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## Going electric delivers results

A switch to electric Liebherr material handlers is helping Ainsworth Lumber increase log throughput at its Grande Prairie, Alberta, OSB plant.

*By Tony Kryzanowski*



The installation of just a few pieces of equipment can sometimes result in significant increases in production at the mill.

A 20 per cent increase in strand production has been the result of the installation of two Liebherr electric material handlers and an additional wave feeder at Ainsworth Lumber's oriented strand board (OSB) plant in Grande Prairie, Alberta. The material handlers more efficiently transport logs from the conditioning ponds to the debarkers.

They travel along a rail system constructed above the conditioning ponds, and although Liebherr had considerable expertise in the production of electric material handlers, this is the first time they have been put to use this way.

The reason why they opted for electric over diesel power is because the material handlers are situated indoors. The plant consumes anywhere from 6,000 to 15,000 aspen logs per 12-hour shift, depending on log diameter, amounting to about 960,000 cubic metres annually.

The installation of electric material handlers within the wood room is an important efficiency improvement, says Mark Cunningham, site manager. That's especially key when the plant ramps up from its current capacity of 665 million square feet of OSB on a 3/8th-inch basis to nearly 1.3 billion square feet, with the planned installation of a second production line.

At present, the second production line is only partially constructed. Once completed, it will make the plant one of the largest OSB production facilities in North America. The new line will give Ainsworth the capability to increase its output of OSB, or manufacture oriented strand lumber (OSL) and laminated strand lumber (LSL). These are new strand-based engineered wood products targeting the construction market, where long spans of load bearing building materials are required. They will compete with laminated veneer lumber (LVL) in some markets.

The advantage of OSL and LSL relative to solid wood building products in load bearing applications is that they can be engineered and manufactured to the exact specifications required by customers.

The purchase and installation of the model 932 Liebherr material handlers involved an investment of about \$15 million, and is only part of a major modernization of the plant's wood room. Ainsworth intends to eventually install four electric material handlers, double the number of its debarkers from two to four, and increase the number of its conditioning ponds from four to seven. However, given the current down market for OSB due to the sub-prime mortgage crisis in the United States—which has reduced demand for OSB for housing—the expansion project has been put on hold.



*Two electric machine specialists from France also worked with Liebherr personnel in Quebec during the preliminary start-up of the machines to supervise the assembly work, and then followed each machine delivered to the Ainsworth plant in Alberta, to assure their proper final start-up. Cunningham says Ainsworth has experienced excellent availability with the material handlers.*

Two electric material handlers will be designated to maintain regular log flow from the seven conditioning ponds to one of four debarkers and the remaining two electric machines will feed logs to the new stranders. For now, wood room employees at the plant are becoming familiar with the operation and performance of the two electric material handlers installed so far. Prior to the material handler installation, Ainsworth used jack ladders to convey logs out of the conditioning ponds to a quad feeder/wave feeder that was designed to singulate the logs and then feed them onto conveyor belts leading to the debarkers and log stranders. Cunningham says the jack ladders were a very high maintenance item, and with the electric material handlers replacing them, plant production is no longer constrained by log flow to the stranders from the wood room.

“I believe this is one of the better methods for transferring logs from conditioning ponds,” says Cunningham. “Whether you are feeding a deck to transfer the logs to singulate them to a debarker or if you batch feed them into a ring or drum debarker, you have less log breakage, less maintenance resulting from wear and tear and increased throughput.”

One request from Ainsworth that Liebherr needed to accommodate was the company's desire to

locate all the controls for operating the wood room log conveyors inside the cab of each material handler. A number of cab modifications were required, starting with adjustments to the cab dimensions. The standard cab size is 37 inches by 64 inches. This was increased to 60 inches by 90 inches.

Liebherr says over and above the standard material handler instruments, including the operator seat, Ainsworth needed to install a 15-inch screen monitor for visual control of the movements of the conveyors as well as an operation management screen monitor, making the cab the control centre for the wood room.

In addition to increasing the cab size, Liebherr also installed a larger, 132 kW (180 horsepower) electric motor and other control elements, so that the material handler could perform its intended electric shovel operations, as well as operate as the control centre.

“I would say that most of our operators had a fairly good understanding of how to operate the material handlers within three or four shifts,” says Cunningham. The cab enlargement also provides sufficient space for the presence of a second person, which is particularly handy for operational training.

Cunningham adds that because the material handlers are electrically powered, wood room cleanliness is an important issue to ensure trouble free performance. Employees have made this a bigger priority.

Building the rail structure above the conditioning ponds helped to reduce clutter in the wood room. A 60.9-metre (200-foot) long bridge standing perpendicular over the pond canals was constructed with support rails spread 6.09 metres (20 feet) apart, on which the material handlers travel. The challenge was to provide the loaders with electric power without the clutter of electric wires and to assure a constant supply of power to each material handling unit. This was accomplished by installing constant electric power from buss bars along the rails.

The four Liebherr electric material handlers were delivered from Liebherr’s manufacturing facility in France with undercarriage modifications and cabin enlargements handled in Laval, Quebec. The company built a test bench in Laval to recreate the working environment of the Ainsworth plant. As each modification was made, it was tested in advance of delivery to ensure that manufacturing specifications were precisely followed. This also included the installation of a special 575-volt electrical connection at 250 amps, representing the precise electrical power needed to operate the loaders.

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