

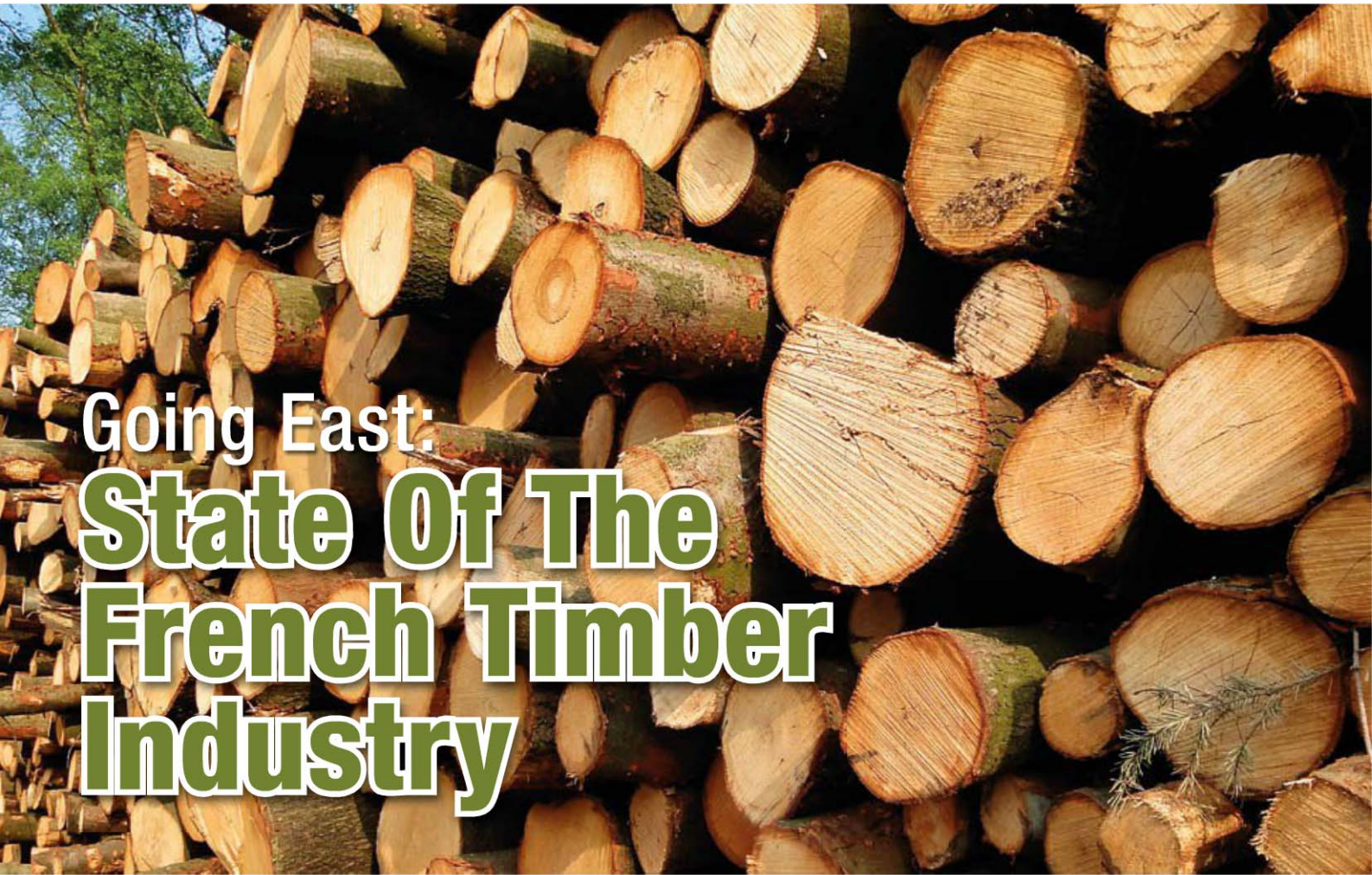
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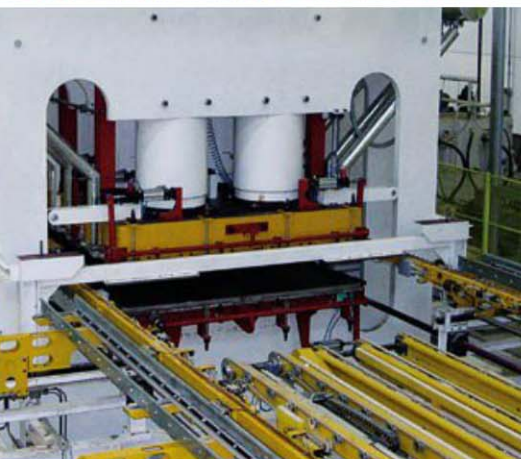
## Solid Wood & Panel Technology

NOVEMBER/DECEMBER 2011



Going East:

# State Of The French Timber Industry



Short Cycle Press:  
The Will To Press On



Wood-Based Panels:  
Poised Against Moist



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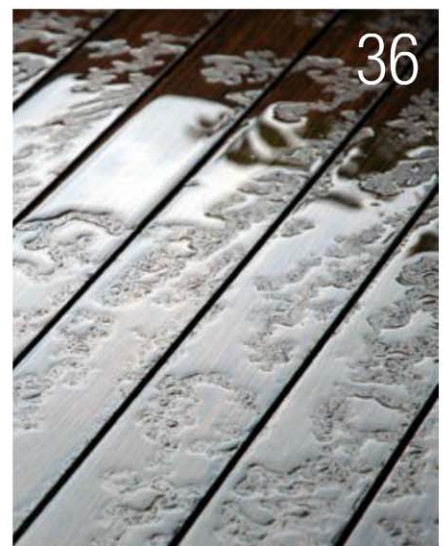


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**S**hort cycle lamination process, also known as low pressure laminates, is used for the production of surface laminated particleboards, MDF, HDF and plywood. Wood-based panels are decorated with melamine impregnated décor papers whose resins, thanks to the pressure and heat applied during the short cycle lamination pressing process, melt into

the porosity of the substrate creating cross-linked bonds and completing their curing.

The final product is a solid melamine-faced board that possesses colour stability and is resistant to scratches, humidity, stains and many types of acids. These products made through the lamination process are also called thermally fused melamine boards.

After the short cycle lamination process, separation between the paper and board will not happen at any time or at any condition. Melamine-faced panels are widely used in the production of furniture, flooring and partition walls.

Many more decoration opportunities are available not just by changing the paper textures and colours, but by switching the stainless steel finishing plates. Tactile sensations will be enhanced, giving the surfaces of the boards the realism of wood grain or stone surfaces, and costumers will be captivated by the glossy, matt or natural wood finishing.

# The Will To Press On

Short cycle lamination may be a simple process, but flexible press line solutions offered by suppliers can help increase production volume while addressing safety and environmental concerns, ensuring a quicker return on investment. By Matteo Manghi, area sales manger, Pagnoni Impianti





## The Pressing Process

Short cycle lamination lines are engineered to work at a pressure of 40 kg per sq cm. In order to process boards with recognised standard dimensions, press manufacturers can design a press line that is apt to work at higher specific pressures, even on large panel sizes such as 7 x 14 inch (18 x 36 cm), and to process two boards simultaneously. These customisable options help companies meet demanding market requests.

Sometimes by reading the data sheets of the melamine impregnated papers, one might discover that the pressure needed for the lamination process is actually lower. However, it has to be said that very often the short cycle press has to flatten micrometric imperfections on board surfaces to produce a good quality board finish. Therefore, a powerful press is needed for production.

In order to mimic deep embossed patterns of natural wood or stone, the pressure required on the short cycle press will be even greater because the line not only has to laminate the paper, but also has to mould the raised surface of a board that can have a high density.

Short cycle pressing time may vary from less than 10 seconds to 20 seconds or more according to the desired final product and the decorative papers employed, which play a key role in the performance of the press line. The grammage of the melamine impregnated paper generally starts from 60 grm per sq m, but this light paper requires a remarkably sanded surface, otherwise defects on the wooden substrate will appear after lamination, which will lower the quality level of production.

The handling system of rough boards and décor papers can be simple for basic and small scale production plants featuring manual paper layup stations, but can be outlined comprehensively to



Customisable press lines can help companies meet demanding market requests.

manage all phases of the short cycle process in full automation, ensuring high production capacity. High capacity lines can handle two boards per cycle processing about 240 boards per hour or even more under special conditions.

The whole production line has to support this greater press capacity by handling more stacks of rough boards, composing sandwiches of papers and board quickly in more than one station and laying out the laminated panels in different piles according to quality to be ready for secondary processing lines or warehouse operations.

The papers have to be impregnated with the appropriate resin according to the final use of the boards: melamine for internal décor applications and phenol for outdoor use due to its recognised water resistance. Also, paper weight is an important parameter that defines the final characteristic of the laminated board.

The short cycle lamination line is not meant just for melamine impregnated papers, but is apt to laminate natural fine hardwood veneers for flooring and high value products, as well as phenol

impregnated papers and metal sheets for outdoor applications, such as container loading paving and shuttering boards for the construction industry.

## Safety & Environment

An important aspect of the short cycle line is the overall safety of the working place. European manufacturers put a strong emphasis on this matter, ensuring that more than one security system is present and keeping the risks generated by high pressure and heat to a minimum.

In the same way, it must be remembered that the processed panels are an agglomerate of wood chips, papers, urea and melamine resins, and therefore a potential source of formaldehyde emission, which must be put into consideration during production.

Of course, the use of certified products complying with strict European standards will guarantee that the production of E1 décor laminated boards adheres to EN120 and EN717 standards and ensuring the safety of the products throughout their entire lifecycles.

Leading companies not only foster the culture of safety for workers of the



wood industry, but also consider energy saving a must. Therefore, short cycle lines are designed to give the flexibility to adjust the temperature of the two hot platens independently, optimising energy consumption according to the programmed production process. If one KW of power can be saved for each working hour, more than 8000 KW will be saved in a year, contributing huge amount of money saving and environmental conservation.

### Investing In Short Cycle Press Line

Short cycle lamination of boards with melamine impregnated papers is quite a simple process and it is sometimes assumed that the technology and experience of the supplier do not play an important role. This can be a fatal mistake. Short cycle lamination press line has to be simple, yet reliable, and should require low maintenance.

When planning for the investment in a new lamination plant, if possible, the pressing line should be set in a controlled atmosphere to prevent damages to the final laminated boards caused by dust, particulates and humidity. It should not be neglected that even a press line working optimally would not be able



A press line working optimally would not be able to reduce or remove defects caused by inadequate storage or rough boards.

to reduce or remove defects caused by inadequate storage of the melamine impregnated papers, as well as rough boards. A good environment for storage should have 55 percent relative humidity and a temperature ranging from 10 to 25 deg C.

Short cycle lamination process as mentioned is a simple and well-know process. But the recipe to making quality and lasting products is tricky and a mix of technological factors. Some

of these depend on the manufacturer of the press line, while others hinge on the quality of the raw material and the maintenance and care given to the production facility.

Typical problems in the production of melamine-faced boards are temperature and humidity stains, cracks and bends, white spots and sticking to the finishing stainless steels. All of these concerns for the production manager can be solved, but experienced support is needed. It is advisable to invest in good quality machines and raw materials, because solving problems onsite often requires a lot of effort and time, which are costly and lower return on investment.

There is a colourful and vivid future ahead for short cycle lamination technology because the quality of melamine impregnated boards is high and variations in textures and patterns can provide an unparalleled number of choices and solutions to the furniture industry and architectural design projects, whether consumers are interested in glossy surfaces or natural wooden ones. **FDM**



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