



Production increase at Plaster Rock

The Fraser Papers' sawmill at Plaster Rock, New Brunswick has seen some significant recent upgrades that are generating greater recovery and higher lumber production numbers, and has a new KMW boiler fuelled exclusively with bark from the sawmill operation.

By George Fullerton

The Fraser Papers sawmill in Plaster Rock, on the Tobique River in northwestern New Brunswick, has a long history in the community.

Donald Fraser purchased the Tobique Manufacturing sawmill and established the Fraser Lumber Company in 1906. Donald and his sons, Donald Jr. and Archibald, continued to build the lumber and pulp and paper business in New Brunswick, eastern Quebec and Maine.

Through the past 100 years, the Plaster Rock operation and indeed the Fraser operations have weathered economic storms and restructurings, and are currently restructuring to remain an economic mainstay for the region.

Throughout its history, technical upgrades and modernizations have helped keep Plaster Rock competitive.

The most recent upgrades to the sawmill—which had been in the planning stages for more than a decade—got underway in 2008. But they shuddered to a stop in 2009 when Fraser Papers was forced to seek creditor protection as the downturn in lumber and pulp and paper markets became further aggravated by the global financial crisis.

Because Fraser had secured a loan from the New Brunswick government specifically for the Plaster Rock mill improvements, construction was able to resume. So, in December 2009 the mill started operating with a new biomass boiler, two new kilns, as well as new equipment in the sawmill.

The previous major modernization of the Plaster Rock operation was undertaken in the 1970s, after Noranda Mines Ltd. acquired the majority of Fraser shares. In 2004, Fraser Papers Inc. became a standalone public company.

The Plaster Rock mill along with sawmills at Juniper, New Brunswick, and Ashland and Masardis—both in Maine—produced lumber and supplied chips to Fraser's pulp and paper and specialty paper mills at Edmunston and Madawaska, Maine. Fraser also operated a pulp mill at Thurso, Quebec and in Gorham, New Hampshire.

As mentioned, planning for the upgrades to the Plaster Rock mill had been under consideration for more than a decade. Earle Fawcett, maintenance superintendent at Plaster Rock, explained that the mill had been in need of boiler upgrades and kiln drying modernization for a number of years.

“Our boilers were getting quite old and technically outdated to the point that we were having issues getting them licensed for operation,” said Fawcett. “The existing wood fired boilers were 1920s vintage and were originally designed to supply steam to dry 40 million board feet annually. The mill output had grown to 125 million board feet, so we had added a number of oil fired boilers to help meet the energy demand.



“For quite a while, we had been working on a plan for a new and high capacity biomass boiler which would generate some significant cost savings for our operation.”

On the sawmill side, there were some obvious equipment upgrades that would generate greater recovery and higher production. The entire upgrade package was presented to and won approval from Fraser executives and construction was scheduled for 2008-2009.

Rather than using a prime contractor to oversee the entire project, Plaster Rock made the decision to act as their own prime contractor for the project, and to use their own trades people and labour as much as was practical.

Paul McKinley, manager of sawmill operations, said that acting as prime contractor gave them an upfront cost saving in the range of 30 per cent of the total project cost.

“Using our own mill employees not only kept people employed, but it also gave our people a real sense of ownership in the project and a determination to see the improvements work effectively when the mill resumed operations,” McKinley added.

Foundation work for the new boiler house began in September 2008 and was buried in sawdust through the winter. The sawmill shut down on February 13, 2009 and renovations and new equipment installation in the sawmill began.

In the mill, both the large and small log lines—as well as the trimmer end—gained major upgrades.

The basic setup on the large log line includes dual Comact LWF-300 wave feeders moving logs through a True Shape C1 scan, then into a quad roll automatic log turner that positions the logs for a new CS3 optimized length infeed (OLI) by Comact.

The OLI is equipped with side shift and skew technology and a rotation confirmation scanner to ensure the best possible alignment to the saws.

After the log is properly positioned, it goes into a Sawquip canter equipped with Iggesund VGH heads, then into a 6' PHL band mill. The cant is handed off to a Newnes/McGehee 10" curve sawing gang edger. The side boards are directed to a Newnes/McGehee stub arbor edger optimizer, then to a landing deck headed to the trimmer.

The small log Sawquip curve sawing line got a brand new Sawquip QRX – 24 quad roll automatic log turner, which feeds the logs into a Sawquip canter with twin circular saws. The cants are then laid down and go through a second canter, then through an 8" single arbour, Sawquip curve saw bull.

The lumber from both lines land on a common deck and move to the Newnes trimmer that has been upgraded to double laser spacing with the addition of high definition plan view sensors. The trimmer positioning fence was also upgraded with a SEC posilock positioning fence supplied by USNR. A “wane up” spray system was also installed.

The upgrade has delivered results. “We realized that a refined log flow pattern and the new equipment would give us some



very positive results and we are expecting a recovery increase of seven per cent and a production increase of 10 per cent, as well,” said sawmill manager Winston Craig. “We are very happy with the initial figures.”

Once mill improvements were completed, construction focus moved to new boiler installation and kiln construction.

After the old boilers were removed, the original boiler house was converted to bark storage and a feed system for the new boiler was installed in a new building next door.

The new boiler is a 600 PSI KMW boiler with step grate feeder that handles internal temperature in the range of 1600 to 2000 degrees. The unit was designed for 80,000 pound (steam) per hour capacity, but is currently running at 28,000 pounds and 150 PSI. The system runs automatically and can also be controlled manually.

Paul McKinley explained that the decision to purchase a 600 PSI 80,000 pound unit was made so they could have the option to install an electrical generating turbine at some point in the future.

“As fossil fuel prices continue to climb and as the demand for lower carbon generating energy increases, biomass generated electricity will increase,” said McKinley. “We were convinced that it made sense to have the boiler capacity so that at some point in the future we can install a turbine and supply our own electricity needs and sell the residual power into the New Brunswick grid.

“We were extremely happy that Fraser executives saw the merit in going with the high capacity boiler and positioning the mill for the future opportunities in green energy.”

The new boiler is fuelled exclusively with bark from the sawmill operation, and can also use forest generated biomass.

“We have good markets for planer shavings and sawdust, and they generate a good return to the mill. The bark we burn is 50 per cent moisture—in fact, it is dripping wet since the logs are fresh out of the hot ponds prior to debarking,” explained Earle Fawcett.

“But the boiler is specifically designed to handle wet bark and it performs as advertised. Gases coming off the burn are re-combusted with introduced air which increases boiler efficiency, and there is virtually no smoke emitted out the stack.”

The combination of the KMW step grate design, limited underfire air, and the supply of overfire air for the gasification zone of the combustor allows the multi clone particulate collection system to clean the flue gas sufficiently to meet environmental regulations.

“We wanted to avoid the need for and cost of electrostatic precipitators. This system has achieved what we wanted with imperceptible stack emissions, and very little steam escape with the heat recovery technologies incorporated,” explained Fawcett.

“Right off the bat, we see the savings on the oil bill, which has a great impact on our bottom line. Our annual oil consump-



tion had climbed to 5.5 million litres,” said Fawcett.

The construction project also included a state of art MEC kiln. The new kiln has seen drying cycles reduced from the previous 21-28 days for fir and 14 days for spruce, to 36 hours for spruce and 90 hours for fir. The upgraded kiln also ensures that all lumber meets heat treated certification, which brings a bonus in the market.

The kiln project actually consists of two 300,000 board foot kilns sharing a common wall. The system uses a single pass system and incorporates new energy recovery technologies. The kiln also features weight sensors on the lumber truck tracks which provides continual data so operators can track drying without entering the kiln.

All of this positions the Plaster Rock operation well for the future.

“We see a very positive outlook for the sawmill sector in New Brunswick. Western Canada is seeing the end of the beetle wood, which had a big impact on the North American lumber market,” said McKinley

“As well, western producers are making inroads into China and Asian markets. Ontario and Quebec have recently dropped their AAC figures, so their ability to serve a rebounding U.S. housing market is somewhat limited. These factors ensure that Maritime mills are in a solid position to thrive as building in the eastern U.S. picks up.

“Fraser is restructuring their operations and focusing on the Plaster Rock and Juniper sawmills and the Edmunston and Madawaska pulp and specialty papers mills.

“With the recent upgrades to the Plaster Rock mill, we are ready to meet that anticipated growth in the market,” concluded McKinley. “Fraser has a long history with Plaster Rock, and with these new investments in the operation, we see a positive future as well.”