



BIOMAT: MODULAR SUSTAINABLE ARCHITECTURE

Posted on November 16, 2022 by xavigonzalez



Categories: [Contributors](#), [Densities](#), [Designing Matter](#), [Formats](#), [ITKE](#), [No Density](#), [Project](#), [Technology and fabrication](#), [Topics](#)

Tags: [Biomaterial](#), [Computation](#), [Digital fabrication](#), [Experimental](#), [Geometry](#), [Lightweight Materials](#), [Modular Design](#), [Optimized construction](#), [Parametric design](#), [Project](#), [Prototype](#), [Research](#), [Simulation](#), [Structure](#), [Sustainable](#)

urbanNext Lexicon

BioMat: Modular Sustainable Architecture

<https://urbannext.net/biomat-modular-sustainable-architecture/>

The Mock-up demonstrates a vision for modular sustainable architecture, where annually renewable biomaterials are digitally additively fabricated to produce minimal surface modular units, which are versatile and reusable in diverse geometric constellations.



ISSN : 2575-5374

urbanNext Lexicon

BioMat: Modular Sustainable Architecture
<https://urbannext.net/biomat-modular-sustainable-architecture/>



The Mock-up is 2 m high, consists of 14 modules and weighs only 20 kg. The identical modules were assembled into different foam-like lightweight compositions. The modules were fabricated by digitally tailoring natural flax fibers into specific 2D patterns following optimized structural and parametric geometrical deviations. These were later formed using a vacuum-assisted molding process into the final 3D shapes.

ISSN : 2575-5374

urbanNext Lexicon

BioMat: Modular Sustainable Architecture
<https://urbannext.net/biomat-modular-sustainable-architecture/>

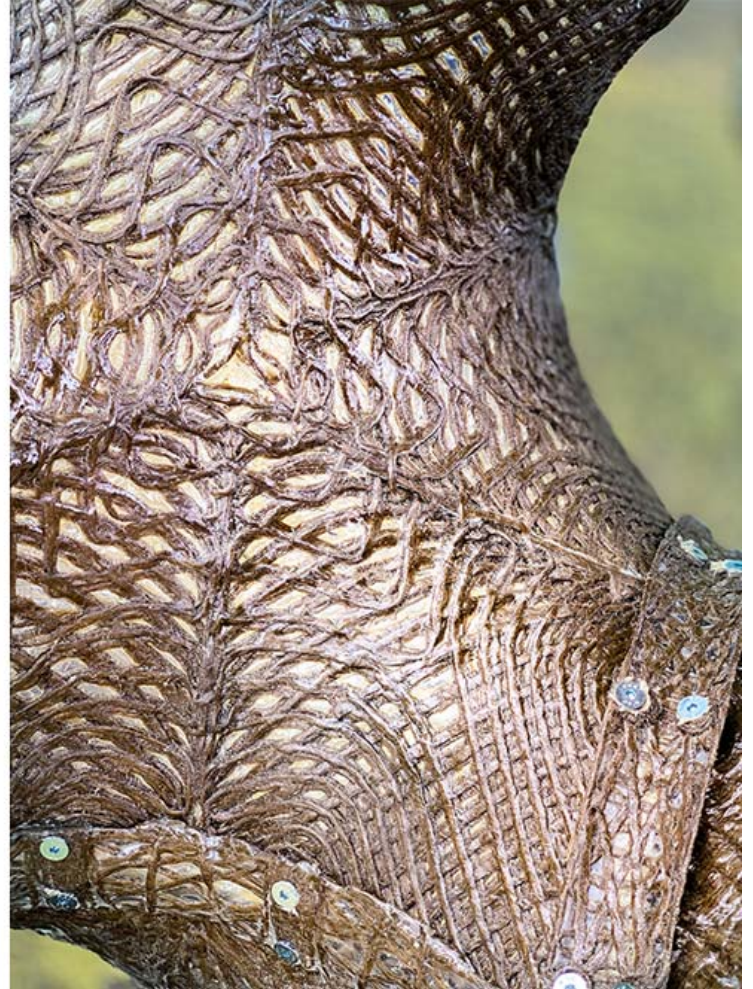


ISSN : 2575-5374

urbanNext Lexicon

BioMat: Modular Sustainable Architecture

<https://urbannext.net/biomaat-modular-sustainable-architecture/>



ISSN : 2575-5374

urbanNext Lexicon

BioMat: Modular Sustainable Architecture
<https://urbannext.net/biomat-modular-sustainable-architecture/>



This project is a result of three months of intensive work including computational architectural design, structural simulations, and optimizations as well as the digital fabrication phases.

ISSN : 2575-5374

urbanNext Lexicon

BioMat: Modular Sustainable Architecture
<https://urbannext.net/biomat-modular-sustainable-architecture/>

ISSN : 2575-5374