Think "Better"!

Lightweight panel advantages drive its momentum

By Brooke Baldwin Wisdom

When you think of lightweight panels, think "better." That was the message conveyed at the first ever fully functional PUR Lightweight Panel Line with Support Edge Technology demonstration hosted by Stiles Machinery in Grand Rapids, MI, November 2 – 4. Lightweight honeycomb panels are increasingly being used in the furniture, store fixture, flush door and panel production industries, to name just a few. They are as strong and durable as solid parts and can weigh up to 70 percent less than other material.

"We've got to change our way of thinking as an industry," says Gary Wernlund, product specialist at Stiles Machinery. "Lightweight panels are not cheap nor are they inferior. Rather, there are many advantages to lightweight panels that are contributing to its momentum."

Design is the first of those advantages. Lightweight panels are not only being integrated into existing products, they are also creating new products that fully leverage the characteristics of its technology. Driving much of its increased usage is a consumer preference for thicker panels and their perceived value.

As shippers are under pressure to limit weights of loads, transportation becomes another advantage. Less weight means lower shipping costs and less damage. Packaging ties in here, too. Lightweight panels can be shipped in lighter packages, at less cost, with multiple units per package and higher stack heights.

For manufacturing, lightweight panels can mean lower production costs. Material cost is reduced when compared to rising particleboard and MDF prices, and since weight is reduced and handling is simplified, there is less work-in-progress damage. Light weight brings even more advantages when it comes to ergonomics and safety. There are fewer injuries in the manufacturing environment, easier, faster installation out in the field, and product handling is easier for the consumer.

Finally, these light weight panels are environmentally friendly. They are inherently a

green concept as they can be recycled, are biodegradable, renewable and have no emission of formaldehyde.

A combined production effort

The lightweight panel demonstration line manufactured lightweight panels, applied a support edge as well as decorative edgebanding, sanded surfaces and applied a finish. A Torwegge PWT 100 lightweight panel machine produced the honeycomb composite material panels and ran in conjunction with the first Support Edge Technology edgebanding machine by Homag, which provides structural strength and prepares and applies decorative edgebanding. Other equipment used in the process included a Cefla finishing line, a Bütfering widebelt sander and a Ligmatech return conveyor.

The honeycomb was a product of Honicel headquartered in the Netherlands and in China. This unique material, supplied in block form, is then expanded and dried just prior to use. Due to drying in its expander/dryer, the Honicel honeycomb's compression strength increases up to 100 percent. Various thicknesses and cell sizes are available in both phenolic-saturated and non-saturated forms for proper performance in various product designs.

High Point, NC-based Jowat Adhesives' PUR Hot Melt Adhesives featured specific open time, green strength, reactivity and viscosity that were conducive for the lamination of these panels. The support edge and edgebanding for the lightweight panels utilized Jowat standard EVA hotmelts. For demonstration, the lightweight panel was a two-sided framed panel with the additional possibility of a frameless panel. REHAU provided the support edge, a coiled ABS material, specially "foamed" to reduce cost and provide a porous surface to allow proper adhesion with the decorative edgebanding material.

Titus with its Titusonic Ultrasound fastening technology provided the solutions to the fastening challenges of varying thickness, varying laminate and laminate thickness, and varying cores. Utilizing both newly developed mechanical fasteners and high technology ultrasonic welding, present and future technologies for assembly of fittings into lightweight panels were seen by the industry.