Clearing the Haze

Ventilation is vital for curing waterborne finishes

By G. Brent Sorbet

TROUBLESHOOTING

The Problem

A flooring contractor worked on a sand-and-finish job of 1,200 square feet of red oak strip flooring over a four-day period. He applied two waterborne sealer coats followed by a waterborne topcoat. The result was a hazy and shiny appearance across the entire floor accompanied by an unpleasant solvent odor.

The Procedure

Eager to resolve the situation, the contractor provided detailed information on his sanding and finishing process. As the home owners were not living on-site during the job, the contractor had flexibility in access to the home and timing of procedures.

Surface preparation and sanding were performed according to industry standards. Two-and-a-half days were spent sanding; no problems were encountered in the sanding process. The contractor then vacuumed the floor and tacked it with a dry towel. Next, he applied one coat of the waterborne sealer, turned off the lights and shut all windows and doors to the house. It should be noted that it rained throughout most of the last day of sanding, with rain continuing during application of the first sealer coat.

The next day he strip-sanded the floor, then vacuumed and tacked the floor with a wet towel. He then applied the second coat of waterborne sealer. Not wanting contamination in the finish, he left the windows closed. One-and-one-half hours later, he applied a coat of catalyzed topcoat. He then turned off the lights, closed the door and went home. The next morning the contractor arrived and realized that he had a problem.

The Cause

The haziness, high or uneven sheen and solvent smell are caused by a number of factors. First, there was excess moisture in the wood. Second, there was high humidity and inadequate ventilation during finish application and drying.

Together, these factors combined to slow the dry and cure times of the sealer and topcoats. Water and co-solvents are trapped within the coatings, resulting in a hazy, uneven appearance. Solvent evaporating from the film with inadequate ventilation settles back onto the finish, keeping it soft and giving it a hazy or greasy appearance. The solvent smell indicates solvents are still leaving the finish, which is not yet fully cured. Full drying and curing of the finish is further retarded by an excessively moist substrate.

This was the contractor's first application of a waterborne system. If he had used a moisture meter and hygrometer, he could have ensured that the floor and conditions were right to go ahead with the finishing portion of his job. Improved ventilation would have helped ensure that each coat of finish was dry before proceeding with subsequent coats.

How to Fix the Floor

The finish coat needs to be opened up so water and solvents can escape. The floor should be screened with 120-grit or finer screen and then vacuumed. Increase ventilation by opening doors and windows. Place some fans to blow air over the floor and others to pull indoor air to the outside.

It may take one to two weeks for the film to become fully cured. Cure time depends upon how many coats of finish are applied, how thick the coats are and ambient temperature and humidity. In general, waterborne coatings are 90 percent cured within 24 hours (depending on temperature and humidity). Most of this curing consists of the evaporation of water and some solvents in the system. The remaining 10 percent usually cures within one to two weeks. This is why it is recommended not to cover the floor with rugs or paper. (If cardboard or paper has to be used, remove it every day to allow the finish to breathe and cure).

When applying waterborne finishes, wait approximately 30 minutes before using fans to improve ventilation for adequate drying. This allows time for the finish to properly flow and level. Using fans sooner than this may "set" brush marks or other unwanted surface defects in the surface of your film.

In the Future

Take the time to learn the finishing system you plan on using. Carefully read and follow all label and literature instructions. For more information, contact the manufacturer and trade organizations like the NWFA. Purchase and use moisture meters and a hygrometer. These tools come with useful "stop and go" procedures. Write down moisture content readings in each room and between coats as a guideline. A difference of one or two points is a "go," five points or more from your starting number is a "stop." Also, start using proper ventilation methods during the finishing process.

When you say, "I didn't have enough time" to do it right the first time, you risk having to find the time to do it right a second time. Remember, time is money.

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