

Wood Finishing & Restoration

Testing a Finish (Which finish is it ?)

- **Shellac** – Put a few drops of denatured alcohol on a tip of a cloth and touch it to the surface of the finish. If it is sticky, it is probably shellac.
- **Water Base** – Same process, as above, put a few drops of xylene on a rag and if turns gummy on the surface, it is water based.
- **Lacquer** - If not sticky, try a few drops (different spot) of lacquer thinner. If it softens and it looks like it will flow out, then it is Lacquer
- **Varnish & Polyurethane** – If it hasn't responded to any of the above tests, then it is Varnish or Polyurethane

Finishing Sheens

- The higher the sheen, the more your eye is attracted to surface imperfections.
- The higher the number in sandpaper grit used, the higher the sheen will be, 36 grit to 12,000 finest
- Steel Wool ranges Coarsest #3-#2 #1 #0, #00, #000 #0000 finest.
- If using oil based top coat finish, the higher the sheen the clearer the finish. Often sheens less than gloss are made from gloss finishes and then additives are added to break down the gloss. Often this will cloud the finish in the process. If using an oil finish it is better to use a high gloss finish and rub out the finish to the sheen desired, thus maintaining the clarity in the finish. Water based finishes and lacquers are always clear after drying and clarity is not affected in the production of a lower sheen.

If New Wood is Used Wood Conditioners Are recommended:

Wood Conditioners provide a coating to help prevent over absorption or uneven stain color. Use of wood conditioners often makes the stain a lighter/less intensity of the color but provides a **more** even color across the surface. Use of wood conditioners are most effective on end grains, or with woods with difficult grains like cherry, maple, oak and plywood.

Types of Wood Conditioners:

- Shellac- Zinzer Seal Coat thinned 50/50 with denatured alcohol
- Glue size – make your own from fish glue and 4 parts of warmed distilled water.
- Min Wax makes their own wood conditioner.

Restoration Projects

Clean up the project with OZ Polish to help determine what is under the dirt/grime. Determine if the project can be touched up/ repaired and top coated. If not, then your next step is removing/stripping the old finish.

Stripping:

- There are both toxic and environmental friendly wood strippers.
- The stronger the stripper the quicker it works.
- **“Wear a Hazmat Mask” and chemical resistant gloves.**
- **Make all your repairs prior to stripping.**
- Make sure you rub some of the old finish that is on the steel wool pad over the repair.
- Deep gouges can be repaired with epoxy sticks, Bondo and Minwax Epoxy Wood Filler.
- If a leg of a chair is broken, re-glue the leg then insert a threaded steel rod long enough to extend below and above the break, cemented in with two part 5 minute epoxy, such as System Three Quick Cure 5.

Steps to Stripping

- Apply one coat of stripper to a maximum of 2ft square with a disposable white bristle brush.
- After the finish starts to bubble, apply another coat of stripper and then immediately start removing it with #2 steel wool. Never use a scrapper or sandpaper. You will lose the patina and you will have an uneven colored surface to work with.
- Key to stripping is to keep the surface wet with stripper.
- You can use a strip of unraveled steel wool pad to help clean up turning without digging into the patina
- Apply subsequent coats of stripper and follow up with a fresh pad of steel wool.
- For tight crevasses use an old tooth brush to apply the stripper. Use an old wood chisel to help clean out the 90° surfaces where the steel wool or tooth brush are not as effective.
- It is very important to make sure all of the old finish is completely removed.
- ******To Avoid Adhesion Issues With The New Finish****, Wipe down your project with mineral spirits to make sure the acid in the stripper is completely removed. Otherwise it will continue to work and eat into your new finish. As an extra precaution, wipe the project down again with denatured alcohol to insure all contaminants are neutralized.**

Stains

- Stains come in several different forms: oil, water, alcohol based and powders. Top coats of various types such as Shellac, Polyurethane come with some color and can be used alone without any other additional color.

Finishing Hints

- Select a stain and top coat that are from the same manufacturer. If they are not, then try them out on a piece of scrap.
- When applying the top coat, make sure you are in a well lit area with an extra light that tilts over the finish so you can quickly detect drips/runs or unevenness of the top coat. It is very important that each top coat being applied is as even/level as possible and thus will avoid issues later when trying to rub out the finish.
- If after a minimum of two top coats, you notice drips or uneven finish. STOP adding coats, let the finish heal and rub out the finish, with 800 grit wet/ dry sandpaper, lubricated with wool lube 50/50 with distilled water. Continually wipe off the slurry and assess where you are. It is much easier to deal with imperfections early on than to have added more coats and have to remove the extra coats later to level it.

Rubbing Out a Finish

- Every type of finish has its own healing time requirements, with lacquer being the quickest of 8 hours to oil based finishes of 8+ days, dependent upon drying conditions. You can begin the rub out process, when the finish is cured and not soft enough to leave a finger nail imprint. Others believe if you can smell the finish it isn't ready for rubbing out.
- It is also important as you are building up layers of finish that they be as even and level as possible. Having a level build up in finish will avoid rubbing through layers of finish to level the finish. Rubbing out a finish with the grain should start with 800 grit wet/dry sand paper with a 50/50 mixture of wool lube and distilled water for non water based finishes. If the finish isn't leveling, then move down to 600 grit, or even as low as 400 grit. You can also use a paste wax and #0000 steel wool, rubbing with the grain. Buff out with a clean cloth.

Advice on Contaminations & Incompatibility

- Always follow Manufacturers directions.
- Use Mineral Spirits when suggested by the manufacturer. Never use paint thinner to thin out finishes. Paint Thinner is a much lower grade product than mineral spirits preventing the finish from drying.
- Always use "Distilled Water" in cleaning up glue squeeze-outs or diluting other water based products like wool lube, or for raising the grain. Often tap water will cause oxidation on oaks, causing black stains/dies around brads, nails, screws, etc.

- Glue squeeze out, if not completely removed at assembly, will not allow the colorants to penetrate the substrate.
- Use of old previously opened cans of finish or stain should be tested on a piece of scrap to ensure it will dry as expected.

Advice on Contaminations & Incompatibility (cont'd)

- **Apply polishes, whether in liquid or aerosols, directly to a rag. This will reduce the risk of build up.**
- **Blushing** occurs when using a lacquer top coat and it immediately turns cloudy or milky. Moisture has gotten between the finish and substrate. Using “Mohawks No Blush Blender Sprays will re-melt the lacquer and allow the moisture to escape and the finish will dry clear.
- **Fish Eyes** is when silicone contaminants have gotten into the finish. Add a Fish Eye additive to your spray.
- **White Rings** occur when moisture has gotten between the finish and substrate from either from cold or very hot moisture. If it is lacquer you can use a product called Amagaliator that will re-melt the finish and allow the finish to adhere to the substrate. If it happens to be shellac, you can use a saturated brush or rag with denatured alcohol. This process will not work on Polyurethane or Varnish finishes. Your only recourse will be to strip the finish.
- **Remove Wax Build Up** by mixing 2 tablespoons of gum turpentine, 4 tablespoons boiled linseed oil to a gallon of hot water. If the wax is not coming off as desired, dampen a piece of #0000 steel wool and rub lightly with the grain.

Resources

Mohawk-Finishing.com (Same Product as Behlens)

Finish-Up, Wool Lube, OZ Polish, Rapid Pad, Blendal Powders, Markers, Wax and Shellac Sticks, Shellac Products and Lacquers.

Hood Finishes

Oxalic Acid – Wood Bleach and Hydrocote Grain Filler (Water Based) Recommended with Spray Equipment

Norland Products

High Tack Fish Glue

Natures Air Sponges – “Odor Absorbers” Distributed By Delta Marketing International, Pittsburg, NY 1-800-926-1633. Best If used 4’ off the ground with a fan behind it to help circulate the air with it.

DE-Glue Goo Softens old glues Amazon, Highland Hardware, Klingspor and Rockler

Liberon Fine Past Wax Black Bison and also comes in clear for lighter finishes.

References Books

- **Foolproof Wood Finishing** By Teri Masaschi “Revised Edition” by Fox Chapel Publishing
- **Understanding Wood Finishing** By Bob Flexner by Fox Chapel Publishing
- **The New Wood Finishing Book (Revised)** Michael Dresdner by Tauton Publishing
- **False Graining Techniques** by Jim King & Beth Oberholtzer by Fox Chapel Publishing
- **Classic Finishing Techniques** By Sam Ash by Sterling Publications
- **No-Fuss Wood Finishing** by American Woodworker by Fox Chapel Publishing
- **50 Ways to Paint Furniture** by Elise C. Kinkead by Creative Publishing International
- **Step-By-Step Decorative Painting** by Peter & Paula Knott by Meredith Press
- **Upholstery Restoration** by David James by Guild of Master Craftsman Publications

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