

UV Helps Mold Pennwood's Future

By Jeff Stines

“If it weren't for UV curing we wouldn't be in this business today.”

It's a story you might not expect from a company tucked away in a tiny Pennsylvania town where the population has grown by less than a

thousand since 1820 and where log homes still dot the streets. But in a place where many things are done the way they have always been, Skip Coxen runs Pennwood Products like any sophisticated woodworking shop, and has a legacy of technical innovation. “We couldn't do wood finishing without UV curing,” says Coxen. “The amount of VOCs (volatile organic compounds) would be prohibitive and we would be at a competitive disadvantage. I am certain that we are only in the wood finishing business today because of UV.”

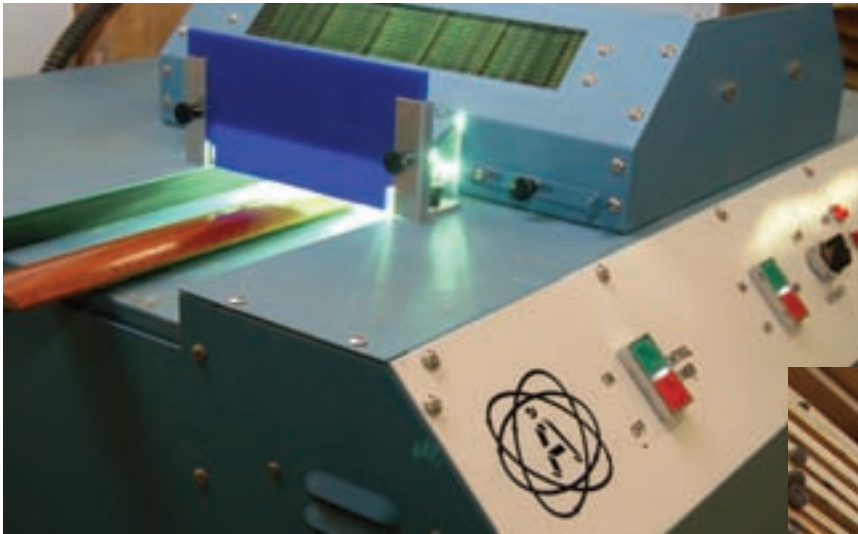
Keeping Pennwood on the literal cutting edge of manufacturing wood moldings, Coxen has surrounded himself with a young and talented group of designers, process engineers and his own paint formulation chemist. The Pennwood team has also forged strong relationships with key equipment suppliers such as American Ultraviolet of Lebanon, Ind., and a handful of expert UV coating formulators.

Coxen has been leading the charge for improvement almost since he began working in the family business at age 14. “In the late 1990s we teamed up with a local college which approached us with the suggestion that UV was a potential way to combat the problems posed by the high VOCs from traditional coatings that threatened to shut us down. We turned on our UV lamps the day after Labor Day in 2000 and haven't looked back since.”

When Coxen's father started the business in 1942, it specialized in



Careful inspection and quality control assure that production parts match customer samples.



A laboratory curing system helps define and optimize production specifications.

wooden heels for ladies shoes. It wasn't until the 1950s, when the company expanded into the picture frame molding business and started experimenting with lacquers, that Pennwood began to distinguish itself as a high-quality wood finisher. Today, Pennwood Products is a respected

manufacturer of unfinished and prefinished hardwood moldings and floor accessories.

Now the stockyard of their 16-acre plant in East Berlin, Pa., is stacked sky-high with nearly every

variety of hardwood—from domestic and exotic species to stranded bamboo. The rough mill is a modern and efficient layout of helical-head, carbide-insert planers; on-line Melott conveyors; a Barr-Mullin Compu-Rip system; and computer-controlled optimizing saws. And the wood molding department is equipped with



Ryan Peters helps keep Pennwood on top of finishing technology.



Automated sanding permits uniform coating on complex shaped moldings.

the latest molding technology imported from Germany.

Unfinished transition moldings, stair treads and risers move from the mill to the finishing facility where UV-curable stains, and clear and tinted coatings are applied on several high-speed spray and vacuum coating lines equipped with in-line, UV-arc lamp curing systems. “Only UV curing provides the uniformity and performance that the vacuum coating systems can produce,” says Ryan Peters, vice president of manufacturing at Pennwood.

Supporting the production facility, a specialized color matching and test laboratory allows Pennwood to develop new finishes to match nearly any shade or texture of hardwood flooring with pinpoint accuracy. A fully equipped coatings test laboratory performs cosmetic and functional tests such as spectrophotometry and Taber abrasion to assure that the coated wood parts meet demanding customer



Hand spraying new formulations of UV coatings and stains in the lab.

requirements. New formulations are hand sprayed, cured and adjusted until the results are exactly right.

The final formulations are carefully recorded and samples archived in a color library that Pennwood keeps under tight wraps. “Customers tell us that our color library is very unique and helps give us an edge on developing new colors and assuring a perfect match,” says Victor Arriaga, Pennwood’s staff chemist.

Arriaga’s lab works closely with key suppliers (such as American Ultraviolet), formulators, and raw material manufacturers to ensure that Pennwood is always looking at ways to optimize and innovate their finishing process. “Although environmental compliance got us into UV,” explains Peters, “UV gives us

some other important benefits such as better appearance, durability and the ability to coat, cure and then immediately handle the finished product. We can stack, package and ship parts with no damage to the coating or extra waiting time.”

Peters says this kind of seamless process is made possible by having American Ultraviolet systems in the research and development laboratory and on the production floor. “With UV capability at each stage of the process, we are able to assure that when a new product goes into production we will get consistent, robust results,” says Peters.

There is little disagreement about the value of UV curing to their success, and the future role of the technology in Pennwood’s finishing operation. That leaves a lot of time for their favorite debate—who has the better team this year, Penn State or Pitt? ▶

—Jeff Stines is vice-president of Marketing and Communications at American Ultraviolet in Lebanon, Ind.



Pennwood’s coatings are tested against stringent performance standards.