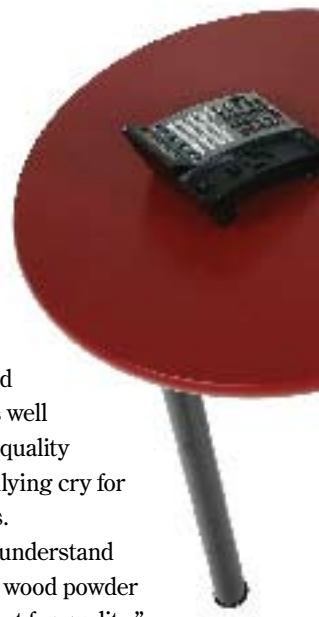
Wood powder coating comes into its own

By Craig A. Martin



Wood powder coating could be considered the perfect marriage of art and science. Unlike other surfaces, wood powder coating on MDF enhances design freedom and flexibility (think elegant contoured edge profiles, stylish curvilinear shapes, embossed logos or graphics, among others) while creating a surface that will stand up to time, won't delaminate or peel, and is also environmentally friendly.

Thanks to new technology — everything from innovations in powders and MDF to application systems and proprietary know-how — wood powder coating has overcome many of its earlier challenges. It is now considered the emerging trend in finishing, according to the powder-coating industry, and is revered for its durability, unlimited choice of color and shapes, and upscale look.

Wood powder coating can be an ideal surface for office, medical and educational desks and workstations, ready-to-assemble furniture, store fixtures, cabinet doors and garage/closet organizers.

Yet, with such flexibility and benefits — both environmental and economic — some are still waiting to test the waters, unaware of advances in the past three years that guarantee a top finish all the time.

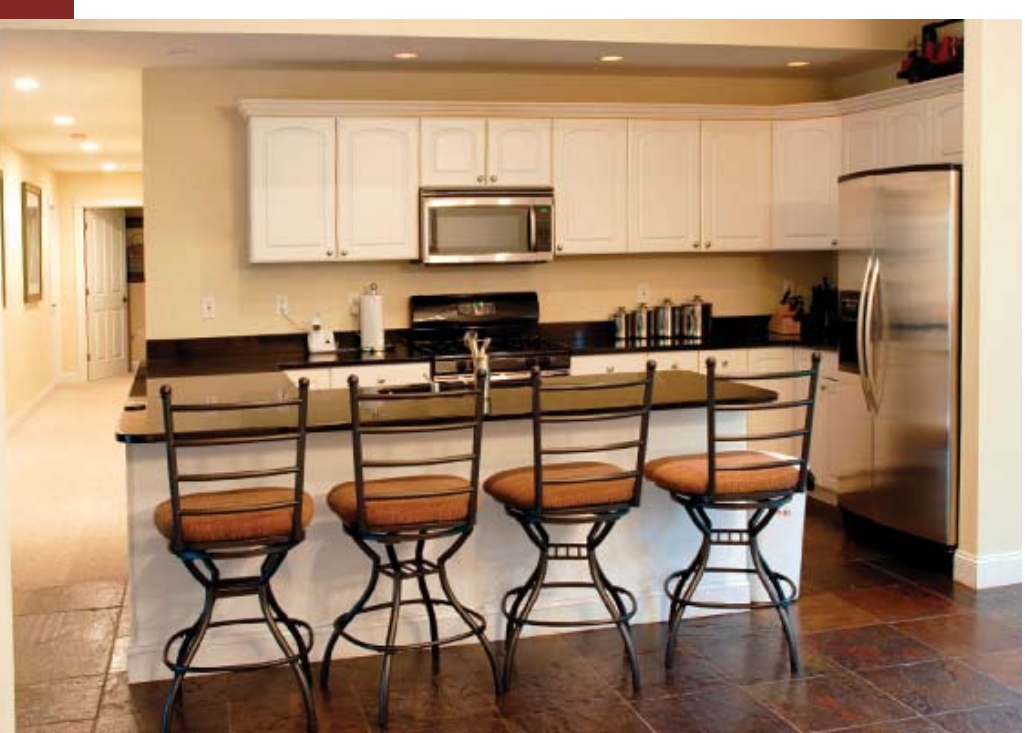
Mastering wood powder coating means understanding the exact blend of science and technology that will consistently produce the highest quality components. However, not all wood powder coating is the same. Finishers must be willing to commit — and invest — in quality. Only state-of-the-art technology, powders, premium quality MDF and manufacturing expertise will produce consistent results, and shortcuts will almost always result in inferior finish and performance.

Educating the design community about the benefits and flexibility of wood powder coating — as well as how to determine quality — have become a rallying cry for many in the business.

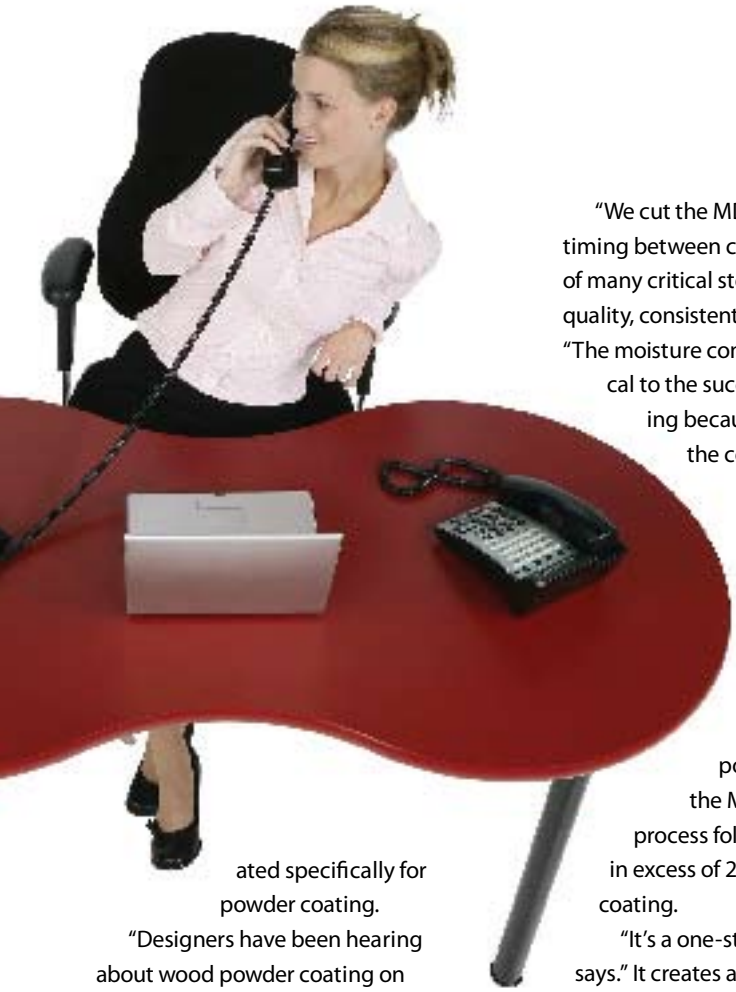
"It's important to understand quality standards for wood powder coating and how to test for quality," says Michele Redding, vice president of market development at BTD Wood Powder Coating. "Just because a powder-coated MDF component looks good to the naked eye, doesn't mean the finish is of the highest quality."

Educating designers, engineers, procurement teams and other professionals about testing procedures for finish hardness, mil thickness, moisture resistance and other quality indicators has been helpful in ensuring a high standard for all powder coaters of MDF, Redding says.

Sharing the advances in technology that have made wood powder coating a viable alternative to other surfaces is also a key to growing the market, says Chris Leffel, vice president of sales and marketing for SierraPine, which manufactures PermaCore, one of the first MDFs cre-



Captionexeriurem ing exerit luptatie tionseq uamcomm odolorper amconsecte ea feugait, secte dolobor sectet dolobor sumsan venim



ated specifically for powder coating.

"Designers have been hearing about wood powder coating on MDF for a decade now, but they still wonder if it's for real because they don't see much of it out there," Leffel says. "We really need to make them aware of the technological advances that ensure quality and the status of the market, which is wide open."

Applying powder to wood may have seemed a little far-fetched back in the early 1990s, but then so was the Internet. The technology has advanced by leaps and bounds in just a decade. The single-step, single-coat process electrostatically adheres a uniform powder coating to MDF, then immediately cures it. According to Leffel, SierraPine was involved in some of those pioneering wood powder-coating experiments, and the technology has greatly improved.

Material compatibility

MDF emerged as the wood of choice for powder coating; its moisture content is an ideal and consistent conductor of electricity. It has low porosity and a homogeneous surface that readily accepts the powder.

"We cut the MDF on-site because the timing between cutting and coating is one of many critical steps to ensure a high-quality, consistent finish," Redding says. "The moisture content of the board is critical to the success of the powder coating because moisture serves as the conductor of electricity."

After the CNC process, the board is sanded and blasted with air to remove any dust. The board is then heated and an electrostatic charge is transferred from the spray gun to powder as it is applied to the MDF surface. The curing process follows, using temperatures in excess of 200 F to set the powder coating.

"It's a one-step process," Redding says." It creates a surface ranging from 3 to 9 mil thick — a direct correlation of quality. It's also important that the surface mil thickness is ±1 mil of the standard specified for a consistent finish and performance.

Wood powder coating is viewed by some to be the next generation of powder coating. The technology has been refined to produce consistent, high-quality surfaces that are solvent-free, virtually VOC free and environmentally friendly, with about 98 percent of the unused powder recovered.

Redding credits BTD's success to its partnerships with leading powder and MDF suppliers and its state-of-the-art powder-coating equipment manufactured by ITW Gema. Using an ISO 9000 compliant process along with experienced skilled craftsmen is also crucial, she says.

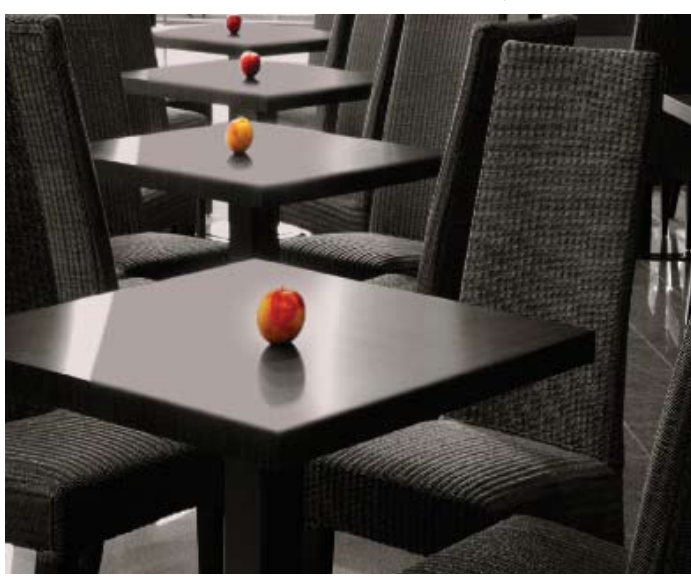
"Wood powder coating used to be temperamental because of the different variations of MDF, powders, equipment and lack of technical expertise by wood powder coaters," she says. "And that's where the blend of art and science comes in, and having the right people overseeing — and understanding — the process."

A variety of applications, effects

Powder-coated MDF components are found in store displays throughout the country, in ready-to-assemble furniture and tabletops — found in work spaces applications ranging from hospitals to restaurants.

"Designers are very impressed by the design freedom of wood powder coating," says Redding. "We can customize colors and shapes, do waterfall and bull-nose edges, inside cutouts, logos, tight inside radii, etching, embossing, three-dimensional contours and raised surfaces.

"Designers and engineers are really



grabbing onto it because they can create a unique look for a store or a furniture line. Plus, designers love the elegance of this solid surface finish."

The rapid growth of wood powder coating can also be attributed to improvements in finish quality and options. Until recently, it was only possible to apply a micro-texture finish, but now with the

right powder, technology and manufacturing expertise, today's finishes can have the quality of a baby grand piano with a smooth high gloss (80 degrees or higher) black or many other colors.

Finishes that simulate solid surface granite in a smooth or textured appearance are also available, and wood powder coating can also be applied to create textures such as hammertones, metallics and weathered veins. Clear coating, gloss, tints and translucents are also possible.

The powder coatings can provide other long-term benefits. For example, finishers can add a new DuPont antimicrobial additive that removes 99.9 percent of bacteria from the surface.

The freedom of shape and durability

Powder coating on MDF is more durable than traditional laminates and wet paint. It won't rust and is impact-, chip-, temperature- and stain-resistant. Plus it's well suited to hot, wet conditions like locker rooms and saunas because it won't fade in sunlight or warp in humidity. Because it's a uniform, seamless coating, wood powder coating won't peel or delaminate from the substrate — qualities BTD puts to the test during trade show demonstrations.

The company's popular "hammer test" (applying hammer to surface) demonstrates the impact resistance of wood powder-coated finishes that often hold up even better than the MDF. A water immersion demonstration proves the moisture resistance superiority of wood powder coating compared to laminate, melamine and membrane press finishes.

"People are amazed at the durability of wood powder coating, and these displays demonstrate and educate potential users of these substantial benefits," says Redding.

Wood powder coating is coming into its own, finding its place in high-traffic areas like offices and schools, restaurants and retail, and wherever eye-catching, eye-popping color and shape are desired.

"Wood powder coating really is the finish of this century," says Redding. "It conveys a high-end, professional look yet it's totally utilitarian."

Sources

For more information on BTW Wood Powder Coating, please visit the company's website at www.btdwoodpowdercoating.com.

For more information on ITW Gema, write in 00 on the inquiry card.