



*Common sense tips and suggestions  
for quality woodworkers,  
cabinet makers,  
furniture manufacturers, and  
anyone who uses hardwood plywood!*



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## **Proper Preparation Procedures for Finishing Wood**

This Ply–Tip discusses wood preparation prior to finishing. If you currently do not follow a wood preparation program, I strongly suggest you develop one. This will benefit your company, clients, and the entire wood industry.

### **Introduction**

**Finishing related problems associated with wood.** Of all the wood related finishing problems I've dealt with, investigated, or inspected over the years, 95% are caused by inadequate wood preparation prior to finishing. The remaining five percent are caused by inexperienced painter–finishers, poor finishing conditions, or unsuitable finishing procedures or products.

**Percentage breakdown.** Let's break down the finishing system by percentages: preparation should take 30% of the time spent on the project, stain application and sealing should take 30%, and topcoating and sanding between coats should take 30%. That leaves 10% of the project time for protection prior to and after finishing. These are standard percentages used in the wood finishing industry. However, custom projects with special finishes or painting may require a different approach.

**Responsibility.** It is the painter–finisher's responsibility to understand the characteristics of the wood he or she is about to finish and properly prepare the wood prior to finishing. Be warned: if proper preparation procedures are not followed, the final look and performance of the finished woodwork will not be of a premium level and might be rejected.

### **Types of Finishes**

**Lacquer.** Lacquer is the workhorse of all finishes and has been around the longest. It has its limitations, but used correctly it will give you a lifetime of service. It is very user–friendly and easy to touchup. Some lacquers are now being made with low VOCs.

**Conversion Varnish.** Conversion Varnishes are more durable to abrasion, chemicals, and moisture, but most brands come with a short pot life and are sometimes touchy to catalyze. I have been told that the pot life is going to increase, and some are being manufactured in low VOC formulations.

**Waterbased.** Waterbased finishes have advanced over the years and are becoming more popular. They are user–friendly with no or low VOCs, but good heat and air ventilation is needed for spraying and drying performance. The AWI still does not rate waterbased finishes as a premium grade finish, and I would recommend only using them for topcoats and not for sealers.

**UV Polyurethanes.** UV finishes use radiation to crosslink and cure the finish and are improving and gaining popularity in the finishing industry. They are ultra–durable, dry in seconds, and some have no VOCs or formaldehyde. However, UV finishing systems are very technical and carry a costly capital investment.

I feel all the above finishes have a place in today's finishing marketplace and I recommend that you investigate which finish will suit your needs and situation best before specifying one.

### **Things to Consider Before Preparation Begins**

**Visual inspection, the most important step.** Before the finishing starts, you should conduct a thorough visual inspection of the wood under well lit conditions. Look for any shipping or handling marks, dents, or problems that will affect the finishing system. Any problems need to be noted and attended to with spot or scuff sanding. Large dings may require additional work besides sanding.

**Storage.** Where and how was the wood stored (this includes temperature, moisture, and humidity)?

**Moisture.** What is the moisture content of the wood that you are about to finish?

**Temperature.** What is the temperature of the finishing room or finishing area? Heat is not always a good thing; most stains and finishes work best in mild conditions. I recommend a temperature range of 55°F to 75°F. Any cooler and you can run into complications; any warmer and your finishes tend to dry too fast and may not flow out.

### **Basic Wood Preparation Procedures for Finishing**

**Spot sanding before finishing.** If minor marks have been noticed, those areas need to be spot sanded with #120 to #150 grit sandpaper. This is coarse enough to remove the mark, yet not so rough to cause surface damage to the wood. Note: always sand with the grain!

**Surface sanding before finishing.** After any marks have been addressed, you need to even out the entire surface of the wood for uniform stain and finish acceptance. Surface sanding must always be done even if no spot sanding is required. Flat sand the entire piece with a flat sandblock, again going with the grain in over-lapping strokes.

It's best to position the surface being sanded horizontally, but sometimes that is not an option. However, it is very important that the entire wood surface is evenly sanded. I recommend #150 to #180 grit sandpaper depending on the wood species.

**Hand sanding vs. power sanding.** We have found that power sanders are good for sanding severe problems, but a power sander can get you into trouble fast and can leave permanent sanding marks if not used properly. Hand sanding works much better for the final surface sanding.

**Cleaning.** After sanding, the wood needs to be brushed or blown off. Always use clean, dry air, as water spotting can occur if moisture is present in the air line. A second visual inspection should now be done. If the wood appears ready, you should start the finishing process at this time. If the wood is left unfinished for more than 24 hours, surface resanding may be necessary. Always test stain on sample pieces prior to finishing.

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I hope the information I have shared with you will help you achieve an attractive finish on your wood. If you have any other questions or run into a problem please call me on our toll free line (800) 847-5489.

**About the Author:** David R. Bailey is President of Numatic Finishing Corp. in Auburn, WA and has worked in the wood finishing business for more than 30 years. He would like to thank his father Bernard R. Bailey (Master Wood Finisher), the Architectural Woodwork Institute, Valspar Coatings Industry, and Radtech International UV/ED Curing publication.

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