

COLLINS PRODUCTS PUSHES EFFICIENCY AT P' BOARD PLANT IN KLAMATH FALLS

Ongoing technical improvements and an experienced workforce keep the "old" mill finely tuned.

BY RICH DONNELL

KLAMATH FALLS, Ore.

Improvements in raw material handling, board sanding and information systems, along with tight maintenance procedures, have enabled the Collins Products plant here to step up as an efficient producer of industrial and commercial grade pine particleboard.

Collins Products purchased the particleboard plant, and adjacent plywood and hardboard plants, from Weyerhaeuser Co. in 1996. Weyerhaeuser started up the particleboard plant in 1971 with 75MMSF of capacity (¾ in. basis). Last year, Collins Products produced 115MMSF. Board thickness ranges from ¾ in. to 1¼ in. Approximately 90% of volume is sold to 16-17



Kimwood 8-head sander line provides premium finish.

customers, primarily laminators and ready-to-assemble operations.

The mill reaches up into Canada, to western and eastern Oregon and northern California for the majority of its raw material, which consists of dry planer shavings and hog wood from sawmills and millworks plants. Eighty percent of the raw material is ponderosa pine, with the remainder white fir, radiata pine and similar species from the millworks plants.

"We reach out a long way for our raw materials to maintain that dry pine type base," says Donn Jensen, General Manager of the particleboard plant. "As industry knows, pine by itself enhances the properties of board for certain end users. The board is more machinable and has a lighter color. We've always tried to maintain that pine identity."

Jensen has overseen the particleboard plant since 1985, and remained with it when Collins purchased it from Weyerhaeuser (see *At The Core*, page 30). He says the plant's raw material situation has strengthened since then, one reason being the association Collins has with millworks operations. In addition to the Klamath complex, Collins Companies in the Northwest includes sawmills at Chester, Calif. and Lakeview, Ore., and 170,000 acres of timberland in Oregon and California.

The Klamath Falls complex employs a union workforce of nearly 600, most of them re-hired by Collins following the acquisition. The particleboard plant employs 92 hourly and 20 salaried. Jensen says it's an experienced group, with the average age in the particleboard plant at 50. "One of our real keys is the workforce," Jensen says. "A lot of them were born here. There was some added motivation when the sawmill shut down in 1993. If a person is making a decision in the mill, he's going to do his best to make the right one."

Of course the flip side is that a senior crew means turnover in the upcoming years. Jensen estimates that in five years 60% of the mechanical maintenance side will be gone, while the electrical side is in better shape. Nearly 40% of the operating side will be gone. Jensen says Collins is preparing for it by giving new hires plenty of time to learn from the veterans. The company has electrical and mechanical maintenance apprentice programs in place.



Washington Iron Works press has been upgraded.



Head sander operator Lyle Berry, left, and General Manager Donn Jensen

INFORMATION

Jensen recalls that when he came to the particleboard plant there was a lot of "mystery and witchcraft" involved in the process, which resulted in extremely wide control parameters. In 1991, Neal Genge came in as electrical engineer, and the plant hasn't been the same since with regard to machinery information systems. That was the same year the mill installed an Ohmart mat profile scanner after the formers to complement the existing mat weigh scales. A Wonderware graphics software program was installed to allow the former operators to view and adjust the parameters on-screen. It took more than a year for the operators to fully grasp the concept of "real-time," but once they did, they began designing the screens themselves.

From forming to pressing to raw materials to sanding, the Wonderware-based system has evolved to the point that the machine centers are networked, allowing station operators to view other areas of mill performance in addition to

TESTING STRAW

The Collins Products particleboard plant may soon be putting barley straw in its board. The Collins Foundation donated \$300,000 to Oregon State University for studying straw, and the research found that the basin in which Klamath Falls is located provides an abundance of it, some 100,000 tons, as well as favorable characteristics, such as light color.

Collins won't go to 100% straw board, says General Manager Jensen, because the required isocyanate binder is a huge expense. But the research indicates that perhaps as much as 20% straw can go into a board and not require a switch from the urea formaldehyde currently being used. A hammermill would break up the straw, which would be brought to the mill baled.

Jensen says the mill plans to conduct tests later this year that will put 3-4% straw into the core, hoping that the longer fiber adds strength to the board. The effort would fit nicely into the company's environmental ideology.

monitoring and adjusting their own stations, which has been tremendously enlightening to many operators who had been working at the mill for years, but had never seen, much less understood, other functions of the mill.

"We still have tons of information that we don't use," Jensen says. "But it seems like every month a different operator will come up with a new graph and say 'I noticed this.' In the past, when something went wrong, it was blamed on the weather or the moon or the resin companies, but now we have a very good reason why it happened."

OPERATION

Except for the recycled sander dust, less than 5% of the mill's raw material comes from the plant grounds, and that's ply trim from the plywood plant.

The mill had a history of explosions in the raw material area, such as at the bins and bucket elevators, mainly because it was designed to handle larger material, and as the material became finer and finer, more dust was created. One explosion actually blew the walls off the storage building in 1993. It became a policy that nobody could be in

the raw material building when anything in the plant was running, which meant that any plug-up in raw material handling caused the entire plant to be shut down. The plant ran at 50% capacity because of this, until a new raw material system, with everything moved outside, started up in 1994 and which has been upgraded.

The new system emphasizes screening, whereas the old system pushed material through the refiners with minimal screening beforehand and none afterward. In addition to two Bauer 418 double disc refiners, the old system included



Raw material handling has undergone major overhaul.

six Pallmann flakers. The old system dumped sander dust in the surface of the board, and the same dose went in whether it was a 1/2 in. board or 1 1/2 in. The rest of the dust went to a sander dust fired boiler that was the steam source for the entire plant site.

The new system has removed the flakers, kept the two refiners and added a Bliss hammermill. Probably 60% of material gets into the board without touching the refiner. Everything that goes into the surface is screened after it comes out of the refiner.

Today sander dust is going into the surface and core of the board, following considerable lab testing with Neste

urea formaldehyde resin, which determined the amount of dust that can be put back in the board without impacting the properties or raising glue usage.

Core and surface raw material is weighed on two Thayer weigh scales, and from that weight is determined the percentage of sander dust that can be injected into either the core or surface. For example, if the mill is bringing 20,000 lbs. an hour of core material into the process, and 6% dust is being used in the core, then 1200 lbs. of dust is added and mixed in prior to blending by way of adjustment of the AC drive on a variable pitch screw. On average, the mill puts 5% dust into the core and 8% dust into the surface.

This system started up last August at the same time the sander dust fired boiler, which was on the verge of non-compliance, was shut down. All dust is going back into the board and the properties of the board haven't changed. The complex currently operates two natural gas-fired boilers, but is negotiating with the city to install a natural gas fired cogeneration plant that will supply steam.

All raw material comes in through a big A-frame building which has one truck dump. Trucks are sent back out with bark fuel as a back haul. The particleboard mill purchases bark fuel from the plywood plant specifically for this purpose.

The only segregation on incoming raw material is for certified shavings going into certified products (see At The Core). Material is fed into a hopper with a Cat 938 front-end loader and brought with a high pressure air system to the screening system, which makes four separations: over 2 in., which falls into a fuel box and which accounts for a very small fraction of incoming material; 3/8 in. to 2 in., which goes to the core silo and overs system, which uses the Bliss hammermill as the core refiner; under 1/8 in., which goes to the surface silo; and between 3/16 in. and 1/4 in., > 31



Out of sander, pieces drop to grade bins.

COLLINS COMPANIES CONTINUES TO SET PACE IN FOREST AND PRODUCT CERTIFICATION

Klamath Falls mills are producing certified particleboard and plywood.



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I mean, how many forest products companies begin their web site with a quote (“If you want change, you must be the change.”) from Mahatma Gandhi?

Collins Companies, privately owned and headquartered in Portland, Ore., does. The quote sheds considerable light on the aggressive efforts of this company to be a leader in “forest products industry environmentalism.” Those last four words are mine, but they seem to fit.

I knew quite a bit about Collins Companies before I toured its particleboard operation in Klamath Falls in February.

Another one of our magazines, *Timber Processing*, had named company President and CEO, Jim Quinn, as 1998 Man of the Year. A major reason was because Quinn was spearheading the company’s role in forest certification.

This means that the company’s three bodies of timberland, Collins Almanor Forest (94,000 acres) in northeastern California, Collins Lakeview Forest (75,000 acres) in southern Oregon and northern California, and Collins Pennsylvania Forest (124,000 acres) in the Allegheny Mountains of northern Pennsylvania, have been certified as “managed in an environmentally and socially responsible manner” by Scientific Certification Systems in accordance with the rules of the Forest Stewardship Council. In fact Collins was the first privately owned forest products company in the U.S. to be evaluated and certified by this independent, non-industry affiliated third party.

I had heard, since our magazine’s recognition of Quinn, that Collins Companies had taken the next step and was manufacturing a little bit of certified plywood and particleboard. This means that through what is called “chain of custody” the plywood and particleboard have been produced with raw material from a certified forest. Thus Collins can sell its certified panel as a finished product, or it can sell it as perhaps a core to another company to be used as a substrate in that company’s certified product. The end result is that these finished products will be certification-stamped, and the hoped-for marketing advantage is that the customer will pay a little more for the certified product because the customer knows it’s environmentally sound.

The other positive for Collins Companies, in non-monetary language, is that it knows its forests and raw material management procedures have undergone rigid auditing and its certified finished products have environmental merit, which may come across as sort of a right-thing-to-do, feel-good benefit. However, it’s not surprising that Collins Companies is leading the certification pack. Nearly 60 years ago, third-generation owner Truman Collins was promoting and implementing sustainable forestry with the ecosystem in mind.

Particleboard General Manager Donn Jensen took me through the mill and our first stop was the raw material

area. He pointed to a large pile of “certified” dry shavings. These shavings are brought in from Collins’ Chester sawmill, where they were once part of certified logs from Collins’ certified Almanor Forest. When getting ready to use the certified shavings, the particleboard operation is cleansed of previous debris buildup so it doesn’t mix with the certified shavings.

Jensen says the definition of certified allows down to 70% certified shavings in the board makeup. Collins has put some sander dust back into the board, making the board 85% certified. Collins had produced 20 truckloads of certified particleboard when I visited. Some of it had gone to a college for shelving; some to Columbia Plywood

“I was skeptical at first, especially being in the wood products business and then you start hearing about environmental movements. But this whole approach takes the needs of mankind into consideration.”

as a core for overlaying with plywood. Though only a small percentage of certified board is currently being produced, Jensen says, “our corporate direction is that way.”

Jensen also informed me that Collins Companies is a member of The Natural Step, which, and I quote, “is a non-profit international environmental organization working to build an ecologically and economically sustainable society, and dedicated to shifting people and businesses away from linear resource-wasting, toxic-spreading methods of materials handling and manufacturing toward cyclical resource-preserving methods.” Along with Collins Companies, some of the other members include Nike, McDonald’s, Johnson Wax and Electrolux.

Collins has created teams at the Klamath complex for implementation of The Natural Step concepts. For example, they monitor water and energy usage and promote ways to maximize or reduce usage that benefit both the

environment and plant operations.

"It's more than just something nice to say," Jensen says. "I was skeptical at first, especially being in the wood products business and then you start hearing about environmental movements. But this whole approach takes the needs of mankind into consideration."

As for Jensen, the Collins journey toward sustainability has allowed his long career in the forest products industry to evolve even more.

Jensen, 54, worked for Weyerhaeuser Co. for 27 years before Collins bought the Klamath Falls mills from Weyerhaeuser in 1996. An industrial engineering graduate from the University of Utah, Jensen began his career in 1969 as an engineer for Weyerhaeuser in

Coos Bay, Ore., then became a night shift foreman at the Coos Bay sawmill.

He came to Klamath Falls for Weyerhaeuser in 1976 as project manager on the installation of an abrasive planer for the sawmill. He became night superintendent of the sawmill and eventually sawmill manager. Next he became plant manager of both the plywood and particleboard mills. Then when Collins took over, Jensen remained with the particleboard operation as General Manager.

How has the transition gone? "The one thing that's been shockingly different was the amount of paperwork that was necessary with Weyerhaeuser that doesn't exist today," Jensen says. "You make a decision now and things get done

pretty fast. It's been very enlightening."

Jensen had planned on retiring with Weyerhaeuser, but Collins Companies gave him and his family the opportunity to carry on in Klamath Falls.

"Collins has been fantastic," Jensen adds. "They re-hired 95% of the people and didn't make a lot of changes as far as benefits and things like using your seniority at Weyerhaeuser toward vacation. They were very smart."

Jensen remembers when the Weyerhaeuser complex here fielded some 2,000 employees in the 1970s. "There are just under 600 employees here today," Jensen says. "It's different than it used to be, but it's still the best game in town when you look at the benefits and work environment." **PW**

Collins Products

29 ► which goes either to the core silo or to the two Bauer double disc refiners, back for a Rotex secondary surface screen and to the surface silo.

Material coming out of the two silos is approximately 12% moisture content. Two flash tube dryers take surface material down to just over 7%, while core material dries down to 3% in two single pass MEC dryers. Baghouses are on the dryers for particle collection.

Sander dust is mixed in with the surface and core material and fed to three Littleford blenders, one of which is down every eight hours for cleaning. Neste and Georgia-Pacific provide the resin. The mill is currently changing from slack type wax to emulsified wax to gain a better mix.

Four Durand Micro-Felter former towers are the original units. The Ohmart nuclear gauge continuously determines the weight of the caul-transported mat and controls the speed of the former rolls. Before this system was installed, when using only the weight scales, reject parameter off the former was plus or minus 8%, meaning, for example, if the desired mat weight was 500 lbs, but was over or under 40 lbs., it was okayed for the press. The parameter is now 2.5% for rejection, in which case the mat is dumped and recirculated with material from the trim saws. Prior to pressing, the mats run through a Microquad moisture detector.

The 14-opening Washington Iron Works press, which takes 5x24 ft. mats, is also the original unit, though it's been

updated with hydraulic arms (installed by Casey Industrial) and operates with a two stage press cycle instead of the previous single stage. The hydraulic arms were necessary because the original spring packages were gone and so was the ability to control the individual platens, meaning it wasn't opening simultaneously. If dead time at the press



Production is 115MMSF annually.

reaches 52 seconds, the press monitor flashes red. Operators also view pressure thickness graphs so they can make immediate adjustments if necessary.

The wicket cooler, which holds 2.5 press loads, is undergoing major maintenance on the shaft this summer. "We've done a lot of research involving increased cooling, and right now we can't see the benefits," Jensen says.

Trimmed and crosscut boards are brought to the \$4 million sander line, which includes an eight head Kimwood sander and cross belt sander behind it. True tolerance out of the sander is plus

or minus .002 across a 5 ft. board. From the sander, boards go down an incline belt to three grade bins.

Hyster forklifts transport panel stacks. Following strapping and packaging, boards are moved to customers by rail or truck. Union Pacific and Burlington Northern railroads service Klamath Falls, while Highway 97, on which the city is located, is a major north/south commercial trucking route. A small sales force, headed by Sales Manager Sharna Clark, sells the finished goods.

Along with Jensen and electrical engineer Genge, key personnel include production superintendent Steve Roach, finishing/shipping superintendent Dennis Galloway, technical director Dave McFarland and maintenance superintendent Steve Metz, who has played a primary role in moving the operation into preventive maintenance. Considering the amount of aging machinery in the mill, maintenance plays a pivotal role. The mill uses a Maximo preventive maintenance program, and now 50-60% of maintenance is preventive based on the program, compared to 10-15% in previous years.

Sizing it up, Jensen comments, "We've got state-of-the-art sanding, we're in good shape in raw material and refining, we maintain our pressing and forming even though it's old technology, we have the best workforce with a lot of experience and desire, and we have the capability to give them the (process) information they need to work with."

That says a lot for this 27-year-old particleboard mill. **PW**