

A Georgia operation takes a unique approach.

Maximizing Timber Processing Value:

A leading-edge replacement for a worn-out facility.

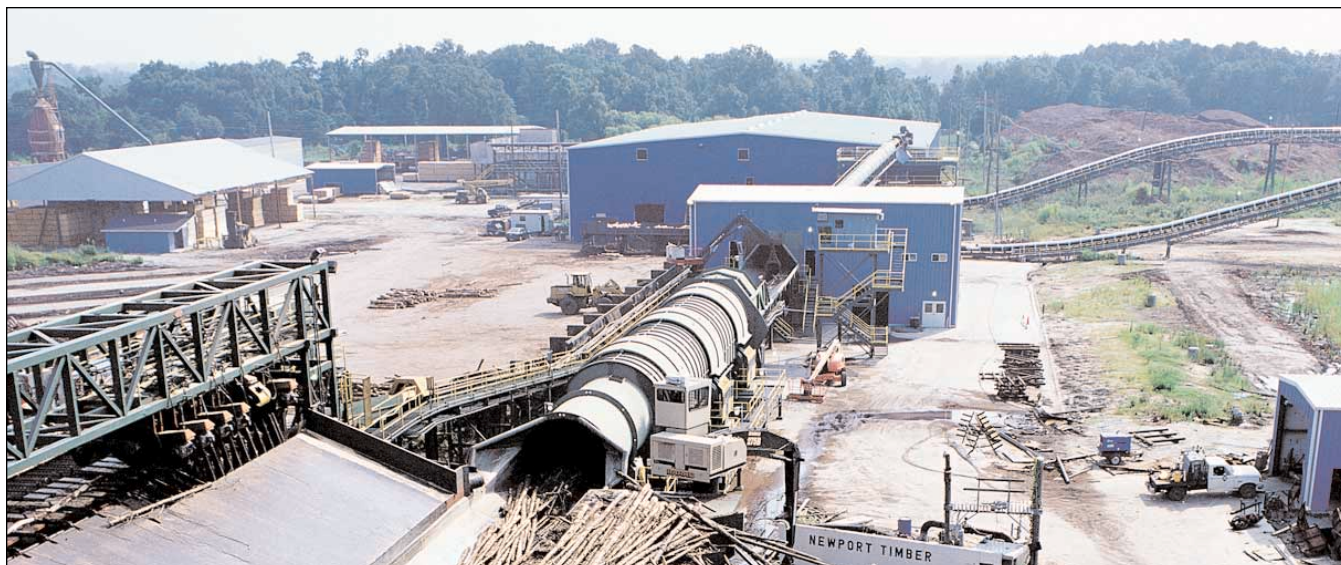
Less than two years ago, the Newport Timber woodyard in Riceboro, Georgia was dependent on decades-old equipment, infrastructure and technology. The installation required extensive attention and maintenance, while operators and management constantly struggled against excessive downtime and inconsistent chip quality.

Today, the Riceboro woodyard has been transformed. Part of a unique combined woodyard/sawmill operation, the Newport Timber installation has some of the most advanced tree-length wood processing technology found in North America. As a result, the facility has been able to more than double the per-hour productivity of its predecessor. At the same time, yield has increased and chip quality has been greatly improved—which has enhanced pulp and board mill operations. And with the ability to convert an entire log into high margin lumber, high quality chips, or cogeneration fuel, the

combined facility can “get the greatest value out of every log that comes through the gate,” according to Tom Norris, Newport Timber’s Vice President and General Manager.

THE SITUATION AT RICEBORO. Riceboro’s first woodyard began operation in 1968, and was built to convert southern pine—sourced from forests within a 125-mile radius—into chips for the newly-constructed board mill next door. The woodyard was designed to handle short 8-foot logs, the dominant wood processing technology of the day. Rubber tire loaders fed logs into a 12-foot by 75-foot debarking drum, and debarked logs were chipped by a 112-inch disk chipper. In between were several long conveyor runs which were punctuated by several turns and transfer points.

Both the woodyard and the adjoining kraft linerboard mill—which is a sister company of Newport Timber and part of Interstate Resources, Inc.—was purchased in the mid-1980’s. From



The Newport Timber installation at Riceboro, with the debarking drum in foreground, and the sawmill merchandiser deck to the left.

that point on, the woodyard was operated by Newport Timber, an Interstate subsidiary that also purchases the logs and wood chips that supply the mill.

Although state-of-the-art when built—and upgraded over the years—this installation was outdated, inefficient and unreliable by the late 90's. "We fixed and patched and bandaged it," says Newport Timber's Rick Simonin. "But it was clear to us that it just wasn't getting the job done." Some weeks, the system suffered 40% downtime. So the woodyard had to run three shifts a day, six days a week in order to keep the board mill supplied. "It was a high cost, low production situation," Tom Norris relates. "The facility was costing us a fortune in maintenance alone."

Even when the system was up and running, there were serious limitations at every stage. Compared to newer crane loaders, the wheeled log loaders were slow, labor intensive, and inefficient. Slashing logs into the required 8-foot lengths further contributed to process inefficiency - and created end cuts that produced low-quality fiber. The limited length of the debarking drum meant production speeds had to be kept low to assure proper log residence time within the drum. Infeed jams at the chipper were frequent, and chip quality was often inconsistent - which led to difficulties at the chemical pulp mill, formation and sheet strength problems along the board machine, and quality issues at the final reel. Norris sums the situation up in simple terms: "The whole facility was just worn out, at the very end of its life cycle. It was time for something new and better."

EVALUATING ALL THE OPTIONS. Determined to create the most efficient and profitable operation, the Newport Timber team made an exhaustive investigation into the available woodyard technologies. Led by Tom Norris, who had overseen the construction of other similar operations, the team evaluated equipment from different suppliers, talked to woodyard operators around the country, and visited other woodlots. As Norris says, "we wanted make sure we got the best our money could buy?"

After evaluating all the information and alternatives, the team favored a tree-length processing system based on Andritz KoneWood™ equipment. "We were torn over whether to piecemeal the system between several different suppliers, or rely on a single primary supplier," Norris recalls. "We knew that Andritz KoneWood™ had first class equipment, and they could supply us with the debarker and chipper types we wanted.

Also, we were impressed by Andritz KoneWood™ installations we'd seen at Bowater and Virginia Fiber."

After comparing features, construction, precision and reputation, Newport Timber decided the Andritz KoneWood™-based system was the best investment. As Bernard O'Connor, Vice President of Andritz Wood Processing North America, explains, "Andritz may not be the price



With two conveyors moving at different heights and speeds, the Andritz KoneWood™ spreader infeed breaks up bundles to prevent jams and improve log formation.

leader. Instead, we build our systems to provide mills with long-term profitability; they're intended to deliver performance and ROI for decades."

CREATING A UNIQUE SOLUTION TO MEET SPECIALIZED NEEDS. The Andritz system chosen by Newport formed an integral part of a highly unique operation: a combination woodyard chipping facility and sawmill. Although a small sawmill had operated on Newport Timber's property until 1995, it was totally separate from the woodyard. By combining the two functions in a totally new facility, Newport Timber hoped to gain operational efficiencies and economies of scale - while optimizing the total return on their timber purchases.

The sawmill, run by Evergreen Forest Products of Georgia and partnered with Newport Timber, processes larger "merchandisable" logs into lumber. By turning these logs into higher margin building products—instead of using them for pulpwood—the sawmill allows Newport Timber to extract the maximum value out of every truckload of logs it buys. (Roughly 25% of the logs that

enter Riceboro are processed into lumber, while the balance is chipped. The sawmill produces roughly 30 million board feet per year.)

Because the Riceboro facility is a one-of-a-kind operation, much of its specified equipment is customized to meet distinctive application requirements. In the final facility design, a center pivot log crane unloads trucks, places logs into storage, and feeds logs onto the wood processing system. Larger logs are placed on the merchandiser deck for rough cutting before proceeding to the sawmill. Scrap and trimmings from the merchandiser deck—top wood, trunks, and end wood—roll down a chute into the debarking



The debarking drum is fed by a KoneWood™ Powerfeed™ infeed system, with a Newport Timber-specified dual zone drive.

drum infeed. At the same time, shorter logs are placed directly onto the debarking drum infeed. To handle these two flows without overflowing the drum, the Andritz KoneWood™ PowerFeed™ drum infeed system was designed with separate variable speed zones for the receiving section and the drum feed section. This also lets operators match feed rate into the drum with the bark removal rate required, which varies by season.

The debarking drum itself is another unique item: the first rubber tire-supported Andritz KoneWood™ drum in North America. Created as a more economical alternative to trunnion-supported drums, the Andritz KoneWood™ design mounts the tires (which are all driven) on bogie mountings. This system evenly distributes loading forces over each wheel, to keep tires in full contact with the drum at all times. With a 13-foot ID and 92-foot length, the drum is equipped with a variable speed drive to provide optimal debarking res-



The debarking drum's rubber tire support and drive system makes it an economical alternative to traditionally-designed drums.

idence time with different loads and log conditions. Designed specifically for tree-length logs, the drum features diagonal bark slots that provide a large open area for more complete bark removal. This improves debarking efficiency, and reduces bark carry-over to downstream processes.

Debarked logs are discharged and conveyed to the chipper, which uses an Andritz KoneWood™—exclusive spreader feed system. The spreader infeed has two conveyors on different levels, each moving at a different speed. Their variations in height and speed serve to break up log bundles, preventing the infeed jams that otherwise may occur with longwood. The chipper operator can even reverse the lower conveyor, to unjam persistent bundles without having to resort to the knuckleboom loader.

In contrast to the specialized equipment throughout Riceboro, Newport Timber chose a standard Andritz KoneWood™ chipper: a 132-inch Model HH 902 with 12 knives. “The chipper had an excellent reputation for precision,” Norris explains - a critical factor, since improved chip geometry and uniformity were essential objectives for the new woodyard. Another key system requirement—greater uptime—could be assured by features like weldment-free discs and bolt-on wear parts, which would enhance chipper serviceability, durability and longevity. “These chipper are built to do the job right,” Andritz Wood Processing’s O’Connor says with pride. “We believe they provide a level of performance, dependability and overall cost-effectiveness that no other chipper can match.”

Although most of the system installation work



A view of the Andritz KoneWood™ HH902 chipper, taken during a knife change.

was performed by local crews, Andritz Wood Processing also took part - sending a team that erected the debarking drum on site. “During system construction, their people were with us 100 percent,” Norris recalls. “The Andritz team was first class, through and through, and they stayed on site until every quality spec in the contract was achieved.”

MEETING—AND SURPASSING—EXPECTATIONS. As the new combined facility came online, the old woodyard was totally demolished. “This was a complete change-over,” says Rick Simonin. With the adjacent board mill dependent on the new installation, the woodyard’s unique technology had to quickly deliver results. And it did. As Norris says, “We’ve had nothing but good experience so far with the way the system works.”

Because Newport Timber insists on hourly chip testing using a Williams classifier, the difference in chip quality was immediately noticeable. The new debarking drum is effective enough to sustain chip bark content levels of 1% or less. At



The new woodyard delivers over 99.3% accepts to the Interstate board mill—at over double the per-hour production rate of the previous woodlot installation.

the same time, the chipper’s precise performance is producing an extremely narrow chip distribution curve. Therefore, over 99.3% of the chips arriving at the Interstate Paper pulp mill are accepts - and over 90% are within the 7mm - 8mm thickness guideline the pulp mill considers ideal for their digester processes.

As a result of this improved chip distribution, according to Norris, “the woodyard is delivering significantly improved and consistent raw material to the pulp mill.” The more consistent chip quality has enabled the pulp mill to perform more uniform batch cooks that consume less liquor. There has been a corresponding jump in productivity, with the pulp mill setting new average production records that are nearly 10% higher than previous levels.

The benefits have carried over to the board machine inside the Interstate mill. Since the pulp mill has been able to optimize its processes to a narrower range of chips, the pulp itself is more consistent - which, in turn, allows the board mill to produce a better product. “The bottom line is, what does the sheet look like coming off the machine?,” Norris says. “We’re now getting greater uniformity, opacity and strength. And a lot of that improvement is the result of what we do in the woodyard.”

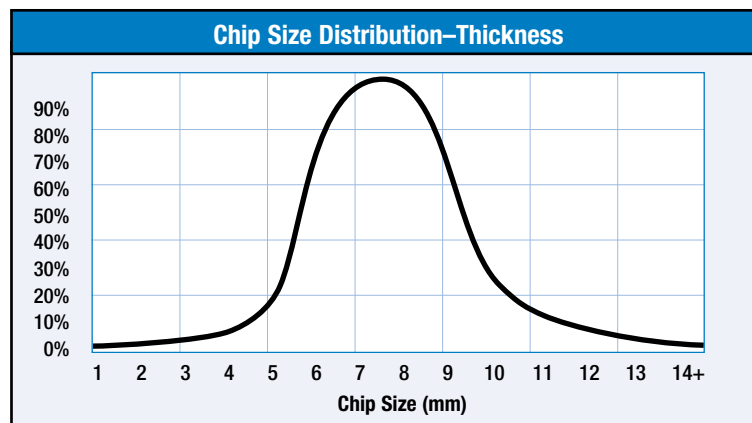
This improvement has become all the more important, since customers are increasingly dictating a higher content of lower quality recycled fibers—while still demanding high strength and surface appearance. With better quality primary fiber, the mill can now meet these contradictory requirements in a cost-effective manner—while earning strong prices for its high quality products.

In addition to better quality, the woodyard is also producing a higher yield. Thanks to the chipper’s precise operation, pins and fines generation is minimized. “Eighty seven percent of the wood entering the debarking process is converted into usable chips. And we’re getting that yield with a far tighter chip profile than before,” Simonin points out.

Perhaps most dramatic has been the increase in woodyard productivity and uptime. The new system handles over 150 truckloads of logs per day, without the frequent interruptions for downtime and maintenance that the old woodyard required. According to Norris, the system has needed virtually no unplanned maintenance throughout its first year of operation—a marked contrast to the old system, which was often idled for maintenance and repairs.

So, while the old woodyard had to operate 120 hours per week to keep the board mill adequately supplied, the new system now produces as much usable fiber in 50 hours—a nearly 60% reduction in operating time. Consequently, over half the woodyard workforce has now been reassigned to other posts within the Interstate mill, further reducing the woodyard’s per-ton operating costs.

Tom Norris clearly believes he and his team made the right choices at Riceboro—and that their innovative wood processing system holds even more promise. “We’re extremely pleased with the system’s performance,” he says. “And I can assure you, it’s going to improve even further.”



Chip quality has improved dramatically, with more uniform geometry and narrow size distribution.