.I. Our carpenters install custom-milled trim, cabinetry, doors, and windows. Then my crew and I go in and finish them. Given all that—and the ocean views—it's a sweet deal.

There's no doubt that the craftsmanship that precedes us sets the stage for us to do our best work. But delivering flawless finishes is no easy task. Staining and clear-coating the mahogany mantelpiece featured here—and the paneled library that it's in—took three of us two weeks to complete. Yes, we were methodical and took great care when applying the stain and the final clear coats. But nothing got more of our attention than the prep we did before popping the lid off the first can of stain.

Sand every inch

On one of our recent jobs, someone accidentally dripped water on an oak floor that my crew and I had just prepared for stain. Unfortunately, that someone never told us what had happened. When we applied the stain, there—in deep, dark splotches—was the evidence. The water had raised the grain, creating an uneven surface. Unlike a layer

STEP 1 SAND After protecting the surrounding area with rosin paper and masking tape, spot-sand blemishes with 120-grit sandpaper. Then sand all the woodwork in two passes, first with 120-grit sandpaper, then 150 grit. This grit sequence is good for hardwoods, like the mahogany shown here. On softer woods, start with 150 grit or 180 grit, and proceed up to 220.

Hit the imperfections first. *The area around an errant nail becomes a lump in the surface. To flatten it, use 120-grit sandpaper wrapped around a flat, square-edged block. Once all imperfections are sanded, begin sanding the entire surface.*

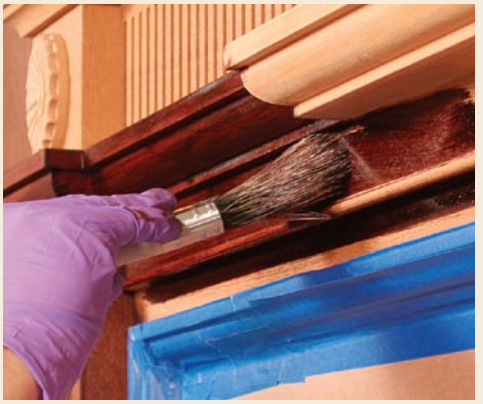
Ease sharp edges, but don't alter the profile. *Sharp joints and edges splinter easily and don't take finish well. Use gentle pressure, and sand in the direction of the grain. Sandpaper wrapped around a wooden dowel works well on crown, especially in the cove portion of the profile.*

Sand every inch, no matter how smooth it looks. *Planer and profile-cutting knives compress the top layer of wood fibers so much that stain can't penetrate the surface the way that it's designed to. That's why it's necessary to sand everything before applying stain.*

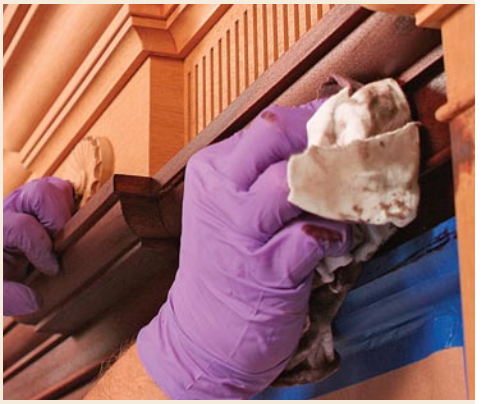
One section at a time. *Sand each shape or plane separately so that you don't sand one spot more than another or in the wrong direction relative to the grain. Be sure to get into grooves and crevices, and around corners. Keep the area well-lit and vacuumed so that you can see the surface. Make sure everything feels smooth before proceeding to Step 2.*

STEP 2 STAIN

Staining wood is a two-step process. First, brush on the stain; then wipe it down with a clean rag. Let the stain sit for several minutes to achieve its full color potential. Additional coats yield a darker color but can muddy the grain. Let the stain dry fully before proceeding to Step 3.



Cut in with a brush. *Working in small sections, apply the stain liberally, and let it sit for several minutes before wiping it off. Apply stain in a neat, orderly process. Excess stain can drip, run, and puddle, which can leak or leach out from behind moldings afterward.*



Wipe with a clean rag. *As you're working across the surface, keep the soaking time consistent for all sections, and pay attention to the edges, profiles, and corners. Replace the cloth when it gets loaded with stain.*

After wiping, use a clean brush to get into crevices. *Inexpensive brushes are great for removing excess stain from tight spots. Have a dry cloth handy to keep bristles dry.*

of paint, which hides the wood, stain highlights it. Unfortunately, stain also highlights watermarks, fingerprints, dried glue, and swirl marks left by power sanders. To get consistent results with stain, you can't just sand the blemishes; you need to sand the entire project evenly.

Sanding everything evens the porosity of the wood. Let me explain: When wood is run through a planer or shaper, its outer fibers are compressed, which leaves it with a glazed or glossy appearance. If stain is applied directly over those compressed fibers, it doesn't penetrate the wood the way it's meant to. Sanding opens the fibers evenly, allowing stain to soak into the wood.

The amount of sanding you should do depends on the quality of the wood. If you are staining molding or cabinetry made at a high-quality woodshop or in your own shop, chances are you'll need to sand the surface only lightly. Wood from big-box stores and moldings or cabinetry that has been exposed to temperature and humidity changes will likely need more work. In either case, using the proper grit sequence is important.

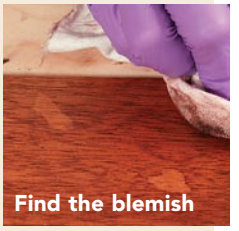
Because of the high quality of wood we work with, we typically use a two- or three-step sanding sequence. We thoroughly inspect all the wood first for the problem areas mentioned above, as well as for planer snipe. We do this by holding a light at a 45° angle close to the wood so that the light rakes across the surface. Don't use halogen work lights; they create too much glare. An aluminum clip-on work light with a 150w bulb works best.

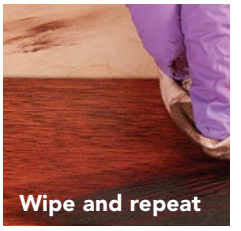
We remove the illuminated trouble spots by sanding along the grain with 120-grit sandpaper. We also lightly sand sharp corners and edges at this point because they splinter easily and don't take finish well.

Once the imperfections are removed, we sand the entire surface with 120-grit paper. Then we sand with 150-grit paper, still working with the grain. We maintain even pressure as we sand, making sure that we

THE SECRET TO DEALING WITH BLEMISHES: WET SANDING WITH STAIN

When water or glue stains appear after stain is applied, sand the spot with 180- or 220-grit wet/dry sandpaper and stain. Apply stain to the wood and also to the paper; then sand the area in the direction of the grain. Wipe and repeat to remove the spot. Use longer strokes to feather out the area if needed. After the wet sanding, the glue spots are erased. This process also works wonders on scratches.





don't bear down with our fingertips. Doing so could leave sanding marks and stripes.

You can use a random-orbit sander on flat stock and cabinets, and sanding sponges are great for molding profiles. Just make sure to use high-quality sponges from 3M or Norton; their sanding surface is consistent, the granules don't flake off, and they have a stiff sponge material, which gives them crisp edges. Cheap sponges fall apart easily and often lack crisp edges.

Once everything has been sanded, we vacuum and clear sawdust from nooks and crannies with an air hose. We check the surface one more time with our bare hands to make sure it's smooth. Then we lay tarps around the area and bring out the staining supplies.

Premixed stain isn't for every wood

I've seen plenty of beautiful woodwork virtually destroyed by stain because it was applied to wood that's difficult to finish. Pine, cherry, maple, and birch can absorb stain unevenly, often resulting in a blotchy look. To prevent blotching, use a wood conditioner prior to staining these woods. Woods like oak, mahogany, walnut, chestnut, ash, and hickory are easier to stain. Their porosity is more consistent, so they take stain more evenly.

Off-the-shelf oil-based wiping stains such as Minwax (www.minwax.com) are easy to use. They are premixed, so they are ready to use straight from the can. They also dry slowly, so they can be pushed around the surface easily to avoid lap marks. Dye stains, on the other hand, require mixing and dry much more quickly, so they are more difficult to use. Dye stain can be the best option for blotch-prone woods, however. (To learn more, see "What's the Difference?" p. 94.)

Using premixed stain, as we did on this project, is a two-step process: applying the stain, then wiping it off. We apply stain from the bottom up so that an errant drip doesn't hit bare wood. It's possible to apply it with a rag, but a tapered top-quality paintbrush with natural bristles is the best choice. These brushes offer better control over the stain, which is crucial when working around molding profiles. To prevent lap marks, we cut in every surface as if we were painting trim. To remove any excess stain, a rag is the tool of choice, though brushes are helpful in tight spots.

To heighten the level of finish on open-grain woods like oak, hickory, and mahogany, we often apply a grain filler like Behlen's

STEP 3 FILL THE GRAIN

Add a grain filler to accent the grain and to smooth the surface of open-grain woods such as mahogany. Filler also can be used on bare wood if no stain is to be applied. If you don't want to use grain filler, skip this step and proceed to Step 4.

Mix the grain filler with the stain to add color to the grain. *Follow the label directions for the proper filler-to-stain ratio and consistency. Here, I accented the grain by using a darker stain. It's also possible to use a lighter stain for a different effect.*

Apply along the grain, then perpendicular to it. *Use a brush, and work in both directions to force the material into the wood pores. Wait for the sheen to dull; then use a rubber squeegee or plastic spreader to remove the excess. Work across the wood at a 45° angle to the grain.*

Finish the removal with a clean rag. *First, work across the grain, then with the grain. I like to fold the rag flat and wipe off the residue as if waxing a car. Overrubbing with the grain can remove too much filler. Letting the residue dry for too long makes it difficult to remove.*

Don't forget profile transitions. *Filler left on edges or in grooves results in a sloppy look when the piece is finished. A dull putty knife or pointed stick works well to clean these areas.*

STEP 4 TOPCOAT

Apply three to four coats of clear finish to protect the wood and to enhance its tones. Fill the nail holes after the first coat. If you fill them before the wood is sealed, the filler will penetrate the pores around the holes, creating a smudged look. Sand between each coat with fine sandpaper, and rub down the surface with a tack cloth between coats.

A properly applied spray finish gives a furniturelike quality to this library. *The first coat of precatalyzed lacquer makes the wood come to life. When spraying lacquer or any other finish, maintain a wet edge at all times. Safe working conditions require good ventilation, a respirator, and a Tyvek suit.*

OR

Brushed-on polyurethane is a great choice, too. *Always use a high-quality brush. Also, thin the first coat with mineral spirits or naphtha for a base layer void of brush marks. Then follow with two coats straight from the can. Make sure the area and the air are clean so that dust doesn't settle on the surface as the polyurethane dries.*

Scuff each coat for the smoothest result. *Use 400- or 600-grit sandpaper, 0000 steel wool, or fine Scotch-Brite pads to remove dust nibs and to prepare the surface for subsequent topcoats. Be careful not to sand through the clear coat and remove stain around profile edges.*

Last-minute touch-up. *I like to fill imperfections and nail holes after the first topcoat so that the putty matches the wood tone exactly. Force the material into the hole; then wipe it clean. You might need to mix two or three colors to match various tones in the piece.*

Pore-O-Pac (www.behlen.co.uk) once we're done staining. Grain filler produces a smooth surface and is often used on fine furniture and musical instruments. Whether we end the coloring process with stain or grain filler, we wait at least 18 to 24 hours before applying the finish coats.

Topcoats serve many purposes

Topcoats protect. They also affect the overall feel and final look of the wood. Products like teak oil, furniture oil, or Danish oil create a natural look. They highlight the grain, but because they soak into the wood, natural finishes don't leave a durable film that protects the surface. Use them for projects that won't be exposed to much sunlight or wear and tear. Oil finishes are typically brushed on, then wiped off with a rag, so they're easy to work with.

Film-forming finishes create a hard, durable surface and a lens that allows light to accent color and grain. The most commonly used film-forming finishes include varnish, shellac, polyurethane, and lacquer, which I'm applying here. Two-part conversion finishes are available, but they're difficult to apply and typically are used on production cabinetry and furniture.

Each of the film finishes I mentioned is available in waterborne and solvent-based formulations. To protect wood from alcohol, water, and ultraviolet (UV) light, we typically use varnish or a conversion finish with UV-blockers. For a durable finish that comes close to an antiqued look, choose lacquer or shellac. And, as you guessed, the most commonly used hand-applied finish is polyurethane. It doesn't spray well, so we don't use it often. We like to use lacquer because it is easy to spray and dries quickly.

We prefer to spray clear coats because spraying produces the smoothest finish. Spraying also allows us to apply thin layers so that it's easy to fix problems that present themselves after the first coat. We can sand down the initial thin layer to fix a stain blemish that we missed, and we can blend the clear finish around that area when we're done. Despite the great working conditions and projects, there always seems to be something that needs a little extra attention. □

Tim Leahy is a finish foreman for restoration contractor and builder Kirby Perkins Construction in Newport, R.I. Photos by Chris Ermides.