Varnishing Secrets

A highly polished, durable finish can be achieved with a brush

BY DAVID SORG

To bring out the full color, depth, and figure in wood, a finish must be as clear and level as possible. Traditionally, this has been achieved in one of two ways: either by the slow build of French polishing or by the much easier and faster brushing, sanding, rubbing, and polishing of a film finish such as varnish, lacquer, or shellac.

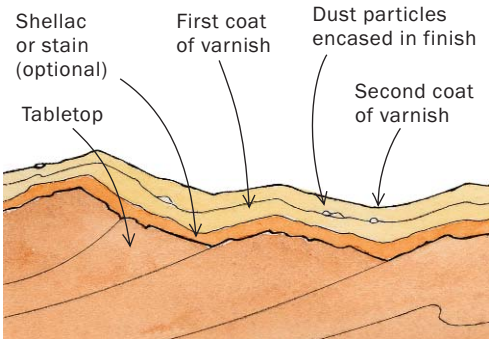
If you've never tried a rubbed and polished finish because you thought it required hours of work or years of experience, please keep reading. You'll be surprised at how easy it is to impress yourself and your friends with a gorgeous finish. Though there are many steps, they're fast and don't require a lot of talent.

First select the type of finish

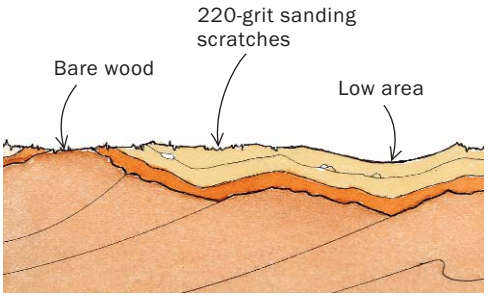
To achieve these impressive results requires using a product that can be polished and that has a brittle hardness as opposed to a rubbery hardness. One product that fits the bill is alkyd varnish, a short-oil varnish that has less oil and more resin, which makes it harder and more brittle. Don't use a spar varnish, which is

1 APPLY TWO COATS...

Sand and dust off the workpiece, then brush on two coats of varnish. There is no need to sand the surface if the second coat is applied within 24 hours of the first. If you want to color the wood, apply stain or shellac prior to the first coat of varnish.



...THEN SAND WITH 220-GRIT PAPER



The first sanding. *After the second coat of varnish has dried, use a sanding block and 220-grit paper to partially level the surface for the next coat.*

formulated for outdoor use and contains a lot of oil to keep it from cracking due to wide temperature swings. Don't use a non-gloss finish because it will obscure the full beauty of the wood. For a brush-applied finish, I like varnish because of its film-building ability and forgiveness of brush marks. If you prefer lacquer or shellac, the application steps are the same, but you'll have to adjust the number of coats (more than varnish) and the drying time (less than varnish). And with shellac, wet-sanding is done with mineral spirits, not water, which is used with varnish.

The table I finished for this article (built by Mark Schofield) is made of cherry, a relatively tight-grained wood, so its pores did not need to be filled other than with the varnish itself. With other, more open-grain woods, such as mahogany and walnut, you'll need to use filler or plan on an extra couple of coats of clear finish to level the surface. The wood can be stained before topcoating, but for this table I liked the subtle coloring of an initial coat of orange shellac. The varnish also will color the wood slightly, so make a sample of any and all steps you'll be taking with filler, stain, and finish coats to make sure you're getting the color you want. This sample will give you an idea of how much finish build you're getting and how long you can sand at each step without cutting through the finish.

Build the finish layer by layer

After a final sanding with 220-grit paper, remove the dust using either a vacuum or a tack cloth. Now you're ready to apply the coat of orange shellac (a 1½-lb. or 2-lb. cut is suitable).

The first coat of varnish—Let the shellac dry for 30 to 45 minutes and then apply the first coat of varnish. There's always a debate about whether or not to thin the varnish with mineral spirits: If you thin it 5% to 15%, it's definitely easier to apply and brush marks flow out more easily, but you may have to apply another coat to get a good film build. (See *FWW* #156, pp. 38-42, for brushing tips.) Don't worry about the label saying "Do not thin." It is there mainly

Photos: Mark Schofield

for legal purposes to let the finish comply with air-quality standards.

Let the first coat dry for 12 to 24 hours. Don't worry about brush marks or the inevitable dust in the finish. One of the great things about a polished finish is that you don't have to worry about whether you're in a clean, dust-free environment, because any minor defects will be sanded out.

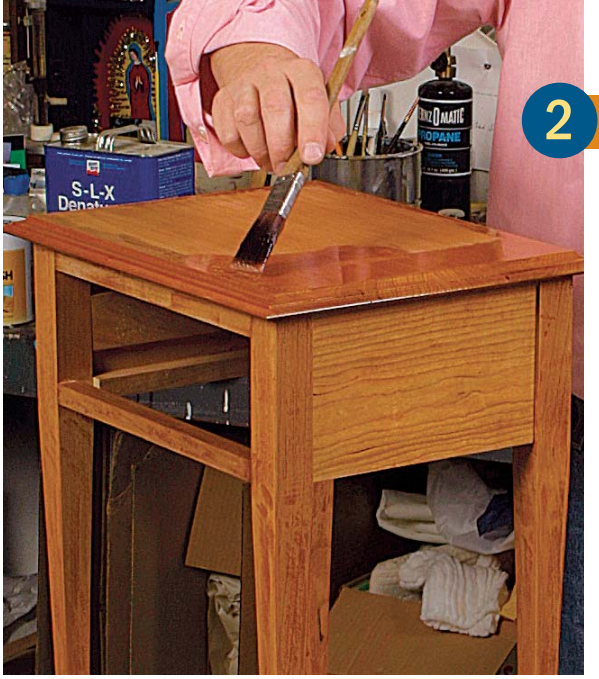
The second coat—If you apply a second coat the next day, there's no need to sand the first coat because the second will bond chemically to the first. This second coat of varnish is the most difficult to apply because you're applying gloss over gloss. There's more drag on the brush, and it's harder to see where you've been. From the side of the piece, shine a light across the surface so that you can tell whether you're applying the varnish too thin or too thick.

If more than a day has gone by since the first coat, the second coat no longer will chemically bond to the first coat, so scuff-sand the first coat with 220- or 320-grit paper to give the second coat a physical bond.

Level the first two coats—Let the second coat dry for at least 24 hours, then sand it with 220-grit paper. Use a rubber or cork sanding block on the flat surfaces, sanding with the grain, and specially shaped backing blocks where appropriate. Use your fingers when nothing else fits, but switch to 320-grit paper to minimize the chance of cutting through on edges or details.

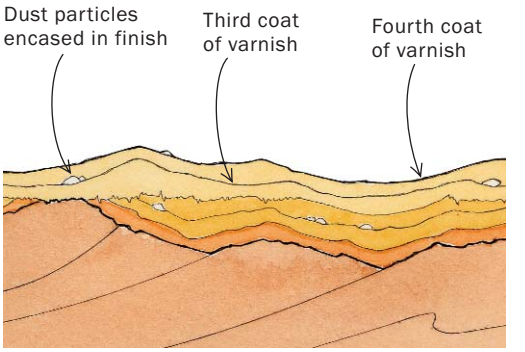
As you level the surface, you probably will reveal a pattern of dull and shiny areas: The dull areas are obviously the high spots being planed down, and the shiny areas are the low spots that haven't been touched. Don't try to remove all of the shiny areas completely, because you'll probably cut through on the edges.

A third coat and an optional fourth—After removing the sanding dust, apply a third coat of varnish. Let it dry for 12 to 24 hours. Here is where you'll have to make a judgment call: If you've been applying fairly thin coats, or if you have an unfilled pore pattern showing, apply a fourth



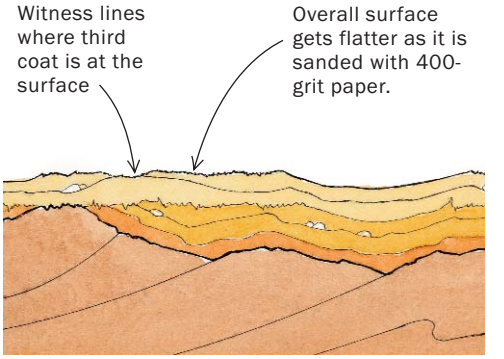
2 APPLY ANOTHER COAT...

The third coat of varnish is applied over the sanded surface. A fourth coat may be necessary if the pores of the wood are not yet filled.



...THEN SAND WITH 400-GRIT PAPER

Wet-sand the varnish. *Before the last coat of varnish is applied, smooth all of the surfaces with 400-grit wet-or-dry paper lubricated with water and a little liquid dishwashing soap.*



Dull and flat. *Before brushing on the last coat, the surface should be as smooth as possible but without any bare wood showing through.*

Drawings: Heather Lambert

coat directly over the third, just as the second coat was brushed right on top of the first. Let the fourth coat dry for 48 hours.

One more sanding and one last coat—Sand the third or fourth coat with 400-grit wet-or-dry sandpaper, again using a backing block. Lubricate the paper with water, adding a drop or two of dishwashing detergent to prevent clogging. Frequently wipe away the slurry to check your progress. If the varnish is making little balls on the sandpaper, the varnish needs to dry longer. It won't hurt to let it dry for several days. Look for the same dull/gloss pattern as before, but this time you'll aim for having fewer shiny areas and a flatter surface. If you sand through a layer of varnish, you may get some witness lines, which create a pattern that resembles a topographic map of relatively flat terrain. Don't worry, as the final coat will eliminate these lines. Wipe down the piece with mineral spirits to remove any dried slurry.

For the final coat, thin the varnish with about 15% mineral spirits. This last coat is meant to flow on with virtually no brush marks, filling any hollows. The build isn't much, but it's enough to provide a level surface for the final smoothing and polishing. This coat should dry for at least 48 hours, but longer is better. The more the varnish film cures, the harder it gets, and the smoother the final results will be.

Rub out to the desired sheen

Begin with a light wet-sanding with 600-grit wet-or-dry paper, regularly rinsing off the paper in a bucket of water. This step will remove the dust nibs and any small brush marks. If the sandpaper clogs, put the piece aside for another day or two. Regularly check your progress until 80% to 90% of the surface is dull. I tend to go light on the edges and small details at this stage, saving them for the next step.

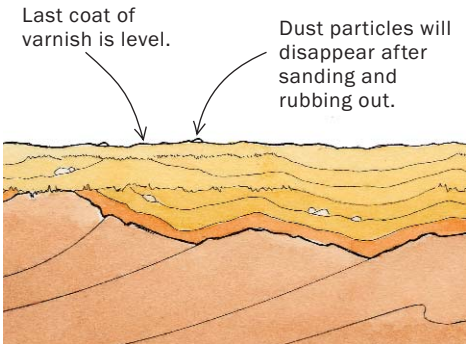
Next, wipe down the piece with a damp sponge. Before switching to a higher grit, change the water in the bucket to be sure that you won't grind any of the larger 600-grit pieces into the surface.

It's sometimes hard to find the higher-grit sandpapers at a paint or woodworking store, but any automotive store will have the 1,000- and 2,000-grit papers. The 1,000 grit is used to remove the scratches left behind by the 600 grit and to make the surface about 95% dull. You should have only a light sprinkling of low, shiny freckles left behind on the flat surfaces, and some shiny areas near inside corners, such as the cockbeading on a drawer or on moldings or carvings.

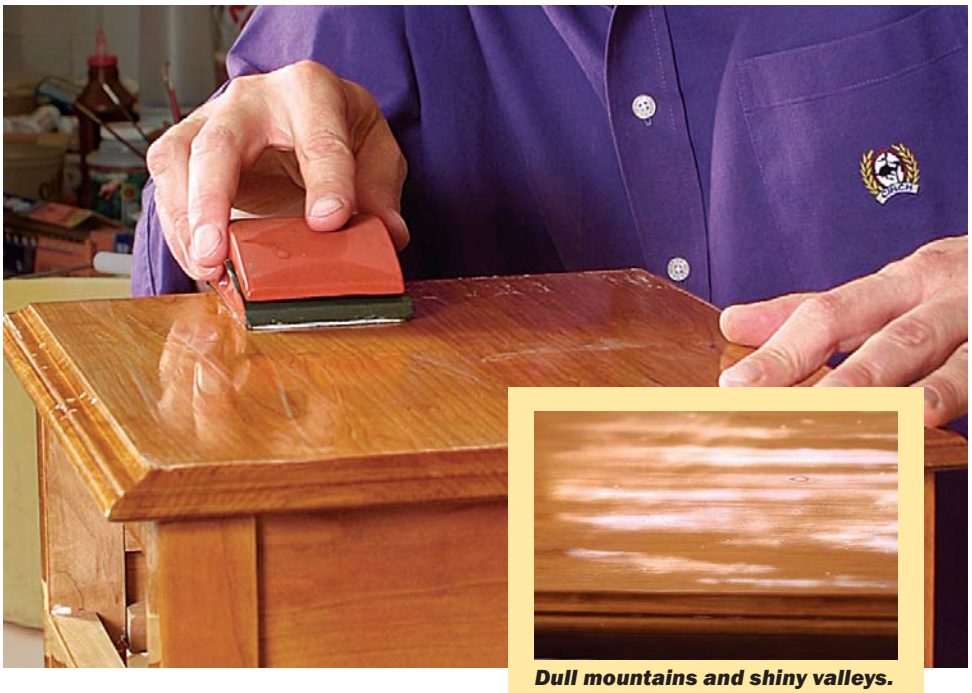
Stop here for a satin finish—Go through the same process with the 2,000-grit paper. Again, it goes quickly, but you may find that you have to hold down the workpiece firmly. Your varnished surface is now so smooth that the water creates suction between the sanding block and the surface.

3 APPLY A FINAL COAT...

The last coat of varnish should be thinned about 15% with mineral spirits to allow a smoother and easier flowing topcoat.



...THEN SAND WITH FINE-GRIT PAPERS



Dull mountains and shiny valleys. *Don't aim to achieve a uniform luster from the 600-grit sanding. The risk of cutting through the top layer of varnish is too high.*

After sanding with 2,000-grit paper, *there will be only a few glossy specks left. For a satin luster, finish with 0000 steel wool and wax.*

Water beads up beautifully on this very attractive satin finish. If you want a lower-luster finish, you could stop here, finishing with 0000 steel wool and paste wax.

Achieving a high-gloss finish—For a high-gloss look, use a rubbing compound to remove the 2,000-grit scratches. The compound can be the type sold at automotive stores (see *FWW* #164, p. 118) or a traditional pumice. This finely ground powder is sprinkled on the surface, sprayed with some water, and then rubbed out with a felt block. Until now you have been sanding with the grain, but for this step you will be moving the block in all directions. The fine scratches look better if the pattern is random.

This is where you'll really see the gloss develop right under your hand as you wipe away the haze of the pumice. Don't expect a full shine yet, as the pumice is used just enough to get rid of the 2,000-grit scratches. At this stage you should see a fine haze and perhaps some swirl marks on an otherwise good-looking surface.

Wipe off any pumice residue and switch to a toweling sponge or cloth for the final step. You can use an automotive polishing compound in paste or liquid form, but sticking with tradition I used rottenstone, which is a finely ground limestone that's applied just like the pumice. Be careful at this stage; the compound is an abrasive, and after all of the sanding and rubbing, the finish film is probably getting pretty thin, especially on the edges.

The few minutes with the polishing compound are some of the sweetest: You've spent many hours on your project, from selecting the boards to this final wiping of the powdery haze to reveal a perfectly smooth, gleaming example of workmanship. □

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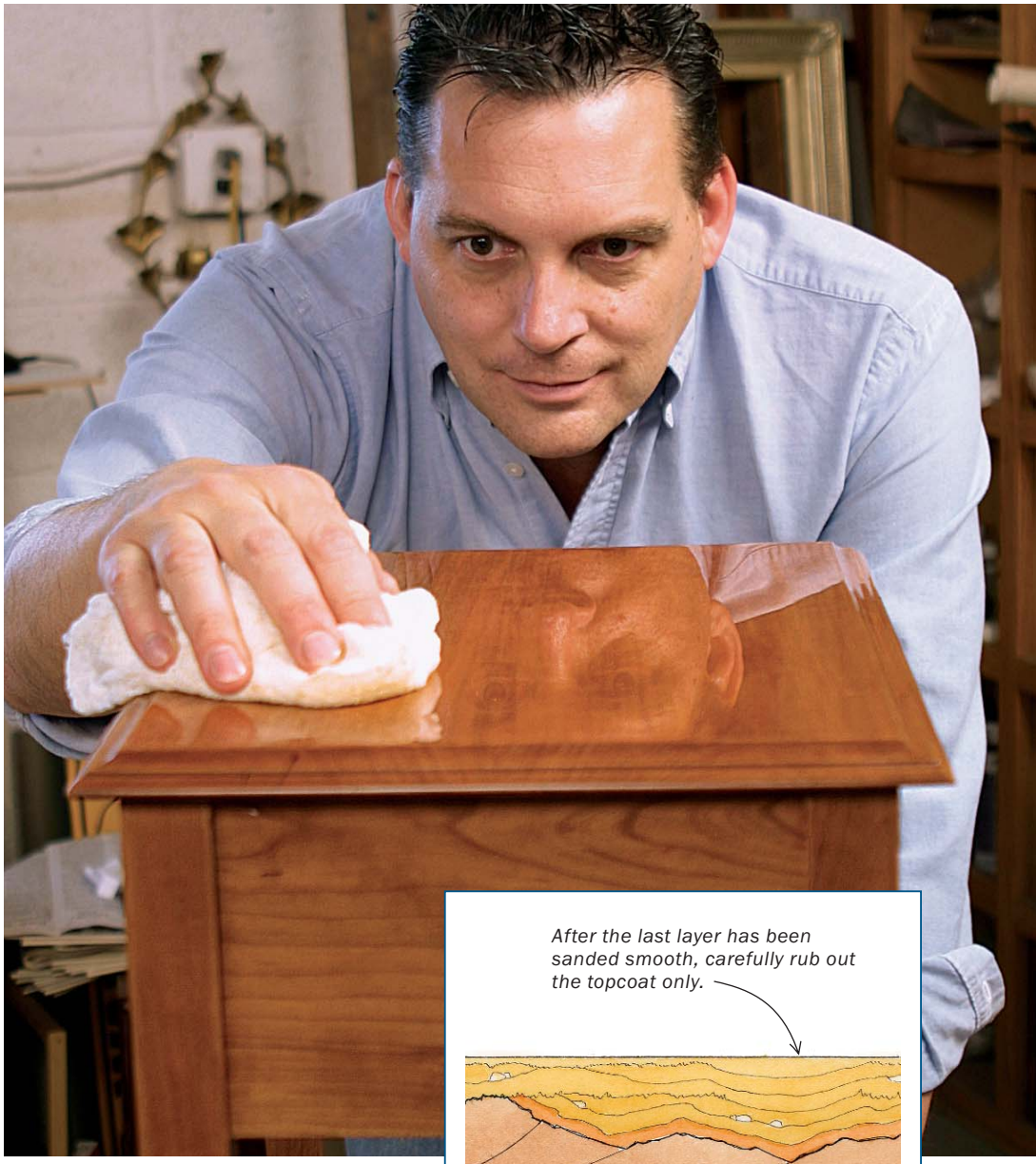
4 RUB OUT THE FINISH

Pumice and water. *Sprinkle pumice on the surface and spray it lightly with water in preparation for rubbing out the finish.*

Random rubbing. *Unlike the earlier sanding that was done with the grain, rub the pumice in random circles with a felt block.*

Rottenstone makes it glossy. *Use a toweling sponge, available at auto stores, to rub the rottenstone in random patterns, bringing the whole surface to a uniform high gloss.*



Looking good. *The final touch is to remove any rottenstone residue with a clean cloth, which leaves the surface silky smooth.*