Getting the most out of every scrap of wood

Producing everything from solid wood products to shavings, the Lewis Mouldings and Wood Specialties mill operation in Nova Scotia is known for its high wood utilization.

By George Fullerton

Lewis Mouldings and Wood Specialties faced a bit of a dilemma after the Bowater pulp mill in Liverpool, Nova Scotia closed in 2012. The closure meant that Lewis Mouldings lost the primary market for the pulp wood chips produced by their moulding and finger joint manufacturing plant in Weymouth, Nova Scotia.

Jamie Lewis explained that their business had the opportunity to deliver chips to the Northern Pulp mill in Pictou, in northern Nova Scotia. But the increased distance was such that chip trucks could make only one delivery per day compared to two deliveries to the Bowater mill at Liverpool, and that made the proposition less profitable.

“The increased trucking cost made deliveries to Northern Pulp less attractive and we were looking for an alternative use for a good portion of our residue,” says Jamie. The answer was at hand. “Our solution was to ramp up our fuel briquette processing. We added a dryer and a second RUF briquette machine. There is a solid market for wood fibre briquettes for home heating, and we are well positioned to serve that market opportunity.”

The Lewis family has a long sawmilling history in Weymouth. Jamie’s grandfather, Harry Lewis, established a softwood sawmill in the village in 1947. The Lewis family entered a joint venture with the Irving Family in the late 1980s and the mill was rebuilt after a fire in the early 1990s. The new mill is currently mothballed.

The creation of the Lewis Mouldings operation was led by Harry’s son, Stewart, who grew up in the family’s milling operation.

As Jamie (Stewart’s son) explains, the inspiration for the moulding operation came from a combination of entrepreneurial spirit, solid business opportunity, a passion for sawmilling, and an opportunity to create quality employment in his home town.

“Once sawdust gets in your blood, it seems the only cure is death,” he says, good humouredly.

Jamie currently shares management of the family-owned business with his sister, Laurie, and her husband, Mark Wheatley. His sister, Tammy Lewis, also works in the business. Stewart, who has served as a Pastor in Prince Edward Island in recent years, will soon retire back to Weymouth. He has maintained a strong interest in the management of the Lewis Mouldings operation.
Stewart selected a spectacular spot for the manufacturing plant. It is in fact a former sardine processing plant, in Weymouth Harbour, at the confluence of the Sissiboo River and the Bay of Fundy.

Jamie explained that while eastern white pine makes up a sizeable proportion of the forest growing stock in western Nova Scotia, the quality of the logs is not nearly as good as the white pine in New Brunswick or Maine. Rather than try to saw for clear product, Stewart decided to utilize the white pine to manufacture finger jointed stock and mouldings for the eastern North American market.

“We do get some seven and eight foot clears from our operation, but typically our pine has a lot of defect, so finger jointing is a practical way to utilize the resource,” explained Jamie.

Jamie went on to add that in the North American housing market, the current fashion is a strong focus on painted mouldings for interior trim—and finger jointed product is a durable, attractive and cost effective product to fit that market. Finger jointed lumber also fits the demand for window and door components.

Their log supply is predominately from private woodlot producers, and industrial operators who do not utilize white pine in their milling operations. Lewis Mouldings does have a Crown allocation, but they do not always use the allocation because they generally get an adequate supply delivered through the mill gate.

Lewis Moulding’s product lines include solid lumber, finger jointed lumber and edge glued products. Interior and exterior door jambs, baseboards, casings, brick mouldings and other profiled products are shipped from the plant by truck to customers, primarily in Quebec and Ontario.

The log yard has about a 600,000 board foot capacity, and annual log demand is around six million board feet.

The Lewis Moulding milling and manufacturing operation is recognized for its high quality products, a skilled workforce and it also enjoys a reputation for high wood utilization. Lewis Moulding management has calculated that for every sixteen loads of logs delivered into the mill yard (the average per week), fourteen loads of product in the form of moulding products, shavings, bricks, and/or sawmill waste are shipped out.

Long logs are individually stick scaled, and eight foot logs are scaled as stacked. The logs are piled down in the yard, and delivered to the mill infeed with a Volvo 170G wheel loader.

The processing begins with slashing logs to reduce defect, and it’s then on to a rosserhead debarker. The initial log breakdown is with a Heartwood, double cut, six inch band mill. Smaller diameter logs are split through the heart, and the large diameter is opened on two faces, with the Sawyer selecting the faces which will produce the best quality lumber. The sawed pieces are then moved on to a Brewco 1600 Run-Around thin kerf resaw, for further breakdown.

Jamie explained that the Brewco system is efficient and fast. The Brewco resaw has the added advantage of
using two-inch blades, which can be filed in house, while the six inch blades for the Heartwood have to be shipped off-site for filing and maintenance.

The log breakdown side of the operation operates five day shifts per week, while the value add finger jointing side operates as two shifts; five day shifts and four night shifts.

Following edging with a PHL edger, boards are manually sorted by width, then stacked and strapped for kiln drying. Seven Nyle kilns provide 350,000 board feet of drying capacity, and it takes about 20 days to bring a charge to a uniform 10 per cent moisture. Steam energy is generated with a Volcano (biomass) Boiler, with oil burner back up.

Lewis Mouldings has only a limited amount of dry lumber storage, simply because the finger jointing and moulding manufacturing operation utilizes lumber on a continual basis, as the drying process is completed.

The first step in finger joint processing is planing boards with a Leadermac planer. Each piece is then scanned with a Woodeye scanner, which passes on the decisions for chop and rip processes, to generate clear lumber sections.

The short, clear lumber sections are sorted by size and held in steel bins until they are ready to batch feed into a finger jointing machine. Seven and eight foot lengths of clear lumber are sorted out, and segregated from the finger jointing stream.

The short clear sections are processed with a Western Pneumatics Finger Jointer and move through the gluing process. Human eyes, hands and decisions are required to orient sections to gain a very high level of utilization of every piece of lumber that goes into a finger jointed blank.

Following the gluing process, blanks are processed by either a Watkins or a Weinig moulder. Two moulders allows two separate production streams, while certain products require two moulder passes to complete the production process.

Baseboards are manufactured to a sixteen foot length, while blanks for door casings are manufactured to seven and fourteen foot lengths. Lewis Mouldings is roughly split 50/50 between window and door components and mouldings/millwork.

Some product moves through a paint station, where it gets a coat of primer. Certain products get additional manufacturing for specific customers, such as mortising door casing for hinge placement.

Lewis Mouldings produces some items to customer specific requirements, but the bulk of their production is manufactured to basic industry standards. About 50 per cent of their total production is marketed through distribution centres, and the balance is marketed directly to manufacturers.
There are three mill residue streams, in addition to bagged dry shavings for livestock bedding. Bark and edging from green logs is directed to the Volcano boiler for kiln energy or directed to a Jackson Lumber Harvester drying system for the briquetting system. Dry residue is transferred either directly to RUF briquette machines, or to a stream for hogging to reduce particle size.

Lewis Mouldings employs a contractor to hog the material using a Rotochopper MC 266 horizontal grinder.

They installed their first RUF 400 wood fibre briquetting machine in 2008, to utilize kiln dried residue from the manufacturing process. The second RUF 400 was commissioned in 2014, along with the Jackson Lumber Harvester drying system, which delivers two dry tonnes of fibre per hour.

RUF briquette machines use hydraulic compression to form a dense briquette. The RUF machines come with a relatively low cost, starting at about $200,000. They are fairly simple to install and start up, and require little operator supervision.

The wood fibre material is delivered from a surge tank by augers, to a pre-charge chamber. A hydraulic cylinder compresses material to selected and pre-set density levels.

RUF says briquetting systems offer a number of advantages over pellet manufacturing systems, which are increasingly being seen as a profitable means to market milling and manufacturing residue. The RUF system can utilize a coarser particle size of wood fibre than pellet systems. Hydraulic compression is simpler to set up, maintain, service and repair compared to pellet dye systems. Briquettes can be burned in conventional wood burning stoves, while pellets burn in a pellet stove.

Briquettes offer consumers a number of advantages over split firewood; uniform low moisture content fuel means more BTU’s delivered per pound of fuel. The briquettes’ low moisture content results in less creosote deposit and safer stove operation. Briquettes are delivered to customers very clean, and they store compactly.

Lewis Mouldings supplies their briquettes directly to a network of retailers throughout the three Maritime Provinces.