Veneer Mill Modernized By Substantial Upgrades

West Fraser - Alberta Plywood's Slave Lake mill undergoes extensive equipment improvements.

By Paul Luft

The veneer mill itself may be over 30 years old, but substantial upgrades at Alberta Plywood's Slave Lake operation ensure that this facility is now the most modern in the industry.

According to the mill’s Maintenance Superintendent, Daryl Saitz, the mill has seen a steady series of upgrade projects stretching over most of the past 20 years. But it is the extensive equipment improvements carried out over the past three years that have really made a difference.

The mill started up in 1972 and was sold to West Fraser Mills by Zeidler in 1999. Located about 300 kilometers north of Edmonton, Alberta, the plant employs 150 workers. All of its veneer production is sent to its sister plywood plant in Edmonton, about four hours down the road.

The plywood plant employs more than 250 people and has operated at the Edmonton site since 1954. Its primary product is panels used for sheathing.

The veneer mill uses some 500,000 cubic meters of wood annually, predominantly white spruce and small amounts of pine and balsam.

The upgrades done over the past several years cover just about every aspect of the mill’s performance, with a focus on controls and technology. “It’s all about recovery and production. The projects involved both of our peeling lines, although they’re not identical. One is slightly newer than the other,” says Daryl Saitz.

From the veneer lathes to the stacking bins, one of the key players in the multi-year project has been Altec Integrated Solutions, industrial systems integrators based in Coquitlam, British Columbia.

Altec started out as a software and controls systems company, and has been in business since 1999. Company president Bill Long says the Alberta Plywood project is the biggest installation they’ve taken on thus far. “It’s almost a showcase for us,” says Long. “We’ve installed these products elsewhere but this is our largest installation in general.”

The upgrade project began in earnest three years ago with the addition of Altec’s clipping trash gates to both of the high-
speed veneer lines. Sicams inline veneer monitors were also installed on both lines.

“The clipping trash gates are to increase our wood-to-wood time at the lathe,” says Saitz. “Prior to the trash gates we would have to stop the peel and then close the gate and then re-enable to peel. With the gate it’s continuous; you close the gate and it cuts the veneer while it’s peeling.”

By clipping veneer on the fly, the need for roundup sheet break is eliminated. This results in no tapered edge on the ribbon, translating into both improved recovery and production, generally up to 15 per cent, according to the manufacturer.

“We save anywhere from three-quarters of a second to a second-and-a-half per block,” says Saitz. Averaging some 3,500 blocks per day, the savings are significant.

July of 2004 saw the installation of two new Altec rotary clipper controllers, one for each line, which control the knives after the veneer has been scanned for defects. “The old controllers we had were no longer supported by the OEM (original equipment manufacturer) so we had to go out and look for new controllers,” says Saitz. At a roll speed of 500 feet per minute, the knife response time is just 40 milliseconds or better, with faster responses possible at higher roll speeds. The roll speed is matched to the line speed.

West Fraser also opted for Altec’s XY scanner 3D, designed as a drop-in replacement solution for upgrading XY scanning and geometric positioning systems. The scanners are positioned in front of the lathe to optimize the recovery from each block being peeled.

“It’s the same as the clipper controllers. The hardware we had wasn’t supported anymore and the supplier wasn’t going to supply us with what we wanted, so we went out and started looking. We wanted higher resolution, which is the 32 point. The scanner takes all the information based on 32 lasers and positions the block to improve the recovery.” Altec’s XY scanners can be configured with up to 64 laser displacement sensors.

Down at the end of each veneer production line, West Fraser earlier this year went with two new green veneer stackers, each with six separate bins for varying moisture levels. The plant used to have a 3-bin and 4-bin stacker, “but we were looking for more sorts so we went with a 6-bin,” says Saitz. “We were looking for a few different designs in a stacker and Altec was willing to design what we wanted. Now we’re able to keep our moisture sorts together. If we have one bin that plugs up or fails, it automatically goes to the same moisture sort instead of mixing the sorts.”

More accurate sorting for moisture means reduced drying times at the Edmonton plywood plant and more efficient use of the dryers.

Altec’s role in the upgrade project was rounded out with two new veneer lathe control systems, one for each line. “These controllers literally control the thickness of the veneer - all the control functions of the lathe. The new equipment is really open and gives the operators a lot more flexibility. We can go in and tweak anything that we want. The old system was quite locked in.”

The new system is considered one of the most user-friendly control systems on the market. The system’s flexibility stems from Altec’s LatheTools software. “The software interfaces with the hardware that’s already there.”

Despite the range of improvements and the scope of the project, the Slave Lake facility saw minimal downtime while installing the Altec-related equipment and software. The XY scanners were installed in one weekend each last autumn. One weekend was all it took for the clipper controllers as well. The stacker bins required a week of work earlier this year, as one line was shut down and the other kept running.

“Overall the ramp-up with this new equipment was excellent, very easy,” says Saitz. “It was very easy to learn and the training time was minimal. It took about a week to get everything going the way it should, which is about what we expected.”

Upgrades at the West Fraser plant weren’t limited to new systems supplied by Altec. During the past year the mill has seen both mechanical and hydraulic upgrades to both veneer lines. The Coe 1390 core drive on line 2 was replaced with a 1396 model. “The older model just didn’t fit the bill anymore,” says Saitz. “The 1396 has made a real difference in peel quality as well as thickness. We’re able to peel looser veneer with less roughness.”

Planners also decided to change the gear ratio for the lathe spindles on line 2 from a 3-1 to a 2.5-1 ratio. “The change in gear ratio gets us to a higher speed when the core gets smaller. It enables us to peel our veneer out quicker.”

On the plant’s line 1, mechanical
upgrades included the installation of a high lift and servo for the Coe 1380 core drive. The new system allows more flexibility in positioning the core drive.

A servo spindle package provides even more flexibility in positioning the spindles, rather than having a choice of in or out. Ventek’s Gem green end moisture meters were also installed on the clippers, which allow sheets to be clipped based on their moisture content, a first for the mill.

In 2003 West Fraser decided to replace outdated Morvue and Duraclip scanners with Ventek Vision scanners on the clippers for detecting defects in the veneer. “This lets us clip around the bark and defects,” says Saitz, “and it also lets us clip inside the defect. And rather than using a light bar that has to be cleaned every two hours, the Ventek scanners use a camera positioned above.”

One of the final and most recent upgrades to the plant was the installation of a new VK Grizzly hog system in July. Now the company is able to sell its waste bark and trim ends to co-generation plants or other buyers rather than burn the material inefficiently in an oversized beehive burner.

“There was no shutdown involved,” adds Saitz. “We built the hog on the side and tied it in over a weekend. We did have a few issues on startup, but it works great now.”

Lastly, in addition to some kiln-area improvements, the Slave Lake veneer mill is finishing up a major log yard project. Alberta yards can get mucky at the best of times, so West Fraser is developing about 40 per cent of the yard into roads, stripping off the overburden, hauling in clay and putting in drainage.

With all the high-tech work that’s gone on at Slave Lake over the past three years, it’s safe to say the mill is one of the most modern in the industry. Altec’s contributions to the project played a substantial role. “They were willing to customize what we wanted, and willing to work with us,” says Saitz. “And they’re pretty good guys to work with on a personal level.”

Bill Long says the Slave Lake project was “a real challenge and a lot of fun. The challenge was put forward to us and we did our best to come up with the best possible solution for them.”

Operators say the lathe runs far more smoothly than before, and they enjoy being able to visualize the peeling process and make all manner of adjustments.

As Daryl Saitz sums it up, “I think this is getting close to doing us for a while.”