Logging & Sawmilling Journal

Changing gears--to handle beetle wood

Northern Engineered Wood Products has changed gears in terms of its wood fibre diet, and is now utilizing mountain pine beetle wood--which is ground in the bush--at its particleboard manufacturing plant in Smithers, B.C.

By Jim Stirling

Northern Engineered Wood Products Inc--or Newpro as they're known--has always been adept at capturing value based on remanufacturing the residues from commodity lumber production into new products. What's changed now, however, are the types of residues available.

Newpro has responded and assembled the additional machinery it needs to successfully deal with the changes in wood fibre diet.

The company operates a particleboard manufacturing plant at Smithers in west central British Columbia. The plant is relatively small by international standards, with an annual capacity of 55 million square feet on a 5/8ths inch basis. But Newpro has carved out a market, primarily in western Canada, which while not exactly bursting at the seams, has remained consistent enough to sustain the plant's 24 hours a day, seven days a week regular production schedule--and provide much appreciated employment for its 54 people.

The most recent challenge has been at the other end of the production process. "We relied on sawmill residues and waste for our primary fibre supply and the plant was designed and built on that. But that has changed," explains Roger Smith, plant manager. "What we once used just isn't there any more."

Historically, about 60 per cent of the plant's feedstock was in the form of planer shavings and the remainder sawdust, recalls Smith. Now the percentages are more like 80 per cent sawdust and 20 per cent shavings, with the latter percentage predicted to decline further.

There are several reasons for that. The economy and the decimated U.S. lumber market are prime among among them. When sawmills are closed or curtail production, the available wood residue supply chain slows down.

Mills are also more efficient and have developed ways to use their residues in-house through energy production systems. Some mills have contractual relationships for residual fibre with pulp mills. And other sawmill/planers have developed business relationships with wood pellet manufacturing plants, as that green sector of the wood biomass utilization industry continues to gather momentum in the B.C. interior.

"We have to look to new areas for new fibre," summarizes Smith. And for Newpro, that means grinding leftover logging slash at roadside to the rescue (see sidebar story on page 11). But the wood fibre from that source is in larger pieces and generally wetter than residues from the sawmills. That in turn requires a hammermill or hogging ability to reduce material size to the 5/8ths of an inch and less required and increasing drying capacity.

A more uniform material size through the driers produces energy savings and material handling advantages. The new equipment includes installation of a two deck CAE chip screen and a hog mill new to the plant.

Logging & Sawmilling Journal

Most of the principal in-mill machines have been proven performers for Newpro. All the raw material product goes through a 10 x 32 Heil triple pass primary drier before delivery to four metering bins. An air density separator helps remove trapped metals and rocks from the product. A Pallmann flaker starts sizing the material into what will become the core and fine material that comprise the structure of the particleboard products.

A secondary 10 x 32 wood-fired Heil dryer further reduces moisture content in the material to about three per cent. Three BM&M six feet by 12 feet shaker screens followed by a Pallmann refiner separates the core and fine materials for independent passage through their respective Littleford Day blenders. Here the formaldehyde resin, working with a catalyst, is introduced.

The plant's Texpan wind-blown former produces a mat built of face and core material. The Siempelkamp single opening press creates a continuous mat of particleboard ready to be cut to size.

It then passes through a board loader to the stackers. To complete the product, boards pass through a Kimwood first pass sander backed by an Imeas finishing sander.

The particleboard can then by packaged and shipped. More frequently these days, however, the boards are delivered for passage along a fully automated Wemhoner melamine overlay finishing line, says Smith. The durable overlay is available in a rainbow of colours. It accounts for a growing 60 per cent of plant production and at full capacity, the line could handle about 75 per cent.

Veneer and paper overlays are also available to meet customer requirements, adds Smith. So, too, are NAUF products, which are rated environmentally preferred and contain no added urea formaldehyde. As of January, 2009, national formaldehyde emission standards were further reduced to 0.18 parts per million, which Newpro has no problems meeting, adds Smith.

The Beast takes a bite into beetlewood

A growing percentage of the wood fibre necessary to sustain Newpro's particleboard plant in Smithers is coming from logging residues left in the bush at roadside. Mountains of beetle killed and other material deemed of insufficient quality to make into commodity lumber products is littered around the B.C. interior, much of it destined to be burned.

But increasing amounts of the stuff will be transformed into alternate products and new opportunities if Dave Jacobs and those of like mind have their way.

Jacobs is co-owner of Newpro along with brother Darren. The company has recovered more than 600 chip truck loads of material (and counting daily) since the summer of 2008.

"It allows us to take control of our own destiny. There's all that fibre in the bush and there's nothing wrong with it from our point of view," Dave explains. He was using a Beast 3680 waste grinder--manufactured by Bandit Industries and supplied by Brandt Tractor, the Bandit dealer in B.C.--to successfully and quickly reduce the large length and diameter variations in the abandoned material down to a more easily handled size and form for the particleboard plant.

Logging & Sawmilling Journal

Owning the plant represents a major change in direction for the Jacobs brothers. Their father, Jerry, was a logging contractor and young Dave cut his teeth helping his dad with a Cat D8 (sometimes when he should have been in school). But he opted out of the full phase log contracting business in the spring of 2008 when he sold his contract with Canfor. Brother Darren was still logging for Lakewood Mills Ltd's Prince George stud mill.

The plant had been acquired by the Jacobs' in April, 2007 and it turned out to be literally a baptism by fire. Shortly after the acquisition, a horrific blaze forced the operation down for four months. Fortunately, adequate insurance was in place to cover the plant rebuild. In hindsight at least, Jacobs discovered positive things because of the misfortune.

"It gave us a chance to make some changes. At that point we were green as grass as far as how the business ran. We got to see how everything works after the fire as we put it all back together again," he recalls.

He also got to really appreciate something additional that came along with buying the plant. "The whole crew and management are really excellent people." They were there for them after the fire and they still are, he adds.