

Towards A Hemp Architecture

March 27, 2012



*One of three houses in North Carolina built with Hempcrete, design by Push Design with Hemp Technologies;
Photo: Push Design*

Given environmental decay and the construction industry's significant role in accelerating the process, it is imperative that contemporary builders push for the development of renewable building materials capable of revolutionizing the practice of architecture and shaping our future built environment. In a [profile](#) in Smithsonian Magazine, MIT professor and structural engineer John Ochsendorf described the architecture of tomorrow, one not born of titanium or concrete, nor wrapped in space-age sheen, but one belonging to the technological lineage established by past building cultures, particularly those whose innovations were not contingent on the rapid manufacturing processes ushered in by the Industrial Revolution and were, thus, more invested, consciously or not, in building sustainably. Rather, Ochsendorf summons up archaeological visions of clay and dirt, manipulated and "used in an intelligent and beautiful way", when communicating his idea of the architecture of the 21st century. Following this strain of thought, raw and renewable resources should be harnessed and augmented by digital technologies so as to engage with the environmental problems at hand (and in the future) while not ignoring the theoretical and aesthetic implications precipitated by a rehaul in building practice. Pioneering building materials derived from renewable hemp plants, North Carolina-based [Hemp Technologies](#) is working towards enacting *some* of these goals within current architectural production. [Continue.](#)

As the L.A. Times [writes](#), the company, which has overseen the construction of three hemp houses in North Carolina, has announced that it wants to use hemp-based materials to build a small 500-square-foot structure on the site of [Knapp's Castle](#) mansion near Santa Barbara, the ruins of which hint at the sprawling estate that once was. The compact building will function as a kind of prototype, with timber-framed walls filled in with Hempcrete, a concrete-like mixture of wood chips sourced from Cannabis sativa and a lime-based binder that can be sprayed onto surfaces, poured into slabs, or shaped with formwork. Among its many virtues, the material is very fire resistant, is an extremely efficient insulator, can be grown with very little water, and is virtually impermeable to termites. The lime content in the hemp blocks sucks in large quantities carbon dioxide—up to 12 tons, according to the company's own estimates—which it needs to harden, meaning that the wall continuously becomes more solid and that the structure, over time, becomes carbon negative.



The House that cannabis built. [Cannabric](#) by Spanish architect Monika Brümmer

It's not all good news, though. The project has yet to obtain building permits, and the special hemp materials it proposes to incorporate into the design will have to be approved and certified safe. That might prove troublesome, considering that the production of hemp, which is derived from cannabis but contains only very low amounts of tetrahydrocannabinol (THC), is currently barred by state and federal laws. The developers can still procure the hemp through imports, however, which companies such as [Hemp Technologies](#) and designers like Spanish architect Monika Brümmer—who has developed cannabis bricks for building—are exploiting to grow an economy of hemp-derived building materials.