



3D Printed Ceramic Green Wall



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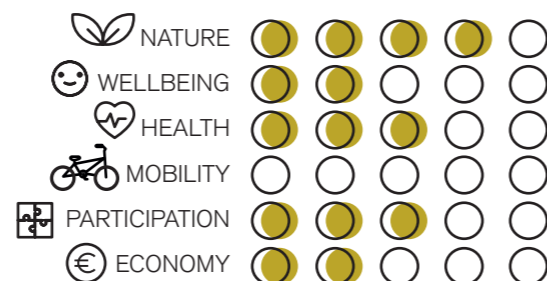


3D Printed Ceramic Green Wall

NBStech2

CERAMIC GREEN WALL

CHALLENGES ADDRESSED



DESCRIPTION

It is a 3D printed ceramic green wall composed by 3D printed ceramic pots that contains soil, plants and a bio photovoltaic system. This system harvests the energy produced by bacteria living near the plants' roots, which is used to activate the irrigation system, making it energy self sufficient. It includes sensors detecting the moisture in the soil, minimizing therefore irrigation. If vegetables are planted in it, it can also be used as a vertical vegetable garden. The green wall can be specifically designed and adapted to different spaces, local needs, and climatic conditions.

It provides several urban ecosystems services, such as: energy production, flood reduction (increasing porous in cities), air quality enhancement, and heat island effect mitigation.

PARTICIPATION PROCESS

CO-DIAGNOSTIC
 What is the agricultural map of the neighborhood? Through "cultural mapping" the existent agricultural fields in the neighborhood can be identified. Where to place it? Through "walkthrough with citizens / focus groups in situ" it can be decided where the solution will be located within the neighborhood. How to manage the needs and expectations of citizens? Through "motivational interviewing". How investigate the perception of technology? Through "cultural mapping".

CO-SELECTION & CO-DESIGN
 Which design to give? Through model thinking (Physical and 3D models) / world café. What materials to use? Through model thinking (Physical and 3D models) / world café.

CO-IMPLEMENTATION
 How can people learn to use it (knowledge transfer)? Through community workshops. How to manage it? Through time bank / farmers markets network.

CO-MONITORING
 How to monitor the system functioning? Through time bank.

INNOVATION ASPECT

- Extremely flexible thanks to 3D printing (its shape can be adapted to respond to size, climatic and social needs);
- Small amount of energy is produced making it self sufficient;
- Several ecosystem services are delivered in one solution.

REPLICATION AND SCALABILITY

- Being done with modules that can be applied in public space and buildings, the project has a high scalability potential;
- The project relies on a parametric design program, it has a high replication potential as it can be adapted to different environments. Plants have to be chosen according to the local conditions.

BEST PRACTICES and REFERENCES

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IMPLEMENTATION			
SOFT	MEDIUM	HARD	

REPLICATION POTENTIAL/FLEXIBILITY		
LOW	MEDIUM	HIGH

AMORTIZATION PERIOD			
SHORT	MEDIUM	LONG	NA

INVESTMENT			
LOW	MEDIUM	HIGH	NA

CERAMIC GREEN WALL

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COMPLEMENTAR NBS FROM URBINAT

THE GROWING CLASSROOM	GREEN WALL	RENATURALIZATION OF BROWNFIELDS	BEEHIVE PROVISION AND ADOPTION	SOLIDARITY MARKET FOR CHILDREN	TIME BANK	FARMERS MARKETS NETWORK
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