Restore a Wood Entry Door

Let the wood shine through with a marine-grade finish that's sure to last

BY SEAN CLARKE

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Several years ago, I wandered into a small East Coast shipyard. In the center of a quaint workshop was a shipwright kneeling alongside a wooden skiff. I watched as he applied epoxy by brush to the boat's exterior. At that moment, I realized that if a finish could stand up to brutal ocean conditions and nearly relentless sun exposure for a season, then surely this same finish could get a wood entry door through a couple of years of use.

Wood entry doors can be strikingly beautiful. Unfortunately, because they are exposed to weather and heavy use, they often show their age prematurely.

With a little research and lots of samples, I adopted an epoxy-based finishing system that changed the way I finish wood doors. I have completed dozens of doors with this approach, and I have to admit that my initial assumption about longevity was wrong. You can expect this finish to last from five to 10 years, depending on its exposure.

Here, I'll show you how to prep a wood door properly whether it has been painted or varnished, how to make minor repairs, how to apply an epoxy sealer, and finally, how to build up a varnish finish that yields a durable, clear shine.

PREP FOR STAIN

Removing the door's existing finish and repairing surface damage, which typically includes lifted or chipped veneer, should be done before all surfaces are sanded.

1 ***Strip the finish.*** *Apply a chemical stripper with an old paintbrush. When the finish has softened, remove it with a scraper or taping knife. After stripping all the finish, wash the door with acetone to remove any residual finish and stripping residue.*

2 ***Fix damaged veneer.*** *Use a utility blade and chisel to clean up the edges of missing or damaged veneer. Follow grain lines to minimize the appearance of the fix. Glue and clamp a patch in place, and remove the waste with a sharp block plane.*

3 ***Sand all surfaces.*** *Sand the door's middle rails and stiles or raised panels first, then the perimeter rails and stiles with 150-grit sandpaper. Use a sanding block on flat surfaces and loose sheets of sandpaper on molding profiles.*

Remove existing finish

Whether it's paint or varnish, removing the existing finish on a door is accomplished with the same techniques.

With the door placed level in its jig (sidebar p. 45), I apply a semipaste methylene-chloride-based stripper to the face of the door with an old paintbrush. Because methylene chloride is an aggressive chemical, be sure to wear nitrile gloves and to work in a well-ventilated area.

I find that stripping one-half of the face of the door at a time is best. If you're stripping only one side of the door, mask the back surface and any edges you don't want stripped. If you intend to finish both sides of the door, you can simply flip the door in its jig after the front face is complete.

It doesn't take long for the stripper to soften an existing finish. However, if I am stripping several layers of paint, I may need to leave the stripper on for 30 minutes to an hour to cut through all the layers. The bulk of the paint or varnish can be removed with a taping knife or a paint scraper.

I switch to a Scotch-Brite pad and nylon brush to remove any residual finish left in crevices and molding profiles. Don't use steel wool or wire brushes for this process. Fragments from the metal can break off, become lodged in the wood fibers, and cause mineral spotting, which reveals itself in the form of tiny black spots that appear after the finish coat has been applied. The spotting typically is caused by a reaction between the mineral in the steel and the tannin in the wood, and is most commonly a problem with species like cherry, walnut, or white oak.

After all the finish and stripper are removed, I wash the door

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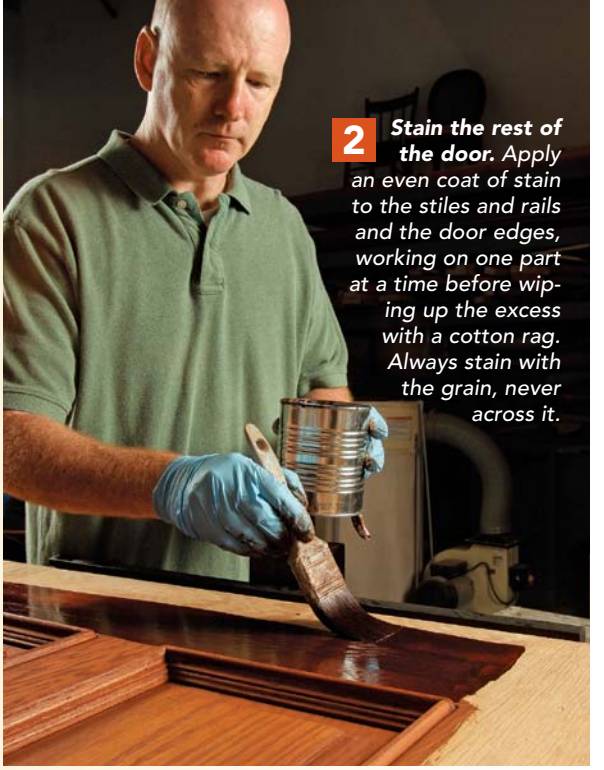
ADD COLOR

Use oil-based stains to achieve the desired color tone on the door. To avoid unsightly lap marks, start by staining raised panels first. Then stain the rails and stiles that divide the panels before staining the perimeter rails and stiles. Let the stain dry for 12 hours before moving on to sealing.

Minwax: $8 per qt.
www.minwax.com

General Finishes: $14 per qt.
www.generalfinishes.com

1 ***Stain the panels.*** *Apply the stain to the raised panels and molding profiles with a quality brush. Quickly wipe up the excess stain, in the direction of the wood grain, with a cotton rag.*



2 ***Stain the rest of the door.*** *Apply an even coat of stain to the stiles and rails and the door edges, working on one part at a time before wiping up the excess with a cotton rag. Always stain with the grain, never across it.*

APPLY THE SEALER

Clear penetrating epoxy sealer protects the door from moisture, which causes rot as well as wood contraction and expansion.

1 ***Coat the end grain.*** *Apply the sealer to the end grain on the top and bottom edges of the door first. End grain wicks up the sealer as it is applied. Keep applying sealer to these areas until the door no longer accepts more, which is evident when the finish remains glossy.*

Smith's CPES (warm): $58
www.smithandcompany.org

2 ***Coat the rest of the door.*** *Apply a single coat of sealer to all the faces of the door, including the raised panels and the door edges. Don't forget to apply sealer to the lockset and hinge mortises. Reapply sealer to any areas that seem to be drying too quickly. Let the sealer dry for no more than eight to 12 hours before applying the varnish.*

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with acetone and a clean Scotch-Brite pad. I follow the wash with a clean cotton rag before the acetone evaporates. The acetone removes the wax residue left behind by the stripper. Many paste strippers contain wax to make the stripper easier to apply and to slow its drying time. If left on the door's surface, the wax residue would compromise the ability of the stain and sealer to penetrate the door as well as the ability of the varnish to bond to the door. The acetone also helps to remove any remaining finish from the pores in the wood.

Make surface repairs

Damage to the door should be remedied before any sanding takes place. Typical damage includes lifting or loose veneer and chips in the wood surface. For loose or lifting veneer, I clean the surfaces between the veneer and the substrate with 150-grit sandpaper folded in half. I push the sandpaper between the two surfaces and gently sand back and forth, removing any old glue or loose debris. I apply yellow wood glue to the back side of the veneer and the face of the substrate, and clamp down the veneer until the glue dries.

For chipped areas or in places where the veneer is in bad shape and has to be removed, I either fill the void with a two-part wood epoxy and then sand it flush, or I insert a new piece of veneer, depending on the size of the void or its location. When I clean around the edges of the missing piece of veneer, I try to follow grain lines to minimize the appearance of the fix.

Sand the door evenly

After repairs are done, I sand all the door's surfaces and moldings with 150-grit sandpaper. On doors without raised panels or molding details, I use an orbital dual-action palm sander. Otherwise, I sand by hand with a sanding block and a loose sheet of sandpaper.

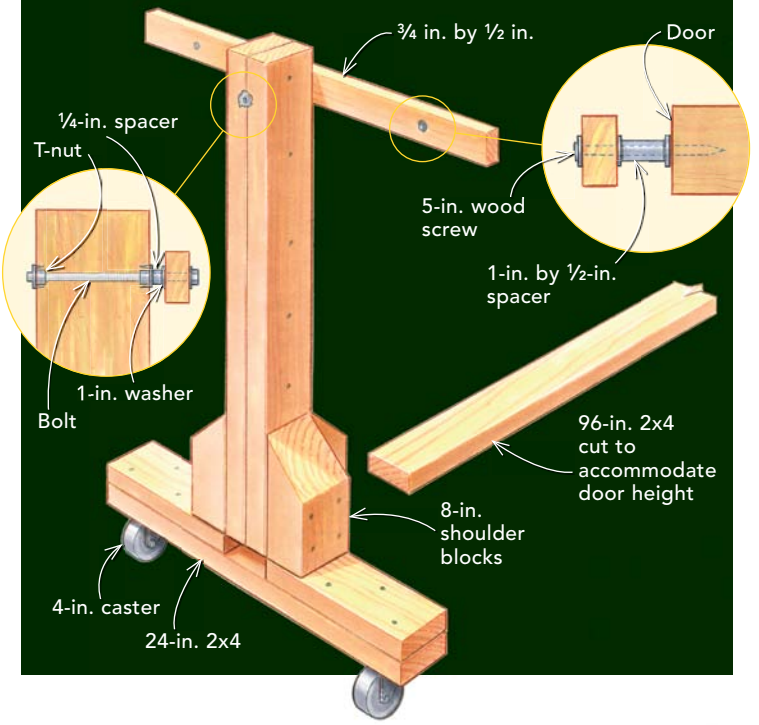
I start by sanding the raised panels and their molding profiles or the rails and stiles that divide the panels. I always save the rails and stiles around the exterior of the door for last. This prevents unsightly sanding marks on the surface of the door.

I don't sand the door beyond 150-grit sandpaper because finer grits polish the wood, which makes it less receptive to the stain and sealer coats.

A jig makes the work easier

You can lay the door on sawhorses or a worktable to apply the finish, but building a jig takes little time, materials, or money, and has several advantages:

- Finishing both sides of the door at the same time is possible only when it's placed in a jig.
- The door can be rotated in the jig to ensure that varnish coats spread evenly over the face of the door.
- The jig and the door can be moved easily.
- All the door's edges are easily accessible when in the jig.
- The door can be stored on edge to prevent it from bowing.
- The door can be stored face down in the jig to eliminate debris buildup on the uncured face.



Oil-based stains are better than water-based

I make my own oil stain from dry pigment, a varnish binder, and a mineral-spirit reducer. The oil stain I make is purely pigment-based, and pigment-based stains don't fade as fast as dye-based stains when exposed to direct UV light. However, many over-the-counter oil stains can be used. Stains from Minwax and General Finishes, for example, are readily available and come in a variety of colors.

Don't use water-based stains for entry doors. They introduce water to the door surface. At this point in the process, the door's moisture content should be kept as low as possible.

Using a 2-in. flat China-bristle brush, I apply the stain to panels or middle stiles and rails first, then to perimeter stiles and rails to prevent unsightly lap marks. I also stain the top, side, and bottom edges of the door. After the entire door has been stained, I let it sit for a minimum of 12 hours, which helps to ensure that all the stain, including the stain that found its way under the raised panel moldings, is dry.

If any part of the door appears lighter than the rest, I simply sand that part with 220-grit sandpaper, remove the dust, and reapply a coat of stain to the area.

Sealer protects the door

Sealing the door against moisture is one of the most critical steps in ensuring a long-lasting finish. The Smith's sealer that I use does an excellent job at treating dry rot, which is common on many of my restorations, but it also provides good moisture protection and serves as a good base for the varnish coats.

I let the sealer dry for eight to 12 hours, depending on the temperature in my workspace, before adding the first coat of varnish. Applying varnish to the sealer coat before it's fully cured allows the varnish to bond chemically to the sealer.

A high-gloss finish is the most durable

I use Epifanes marine spar varnish to build up topcoats because of its flexibility, leveling properties, and high UV-resistance and sheen-retention ratings.

The longevity of this finish hinges largely on its gloss level.

Product photos facing page, top, and drawing this page: Dan Thornton

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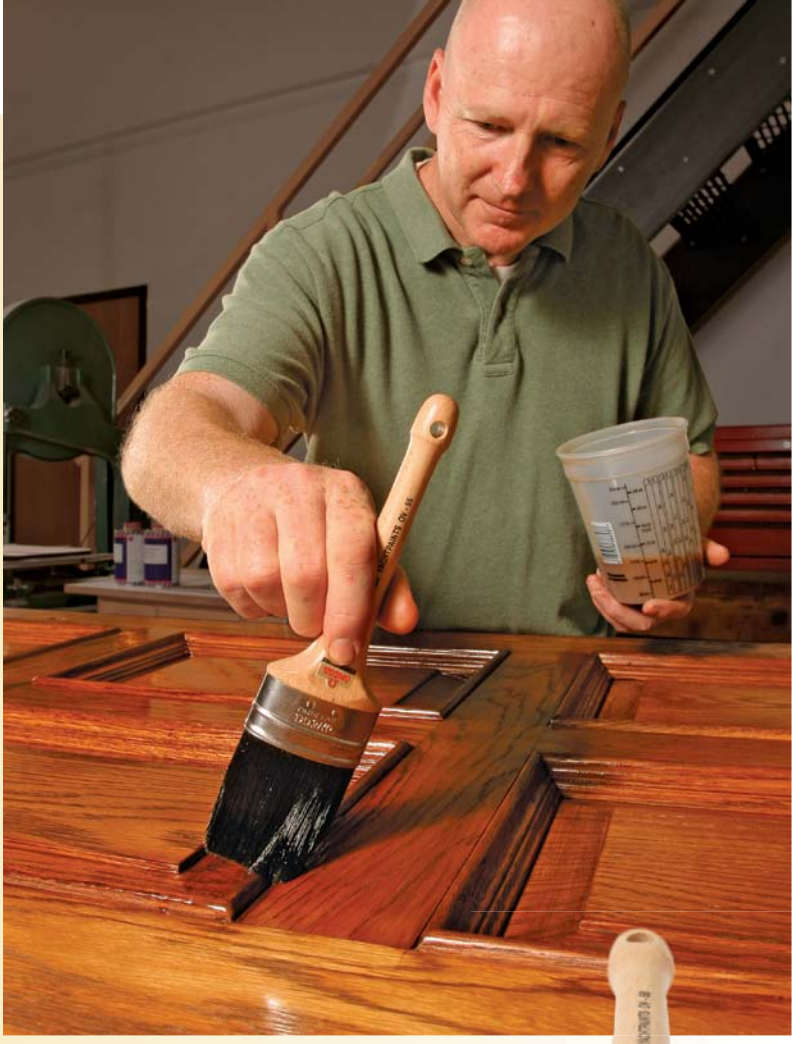
BUILD THE FINISH

Reduce the varnish approximately 20% with a manufacturer-recommended brush thinner, or use mineral spirits or naphtha. This will allow the varnish to flow more easily. For the best results, apply the varnish with a 2-in. stiff China-bristle varnish brush. This varnish has an open time of approximately 10 to 15 minutes.



1 ***Apply the varnish.*** *Working in the direction of the wood grain, apply a coat of varnish to all panels, rails, stiles, and door edges. Let the finish set up for five to 10 minutes.*

2 ***Rotate the door.*** *Flip the door in its jig, catching any runs with the brush. Place the door face down for 10 to 15 minutes, then flip the door face up for 10 to 15 minutes. Repeat this rotation three or four times. Let the door dry face down for 24 hours before applying another coat of varnish. Repeat steps 1 and 2 until you've applied eight to 12 coats.*

Epifanes 2-in. Varnish Brush by Omega: $48
www.epifanes.com

3 ***Prep for a final coat.*** *Release the raised panels by scoring the finish along the molding edge with a utility knife before sanding all surfaces with 220-grit sandpaper. Buff with a clean Scotch-Brite pad, and remove any dust before brushing on a final coat of high-gloss varnish.*

Epifanes Brush Thinner: $31 Wood Finish Gloss Varnish: $35
High Gloss Clear Varnish: $30

A high-gloss finish reflects more UV light than a matte finish. Satin and matte finishes have added solids to dull their appearance; these solids absorb light and decrease the longevity of the finishes. A semigloss finish is acceptable, but that's the lowest sheen I use. I guarantee this finish for three years. I once had a client specify a satin finish for his doors. I documented the work for liability purposes, and sure enough, the finish didn't last three years.

To get the longest-lasting finish possible, I apply eight to 12 coats of varnish to my doors. For all but the last coat, I use Epifanes Wood Finish Gloss Varnish that has been thinned with Epifanes Brush Thinner. Each coat dries for 24 to 48 hours before receiving another coat of varnish.

Before I apply the last coat of finish, I release the floating raised panels from the door framework. When too much varnish builds up in this area—more than 6 mils, say—it can buckle and crack. Once all the panels have been released, I sand the door again with 220-grit sandpaper and clean up the dust.

I apply a final coat of Epifanes High Gloss Clear Varnish, which has great UV stability. After 24 hours, all the hardware can be reinstalled, and the door can be removed from the jig.

Once the door is free of the jig, I fill the screw holes in each end of the door with a two-part epoxy resin. I then sand these epoxy plugs flush and apply a single coat of varnish over the entire edge of the door. After the varnish cures for 12 hours, the door is ready to be hung back in its frame. □

Sean Clarke owns Clarke Company (www.clarke company.com), a restoration and repair shop in Columbus, Ohio. Photos by Rob Yagid, except where noted.

Product photo, top: Dan Thornton

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