



FINISHING FORMULAS

Some woodworkers keep a tight lid on their recipes, but we pour it all out.

Some say that finishing can be a “ruination of a nicely built piece of furniture.” Well, to build that piece you have to study the different techniques and have access to good plans. Plans and procedures are now shared openly by most woodworkers. But when it comes to finishing, some of the best woodworkers slip into a secret back room and never let their exact procedures see the light of day.

How are you supposed to become a better finisher if you are not shown the techniques and formulas? That’s why we are “blowing the doors off” this little-shared but highly important aspect of woodworking. This article is an all-access pass to the finishing methods I’ve used for a number of projects from my books and magazine articles.

Sand Less Than You Think

All finishing starts with the sanding, and I think that many of us sand more than necessary. Once you move to a paper that’s finer than #180 grit, you begin to close the wood pores, which will affect

the stain’s penetration. Because these stains depend on soaking into the wood to obtain the best results, sanding too fine should be avoided. I hope that’s music to your ears because most of us complain about sanding.

What’s important is to remove all imperfections, so while you don’t need to go past #180 grit, you do need to sand effectively to gain the upper hand. I use a random-orbit sander and begin with #120 grit, if necessary, and move through the #150 and #180 grits, followed up by hand sanding with #180 grit, making sure to move in the wood’s grain direction. Also, use sandpaper to knock off any sharp edges on the project because these will show wear first.

A Homemade Wipe-on Finish for a Clear Topcoat

Once the sanding is complete we can move on. Some projects require that you add only a protective clear topcoat. I have used the commercial products that are available for a wipe-on finish, but I keep returning to my own mixture. Why? It’s cheap and easy

by Glen D. Huey

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to make with ingredients from a hardware store.

My mixture is one-third turpentine, one-third spar varnish (a marine finish) and one-third boiled linseed oil (sometimes abbreviated as BLO). Make sure it's boiled – not raw – linseed oil. I mix enough in a batch for about 1½ applications to my piece.

The turpentine thins the mixture, which allows it to seep into wood pores. As the oil/varnish dries, the first coat acts to bridge between the pores. Successive applications then allow the finish to build. Keep the surface of your work wet for five minutes before wiping away any excess.

After the first coat, you need to allow the mixture to thicken before wiping the excess. Look for the consistency of honey. Once the mixture dries to that consistency, wipe away any excess before it dries completely. Create more mixture as needed for the next coat. But at this stage add only equal parts of the varnish and oil, leave out the turpentine. You don't need to have any soaking into the grain at this point.

Also, there is no need to sand the surface between coats provided you have wiped all the excess off your work. The beauty of this oil/varnish blend is that if you missed wiping an area, you just need to go back and sand that spot before applying another coat. It is a forgiving topcoat. Apply three coats to your work to build up the finish; a fourth coat will enhance the sheen.

Dying to Add Color

If I need to first color the piece, I use Moser's aniline dye (available from woodworker.com). Aniline dyes are soluble in water, oil or alcohol. I use water-based dye because it's easy to mix and to clean up. In addition, the water-soluble dyes are the most resistant

of the dyes to fading in sunlight.

The alcohol-soluble dye dries too fast, leading to the possibility of lapping marks. And the oil-soluble dyes can cause several problems, including choosing a compatible topcoat as well as combustion concerns.

The mixing of the dye is a very scientific procedure. Simply mix one ounce of powder to four cups of water. Most manufacturers recommend mixing in that ratio, or making the stain twice as strong by mixing two ounces of stain into the same amount of water. In my experience, there is no reason to mix the stronger solution.

If your tap water is high in any one chemical, such as lime, use bottled water to reduce any chances of the chemicals affecting the stain's color. But generally, I use plain tap water. That's it!

Heat the water until it's simmering (you should see small bubbles rising from the bottom of the pan). Place the powder into an opaque container; I use an empty orange juice jug to minimize the reaction to sunlight. Then add the water when it reaches temperature. Replace the lid tightly and shake the mixture. Do this carefully. Pay attention to the lid. I've had one loosen as I began to shake – not a pretty sight. Some instructions say it's necessary to strain the stain prior to use, but I've not found that to be necessary.

Won't the water-based stain raise the wood's grain when you apply it? Yes, the grain of your piece will raise – so you need to trick the wood into believing that this has already happened before you apply the solution. Use a water-soaked sponge or cloth to wet the entire project, then allow it to dry and lightly sand with #180 grit, knocking down the raised grain.

In applying the dye my rule is to saturate the project. This is why I recommend you purchase a high

volume low pressure (HVLP) spray system, or spray gun of some type, to apply the dye. HVLP systems are reasonably priced and will make your finishing a snap.

You can apply dye with a brush (in fact you should stain any drawers with a brush) but to stain an entire piece with a brush is more difficult. If you plan to brush your finishes I would keep the projects on the small side.

The staining begins with any drawers in your project. Use a foam brush to apply the stain in an even coat. Only stain the drawer fronts. Don't stain any part of the actual drawer box. Staining and finishing the interior parts of

the drawer will hinder the sliding of the drawer and not allow any naturally occurring patina. Use the edge of the dovetails as your cut-off point for staining.

With the stain applied to a drawer front, set the first drawer aside and start staining the next. As you set aside the second drawer, apply another coat of color to the first drawer. This method allows the drawer fronts to obtain the same depth of color that the case will achieve during the process of spraying.

As for the carcass or any project that has no drawers, spray the dye onto your piece until it drips from the project and the piece is



The most effective way to apply the stain to a drawer front without getting the interior of the drawer covered is to use a foam brush.



Any case can be stained with a high-volume low-pressure (HVLP) system. Flood the surface when applying stain. Let the stain soak into the wood in order to get the best results.

totally saturated. You want to see pooling on the flat surfaces. Once you have given it a good soaking, let it sit for five minutes and wipe away any excess stain. If you do

not have any to wipe away, you did not saturate the piece!

Now the warning—a fresh, wet stain looks great. In a few hours, after the stain has dried completely, you may feel the piece is ruined because of the dull, lackluster appearance. It's not. My heart stopped when I first saw this happen. Worry not—the next coat of finish, be it linseed oil or sealer, will renew that great look.

Glue stains or spots have a tendency to show up during the staining. You have two choices to fix this problem. First, as you are applying the stain, you can grab your sandpaper or sander, remove the spots immediately and continue to stain. But if you didn't notice the glue problem prior to the stain drying, don't try to sand or touch-up the area until you have applied a sealer coat over the dye. Trying to stain before the sealer will result in a large halo around the trouble spot because the surrounding area will also stain.

With the sealer applied you can sand the problem spot, then stain again to bring the area to a matching color. The sealer prevents any staining of the area surrounding that which was sanded down to the bare wood.

Allow the newly stained piece to dry thoroughly, then lightly hand sand using #400-grit paper to knock down any raised grain that didn't get the hint in the wetting process. This is a step that can present a problem. If you sand too much you will sand through the stain. So don't be aggressive.

Give Your Finish Depth

What's next after the stain? That depends on the hardwood selected for the project. If you are building with a figured hardwood you should add a coat of boiled linseed oil. This will soak into the figured grain and reflect the light, which adds depth to the piece.



A coat of boiled linseed oil is a great way to add depth to your finish. Make sure it is boiled (not raw) linseed oil. The raw will not dry properly.

To apply, simply brush the oil onto the project and allow it to soak for five minutes before wiping away the excess. The more it soaks in, the more of an effect will be seen after you have the finish complete. Allow the oil to dry at least 24 to 36 hours.

If you don't apply the BLO there is no adverse reaction or negative look to the piece, so it is your choice. Make sure that you dispose of all oily rags in a proper

manner. They are a fire hazard.

Using the BLO dictates the next step. Because lacquers do not adhere well to oil products (unless given weeks to cure completely) it is necessary to seal the piece with something that will. Shellac is the answer in my shop.

In reading the various recipes given for the finishes of the book projects in "I Do It My Way" (page 74), you'll notice that shellac is used for a sealer coat and/or for



Whether you are using it as a sealing coat or a topcoat, shellac is best when sprayed. The resulting surface will be smooth and make sanding for additional coats of finish much easier to complete.

SUPPLIES

All three of Glen's books are available at a discount to members of WoodWorker's Book Club (woodworkersbookclub.com or 386-246-3404), from Popular Woodworking Books (fwbookstore.com, click on "woodworking" or 800-448-0915) or from your local bookstore.

- "Fine Furniture for a Lifetime" (#70533; Popular Woodworking Books)
- "Building Fine Furniture" (#70593; Popular Woodworking Books)
- "Glen Huey's Illustrated Guide to Building Period Furniture" (#70722; Popular Woodworking Books)

Woodworker's Supply

800-645-9292 or woodworker.com

- Moser's Aniline Dye

Woodcraft Supply

800-535-4482 or woodcraft.com

- Behlen Wool-Lube
Blonde shellac, garnet shellac

Mohawk Finishing Products

800-545-0047 or mohawk-finishing.com

- glaze

Sherwin-Williams

800-524-5979 or sherwin-williams.com

- Sherwin-Williams lacquer and lacquer sanding sealer

Olde Century Colors

800-222-3092 or oldecenturycolors.com

- Olde Century Colors paints

Rockler

800-279-4441 or rockler.com

- Briwax

a topcoat finish depending on the finish formula. In either case you apply the shellac in the same manner.

Spray the shellac mixed to a 1½# cut. As a sealing coat, a single coat of shellac is all that's needed. Sand the dried shellac with a sanding pad for any flat surfaces and an abrasive pad for any mouldings. Using a sanding pad reduces finger-friction heat so the finish doesn't gum up in the pad; the results are great.

If you didn't add a coat of boiled linseed oil you have a choice to make about the sealer. You can use shellac, as we have discussed, or another option is lacquer sanding sealer, which is also sprayed over the stained piece.

The sanding sealer builds a nice coating that powders well as you sand and leaves a smooth surface for your topcoats.

Sand the sealer just as you would the shellac; then you're ready for the topcoat. Either method of sealing will work fine, but don't use the lacquer product if you ultimately plan to finish the piece with shellac.

How About a Topcoat?

In order to obtain an antique appearance for your furniture there are two choices when selecting a topcoat. Either finish the project with shellac or apply a few coats of lacquer.

If you are completing the project with shellac you should spray two coats over the sealer coat of shellac, allowing each to dry completely, before sanding. Next, add an additional two coats of shellac. A total of four topcoats will have the proper build.

Shellac has quite a sheen when applied to a project. You need to reduce the sheen for a more antique appearance and to inhibit showing any slight imperfections in your finish. To do this

use #0000 steel wool and Behlen's Wool-Lube to rub out the piece. Mix the Wool-Lube with water to thin it a bit and rub the piece with the steel wool dipped in the lube. A lot of elbow grease is needed for this method and sometimes getting into the small crevices and around mouldings is a task, but the results will be an antiqued hand-rubbed appearance.

If you're hoping for a way to reduce that sheen without the time and effort of hand rubbing – look to dull-rubbed effect lacquer. One coat over the sanded shellac and the result is a hand-rubbed sheen without all the extra hand work.

If you are finishing the project with a lacquer topcoat, apply three or four coats over the sealer, allowing each coat to dry before moving forward.

For most furniture, Sherwin-Williams Dull-rubbed Effect lacquer is the best choice (few Sherwin-Williams retailers carry it, but they can order it for you). For tabletops and other pieces that will see heavy use I would choose a pre-catalyzed lacquer. The application of each is the same.

The spraying of lacquer is straightforward – an HVLP system is highly recommended. Pay attention to the application and keep any runs or sags out of the picture as these will need to be removed after the surface is completely dry.

Or There's Paint

To apply an antique paint finish to pieces such as the New York/Canadian Stepback cupboard pictured on page 77, the first step is to go through the staining process as described above. On top of the stain add two coats of shellac. I have tried a single coat without good results. Sand the shellac thoroughly before beginning to paint your surfaces.



An old look for paint begins with a small amount of sawdust in the paint and the mixture applied to the project. Work in small areas to keep the process from getting away from you as it dries.



Use a wet cloth to wipe away paint in areas as the paint begins to dry. Try to best simulate wear areas based on antique originals.



If you are overzealous, which is easy to do, and clear too much paint from the piece, simply go back and add additional paint to help bring the look back to what you want.

Use an Olde Century Colors (oldecencycolors.com) or an acrylic latex paint for this process. Pour paint into a can. You'll want to separate some from the

original container, and add a small amount of fine sawdust to the liquid. This may seem odd but there is a method to this madness. As you spread the paint onto your

surface, the granules will be distributed across the piece.

When the paint begins to dry – timing this requires close attention – take a wet cloth and rub the painted areas. The small pieces of dust, as they are rolled and removed, will reveal the stained surface below. Continue to wipe away paint only in the areas where wear would typically be displayed.

Don't go overboard when simulating wear. A little can go a long way. And if you remove more paint than you want, simply add paint back onto the surface. This time don't use the sawdust. With practice you can develop a talent and eye to achieve what appears to be an old painted finish.

Glaze for Age

Glaze is used to simulate years of age and to even the tonal differences in your work. The only difference between stain and glaze is that the glaze is sandwiched between two layers of finish whereas stain is applied directly to the raw wood. Any oil-based stain can become a glaze if posi-

tioned correctly, but I use a product made especially for glazing: Mohawk's heavy-bodied glazing stain (Mohawk-finishing.com)

Sand the shellac sealer smooth with #320 grit. Remember: Lacquer and oil don't play well together so use shellac, and place the drawers, if there are any, into the case. Spray a coat of glaze onto the surface.

As the glaze dries it will turn whitish in color or flash (turn from wet to dry in sheen). At that time you need to wipe away the majority of the glaze, leaving heavy areas in recesses, corners or around mouldings. Don't worry that you're wiping away too much. The glaze will get into the shellac and make those tonal changes. When the surface is dry, after 24 to 36 hours, apply another coat of shellac to lock in the glaze.

These processes, when applied in proper order, can move you to the next level in finishing your masterpieces. Give them a try and you'll not look back to those old methods any more. And be sure to share your experiences with your fellow woodworkers. **PW**



A heavy-bodied glaze is the best choice to add years of time to your project. Any oil-based stain will work, but remember that it needs to be sandwiched between two layers of film finish to be called a glaze.

I DO IT MY WAY; YOU CAN TOO

I was never taught the process of finishing my furniture projects. My father and I worked through the mysteries surrounding this subject using a trial-and-error approach. I think the outcome of those trials, pictured on selections taken from my books, shows I must be doing something right – and I hope you agree. Follow the recipes and you too can stand back and look proudly at the results.



Photo by Tim Grondin

Massachusetts High Chest

From "Glen Huey's Illustrated Guide to Building Period Furniture"
Mahogany hardwood

- 1 ■ Spray a coat of Moser's Dark Antique Sheraton aniline dye.
- 2 ■ Sand with #400-grit wet/dry sandpaper.
- 3 ■ Spray one coat of blonde shellac.
- 4 ■ Sand with a 3M fine sanding sponge.
- 5 ■ Apply a heavy-bodied glaze – Mohawk Van Dyke Brown.
- 6 ■ Spray three coats of blonde shellac.
- 7 ■ Rub out with #0000 steel wool and Behlen Wool-Lube.
- 8 ■ Apply a coat of paste wax.



Photo by Tim Grondin

Pennsylvania Tall Case Clock

From "Glen Huey's Illustrated Guide to Building Period Furniture"

Mahogany hardwood

- 1 ■ Spray a coat of Moser's Dark Wine Cherry aniline dye.
- 2 ■ Sand with #400-grit wet/dry sandpaper.
- 3 ■ Spray one coat of blonde shellac.
- 4 ■ Sand with a 3M fine sanding sponge.
- 5 ■ Spray three coats of Sherwin-Williams Dull-rubbed Effect Lacquer (T70F63).

FINISHING TIP

- Make it a practice, when spraying multiple coats of finish, to change the spray pattern of the nozzle with each coat – one with the fan horizontal, then one vertical. This method eliminates lapping lines.

Shaker Small Chest of Drawers

From "Building Fine Furniture"

Cherry hardwood

- 1 ■ Spray a coat of Moser's Dark Wine Cherry aniline dye.
- 2 ■ Sand with #400-grit wet/dry sandpaper.
- 3 ■ Spray one coat of Sherwin-Williams Lacquer Sanding Sealer (T60F64).
- 4 ■ Sand with a 3M fine sanding sponge.
- 5 ■ Spray three coats of Sherwin-Williams Dull-rubbed Effect Lacquer (T70F63).



Photo by Al Parrish

Chippendale Entertainment Center

From "Fine Furniture for a Lifetime"

Flame or curly birch hardwood

- 1 ■ Spray a coat of Moser's Golden Amber Maple aniline dye.
- 2 ■ Sand with #400-grit wet/dry sandpaper.
- 3 ■ Spray one coat of Sherwin-Williams Lacquer Sanding Sealer (T60F64).
- 4 ■ Sand with a 3M fine sanding sponge.
- 5 ■ Spray three coats of Sherwin-Williams Dull-rubbed Effect Lacquer (T70F63).



Photo by Al Parrish



Photo by Al Parrish

Slant-lid Desk on Frame

From "Building Fine Furniture"

Tiger maple hardwood

- 1 ■ Spray a coat of Moser's Golden Amber Maple aniline dye.
- 2 ■ Sand with #400-grit wet/dry sandpaper.
- 3 ■ Apply a soaking coat of boiled linseed oil.
- 4 ■ Rub with a maroon non-woven abrasive pad.
- 5 ■ Spray four coats of blonde shellac.
- 6 ■ Rub-out with #0000 steel wool and Behlen Wool-Lube.
- 7 ■ Apply a coat of paste wax.

Seymour Sideboard

From "Fine Furniture for a Lifetime"

Mahogany, tiger maple and walnut hardwoods

- 1 ■ Brush on four coats of oil/varnish mixture.
- 2 ■ Apply a coat of paste wax.

FINISHING TIPS

- Remove small sags or runs in your shellac using a single-edge razor blade. Use the blade as you would a small scraper.
- Finishing the drawer box (with the exception of the front) will cause problems with operation. Also, future generations will not be able to see any natural patina.
- Light or clear waxes will effectively remove dark waxes.



Photo by Al Parrish

Shaker Sewing Desk

From "Fine Furniture for a Lifetime"

Tiger maple hardwood

- 1 ■ Spray a coat of Moser's Golden Amber Maple aniline dye.
- 2 ■ Sand with #400-grit wet/dry sandpaper.
- 3 ■ Apply a soaking coat of boiled linseed oil.
- 4 ■ Rub with a maroon non-woven abrasive pad.
- 5 ■ Spray one coat of blonde shellac.
- 6 ■ Sand with a 3M fine sanding sponge.
- 7 ■ Spray three coats of Sherwin-Williams Dull-rubbed Effect Lacquer (T70F63).



Photo by Al Parrish

New York/Canadian Stepback Cupboard

From "Fine Furniture for a Lifetime"

Painted pine

- 1 ■ Stain with Moser's Golden Amber Maple aniline dye.
- 2 ■ Sand with #400-grit wet/dry sandpaper.
- 3 ■ Spray two coats of blonde shellac.
- 4 ■ Sand with a 3M fine sanding sponge.
- 5 ■ Apply a coat of acrylic latex paint with a little sawdust added. I used Olde Century Colors in Yankee Blue.
- 6 ■ Wipe paint to simulate wear.
- 7 ■ Add a coat of dark brown Briwax.

FINISHING TIPS

- Raw linseed oil will not dry properly. Make sure to use the boiled product.
- The cut in shellac is the amount of shellac flakes, in weight, that is dissolved into a gallon of denatured alcohol.
- If you elect to brush the shellac, use a good brush. The better the brush, the better the results.



Photo by Al Parrish



Photo by Al Parrish

18th-century Hanging Cupboard

From "Building Fine Furniture"

Walnut hardwood

- 1 ■ Spray four coats of garnet shellac, lightly sanded between each coat.
- 2 ■ Rub out with #0000 steel wool and Behlen Wool-Lube.
- 3 ■ Apply a coat of paste wax.

Massachusetts Blockfront Chest

From "Glen Huey's Illustrated Guide to Building Period Furniture"

Cherry hardwood

- 1 ■ Stain with Moser's Dark Wine Cherry aniline dye.
- 2 ■ Sand with #400-grit sandpaper.
- 3 ■ Spray one coat of blonde shellac.
- 4 ■ Sand with a 3M fine sanding sponge.
- 5 ■ Apply a heavy-bodied glaze – Mohawk's Van Dyke Brown.
- 6 ■ Spray two coats of blonde shellac.
- 7 ■ Sand with a 3M fine sanding sponge.
- 8 ■ Spray three coats of Sherwin-Williams Dull-rubbed Effect Lacquer (T70F63). PW



Photo by Tim Grundin