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New Wood Construction Technology Gets Boost

At the Wood Solutions Fair, [Oregon BEST](#) today announced a new round of commercialization funding that will team southern Oregon-based [DR Johnson Lumber Co.](#) with Oregon State University researchers to determine how a new engineered building material made from lumber *might catapult Oregon wood products to the forefront of construction innovation and technology.*

Production of cross laminated timber, or CLT, has taken off in Europe in the recent years, but only two plants produce structural grade CLT in North America, both located in Canada.

CLT panels, which can be up to 10 feet wide by 60 feet long and 18 inches thick, are made by bonding together perpendicular layers of dimensional lumber, such as 2-by-4s, 2-by-6s or other dimensions, to create massive panels that can be erected and used for walls, floors structures and roofs. In taller buildings, CLT becomes a cost-effective replacement for steel or concrete, and using it in construction sequesters carbon.

CLT also allows the use of shorter pieces of wood that can't be used in traditional glulam beams, as well as lumber from smaller diameter forest resources.

"This is not merely a new engineered composite panel product," said Lech Muszynski, a professor in the OSU Dept. of Wood Science and Engineering, who is leading OSU's role in the project. "It's an entirely new building technology that is revolutionizing the use of timber in construction and dramatically cutting the overall time for construction projects."

Oregon BEST funded the project in part because of the potential for job creation in the Pacific Northwest.

"Right now, we have an unprecedented opportunity here in Oregon to be the national leader in CLT production and innovation," said Ken Vaughn, Director of Commercialization Programs at Oregon BEST.



31 October 2014



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“This catalytic commercialization funding will help this Oregon lumber company speed initial production, testing and the establishment of standards that could potentially position Oregon as the U.S. hub for CLT manufacturing.”

DR Johnson was founded in 1951 in Riddle, Ore., a small town south of Roseburg. The funding will enable Riddle Laminators, the glue-laminate operation of DR Johnson, to collaborate with a research team of OSU faculty and students to construct a pilot manufacturing line for CLT at its facility and to test the CLT produced at the plant.

“Currently, in the U.S, it’s kind of a chicken-and-egg situation with CLT,” said Valerie Johnson, President of DR Johnson. “There is significant and rapidly growing interest in using CLT, but the cost to import panels from Canada or Europe for construction is not cost competitive.”

By working with OSU and the American Plywood Association, DR Johnson will manufacture and test CLT panels in order to obtain independent certification. “That third-party certification is absolutely essential in order for us to go to market with this product,” she said

DR Johnson is the first company in the country to set up initial production of structural grade CLT panels, Johnson said, but the project is part of a larger statewide effort involving many groups and nonprofits to open up a broader market for CLT.

“There’s tremendous interest in CLT right now,” said Paul Barnum, executive director of the Oregon Forest Resources Institute, a state agency charged with public education about forest management and forest products. “This investment by Oregon BEST has the potential to reduce time to market and pave the way for other firms to get on board. It’s great that Oregon is leading this effort.”

Johnson said there is a growing buzz around using CLT because it “meets or beats” traditional construction materials on every front.

“Architects and engineers are eager to design and specify this new construction technology because they’re convinced it is the environmentally and seismically advanced way to build,” she said. “It beats the socks off other building processes when it comes to carbon sequestration, so we believe the market will develop very quickly.”





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Johnson said CLT manufacturing is a natural next step in the evolution of DR Johnson/Riddle Laminators.

“It’s really just another glulam product but in a different shape, so we feel very confident we can do this,” she said. “It’s now a matter of working with a local machine design and manufacturing firm on the development of a commercial press capable of expanding in length as markets develop. Once the press design is complete and assembled, we will manufacture panels for testing and certification, and the Oregon BEST funding is helping us launch that initial process.”

The \$150,000 in commercialization funding from Oregon BEST will help support a research team at OSU, led by Muszynski.

“The Oregon BEST funding will support a graduate research assistant, whose focus will be exclusively on research related to commercialization of Oregon-made CLT,” said Muszynski. “The team will also include two other graduate research assistants, an undergraduate honors student, four OSU faculty members from our department and Civil Engineering, who are already funded by a separate USDA grant for CLT related research, and DR Johnson process engineers and marketing specialists.”

About Oregon BEST <http://oregonbest.org>

Oregon BEST is the nexus for clean technology innovation, building capability, convening collaborations, and accelerating solutions to environmental challenges that deliver prosperity in all corners of Oregon. Oregon BEST brings together Oregon’s significant R&D strengths in clean technology to support the commercialization of new products and services. Since establishment in 2007, Oregon BEST’s 230-plus Member Faculty have generated more than \$118 million in research revenue from federal, industry and foundation sources to Oregon. At its four partner universities (Oregon Institute of Technology, Oregon State University, Portland State University, and University of Oregon), Oregon BEST has established a network of nine Oregon BEST Labs, which are shared-user research facilities. Oregon BEST Commercialization Funding is competitively awarded to collaborations between entrepreneurs and Oregon BEST Member Faculty at partner universities.

About DR Johnson/Riddle Laminators <http://drjlumber.com>

Founded in 1951, the DR Johnson production facility in Riddle, Oregon, specializes in the manufacture of 3” & 6” Douglas Fir. Primary products are 3×6 and wider, #1 and #2 structural joists and planks, 6×6 through





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6×12 posts, beams and timbers, and full-sawn industrial clears and scaffold planks. A large inventory provides the flexibility to meet the special-order needs of customers on a just-in-time basis. Riddle Laminators manufactures structural glue-laminated beams from Douglas fir and Alaskan yellow cedar from the best available lamination stock that is fabricated into glulam beams in accordance with customers' needs.

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