



News Release

UMass Amherst Research on Strength of Composite Lumber Could Expand Use of Sustainable Material

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Development of computer models funded by \$300,000 NSF grant

AMHERST, Mass. – Two University of Massachusetts Amherst researchers are developing computer models to predict the strength of structural composite lumber (SCL), which could broaden the use of the sustainable material in large building projects.

Peggi Clouston, associate professor in wood mechanics, and Sanjay Arwade, assistant professor in civil and environmental engineering, are creating the computational tools with a three-year, \$300,000 grant from the National Science Foundation.

According to Clouston, SCL is a building material used extensively in North America in residential construction. SCL is created by layering dried and graded wood veneers or strands with waterproof adhesive to form long rectangular beams and other structural members. SCL manufacturers want to make as strong a composite with the cheapest wood possible, such as waste wood or weed species, she says, but new products must be tested in a laboratory to determine their strength. That process can be time-consuming and costly, says Clouston.

Clouston and Arwade's research is aimed at producing a quick and inexpensive analytical method that will accelerate the development of less costly or stronger wood products that could be used in major non-residential building projects such as shopping centers or schools, she says.

"By making the predictive capability widely available, this project marks a first step in advancing the practice of wood design to a state comparable to that of steel and concrete," says Clouston. "Building products manufacturers and engineers will have a great interest in this."

Along with economic advantages, she says, SCL offers significant environmental benefits because wood is renewable, recyclable, biodegradable and sustainable. "It takes less energy and creates less pollution to transform trees into wood products than it does to manufacture steel, concrete or plastic products," says Clouston.

According to the researchers, the work will lay a scientific foundation for investigations into other wood products such as glue-laminated timber or plywood. Graduate-level course modules on wood composite modeling are part of their integrated plan for research and learning.

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