

Hemp houses are smoking hot in eco-design

LOUISE LOIK
EDITOR

Cannabis is big news these days, and 15 years ago, Jayeson Hendyrsan was already using it in mass amounts.

Hendyrsan has been building homes with hemp, a non-narcotic strain of cannabis. "I was a bit naive when I started out," says Hendyrsan. "I heard that the police in town were burning hemp they'd seized from drug dealers," he continues, recalling that he went up and asked if he could have the stalks. "The cops looked at me like I was joking when I told them I wanted to build a house with it."

Not surprisingly, he didn't get the hemp. The kind of hemp that he uses in construction is the same kind that was being used extensively in fabric manufacturing prior to the arrival of synthetic fabric, and specifically, polyester. Hemp oil and hemp seeds are mainstream products in grocery stores and for industrial uses, though hemp houses aren't quite so common.

The attraction to the material for Hendyrsan is that it is strong, enduring, and ecologically logical and cost effective.

"This is very inexpensive relative to other construction," says Kim Brooks, Hempcrete CEO. She and Hendyrsan live in their second Bowen Island hempcrete home whose thick walls are rich in mineral-based colours, from cinnamon to saffron to sage and blue. The two will be hosting a two-week intensive building workshop May 9-20 on location.

Builders are booked from around B.C. and coming from as far away as Alberta and Seattle. The workshop will provide hands-on building opportunities while constructing a tiny hemp house. The small house idea is an alternative to a trailer and a response to a lack of options for people who want a small home, and can work as lane-way homes or for emergency housing.

"They can be put on skids like a mobile home," says Brooks, and at 14-by-22-feet "they can be transported by semi-trailer."

The buildings could also be transported unassembled, as panels, as the tiny house has thin walls, six to eight inches thick as opposed to the 12-inch thickness in the larger houses. Three thousand pounds of hemp will arrive on Bowen in time for the workshop and construction of the prototype tiny home.

Each house has wood framing, post and beam style, and wiring is set in tubes in channels in the walls.

The island project will act as a sample home that will be tested by the University of Manitoba for tensile strength, energy efficiency (R value), compression and the increase of R-performance due to high thermal mass.

"We did the testing on our first house 13 years ago; with product evolution it's great to test it again," says Hendyrsan.

Hendyrsan says that this building could help reduce affordable housing shortages. "The prototype will be self-contained, net zero energy use with passive solar heating, and thermal exchange system. This kind of design will not put any extra load on local energy supply."

Hendyrsan explains that he is working with a septic engineer on a process "that is 100 years beyond a septic field."

"It's more like septic fields are 100 years behind," says Brooks. But that's another story.

The prototype tiny home will feature everything from French doors to a full size kitchen, a deck around a room with bay windows that open to a forest. There are two loft rooms with a catwalk connecting the two over the living areas below.

"We'll turn it into affordable housing," says Hendyrsan. "If you have labour to build it and the land is cheap, this is great, perfect for housing for workers up north."

Brooks says that one of the tiny houses would work for two people and a small child. "You could link the buildings and make a U-shaped compound."

Hempcrete's tiny house target resale

price is \$70,000-\$75,000 right now, but as this new initiative gets going, Hendyrsan expects prices to drop.

On this day, the heat is record-breaking and yet, inside the hemp house, the temperature is comfortable. With a hemp house, the wall is a monolithic structure, wrapping around the timber frame like a big blanket.

Each wall is made from a mixture of hemp chips and fiber and lime. The lime repels carpenter ants and rodents as an additional benefit. The mass of the walls moderates the temperature inside the building year round.

While the construction is durable, it is also biodegradable. If you took a wrecking ball to it, the walls would enrich the soil. Brooks says that unlike cob construction or straw bale, hemp fiber does not break down easily. "So much so that farmers truck it off the field the following year because it doesn't break down like corn or other plants."

Once it is mixed into a form for a wall, the hemp breaks down very slowly and the walls calcify. Unlike hemp construction, "straw bale off-gases causing cracks and can get moldy, and cob cracks as it breaks down." Though Brooks says she loves rammed earth houses, "the cost of the machine to ram the earth is expensive, so you can't leave it waiting around." She likes the flexibility afforded by hemp. "It's labour intensive, but you can manage the costs."

The mission for Hempcrete is to make the home building technology available to provide earth-friendly affordable housing adaptable to any setting, from frontier lands to suburban settings. They can provide emergency housing during a crisis and housing for workers or extended family. They are esthetically pleasing even with the simplest of designs.

"We've already been getting requests from people who want to buy them," says Hendyrsan as he brushes the construction dust off his shirt, heading toward the preparation site of the sample home.



Top photo: The first prototype tiny hemp house, built by HNB in Alberta in 2014. Above: A hemp house can fit into almost any setting. *photos supplied by Hempcrete.ca*



At left: Hempcrete CEO Kim Brooks isn't afraid to get hands on and apply a deep coral wall colour crafted with pigments from the earth. At right: Jayeson Hendyrsan stands in front of a rough wall. The pre-plastering stage shows the industrial hemp fiber used in the lightweight fiber reinforced concrete. *photos supplied by Hempcrete.ca*