

# UV Helps Mold Pennwood's Future

By Jeff Stines, American Ultraviolet

"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 always have 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 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 like American Ultraviolet of Lebanon, Indiana and a handful of expert UV coating formulators. Though Coxen himself has been leading the charge for improvement almost since he began working in the family business at age 14. "In the late 1990's we teamed up with a local college who 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."

Though Pennwood Products is a respected manufacturer of unfinished and prefinished hardwood moldings and floor accessories, when Coxen's father started the business in 1942 it specialized in wooden heels for ladies shoes. It wasn't until the 1950's 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 the stock yard of their 16-acre plant in East Berlin, Pennsylvania 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 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, 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 allow 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 like spectrophotometry and Taber abrasion to assure that the coated wood parts meet demanding customer 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 a 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 like 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 like 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 made possible by having American Ultraviolet systems in the research and development laboratory and in 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 lots of time for their favorite debate - who has the better team this year – Penn State or Pitt.

Additional Photos:

