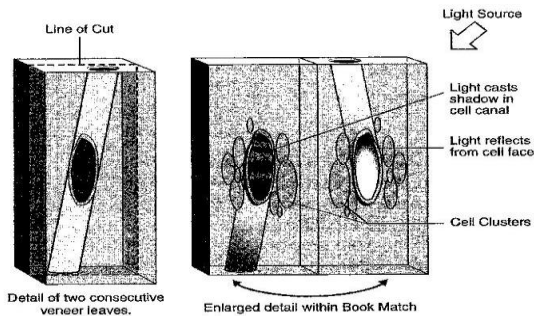


Veneer Finishing Hints

The fundamental construction of flush wood doors and hardwood panel products is very similar. Both consist of the use of various substrates with a final finish surface of hardwood veneers. It is the finish surface we are most concerned with in this article. As a result, any conclusions apply equally to flush wood doors and hardwood panel products.

Blotches are dark and/or light areas that show up when stain is applied to the surface. They occur because certain areas of the veneer may be more or less porous. These absorb stain and reflect light differently. Barber pole effect occurs most commonly on book matched veneers. Book matched veneers consist of every other piece of veneer being turned over like pages of a book. The visual effect is one of symmetry at the splices. As the veneers are turned, a *tight* and *loose* face is alternated in adjacent pieces of veneers. They may accept stain and reflect light differently causing a noticeable color variation called “Barber Pole.”



Blotches and barber pole may be impossible to eliminate but can be visibly reduced. Reduction of visible blotching can be aided by proper sanding, sealing before introducing stains, and by choosing non-penetrating pigments – dyes, alcohol stains, or glaze – in lieu of penetrating stains such as oil and water. The barber pole effect can be reduced by sanding, bleaching, flitch selection and (when permitted or appropriate) by switching to a slip match layout. A heavy glaze may also help hide the barber pole effect, but it must be understood that this is a natural feature of certain wood species when combined with a book match layout.

Blotches in the stain are most often found in Cherry, Maple, Birch and Pine. Barber pole often occurs in the same species and, perhaps because we use so much of them, in Red Oak and White Oak. In fact, either condition can appear in virtually any species or cut. The following procedures should help the woodwork manufacturer concerned with reducing these two natural effects.

Sanding

Proper sanding is imperative to the final appearance of any finished surface. Sanding dramatically affects the staining process as well as the appearance of the top coat. While the selection of species, cut, and match are the major factors, a stain can appear dark and blotchy if the substrate is not sanded properly. Thus, the surface must be prepared as perfectly as possible. These Standards set forth the smoothness requirements for all Grades of work. An important part of these standards is, “Just prior to staining.” Recently, some specifications have indicated the factory shall finish sand prior to shipment. This is not a practical solution to the problem. The wood veneered product may be stored for a period of time, which negates the benefit of the finish sanding. Handling marks will occur from the time of shipment to the finish stage and must be removed. If it is not practical for the finisher to finish sand prior to staining it is recommended a factory finish be specified. If a dark stain is to be applied it is even more important a thorough finish sanding be performed.

Sanding should be done with the product in a horizontal position. A hand block and/or pad sander should be used to cover 100% of the surface with even pressure. A wadded up piece of sandpaper, used with the bare hand hitting the visible “spots,” is not the way to do it. Sanding techniques vary from shop to shop. When done properly, complete and adequate surface preparation contributes significantly to successful finishes.

Washcoats

Washcoats are defined as “...a thin solutions applied as a barrier coat to wood. They are often used prior to wiping stains, for color uniformity.” Finishers who don’t want to incorporate this process will argue, “It won’t take a stain if you seal it.” A washcoat will slightly inhibit (and perhaps even out) the stain. The most important next step is to finish sand with 240 to 320 grit to cut off the raised fibers. The grain, however, has been uniformly sealed and opened so the stain will apply evenly. Samples should be prepared to ensure the desired finish will be achieved. The use of a washcoat makes a finish sanding a mandatory step in the finish process.

Blue Stain

Blue stain occurs in Oak veneers when natural tannic acid in the wood comes in contact with iron and or moisture. Enough moisture may occur during heavy rains or high humidity on buildings not yet temperature controlled. The following is from a door manufacturer’s care and handling brochure.

“To prevent blue stain, never use steel wool on the bare wood. Fine particles of the wool will cling to the door and cause trouble later. If you use shellac (a solvent for iron), it should not be stored in iron containers. To remove blue stain prior to finishing doors, we recommend a solution oxalic acid crystals. The solution is made by dissolving 12 ounces of crystals in one gallon of lukewarm water. Use a plastic or rubber container. Wear rubber gloves while working with the solution. Apply it to the stained areas with a brush or sponge; allow the door to dry and sand with 150 to 180 grit sandpaper. The entire door surface should be treated to avoid spotting.

Important: Failure to rinse the treated area adequately may have a damaging effect on the finish subsequently applied, or may cause damage to nearby glass, porcelain or other surfaces in confined areas. Damage may not result immediately, but may result during storage or after installation.”

Checking and Glue Bleed-through

Checking, which is small vertical splits in the veneer, and glue bleed through are most commonly related to plywoods with thin face veneers. You should be aware that this is the most economical plywood, which is commonly sold for both 7-ply and 9-ply door construction and ¼” wood paneling. The veneer thickness may vary from 1/100” to 1/50” depending on the manufacturer. A large percentage of the time veneers perform satisfactorily; however, sometimes these problems occur. Stain and finish sampling is recommended prior to cutting, assembly, or installation. The alternative is to specify domestically manufactured plywood and/or specify 1/50” or thicker veneers. Of course, this is the more expensive choice. It is a buyer beware situation. If front end cost is most important or the thick veneered product is not specified, there may be problems later with little or no assistance on claims.



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Warped Doors / Job site Conditions

Wood doors can be considerably affected by climatic conditions and jobsite circumstances beyond the control of the manufacturer or distributor. Doors stored improperly (standing or leaning doors against the interior walls) and or exposure to direct sunlight can influence the quality of the veneer and/or the overall performance of a wood door. Project compliance (reference WDMA job site storage & handling) is often jeopardized due to accelerated completion schedules and or excessive moisture introduced to the environment during construction.

Drywall finishing, painting, installation of floor coverings and open or exposed buildings can all contribute to higher than normal humidity on job sites. Heavy seasonal rains; snow and severe heat or cold can affect atmospheric conditions on site. Depending upon the time of the year, the relative humidity in a building can be significantly influenced by the HVAC (heating, ventilation and air conditioning) system. Improperly balanced systems or the introduction of dry air (typical in colder winter months if no moisture or humidity is added to the system) can significantly impact wood doors and millwork.

Typical industry warranties for architectural flush doors (including industry organizations such as WDMA & AWI) stipulate the “relative humidity to be not less than 25% or greater than 55%”.

Doors installed within this range will slightly react or move, adjusting to the conditions and require time to stabilize or acclimate to the environment. The time required for proper acclimation is predicated on site conditions and frequently requires a period of six months to one year. Unfinished doors (not properly sealed prior to deliver) delivered and/or installed in these environments are even more susceptible to warping. Periodically door performance or operating issues are directly related to the jobsite environment. Due to varying circumstances, wood doors are often delivered and/or exposed to problematical site conditions jeopardizing or nullifying factory warranties. To better eliminate potential problems, verify job site storage, handling and atmospheric conditions prior to delivery of doors and millwork.