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ABSTRACT:

What is the proper finish to use on wood products? Is there a difference between factory- and site- applied finishes? What standards exist?

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KEYWORDS:

Wood finishing, urethane, lacquer, flooring, paneling, doors, casework.

REFERENCES:

Architectural Woodwork Standards (AWS), 1st Edition 2009
Maple Flooring Manufacturers Association (MFMA) PUR Standards, 2009
National Wood Flooring Association (NWFA, formerly NOFMA) Technical Resources (membership required)

Wood Finishing Standards

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Make It Look Nice...

Architects and interior designers are very concerned about aesthetics, but when it comes time to select a finish for the wood they've selected for a project, many are overwhelmed by the myriad of wood finishing products available on the market. Fear not, it's not as complicated as it looks.

Background

Last month, our Tech Tips entry covered the topic of wood door veneer selection. In continuation of that train of thought, this entry will discuss the various finishing methodologies used on wood casework, doors and flooring for our readers.

The primary resource for determining the finish to be applied to woodwork is the first edition of the *Architectural Woodwork Standards (AWS)*. In 2009, the Architectural Woodwork Institute (AWI), the Architectural Woodwork Manufacturers Association of Canada (AWMAC) and the Woodwork Institute (WI) jointly adopted and published these standards to replace their earlier, separate standards. There are other resources for determining the proper finish to use in a given application, chiefly manufacturers of wood products, but the AWS are the most comprehensive standards currently published.

NOFMA has changed their name to NWFA, and the standards that used to be available for free now seem to be available for a price. I did not join so I do not know if the *Technical Resources* are in fact the same as

the old NOFMA standards. Anyone who knows is welcome to comment on this article. For this Tech Tips, I referenced my hard copies of the *NOFMA* standards.

The only aspect of floor finishing addressed in the MFMA *PUR* standards is surface friction. Maple flooring is commonly specified for wood sports flooring, where friction is a primary concern.

Finally, from the long list of referenced locations where wood finishing can appear in specifications, you can see that it may require consideration for numerous items of work on a typical project. In addition, wood finishing may also be required for exposed structural items like glulam and timber members. Where that is specified depends on whether the finishing is done in the factory or on-site.

Prefinished Wood Flooring

Some woodwork, particularly engineered wood flooring, leaves the manufacturer's factory prefinished. In general, a finish applied in a shop or factory will be subject to greater quality control than field applied finishes.

A common finish applied to engineered wood flooring is polyurethane containing aluminum oxide. The resulting finish is extremely durable, lasting up to 25 years compared to the 10-year life expectancy of a site-applied urethane. Other advantages include no dust from sanding, no fumes from finishing and no waiting before the floor can receive traffic. The drawback to this

type of finish is the difficulty associated with refinishing it. Only two of the available abrasives commonly used in the wood flooring industry are suitable for sanding aluminum-oxide finishes; silicon carbide and ceramic grain abrasives. See this [article](#) from *Hardwood Floors* magazine for tips on sanding wood floors with an aluminum-oxide finish.

Wood Flooring Finished On-Site

For a custom-stained appearance and for particular uses, it is necessary to finish the wood floor on site. Many options are available, depending on the use of the flooring. A dance floor, for example, requires a finish that will permit the sliding movements of dance. Urethane is not appropriate for a dance floor. Linseed oil and wax or a tung oil coating is more appropriate. Sometimes a flat, opaque paint is used.

In a corridor or on a basketball court, a durable, slip resistant coating is more desirable. One system recommended by the AWS for application to flooring is System 11 - Polyurethane, Catalyzed. Two other systems, Systems 9 - UV Curable, Acrylated Epoxy, Polyester or Urethane and 10 - UV Curable, Water-Based are also recommended for flooring, but require consultation with the finisher prior to specifying due to their special curing requirements. The AWS includes a Comparison Table of usages and performance scores for all the available systems.

Doors

Wood doors can and should be prefinished as well. They are commonly finished in either lacquer or urethane, or either of the UV-curable systems. My rule of thumb for selecting the proper finish for a wood door depends largely on how the door

will be maintained. For *School Construction Authority* projects in NYC, lacquer is the preferred finish. A lacquer finish is relatively easy to repair compared to a urethane finish, which makes it easier for their maintenance staff to handle. Other facilities with minimal maintenance staff might elect the more durable urethane finish for their wood doors.

Cabinetry and Casework

Manufactured casework also commonly arrives at the project site with a factory applied finish. There are a total of 13 available finish systems for woodwork in the AWS. Each has distinct advantages and disadvantages. The Comparison Table lists the reasons why and why not to use a particular finish for typical usages. Relative qualities such as durability, drying time, finish clarity, reparability, solvent- and heat-resistance, chemical- and stain - resistance, VOC content and availability are addressed. One finish system I like for cabinetry is also the most difficult to apply. System 13, Catalyzed Polyester is a finish that can be polished. Its glassy appearance is beautiful when properly applied. It requires special facilities and skills to apply, however, and is typically done in a shop. Its qualities earn it one of the top four ratings on the table.

Conclusion

The AWS provides the most comprehensive analysis of the various finishes available for wood products. It is not all-inclusive, but it does provide an excellent basis for evaluations; oil rubbed and waxed finishes are not addressed in the Comparison Table. Relevant characteristics of the finish materials listed are included. Manufacturers of prefinished products

are the best source of information for their products. Likewise, installers of wood flooring will most likely have their preferred methods and should be consulted if known during the Construction Document phase.

Doors and casework are often the highlights of a particular design. Polyester finishes, though expensive and difficult to apply, are worth considering for an even more striking appearance.

Be sure to request finish samples to make your selections. Small samples and printed representations may be misleading. Request samples of the actual wood used on the project that are large enough to show the full effect of the finish.

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