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Materials: Lessening the load, not the quality

By Kim Kaiser

Using lightweight panels doesn't mean sacrificing quality.

Lightweight panels were once a challenging material to work with; however, thanks to advances made by hardware companies and others, these lighter alternatives to solid wood, particleboard and MDF have become much more practical.

Richard Bellon, a product manager for Hettich, says it took a number of players to come together to make it manageable for furniture makers to start working with lightweight panels.

"In the beginning everyone was waiting for the other. The board producer said, 'well there are no fittings available for lightweight panels and the edgebanding is a problem,' " Bellon says. "We, as a fitting supplier, said, 'there is no standard board in the market. We cannot develop any fittings if we do not know what the board will look like.'

"But now everything comes together. There is the EGGER board (www.egger.co.uk) in the market, REHAU has solved the edgebanding topic, and we have fitting solutions available. Everything is ready now so that the furniture producers can start using lightweight boards."

Thomas Ponater, business team manager for REHAU's furniture group, points to three significant advances: improved manufacturing processes; improved hardware options for frameless light weight panels; and improved edging solutions (like REHAU's SupportEdge) for frameless light weight panels.

WITH A FRAME OR WITHOUT A FRAME

Today, the honeycomb core panels are produced two different ways — with stiles and rails that form a frame, or with no frame. "From my point of view, the trend, or the future, will be honeycomb panels without stiles and rails because the name says it — lightweight. In order to save even more weight, you would actually produce the panels without the frame," says Rolf Busch, director of operations at Stiles Machinery, which supplies lightweight panel processing equipment.

Not much has changed over the last few years in terms of the panel production and machinery, Busch says. "If I look at the laminating line from Torwegge, which is capable of producing lightweight panel, it's not a rocket science process," Busch says.

The Torwegge system that Stiles offers consists of an infeed conveyor that sends the panels through a glue applicator. This is followed by a middle conveyor where you lay up the skin on the honeycomb paper and the frame. From there it goes through a pinch roller.

“That’s about it,” Busch says. “It’s a pretty easy and straightforward [process] without a lot of high-tech bells and whistles.”

Where advances have been made, however, are in the hardware that is used with these panels.

Hardware companies “have improved their fittings and connections,” Busch explains. “They have improved significantly. You can literally get rid of the stiles and rails if you want to. In the past, five years ago, you used the stiles and rails — or the frame — in order to put the dowel in there and connect the table leg, for example. Right now, the fittings and connection and insertions are so improved that you don’t need this any more. That is the big difference.”

However despite these advances, Ponater says there are still challenges. “Even with the new hardware and edging options, lightweight panels are more challenging to accommodate than traditional panel systems,” he says. “We are confident that industry solutions will continue to advance in order to meet these challenges more efficiently, as the market demand for lightweight panels will only continue to increase.”

THE LIGHTWEIGHT MARKET

So who is using lightweight panels? Busch categorized them into two groups: office furniture manufacturers and residential furniture manufacturers. Office furniture, the more common of the two, uses lightweight panels for table tops and also wall dividers used in office cubicles, Busch says.

When it comes to residential furniture, IKEA is the only company mass producing residential furniture that uses lightweight panels, he says. He points to the Lack table, a small coffee table produced by IKEA, as an example. According to IKEA the table had already been sold 1.4 million times in 2004, Busch says.

LAGGING BEHIND EUROPE

Although advances have been made, Busch says the United States is still far behind Europe when it comes to the use of lightweight panels.

“In my opinion, we are far behind [Europe] when it comes to office furniture or residential furniture, or whatever you want to use lightweight panel for in the wood industry,” he says.

Bellon agrees and says Hettich is currently focusing the majority of its energies on the European markets. Although lightweight panels haven’t taken off in the United States like they have in Europe, there is interest across North America.

“At the moment we do not see so much usage of lightweight panels in the North American furniture industry. Nevertheless, we can see a lot of interest in this topic in North America,” Bellon says. “There were seminars in Canada at the beginning of this year with a lot of participants. There will be seminars in November in the United States. In addition, we saw a lot of interest from our customers during IWF in August. So it seems that now more and more people are thinking about using those boards.”

Bellon attributes the reluctance for U.S. manufacturers to make the switch to lightweight panels to the economy.

“Currently the economical situation is quite tough. Changing to lightweight boards means additional investment for the producers. They will have to change some of their processes and the construction of their furniture,” he says.

However, Busch says using lightweight panels does not necessarily mean the addition of different machinery; although it can. He explains that if you are not producing a panel over a total thickness of 37mm and if your skin thickness is at least 5mm or bigger, you can still use a standard edgebander. If you are

using a panel that has stiles and rails, there is enough support to put the decorative edge right on the stile and rail.

However, if you go beyond a certain thickness without the stiles and rails, a support edge will be necessary because there is not enough surface for the glue to attach the decorative edge on the panel, Busch says. To do that, you'll need a double-edge edgebander.

"From a distance it looks like a standard edgebander, but what it does is it uses a support edge and a decorative edge and glues them together in one pass and inserts both into the panel," Busch says. "The support edge supports the decorative edge on the panel so you have enough surface to glue it on and you have enough strength so that if you push with your thumb on the edgebanding, you cannot push it in."

Other processes can still be done on standard equipment. For example, if you need to sand the panel for final finishing, this will be a standard sanding machine; there will be no difference, Busch says.

You will still be able to use "a standard contour edgebanding machine with routing capability or a standard router or point-to-point machine, or in our case you can even cut this panel on a beam saw. All three methods are possible," Busch says.

LIGHTWEIGHT IN THE FUTURE

Ponater believes design trends such as thicker panels will help boost lightweight panel demand in the residential furniture market, as the resulting look is more in alignment with the traditional wood furniture designs many Americans are accustomed to.

Busch and Bellon both predict that lightweight panel use in the United States will increase in the coming years. Bellon points to a variety of reasons for this:

- **Ecological:** There are limited resources of wood available. We have to save those limited resources.
- **Economical:** Because the resources are limited, prices are going up. Due to the increasing oil prices in Europe, more and more people are heating with wood pellets, for example.
- **Ergonomical:** In some countries, the government is considering limiting the maximum weight per package of RTA furniture. For the same furniture you will have to pack the panels in three packages if you use particleboard compared to just two packages if you use lightweight boards.

"It will be our common challenge to convince the end user that light does not mean cheap. We have to sell this new material as an innovative one," Bellon concludes.

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