

Biologic Materials- Ecological Living Network

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Abstract : Biologic Materials presents groundbreaking transdisciplinary research aimed at fostering new collaborative models across the Built Environment, Forestry, and Agriculture sectors. This initiative seeks to establish innovative paradigms for local and global material flows by developing a biocompatible, regenerative material economy. The project focuses on creating materials derived from biowaste and silvicultural practices, ensuring the preservation of endangered indigenous and vernacular techniques through the integration of emerging biosciences. By utilizing biomaterials sourced from agricultural waste and forest byproducts, the initiative incorporates fabrication methods recognized by UNESCO as 'intangible cultural heritage of humanity,' which are currently at risk. The structural, mechanical, and environmental properties of these materials are enhanced through advanced CAD-CAM fabrication, along with energy-efficient biochemical and bacterial processes that promote healthy indigo coloration. Furthermore, the integration of AI technologies in species selection facilitates a novel partnership model, enabling designers to collaborate effectively with forest managers and silviculture practitioners. This collaborative approach not only optimizes the use of plant-based materials but also enhances biodiversity and climate resilience in regional ecosystems. Overall, this project embodies a holistic strategy for addressing environmental challenges while revitalizing traditional practices and fostering sustainable innovation.

Keywords : material, architecture, culture, heritage, ecology, environment

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