

PARADIGMATIC SHIFT IN PERCEPTION OF BEUTY IN ARCHITECTURE AND DESIGN: Mycelium Based Composites | Case Study

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INTRODUCTION & AIM

Rooted understanding of BEAUTY in architecture & design



Historically, architecture has been shaped by the ideals of form, symmetry, and grandeur. The architectural masterpieces of the past were often judged by their monumental scale, technical prowess, and aesthetic harmony. in the built environment is related to the positive atmosphere and aesthetic perception of a space by people who emotionally observe the surroundings. (Nowakowski,P, 2024) Architectural beauty has also been tied to notions of permanence and the precision of industrial materials such as steel, concrete, and glass. This aesthetic, rooted in modernism and the Industrial Revolution, emphasized control over the environment, durability, and sleek, polished surfaces(Frampton, 1992). With the rise of the anthropocene and the pressing need to address climate changes, which are affecting people, perception of beauty is slowly evolving.

What is MYCELIUM and why We think it makes a difference

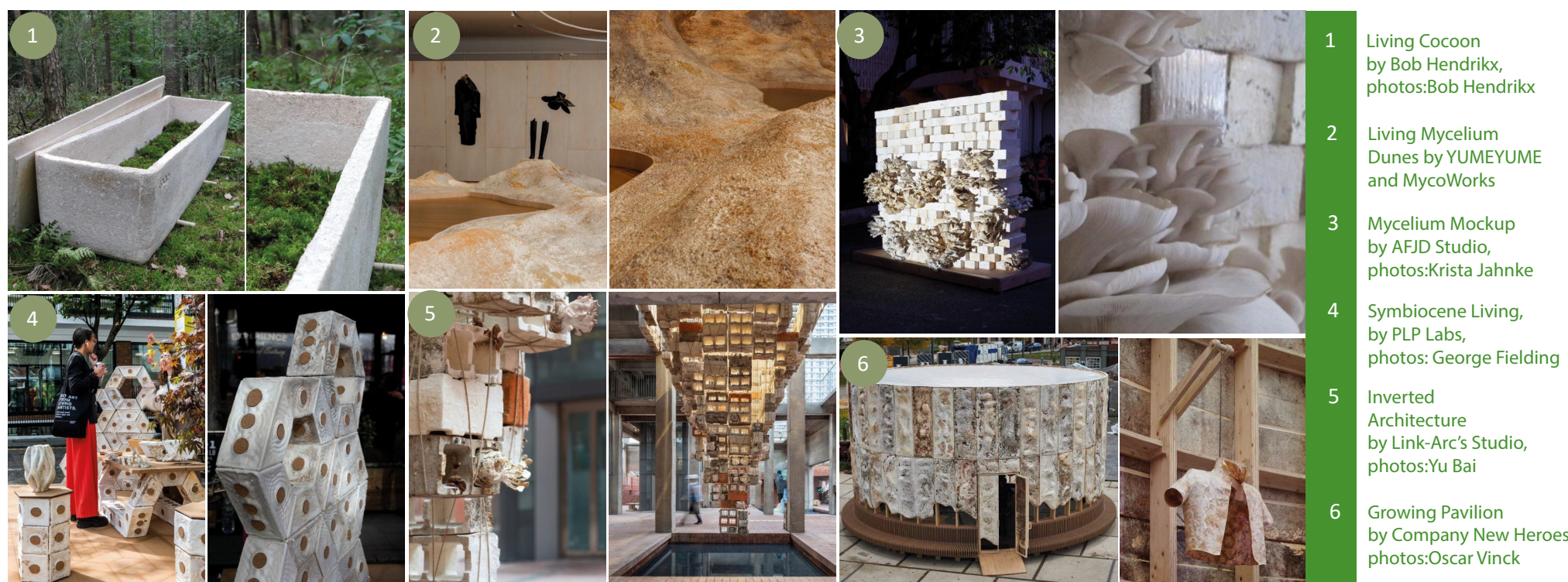
MYCELIUM-BASED COMPOSITES ARE BIOFABRICATED MATERIALS IN WHICH FUNGAL MYCELIUM ACTS AS A NATURAL BINDER, COLONIZING AND INTERCONNECTING LIGNOCELLULOSIC SUBSTRATES TO FORM LIGHTWEIGHT, MECHANICALLY STABLE, AND BIODEGRADABLE STRUCTURES.



METHOD

CASE STUDY of Existing examples of projects, where mycelium is being applied. The examples illustrate key factors to the paradigmatic shift in perception of beauty in architecture, and design. The criteria for selecting examples: the topicality of the projects (constructions from the last 10 years). Selected projects were presented at various exhibitions and festivals. Their purpose can be described as exhibitional and experimental.

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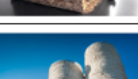

- 1 Living Cocoon by Bob Hendrix, photos:Bob Hendrix
- 2 Living Mycelium Dunes by YUMEYUME and MycoWorks
- 3 Mycelium Mockup by AFJD Studio, photos:Krista Jahneke
- 4 Symbiocene Living, by PLP Labs, photos: George Fielding
- 5 Inverted Architecture by Link-Arc's Studio, photos:Yu Bai
- 6 Growing Pavilion by Company New Heroes, photos:Oscar Vinck

SECONDARY ANALYSIS OF RESULTS FROM PREVIOUS SURVEY-BASED STUDIES

Results from research on the acceptance of mycelium conducted with professional architects and architecture students, conducted by the authors with the research team, analyzed through qualitative surveys. Key findings from these studies are reconsidered in light of their impact on the aesthetics of sustainable design, and possible paradigmatic shift in perception of beuty in architecture & design.

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EXAMPLES USED IN THE SURVEY OF STUDY 2

No.	Information	Photography	No.	Information	Photography
1	The Myco Tree, 2017 by Dirk E. Hebel and Philippe Block (photo from [23])		6	The Shell Mycelium Pavilion, 2016 by Beeftje 3.3 and Yassin Areddia Designs (photo from [24])	
2	The Circular Garden, 2019 by Carlo Ratti (photo Marco Beck Peccoz), literature source [25]		7	The My-co Space, 2021 (photo by Carina Teteris), literature source [26]	
3	The Growing Pavilion, 2019 by Pascal Leboucq, Lucas De Man, and Eric Klarenbeek (photo Eric Melander), literature source [27]		8	El Monolito Micelo, 2018 by Jonathan Dessi-Olive (photo by J. D. O.), literature source [28]	
4	The Mycotectural Alpha, 2009 by Philip Ross (photo from [29])		9	The Hayes Pavilion, 2023 by Simon Carroll (photo from [30])	
5	The Hy-Fi, 2014 by David Benjamin (photo by Kris Graves), literature source [31]		10	The Mycelium Textile Pavilion, 2022 by Nikolaj Emil Svenningsen, Sean Lyon, Sae Christine Heesbeek (photo from [32])	

- Q.1.1 Question 1.1. Do you believe ecology plays a significant role in shaping contemporary architecture?
- Q.1.2 Question 1.2. Do you incorporate biodegradable materials in your architectural or interior design projects?
- Q.1.3 Question 1.4. Are you familiar with mycelium-based composites (MBCs) as a biomaterial?
- Q.1.4 Question 1.5. Have you heard of using any MBC as a building material?
- Q.2.1 Question 2.1 was formulated: "Please evaluate the overall form of the small-scale architectural objects"
- Q.2.2 Question 2.2 was, "To what extent do you find the architectural details of these objects to be well executed and precise?"
- Q.2.3 Question 2.3: "In your opinion, do the designs exhibit a high degree of visual interest?"
- Q.3.1 Question 3.1. How visually attractive do you find mycelium-based composites (MBCs)?
- Q.3.2 Question 3.2. How visually pleasant or harmonious do you find MBCs?
- Q.3.3 Question 3.3. In your opinion, do MBCs offer creative possibilities for shaping small architectural forms?
- Q.3.4 Question 3.4 3.4. Would you consider MBCs in your professional design work?
- Q.3.5 Question 3.5. Would you consider MBCs in a design project for your personal use?

RESULTS & DISCUSSION

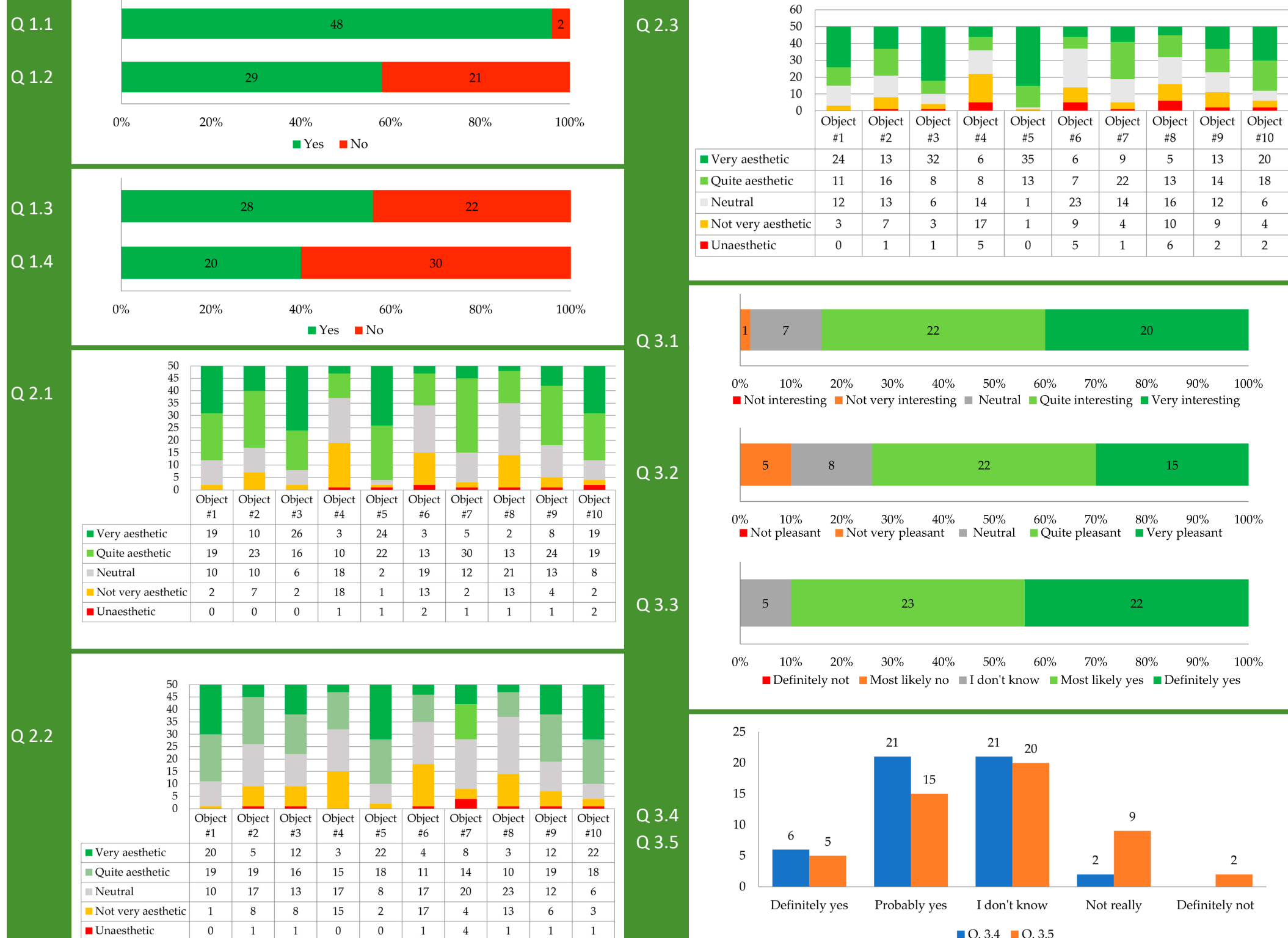
The change in perception of beauty is shown by strong philosophical underpinning that places non-human agency and ecological intelligenceat the center of design. Beauty is reframed as symbiotic, responsive, and ethically situated, rather than decorative or compositional.Design becomes a co-authored act between humans and living systems.The raw tactility of mycelium is positioned as beautiful precisely because it contrasts with the smoothness of industrial materials.

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Project	Designer/ Studio	Function / Scale	Material Expression	Aesthetic Language	Sustaina-bility Focus	Paradigm Shift Contribution
Living Mycelium Dunes	Inverto Architecture	Pavilion-scale installation	Live mycelium grown on-site	Organic, amorphous, alive	Biodegradable, responsive	Beauty in <i>growth and decay</i> ; architecture as a living organism
Mycelium Mockup	Inverted Architecture	Conceptual prototype	Grown into moldable panels	Raw, textural, unfinished	Material prototyping with minimal waste	Celebrates imperfection and process as aesthetic values
Growing Pavilion	Company New Heroes & Krown Design	Public installation	Mycelium panels, bio-resins	Earth-toned, sculptural	Fully compostable, circular design	Reclaims natural texture as desirable and contemporary
Living Cocoon	Loop Biotech	Coffin / product design	Mycelium + hemp fiber	Minimalist, soft, porous	Accelerates decomposition	Shifts the narrative of death from sterile to natural and poetic
The Mycelium Chair	Eric Klarenbeek	Furniture	Grown into a structural mold	Hybrid of handmade and grown	Low-energy production	Introduces symbiosis between craft and nature as beautiful
Symbiocene Living	Faber Futures (and others)	Speculative architecture	Biotechnological materials	Biomorphic, fluid, futuristic	Ecologically integrated design systems	Visualizes an eco-centric future, where beauty emerges from interdependence
Inverted Architecture	Studio Link-Arc	Conceptual installation	Mycelium used in suspended spatial inversion	Structural fluidity, negative form, spatial tension	Exploration of material gravity + ecology	Beauty in <i>anti-form</i> ; inverting traditional spatial values through biomaterial tactility

Both professionals and students are increasingly viewing beauty in terms of sustainability and ecological integration. They are particularly drawn to the aesthetic uniqueness of biomaterials.

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CONCLUSION



The architectural use of mycelium illustrates a broader paradigm shift in the perception of beauty. No longer confined to visual or formalistic criteria, beauty now encompasses sustainability, ecological balance, and material life cycles. Mycelium represents this new vision, offering a material that is not only aesthetically pleasing but also environmentally regenerative, adaptable, and biodegradable. This shift toward biomaterials like mycelium signals a future in which architecture will increasingly prioritize symbiosis with nature.

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