

These Algae Farms Cover The Walls Of Buildings And Soak Up Carbon

URBAN FARMING MEETS PLANKTON.

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Walls might be the next frontier for urban farming. Though rooftop gardens are fairly common, exterior walls aren't typically used for growing crops. A "green wall" usually means a covering of plants that won't be harvested.

But while a wall isn't necessarily a good place for vegetables, with algae, it's another story. One new algae-filled wall comes from Italian architect [Cesare Griffa](#), who designed a system that can quickly grow and harvest micro-algae to help fight climate change and create new products.



“Micro-organisms like algae are like bacteria--it’s one of those things that in our culture people try to get rid of,” Griffa says. “But algae offer incredible potential because of their very intense photosynthetic activity.” Algae take in carbon dioxide and produce oxygen while growing. Compared to a tree, micro-algae are about 150 to 200 times more efficient at sucking carbon out of the air.

In Griffa’s WaterLilly system, an algae-filled structure is attached to the façade of a building. Inside individual chambers, algae grow in water, and after a few days or weeks, the algae can be harvested and used for energy, food, cosmetics, or pharmaceuticals. A small amount is left to start the next growing cycle.

“No fossil fuels are required,” Griffa notes.



Each system is custom designed for a specific wall, since it’s important to have the right conditions for the algae to thrive: Too little sun isn’t good for growth, but too much sun will cook the organisms.

Griffa is working on his first large-scale application now, which will be installed in the Future Food District curated by Carlo Ratti Associates at Expo 2015 in Milan. “We are working to optimize the system by reducing construction costs and increasing growing rates,” he says. “Our goal is a simple, inexpensive, and very efficient system.”

It won’t be the first project to incorporate algae-filled walls. A new building in

But there's no lack of wall space to cover, and plenty of room for different approaches. "Urban facades and roofs represent billions of square meters that instead of being made of an inanimate material such as concrete, could become clever photosynthetic surfaces that respond to the current state of climate warming," Griffa says.

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