A Partnership Toward Sustainable Insulation

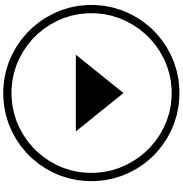
U of I Team Helps Develop New Local Hemp Product

Not everyone would turn to hemp as an environmentally friendly building insulation material.

But that is what University of Idaho's colleges of Art and Architecture (CAA) and Natural Resources (CNR) are working toward, alongside the Ketchum-based company Hempitecture.

The company needed solid research on their hemp products and it engaged CAA's expertise in designing sustainable and energy-efficient buildings and CNR's knowledge of natural materials' properties.

Together, the team hopes to design a product that will save home builders money, revolutionize the building industry, grow the local economy and help the environment by maintaining a minimal carbon footprint during production.



Hemp behind your walls

Architecture, Natural Resources and Engineering students participate in hemp research as a building material

Hempitecture is developing an industry-standard insulation material composed of hemp fibers. U of I was awarded a $200,000 Idaho Global Entrepreneurial Mission (IGEM) grant to conduct research on the development of their natural fiber insulation, HempWool. A CNR team is testing the fire resistance of the product while the CAA team at the Integrated Design Lab (IDL) determines the thermal properties of the insulation material.

Tyler Schram, a research assistant at the IDL and a CAA master's student graduating in Spring 2022, is assisting on the thermal research project. He's been assisting fellow research assistant Isabelle Boicourt, testing the material for thermal conductivity and creating a physical model to show builders what the material looks like once it's inside the walls.

Isabelle Boicourt holds the hemp insulation material at the IDL lab in Boise

Working at the IDL has really given me the opportunity to learn and work on different aspects of energy efficiency in buildings," Schram said. "The experience has helped me understand how to better support builders to meet sustainability goals as well as given me a strong foundation to incorporate this knowledge in my future work as an architect."

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— Tyler Schram 20' 22', CAA graduate

The Hempitecture project is an example of the IDL's collaborative nature. IDL students and staff come from engineering and architecture backgrounds. Damon Woods, IDL director, also seeks partnerships outside those fields to find the necessary expertise required by different projects.

For example, Woods approached CNR's Professor Armando McDonald and Assistant Professor Lili Cai in the Department of Forest, Rangeland and Fire Sciences to collaborate in the research on hemp's potential as insulation material.

McDonald's team of experts in renewable materials is testing the product and comparing it to existing products in the industry, examining different fire retardants, and even using technology to time the ignition and heat release of the product and the smoke amount coming out if it. For McDonald, research into sustainable products is crucial to mitigating the effects of climate change and to make a positive difference in Idaho's communities.

"IGEM's funding main focus is to support industry and economic endeavors in Idaho," McDonald said. "The impact goes beyond that. The business will positively impact local farmers by buying local hemp, instead of transporting raw materials across the country. They minimize their carbon footprint by staying local. It will create jobs."

In addition, hemp insulation helps the environment by encouraging builders to use natural fibers instead of petroleum-based products. And the hemp plants will sequester carbon dioxide for the duration of the product's life.

"Sustainable products are key in mitigating climate change," McDonald said.

Article by Maria Ortega, Marketing and Communications.

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