

Piedmont Woodworking

How one residential cabinetmaker membrane-pressed its way into the kiosk and retail display business

ATLANTA, GA — Piedmont Woodworking's thriving business in membrane pressing of damage-resistant components of kiosks and retail displays evolved from its pioneering days as a membrane presser of kitchen cabinet doors.

The family-owned, commercial construction business relocated from England in 1988 and, with the intention of subcontracting to the construction industry, purchased a bankrupt manufacturer of kitchen cabinets in the Atlanta, GA, area.

"Piedmont began building complete kitchen cabinets and other residential cabinetry for local home builders, but the market did not hold sufficient promise due to stiff competition and the limited supply of skilled woodworkers, so we expanded into commercial cabinetry by 1990," recounts John Colby, general manager. "It was a natural move due to our familiarity with commercial construction, but the scarcity of skilled labor essential for efficient production of quality cabinets remained an obstacle to growth," he says.

The company was still producing residential cabinets at that time and, due to a high demand for white, was frequently spray painting with lacquer — a problematic finishing method that motivated the company to seek an alternative in the form of membrane pressing. "The headaches inherent with spray painting of cabinet doors disappeared in 1990 when we began membrane pressing with white vinyl," said Colby.

The process involves heating, vacuum forming and pressing of a plastic sheet onto a flat or routed wood substrate, causing the sheet to conform to all top and side surfaces of the substrate. Because the sheet can conform to compound curves, one-piece membrane-pressed doors can bear a close resemblance to five-piece painted doors.

Piedmont was the first in Georgia with a membrane press, and found it a challenge to produce quality components at the onset. Because the industry was in its infancy, quality MDF, adhesives and vinyls were hard to find, but the process overcame the difficulties of spraying MDF or solid wood with lacquer to produce cabinet doors having a quality white finish.

"We saw a future in membrane pressing and thoroughly concentrated on reselling cabinet doors to other cabinet makers in the area. In short order, our competitors became our customers, and the side of our business that built complete kitchen cabinets dropped to nothing," says Colby.



Bill payment kiosk enclosure of routed MDF panels membrane pressed with heavy-gauge KYDEX sheet, withstand impact and harsh cleansers while maintaining an attractive appearance.



Operators remove panel from membrane pressing machine.



KYDEX sheet conforms to all top and side surfaces of three-dimensional substrates which, in this case, consist of doubled MDF board with injection molded Coca-Cola® logos affixed prior to membrane pressing, allowing seamless reproduction of corporate identity that resists damage.

KYDEX, LLC

ISO 9001 and 14001 Certified

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Today, half of Piedmont's business is comprised of membrane-pressed residential cabinet components consisting of over 200 door styles in standard and custom sizes for kitchen cabinets as well as bathroom vanities and closet systems, a niche that has grown tremendously over the past five years, according to Colby.

All are membrane pressed using American Renolit's Vacuren® film in several shades of white as well as in solid colors and printed patterns. These films range from 0.2mm to 0.5mm in thickness, are produced in both vertical and horizontal grades, and are able to conform to fine details as well as deep recesses in routed substrates, with minimal thin-out.

"Woodgrains have experienced significant growth over the last two years and now account for 40 percent of our rigid thermofoil sales," says Colby, explaining that woodgrain patterns have become far more realistic, and are now available in patterns that match those of popular melamine boards and high pressure laminates.

Starting in the mid to late 1990s, when the market for membrane pressed residential cabinet doors was flourishing, the number of competitors grew rapidly, prompting the company to seek additional markets for membrane pressed components.

Piedmont began diversifying by using thermofoils to membrane-press bed heads, entertainment centers, mirror frames and other vertical components for manufacturers of hotel and motel furniture, mostly to replace high pressure laminates and achieve compound curves.

"The ability to conform to virtually any shape routed into MDF board allowed three dimensional, seamless designs that improved aesthetics and allowed safer, rounded corners while eliminating the edge banding, visible seams and de-lamination associated with high pressure laminates and wood veneers," says Colby.

What ultimately attracted Piedmont's current base of commercial fixture and kiosk customers to membrane pressing, however, was the ability to surface components with heavy-gauge sheet products that protect against damage, unsightliness and equipment failure in the field. "For components intended for high traffic environments, we specify KYDEX® thermoplastic alloy in gauges from 0.70mm to 1.00mm (0.028" to 0.040") almost exclusively," says Colby.



Approximately 125 of these high-style game wheels are manufactured annually for a regional retailer, Shoe Carnival. Customers get a spin of the wheel for every pair of shoes purchased and can win up to 20% off the retail price of their purchase.



White door panels clad in Renolit film are removed from the membrane press prior to trimming. Owner John Colby on right.



Owner John Colby gained significant advantages by switching from spray painting to membrane pressing of routed MDF substrates with seamless heavy gauge sheet and rigid thermofoils.

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Produced by KYDEX LLC, the proprietary sheet exhibits impact resistance to 961 J/m (18 ft-lbs/in), modulus of elasticity to 2,482 MPa (360,000psi) and tensile elongation to 42MPa (6,100psi), and is said to resist concentrated cleansers, allowing repeated cleaning of grime and graffiti with no staining or fading. It is available in a range of solid colors, surface textures and graphic patterns including granite and woodgrains, an assortment of which match woodgrain thermofoils of American Renolit, and high pressure laminates and melamine boards of Georgia Pacific®, Uniboard®, Tafisa®, Pionite® and Roseburg®. The trend among producers of surfacing materials to match one another's colors and patterns allows components to be produced using a variety of production methods and materials, yet match in appearance, offering woodworking shops and customers alike a new way to cut cost while improving performance and aesthetics.

Today, Piedmont operates two membrane presses in addition to traditional woodworking equipment, surfacing a variety of residential cabinet door products with thermofoil films, and commercial furniture, retail displays and kiosks with heavy-gauge sheet, thermofoil films or a combination thereof.

With names like NCR®, Verizon®, Sprint®, Fatura®, Dell®, Waste Management®, AMC Movie Theater®, Coca-Cola®, Continental Airlines® and UPS Store® on its commercial products roster, Piedmont has found a success formula — one it will readily rethink should another market opportunity arise.

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