

Living buildings could mop up carbon dioxide

November 27 2009



(PhysOrg.com) -- Architecture could help us tackle climate change, if we start to design our buildings with 'living' materials, according to Dr Rachel Armstrong, UCL Bartlett School of Architecture.

Speaking today at a UCL Lunch Hour Lecture, Dr Armstrong argued that biological systems could be engineered into 'smart' paints to protect our buildings and improve our atmosphere.

"Our buildings offer a huge engineered surface area on which we could



develop new applications, especially biological ones," said Dr Armstrong. "We've been building with the same Victorian technologies for so long, now it's time to try something new.

"Adapting <u>biological materials</u> to create 'living' buildings may seem outlandish, and is not without its problems, given the time it takes to grow organisms and the need to feed them and manage their waste. But if architects can overcome these limitations and make the connection between artificial structures and natural ones, we could harness 'metabolic materials' such as bioluminescent bacteria that produce light through biochemistry, for example, and reduce our energy drain on the grid.

"In collaboration with Martin Hanczyc of the University of Southern Denmark, we've been exploring protocell systems which act like chemical computers whose hardware is based on the self-assembling properties of oils and whose software is programmed through chemical reactions that affect the properties of the oil. We aim to program protocells to make carbonates from carbon dioxide, thus acting as a 'carbon sink'. This is the first step towards developing a 'smart' surface coating that could extract carbon dioxide and other pollutants from the environment.

"Venice might also be saved using this kind of approach, by growing an artificial reef from protocells underneath the historic city, to prevent it from sinking.

"Although these technologies are immature, they offer potential new ways of addressing <u>climate change</u> as an additional strategy to energy conservation. By developing these green technologies we hope to retool architects to help them meet sustainable and climate change challenges of the future."



Provided by University College London (<u>news</u> : <u>web</u>)

Citation: Living buildings could mop up carbon dioxide (2009, November 27) retrieved 27 April 2024 from <u>https://phys.org/news/2009-11-mop-carbon-dioxide.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.