KATERRA'S NEW CLT OPERATION IN EASTERN WASHINGTON GAINS TRACTION

Katerra is taking the manufacturing of CLT to another level with the latest technology.

BY JESSICA JOHNSON

IN SPOKANE VALLEY, Wash. t takes a lot of time, energy and finance to try and rewrite the modus operandi of the construction industry supply chain. Just ask Katerra.

No matter how the big picture evolves, the new Katerra CLT plant is an innovative blend of production technology that makes it one of the most advanced CLT processes in North America. For the employees, General Manager Jason Herman says the automated facility lives off three things—safety, quality and production, held together by three things—wood, glue and pride.

Herman, a wood products manufacturing veteran who's been in the industry for 28 years and involved in CLT since 2012, notes if it wasn't for the ownership of the 50 employees during construction, commissioning and up to that first order, the facility wouldn't be where it is today; operating one of the highest CLT producing factories in North America at a current 90% uptime rate. Herman's management style is to get things moving quickly, but it takes the right people and attitude.

"Our management team was also our hiring team, which interviewed every potential employee. The biggest asset is not the equipment. The biggest asset is not even in the building. The biggest asset is the people in the process; without them we don't deliver—that's what we do different here," he says. "I push the people to take ownership and pride in what they do. My ultimate goal is that if we have 50 people at the factory, we also have 50 supervisors. This brings personal responsibility, pride and accountability into everything we do."

To carry that philosophy forward, Herman, who started his career working the floor at a mill in Montana, says when looking at process change, input from the team is critical. "Everyone lays their ideas down on the table and my job is to pick up the one that makes the most sense and then drive it forward."

This has, in the past, led Herman to find innovation in ways he might not have before—insight coming from the operators working on a specific machine center or process on a daily basis. It also helps drive employee ownership, going back to the idea the facility lives off "wood, glue and pride."

Herman believes strongly in round robin communication and he sees where it's brought the facility great success. Since commissioning in May 2019, the facility reports no major hang-ups, no quality claims and no lost time accidents. "Vendors are important and the staff is incredibly important," he says succinctly.

Once the site was picked out in Spokane Valley, area contractors Lydig (construction) and McKinstry (mechanical, electrical and plumbing) were brought in, following engineering work from Evergreen Engineering. Casey Industrial provided equipment technology consultation and installation, supporting the in-house construction and engineering teams.

Herman's team needed to move swiftly—as in a matter of weeks—from construction to commissioning to full certification from PFS TECO. A construction site in uptown Spokane was waiting for CLT panels to be delivered 21 days after the initial commissioning. "We hammered down. We didn't have a choice," Herman says. "It has been full speed ahead since May of 2019 to now."

MAKING CLT

The $150 million, 270,000 square foot facility, mostly supplied by equipment supplier USNR (which is based at the opposite corner of the state) produces multiple cross-laminated layup configurations up to 12 ft. wide by 60 ft. long with thickness range from 3.24 in to 12.42 inch, with spruce-pine-fir and some fir and larch. The panels are certified for SPF V2 and CE1 certification, laying up 2100 MSR grade lumber. While formal certification and

Thanks to CombiLift, long length CLT panels are handled with ease.

The heavily automated plant is staffed by just 50.

The $150 million facility's equipment was mostly supplied by USNR.

Katerra's management team

Jason Herman

testing is done by PFS-TECO, Katerra also has an in-house lab where testing is done using Metriguard and Instron machines. The product is also certified by SFI, FSC and PEFC for sustainability.

Lumber is sourced from a variety of regional producers in 2x6 and 2x8 sizes, with 95% being 2x6 #2 and better, primarily for longitudinal boards, and #3 grade for transverse boards.

Lumber is trucked to the green storage building and brought in to the USNR sorting line for breaking down by the tilt hoist to a USNR ElectraTong lug loader and through USNR's transverse high grader. A Finna MC Pro 2400 HDNC detects wet pockets and moisture contents top and bottom. Additionally, Katerra uses a Finna Precigrader (acoustic MSR system) that can grade up to 140 pieces per minute on the trim line—which helps boards that might not meet visual grade but potentially meet strength grade be recovered.

About 80% of the CLT produced is 5-ply.

A USNR clamshell trimmer trims to length if necessary, and boards move into a 30 bin sorter, separated for aesthetics, core and face grade, moisture and structural properties.

Wet boards greater than 15% MC drop out and are sent on sticks to a USNR 13 million BTU continuous dry kiln and dried down to 12% MC plus or minus 3%.

Lumber, which is tested again for moisture, enters the CLT side and moves through planer #1, a Gilbert S series pull-through planer, which planes the lumber to near net size. Lumber proceeds through a USNR lineal grader and into the tray sorter, which separates long boards for the finger joint line and short boards for the panel core. A second Gilbert planer planes the transverse boards to net size. Boards are sprayed with primer from TDS Technologies.

Face boards go a Western Pneumatics finger jointer and RF tunnel that uses Hexion glue, and through a flying saw in producing 60 ft. lengths. The long face boards run through Gilbert planer #3 for planing to net size as ordered by the customer and then go to the tray sorter.

Long and short boards come together with respective overhead gantry (Joulin) vaccum layup systems. The gantry lays the long boards first, and an Oest traveling glue system showers the boards with Henkel glue, followed by a similar procedure with the short boards, and then long, short, etc., creating 3-5-7- or 9 layer panel, before running through the USNR cold press. The panel is pressed top-down, side-squeezed and end-squeezed. The press was made to produce two panels, but depending on thickness a caul plate can assist via a vacuum de-stacker.

Panels go to a CNC line that includes three CNC machine centers, one from Hundegger and two Biesse-Uniteam CLT 400 units with fast dual spindle technology. The CNC machines square off the panels, prepare the panel for panel-to-panel connections in the field, and cut penetrations into the panels.

A Costa sander removes 1 mm top and bottom from the panels.

All boards are identified with QR codes through Samuel technology, tracking all attributes of the boards as they move through manufacturing into finished panel.

Approximately 80% of CLT produced in Spokane Valley is 5-ply; 10% is 3-ply; and the final 10% is a mix of 7- and 9-ply. Loads are stacked exactly how the construction site needs it—calling it live loading.

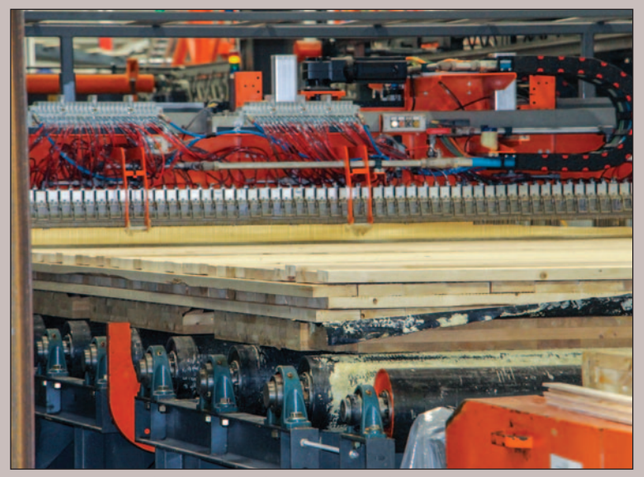
Rolling stock is a mix of CombiLift machines and Hyster.

DynaStar maintenance management software from USNR helps Herman's team stay on top of regular maintenance planning.

Production and shipping is based mostly on real-time orders from the field. The facility doesn't typically press on Friday or Saturday but is flexible in that regard. The mill runs a single 10-hour shift four days with maintenance on Friday.

"The Katerra team would like to give a special shout of thanks to its employees and vendors for their support," Herman says. "It has been a heck of a ride but we wouldn't be where we are today without them. Can we get a 'hell yeah!'?" **PW**

Pull through Gilbert planers plane lumber to near net sizing.



The Katerra CLT facility is the largest in North America.

The facility lives off three things, "wood, glue and pride."

To finish, panels are sanded using a Costa to remove 1 mm from the top and bottom.

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