

What if your windows could photosynthesise? London-based ecoLogicStudio has created Photo.Synth.Etica, a “biocurtain” that captures one kilogramme of CO₂ per day – the equivalent of 20 trees’ worth – from polluted air. “It is a new kind of urban symbiosis,” says company co-founder Claudia Pasquero (*below, left, with co-founder Marco Poletto*).

Urban air enters the bottom of the Photo.Synth.Etica curtain and rises to meet the cyanobacteria cells in the living cultures that are threaded through it. As the Sun shines, the cells consume the toxic particles during photosynthesis, cleaning the air while also sequestering the carbon and releasing oxygen.

The technology has evolved from the studio’s long-running Hortus art project, currently cultivating pools of cyanobacteria in a geometric, modular, bi-digital reactor (*main image*).

The Photo.Synth.Etica biocurtain, however, moves the green goo from the gallery to the built environment. Hung from the side of a building, its 16 modules, each 2m x 7m, are made from two layers of transparent bioplastic, welded together to create pockets of microalgae suspended in a biogel medium. The green, snake-like pattern is luminescent at night, and robotic and digital fabrication means that the algal density of the biocurtain’s pockets can be tailored across the façade for specific microclimates.

The designers envisage the curtain being applied to new buildings, but it can also be retrofitted, as it was to the Printworks Building in Dublin during the 2018 Climate Innovation Summit. “A version is in development that will target the large distribution and warehouse

market,” says Pasquero.

Depending on the complexity of the system and the material used, the biocurtain costs around €300 (£270) to €2,000 (£1,800) per m². The biomass produced as a waste product can be used in bioplastics or textiles

such as microbial cellulose.

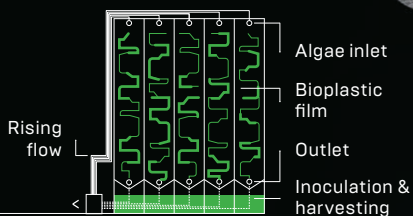
Photo.Synth.Etica took ten years of research, with prototypes available this year. “We are searching for early adopters willing to test the system on their buildings,” says co-founder Marco Poletto. **Anna Marks** ecologicstudio.com

Liquid architects

Suspended pools of bacteria could help buildings remove pollution and release oxygen into our cities

043

START



ecoLogicStudio’s biocurtain adds a living green lung to the exterior of urban buildings