

Demonstrating wood's potential

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An early design concept for Western Oregon University's College of Education building calls for the use of cross-laminated timber in stair treads. (Mahlum Architects)

One material will stand out in the new **Western Oregon University College of Education** building: wood.

Its designer, **Mahlum Architects**, has been tasked by Gov. **John Kitzhaber** to highlight innovative uses of wood. The project is designated as a demonstration project under the governor's Executive Order 12-16; it calls for state agencies to identify nonresidential capital construction projects that can showcase wood products in high-

performance buildings.

The tricky part is figuring out the best way to do so, said Kurt Haapala, principal in charge of Mahlum Architects' Portland office.

"(Kitzhaber) wants wood," he said. "He's smart to be thinking about a traditional market that has sustained and grown the state of Oregon (and) that needs to evolve. We have to demonstrate the power and beauty of wood in all its forms."

The firm is in the early stages of design for the \$18.6 million project at the WOU campus in Monmouth. The team is investigating innovative ways that wood can be incorporated into the proposed 50,000- to 57,000-square-foot building – within budget restrictions. Other challenges include navigation of the city permitting process and the lack of familiarity among builders of work with products like **cross-laminated timber** (CLT).

Mahlum staffers hope to include CLT in the design, Haapala said. Panels are manufactured with lumber glued in opposing directions to form a solid slab that can be used for walls, floors or ceilings. The product has gained popularity in Europe and Canada over the past 20 years, but it's still relatively unused in the U.S.

"The city of Monmouth has not seen this before," Haapala said. "The good news is the city of Portland has dealt with it. There are some code implications we have to work through ... We would need to prove it works."

That is one reason why Mahlum has teamed up with Lake Oswego-based **Equilibrium Engineers** for the project. The structural engineering firm worked on the only CLT project approved in Portland – a small, single-story structure that was designed by **SRG Partnership** and now is under construction at the Oregon Zoo.

For that 2,000-square-foot zoo building, extra calculations for load capacity were required to gain city approval for use of CLT on the roof, Equilibrium Engineers associate JoMarie Farrell said. She expects a similar process for the WOU project because Monmouth, like Portland, has no code language that addresses cross-laminated timber.

The project is a great opportunity to demonstrate the advantages of CLT and convince Oregon manufacturers to produce it, Farrell said. Because it comes in prefabricated panels, the product can be installed quickly, she noted.

"I would like to use this product a lot more often; it's really a matter of finding the right fit," she said. "I think it pays for itself in so many ways."

That is the precise reason for projects like the WOU College of Education building, said Rachel Wray, the governor's press secretary.

"A project like this can demonstrate these products exist – they're available and they work," she said. "This project, it really met the criteria for being a great demonstration for the range and uses of Oregon's wood products."

WOU officials recognized that innovative wood use in the College of Education building project would be a way to gain state funding, said Brad Huggins, WOU's construction manager.

"We felt that it was a reasonable project for it," he said. "We recognized that the governor had an interest in sustainable products, and we were happy to work with them."

Earlier this year, federal officials joined Kitzhaber in pushing for more wood construction and use of products like

cross-laminated timber. The **U.S. Department of Agriculture**, in an effort to support the nation's timber industry, announced a partnership with the **Wood Products Council's** initiative **WoodWorks** to inform architects, engineers and contractors of the benefits of CLT.

Mahlum staffers are working with WoodWorks to learn more about the possibilities for CLT in the WOU College of Education, Haapala said. One idea is to include CLT treads on the building's main staircase. Also, CLT in the floor and the roof could be left exposed.

"It's using a pretty high-grade wood, so it's beautiful," Haapala said. "Why put a ceiling on?"

The project appealed to Mahlum Architects because the firm has a long history of working with wood, particularly for tribal projects, Haapala said. The firm recently won a WoodWorks **National Wood Design Award** for the **Muckleshoot Smokehouse** in Auburn, Wash. The structure was designed in traditional longhouse style for the Muckleshoot tribe.

"There is a craft to working with wood that's still very much alive in the industry, and I think we should celebrate that," Haapala said. "How do we get that emotional connection to wood? That's what we're after."

Western Oregon University has not yet selected a contractor for the project. Construction is scheduled to start next spring and wrap up in time for the building to open in fall 2016.