Logging & Sawmilling Journal

Making its mark

An automated marking system--with rugged printheads capable of operating reliably in challenging industrial environments--is helping an Ontario sawmill improve its reman facility.

A new automated ink jet marking system, allowing rapid change of printed messages, reduced set-up time and maintenance, and providing high quality printing, was an important part of a $1 million expansion at Manitou Forest Products and a revamp of its rim board and stair tread remanufacturing facility.

Located on First Nations land in the forests of northwestern Ontario, Manitou Forest Products started reprocessing rim board ten years ago as a sideline to its primary business of producing high-end pine and ash wood products for specialty building markets, including flooring, shiplap, log cabin siding, tongue and groove, decking, posts and timbers. Rim board is an engineered wood product used in conjunction with I-joists to support flooring and stairways.

When the sawmill began operations 20 years ago, it leased land from the Manitou First Nation; ten years ago, a partnership was formed with the band.

What was once a side business--rim board reprocessing--has today grown to account for nearly 50 per cent of Manitou's revenue, according to Dale Kaemingh, general manager of the company. So expanding and improving their rim board reprocessing capabilities as part of the upgrade was critical. The plant revamp involved adding a new sawline dedicated to rim board, installing the new automated marking system from Matthews Marking Products of Pennsylvania and increasing floor space 50 per cent, from 4,000 to 6,000 sq ft.

The heart of the new sawline is a Doucet Machineries, Inc. model HRS 120 rip saw. Manitou chose the high-end model with interchangeable shafts, which enables the cutting pattern to be changed easily in approximately five minutes, compared to the usual 30 minutes. Normally, Manitou changes cut patterns, for different customer orders, four times a day.

Manitou also had customized infeed and outfeed equipment for the new saw line manufactured by a local engineering firm. Manitou's own millwrights designed some of this equipment. Almost all of the construction work on the plant expansion was done by local contractors in the Rainy River District.

Manitou reprocesses rim board made by Ainsworth Lumber, one of Canada's largest suppliers of engineered wood. In fact, Manitou received the Ontario provincial government's Silver "Global Traders Award" for excellence in exporting in partnership with Ainsworth several years ago.

From its Barwick rim board mill near Manitou's facility, Ainsworth ships Manitou the 1 - 1.25 in. thick OSB rim board in large sheets (billets) measuring 4 ft. wide by 8 or 12 or 24 ft. long. Each sheet must be sawn into strips of a particular width (the size of the floor determines the width of rim board needed to support it, so each order is different) – 4 in, 9.5 in, 11-7/8 in., 14 in, 16 in. Before being ripped, the rim board must be marked so that each strip shows Ainsworth's name/logo, the APA EWS certification mark, the word "rim board", the thickness and Ainsworth's mill number.

After marking and sawing the rim board, the edges must be resealed, and the strips are then stacked and bundle-wrapped and inventoried. When Ainsworth sends order paperwork, Manitou then ships the order directly to the specified customer.

Logging & Sawmilling Journal

In addition to its own brand of rim board, Ainsworth also produces privately labeled rim board for other building products suppliers, adding an additional challenge to the marking process. These companies' names and logos must be printed on the finished strips of rim board they order from Ainsworth. Manitou runs a variety of rim board orders daily--requiring frequent changes to the marking message and cut patterns.

When Manitou first started reprocessing rim board, Ainsworth did all the marking on the uncut sheets, using a manual flexographic stamping system that rolled on a drum. "It was messy and time-consuming to change the dates and logos," explains Manitou's Kaemingh. "There was also the problem of predicting how many stamps they would use. So, in return for a commitment to continue giving us their reprocessing business, we agreed to take over the marking so that they could ship us blank OSB sheets and streamline their operation."

Researching automated marking systems was the responsibility of Curt Loerzel, Manitou's millwright in charge of maintenance. When a nearby company that produced I-beams was closing down operations, Loerzel found they had a Matthews marking system and liked it. "I took a look at the Matthews website and asked to have a sales engineer call on us. We really didn't look at any alternatives. The only question was which type of printhead we should have--16- or 32-valve," said Loerzel.

"We also heard about Matthews from Weyerhaeuser's Kenora Timberstrand plant, which produces rim board and many other engineered wood products," notes Kaemingh. "They have a Matthews system, too, even bigger than ours. When we started asking, it seemed clear that industry-wide, Matthews was the supplier that the bigger players were all using."

One of the reasons its marking systems are so widely used by building products suppliers, explains Donna Meade, product manager at Matthews, is the rugged design of its Drop-on-Demand (DOD) valve ink jet printheads, capable of operating reliably in challenging industrial environments: "We started producing marking systems for the metal working industry and have always designed printheads that can tolerate the vibration, heat, moisture, dust and aggressive solvents that can damage other more delicate marking systems."

Manitou's new Matthews marking system consists of two Jet-a-Mark R44 controllers and five Series 8000 32-valve Drop-on-Demand ink jet printheads. The marking system is expandable, as more R44 controllers can be added and networked, each capable of controlling four printheads.

Most of the time, the fifth printhead is idle, notes Loerzel. It is only used for the widest sheets--Manitou can cut up to 56 inch wide sheets.

"We also wanted a fifth printhead just in case one of the other four goes down. But that's not likely to happen," adds Loerzel. "Since the system was installed at the end of 2006, there have been no problems." Indeed, Matthews 8000 Series printheads have the longest life of any on the market, exceeding 3 billion firings, according to Matthews' Meade. "Not only do they have a longer life, but unlike others which cannot be reused, ours can be rebuilt--and rebuilding costs much less than buying new heads."

Each 8000 Series head produces characters from 0.2 in – 5 in. (5 mm - 128mm) high. Multiple printheads can be stacked for unlimited character height. They may also be traversed, creating a billboard effect, which would normally require a stencil and spray valves.

Logging & Sawmilling Journal

“The Matthews system is extremely user-friendly,” says Meade. “And it only takes about two minutes to clean each of the printheads at the end of the day--you purge the ink that’s left in the heads, then flush them with a cleaner and you’re done.”

Matthews programmed the system for 16 different print messages based on Loerzel’s input. “It’s so simple. There is a code for each message, you just punch in the code and away you go. It takes seconds to change from one code to another.”

“The beauty of the R44 system is that it is easily customized,” explains Meade. “A proprietary protocol capability allows the operator to create a customized program to run in the controller. The program can be configured to perform a function which is not in the standard R44, like rolling over a date at a unique time, or printing a unique sequence of messages. It is all customized by the user for their specific application.”

Manitou uses model DPI-411VL black fast-dry ink, which provides excellent adhesion and good UV resistance, notes Meade.

Right now, Manitou is waiting for a rebound in the construction business. Kaemingh is confident that when home building picks up again, Manitou is positioned for future growth. Before the expansion of its rim board reprocessing capabilities, the company was running two nine-hour shifts per day with 15 employees, many of whom had to work overtime and weekends to keep up with not only rim board orders, but creating dunnage from Ainsworth’s off-grade OSB board. When a new sawline dedicated to rim board was added, along with the new marking system, the rim board line could operate with just one shift, and the other crew ran dunnage on the old sawline.

“We’re running so much more efficiently now,” says Kaemingh. “When the market improves, we can simply add another crew to double our output.”