

Are you interested in architecture? Have you ever thought about how the outside of a building could help the environment? Read this article to find out about research into buildings that can collect water and create energy.

Researchers are developing a covering for buildings that could collect water and help generate energy.

Advantages in hot climates

Architecture looks to the future, looking for better materials and construction methods, or creating buildings that give us better ways of living. Professor Neil Spiller, an architect and head of the University of Greenwich's School of Architecture & Construction, has a long history in futuristic architecture, and is currently working with researchers to develop a new covering for buildings. The research, conducted by teams from Greenwich, the University of Southern Denmark, University of Glasgow and University College London, could be extremely beneficial in hot climates, collecting water and using sunlight to collect biofuels.

Architecture and synthetic biology

'I've been interested in the impact of new technologies on architecture since the early 1990s,' explains Professor Spiller. 'That was the start of cyberspace and virtual reality generally, and people started to talk about biotechnology.' Professor Spiller co-edited an influential edition of the AD journal on architecture and cyberspace, then became interested in nanotechnology. In 2004 he formed a research group while at University College London, called AVATAR (Advanced Virtual and Technological Architectural Research). Dr Rachel Armstrong who is working on the current protocell project became the co-director of one part of it exploring architectural and synthetic biology.

Sustainability

'We are at the stage where we are working on ideas on developing a special covering,' says Professor Spiller. 'We are trying to get some covering that uses new technology that will allow a building façade to respond in real time to changes in its micro-climate around it.' Up until now the experiments have been done in the lab and they need to make it bigger to the building façade scale, however big that is. 'There is a variety of things that we may use, such as bioluminescent bacteria. We'll use the actual protocells in one experiment. With protocells there is no DNA, no genetics, they are really just bubbles in water, so there is no ethical problem there.' The material has potentially significant economic and ecological benefits. 'We have a technology that is not limited by the normal economics of the building industry that we have in the First World,' says Spiller. 'The big expansion in the construction industry in the next growth period is going to be about sustainability and ecological planning.'

If you're interested in science check out the British Council's science magazine called *Cubed* at <http://www.britishcouncil.org/cubed>.