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Rolling Hills couple use first permitted hempcrete in L.A. County

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UPDATED: October 30, 2018 at 2:43 PM PDT

Under a hot sun amid the sounds of a concrete mixer, Beate Kirmse and her husband, Bern Galvin, lined up in the backyard of their Rolling Hills home to lend a hand in the construction of their future living room.

But it wasn't concrete coming out of the mixer. Wood chip-like shreds of hemp shiv — the core of hemp stems — were mixed with water and a lime-based binder to produce a sustainable building material called hempcrete. Layer by layer, Kirmse, Galvin and a handful of volunteers poured buckets of the dry mixture into wooden forms within wall frames. In a few days, they will reveal what is believed to be the first permitted use of hempcrete in the state.

A crowd of industrial hemp advocates came from throughout the state to watch the construction supervised by Ryan Hayes of Northern California-based TerraBuilt Construction. Also among the crowd was Brett Boag, who came from Alberta, Canada, where he runs hemp-processing company Cylab International.

Kirmse and Galvin waited six months for approval from Los Angeles County's Building and Safety Division because the county and other building agencies had never researched the use of hempcrete.

Plan checker Michael Dorta was willing to work with the couple to find out if and how the material could work with county building codes. Although hempcrete is resistant to water, fire and mold, Dorta suggested adding a layer of building paper as a safety precaution. The paper is separated from the hempcrete by a small air channel per Kirmse and Galvin's request.

"The trick was to do that but also still get the benefit of the breathability of the wall," said Kirmse, a native of Germany who runs an eco-friendly online gift shop. "We were told that once this is permitted once in California, it will be a lot easier for the next project."

But Building and Safety Division spokesman Bob Spencer said it should be noted that the hempcrete was permitted in this case as an insulator, not as a structural material.

"We determined that the material meets all required county building codes for this type of in-fill and approved the use in this case," he said.

Although a handful of hempcrete buildings exist in the United States, it was illegal to grow hemp until six months ago because it comes from the same plant species as marijuana. Now the plant is federally legal to grow for research purposes.

The hemp making up Kirmse and Galvin's insulation came from a U.K.-based company called Lime Technology, adding $837 in shipping costs, about 15 percent of the costs of the materials, to a project they say would have cost about the same as a traditional one otherwise.

Chicago-based American Lime Technology, which is part of the U.K. company, estimates hempcrete construction costs 10 to 20 percent more than similar conventional projects, but that the difference is largely due to the shipping costs, which could be avoided if hemp were allowed to be grown locally.

Kirmse and Galvin ordered 52 bales of hemp shiv and 78 bags of lime binder to make about 265 cubic feet of hempcrete through American Lime Technology, which also has supplied the material to projects in Wisconsin, Idaho and Florida. Sales and Marketing Director Matt Engelmann said Kirmse and Galvin's extension is the company's first project not only in California, but on the West Coast.

"We have a number of architects, builders and building owners in California who are very interested in working with the material, but I think people are hesitant to be the first one to do it," Engelmann said.

Two years ago, another company — North Carolina-based Hemp Technologies — was involved with plans to build a hempcrete structure at the ruins of Knapp's Castle in Santa Barbara County, but the project never happened. Engelmann said while the technology has been used in Europe, it is being "re-proved" for use as a building material in the new U.S. market.

Engelmann said the company does run into something known in the industry as the "chuckle factor" — or stigma due to hemp's association with marijuana.

"Yeah, we run into a bit of that," he said. "At trade shows, the first two questions we get are, 'What is it?' and 'Can we smoke it?' "

But Engelmann and others in the industry believe that more completed hempcrete projects and the recent law change can only lead to more homeowners considering using it.

"Hemp only takes three months to grow, it's very healthy, there are no chemicals and it's breathable, which means you need very little heating or cooling," said Kirmse, who became interested in hemp several years ago when she had shirts for an exhibit at her former San Pedro art gallery printed on hemp fabric. She and Galvin became so interested they took a weeklong trip to Manitoba, Canada, where they visited hemp farms and processing and research facilities, and saw the first hemp house built in Canada.

They had already been thinking about extending their solarium and decided that when the time came, they wanted to use hempcrete.

Galvin, an Australia native who works in venture capital, believes hemp's fiber and core applications will see a boom in the next decade. Industrial hemp made more than $581 million in sales in the U.S. last year, according to the nonprofit Hemp Industries Association.

Galvin and Kirmse have been getting calls from architects interested in seeing the extension, which should be completed by mid-September.

"I really hope that as a result of this, someone in California will want to build a hemp house," Kirmse said. "This is only the beginning."

Originally Published: August 26, 2014 at 10:17 PM PDT