Module of Urban Algae Canopy - Carlo Ratti Associati

Modules of Urban Algae Canopy and Urban Algae Façade
project Ecologic Studio and Cesare Griffa
with CARLO RATTI ASSOCIATI

Cortile d'Onore

CARLO RATTI ASSOCIATI. A rapidly growing architectural practice based in Turin, Italy, with branches in Boston and London. Drawing on architect and engineer Carlo Ratti's research at the Massachusetts Institute of Technology, the office is currently involved in many projects across the globe. Embracing every scale of intervention, ranging from urban masterplans to product design, the work of the practice focuses on revolutionizing the use of digital technologies in our built environment and daily lives, always looking towards creating an evermore sustainable and enjoyable future. Among the most recent projects are the design of the headquarters of the leading Trussardi fashion house in the center of Milan, Italy, a hundred Tsunami-safer houses in Sri Lanka, the Cloud for the London 2012 Olympics and the Digital Water Pavilion at the 2008 World Expo in Zaragoza, Spain. The practice has received many other awards - including Time Magazine 'Best Inventions of 2007' for the Digital Water Pavilion - and its work has been featured in leading publications worldwide, including the New York Times, the Boston Globe, Der Spiegel, Discovery Channel, BBC, Domus and Abitare. Current projects include the Future Food District for Expo Milano 2015 and experimental furniture designs for Cassina Spa. The office is also currently involved in the design of new cities in the Gulf region, Russia and Central America. In 2011, the practice was selected as one of the best practices

of young architects 'Talenti italiani under 40' by the Renzo Piano Foundation. In December 2012, they were again selected by Renzo Piano with the winning project to design the extension of a school in Cavezzo, one of the community's affected by the May 2012 earthquake in northern Italy.

ecoLogicStudio is an architectural and urban design studio involved in digital design and architecture research for the definition of a new "ecology" of space and behaviour. Co-founded in London in 2005 by Claudia Pasquero and Marco Poletto, the studio has built up an international reputation for its innovative work on 'systemic' design, a method defined by the combination and integration of systemic thinking, computational design, bio-hacking and digital prototyping.
This "broadened" approach to design – ranging from the micro to the macro and from nanotechnologies to urban networks – is embodied into an experimental practice, where projects and installations become laboratories of "interactions". Locally activated design protocols synthesize a form of expanded "hyper-reality" hacking larger organizational systems.
Claudia Pasquero and Marco Poletto are directors of the BIO-Urban Design Research Cluster at the Bartlett School of Architecture in London. They have been Unit Master at the Architectural Association, Studio Leaders at the IAAC in Barcelona and visiting critics at Cornell University. Their projects have been published and exhibited internationally. Their last project METAfolly has been featured at the 9th ArchiLab and is now part of the permanent collection of the FRAC center in Orleans. Their HORTUS series on the architectural integration of microorganism as been shown at The Venice Biennale; at the Rotterdam Biennale, at the EDF foundation in Paris and at the Architectural Association in London among others. Their research has been published in 2012 by Routledge in a book titled "Systemic Architecture".

www.ecoLogicStudio.com

Cesare Griffa (Turin 1973) studied architecture at the Polytechnic of Turin and the Architectural Association in London, and practiced collaborating with Zaha Hadid Architects and Arata Isozaki & Partners. Since 2006, he founded his own studio in Turin.
He is a Fulbright fellow, and has been Visiting Professor of Architectural Design at the Polytechnic of Turin, Visiting Scholar at Rensselaer Polytechnic Institute (Troy, NY), and at MIT Senseable City Lab (Cambridge, MA). He has lectured on the topics of digital architecture in Italy and abroad. He is the author of "La Città Digitale" (Meltemi, 2008) and "Smart Creatures" (Edilstampa 2012). His work has been selected in many international competitions and exhibits and widely published.
Current research includes the use of parametric 3d modeling software, rapid prototyping tools, physical computing, and bio-chemicals to explore possible applications of micro-alge bio technology for sustainable architecture and design.
The studio-work is based on an experimental approach developed through the research activities and includes the use of advanced digital design and prototyping technologies (software and hardware), in an open source environment that tends to take in serious account both social and environmental concerns, with some explorations in the fields of electronics and biology. The studio offers

architecture and interiors design services to a wide range of clients, and promotes and organizes design and architectural workshops, exhibitions and events, involving local and international communities and students groups in many collaborative projects.
Clients Portfolio includes: ArchA Spa (Turin – I), Buzzi srl (Turin – I), Carlo Ratti Associati (Turin - I), Comitato Italia 150 (Turin - I), Comune di Nichelino (I), Comune di Venaria Reale (I), Comune di Nichelino (I), DE-GA Spa (Turin – I), De' Longhi (Treviso – I), Elle srl (Treviso – I), Fondazione per il libro, la musica e la cultura (Torino - I), IAAC (Barcelona - ES), MIT Senseable City Lab (Boston - USA), Politecnico di Torino, Regione Piemonte, Santa & Cole (Barcelona – ES), Scuola Holden (Turin – I), Torino 2008 World Design Capital Committee, Zaha Hadid Architects (London – UK).

The installation

The Urban Algae Canopy by ecoLogicStudio [M.Poletto, C.Pasquero] is here presented with the 1:1 scale prototype of the world's 1st bio-digital canopy integrating micro-algal cultures and real time digital cultivation protocols on a unique architectural system. Once completed as part of Expo Milano 2015 Future Food District, curated by C. Ratti, the Urban Algae Canopy will produce the oxygen equivalent of four hectares of woodland and up to 150kg of biomass per day, 60% of which are natural vegetal proteins. The project is part of the series HORTUS by ecoLogicStudio, special edition for Expo Milano 2015. The Urban Algae Façade is the prototype of a micro-algae façade based on Cesare Griffa's WaterLilly 2.0 system that will be developed in a special edition for Expo Milano 2015: a project for a micro-algae vertical farm to be implemented as an architectural skin. Micro-algae, absorbing a considerable amounts of CO2 and producing oxygen, could integrate the green system of the cities, increasing their activity of absorbing carbon dioxide and, as a second skin of buildings, increasing their passive performance.