

Three from MIT envision grow-your-own home



This artist's rendering shows the Fab Tree Hab, a home made of living plants. Photo / Mitchell Joachim, courtesy Technology Review

In the future, homeowners may grow their houses instead of building them. That's the vision of MIT architect Mitchell Joachim of the Media Lab's Smart Cities group.

He and his colleagues -- environmental engineer Lara Greden (S.M. 2001, Ph.D. 2005) and architect Javier Arbona-Homar (S.M. 2004) -- have conceived a home that doesn't just use "green" design but is itself a living ecosystem. They call it the Fab Tree Hab.

The basic framework of the house would be created using a gardening method known as pleaching, in which young trees are woven together into a shape such as an archway, lattice, or screen and then encouraged to maintain that form over the years.

As the framework matured -- which might take a few years in tropical climates and several decades in more temperate locations -- the home grower would weave a dense layer of protective vines onto the exterior walls. Any gaps could be filled in with soil and growing plants to create miniature gardens. On the interior walls, a mixture of clay and straw beneath a final layer of smooth clay would provide insulation and block moisture. On south-facing walls, windows made of soy-based plastics would absorb warmth in the winter; ground-floor windows on the shady side could draw in cool breezes during hot months. Water collected on the roof would flow through the house for use by people and plants; wastewater would be purified in an outdoor pond with bacteria, fish and plants that consume organic waste.

"The concept of a living house is really incredibly exciting when you think that people in tropical and semitropical locations have fast-growing trees available," said Richard Reames, an Oregon-based "arborsculptor" who uses grafting techniques to grow living furniture.

For now, Joachim is working on MATscape, a house project in California incorporating about half recycled materials and half living materials, such as grasses, plants and soil. But Joachim and his team hope to plan a Fab Tree Hab community someday, creating homes that don't interrupt the surrounding ecosystem but become integrated with it. "Design intervention only guides the growth," he said. "Nature -- life -- does the rest."

Source: MIT

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