



A lean sawmill machine

Alberta's Zavisha Sawmills has achieved major volume and productivity gains in just a year's time by adopting a Lean Manufacturing management approach.

By Tony Kryzanowski

That loud thud heard at a recent Lean Manufacturing introductory breakfast hosted by FPInnovations in Edmonton was the sound of jaws dropping as Zavisha Sawmills general manager Ashley Zavisha presented percentage after percentage of productivity and volume improvements. The company has been able to achieve all this since it introduced 'Lean' to its manufacturing process only a year ago.

As Zavisha rattled off the numbers, the nearly 40 company representatives from various primary and secondary wood product manufacturing companies wrote feverishly, gathering evidence to present to their management and staff.

Zavisha Sawmills is an independent, family-owned company located in Hines Creek, north of Grande Prairie. It has been operating a sawmill one way or another since 1943. Since 1996, the company has increased its production from seven million board feet to 24 million board feet annually, and has developed the ability to manufacture a variety of specialty wood products along the way.

Although this is enviable when attempting to weather a severe market downturn, a diverse product mix presents its own challenges, according to Gilbert Steinke, FPInnovations Industry Advisor and Lean instructor. "When you do flexibility, inefficiencies crop up," Steinke told the audience.

The timing of Zavisha Sawmills' decision to launch into a new management approach was bold.

"We did it at a really challenging time," says Zavisha. "The U.S. banks were going out of business and people were putting their order books away. It was challenging from a marketing perspective, and challenging to tell our people we weren't going to run the sawmill or planer today. We're going to be learning about this management system."

Over the years, Zavisha Sawmills has steered clear of producing commodity wood products as much as possible, choosing instead to focus on capturing maximum value from their log supply and focussing on niche markets the larger companies have tended to ignore.

Today, their highest production wood product is laminating stock for the Japanese market.

"More Japanese houses are constructed with laminated beams than solid wood beams because it provides better earthquake resistance," says Zavisha. The laminating stock is produced in a variety of dimensions and sold to a number of suppliers. It represents about 20 per cent of annual production at the sawmill. The next highest production product at 15 per cent of annual production is appearance grade lumber, followed by decking products.

In terms of geographic markets, about 50 per cent of Zavisha's product is marketed in Canada, 30 per cent in Japan, and the remainder in a variety of offshore markets.



With the closure of the Canfor stud mill in Hines Creek about five years ago, Zavisha Sawmills became the largest business and employer in the community. The stud mill closure had minimal impact on Zavisha's operations. What has had a major impact is the doubling of their wood supply from just over 40,000 cubic metres of softwood annually to 100,000 cubic metres, an outcome of a new Forest Management Agreement (FMA) with Peace River pulp producer, Daishowa-Marubeni International (DMI).

“When you are a smaller company, it's hard because with a small log supply, you can't justify capital input into technology or equipment processes,” says Zavisha. “When you have a larger log supply, you can justify larger scale projects and it also gives you access to more markets.”

The logging operations to supply the sawmill with timber happen within a very short time window, from November to March. The logs arrive at the sawmill tree length. Logs over 24” in diameter are debarked through a Morbark 4 X 40 Rosser style debarker, and smaller logs are debarked through a Nicholson A5, 27” debarker. Smaller logs are processed through a PHL two saw scragg line, and then a PHL BG10 edger. Cants are then directed through different manufacturing processes based on grade. Midsize logs over 12” are processed into cants through a C-frame carriage system, manufactured by Dika Industries in Rycroft, Alberta, and processed through a Brewer five head bandsaw for optimizing.

The Brewer bandsaw produces dimension lumber, facia and other specialty products from higher grade cants. It has the ability to cut with .084 of an inch kerf and it also comes equipped with a multi-saw trim system and stacker. All side slabs from the PHL scragg and C-frame lines are processed through an HMC 48” horizontal bandsaw to maximize recovery. Recently, Zavisha Sawmills has invested in a Newnes-McGehee optimized board edger and a Newnes-McGehee 42 bin sorter.

Lumber is dried in an Aerodyne kiln with an 110,000 board foot capacity, and dried lumber is processed through a Yates A62, 10-knife planer.

Although Zavisha was familiar with what he called the ‘Toyota Production System’, which is essentially the Lean Manufacturing process--and was eager to apply some of its management and production principles at the sawmill--he was having difficulty communicating and achieving buy-in for his Lean-related initiatives from employees. That's when he called Gilbert Steinke from FPInnovations. Steinke started by conducting a Lean assessment of Zavisha Sawmills' operation. That led to the sawmill placing 10 of its key employees through a Lean Manufacturing program over a four month period at the mill site.

Although starting on the Lean journey has delivered huge dividends (see the sidebar story for the impressive numbers) to this northern Alberta sawmill time and again, Zavisha cautioned those present at the breakfast session that Lean only works if:

- There is a commitment from management and staff
- Progress is measured against current production numbers
- There is an appointment of team leaders and a Lean champion to keep the momentum going.



Over the past year, the company has identified production bottlenecks, the real reasons why they are occurring and has taken measures to eliminate them.

The company has also tackled issues under the 'Seven Deadly Wastes, Plus One' component of the program, which Zavisha described as "the core of Lean Manufacturing". The seven deadly wastes are overproduction, waiting time, excess transportation, inappropriate processing, unnecessary inventory, reducing unnecessary motions, allocating tools at machine centres that require repetitive maintenance or changeovers, and reducing defects. The 'plus one' aspect to this component is making better use of people's talents.

One of the major outcomes of starting the Lean journey at Zavisha Sawmills is better communication between employees and management.

"Looking back, while it was stressful, I wouldn't change anything," Zavisha says. "It cost us a lot of time and extra effort. But the gains have been just immense for us and this is just the start. We know that we can do a lot better than this. We've only done it for a year."

The numbers on the Zavisha lean machine...

Northern Alberta's Zavisha Sawmills--a company that once provided the planks used in scaffolding for the Statute of Liberty refurbishment project--continues to demonstrate that location and size don't need to be barriers to success for forest companies.

But you have to be willing to think out of the box.

Here are some of the results Zavisha Sawmills has achieved since implementing the Lean Manufacturing process about 18 months ago:

- The sawmill has experienced total cost savings of over \$400,000 with no capital investment in this short period of time.
- Lumber recovery has increased by 8.75 per cent, or 2.1 million board feet per year, with no capital investment.
- Lead time for new order deliveries to customers has been cut by 50 per cent.
- Planer downtime has decreased from 11.34 per cent before Lean, to 9.38 per cent after four months of Lean, and is now less than half that (5.1 per cent) 18 months later.
- Planer production has increased by 800,000 board feet per year.
- The sawmill is capturing four per cent more top grade lumber product. Although that may be small in percentage terms, it is a huge boost to the company's bottom line.



- Two full time equivalent positions were eliminated without any mechanization added. That said, Zavisha Sawmills emphasizes that the purpose of Lean is not to eliminate staff positions, but to reduce waste in both materials and processes.
- Reduction of log inventory overlap has been reduced from two months to zero, meaning that the sawmill is dealing with a fresher log supply in its manufacturing processes.