

Fig. 1: Transparent Wood. Algedra, n.d.



TRANSPARENT WOOD

GLASS ALTERNATIVE

TRANSPARENT WOOD

Process: To create transparent wood, the lignin content is replaced with transparent plastic materials. Lignin is the biopolymer in wood that supports plant tissue. Typically, the primary material used is fast-growing, low-density balsa wood. It is treated in a room-temperature oxidizing bath, which bleaches it and removes opacity. Then, a synthetic polymer, usually polyvinyl alcohol (PVA), is injected to produce a transparent material (Pilkington, 2022).

Applications:

Origin- First developed to help teach students about wood's anatomy.

Can be used for windows, load-bearing walls, accent panelling, and electronic integration.

Improved insulation: Has better insulation properties than glass, helping to regulate indoor temperatures and reduce heating/cooling expenses.

sustainability: An alternative to glass & plastics, minimizing reliance on sand materials as we are running out (a key component in concrete, glass, and other building materials, and used in computer chips and cosmetics).

Strength and durability: It is stronger and more impact-resistant than glass, enhancing workplace safety & allowing for floor/ structural integrations that promote interest.

Acoustic benefits: It can reduce noise, improving focus and productivity in open-plan offices.

Aesthetics: Provides a modern and natural look, enhancing workplace design and creating a more pleasant design environment for employees (integrates natural elements in workplace materials).

Privacy control: Has varying opacity/ colour options (can act as a frosted glass).

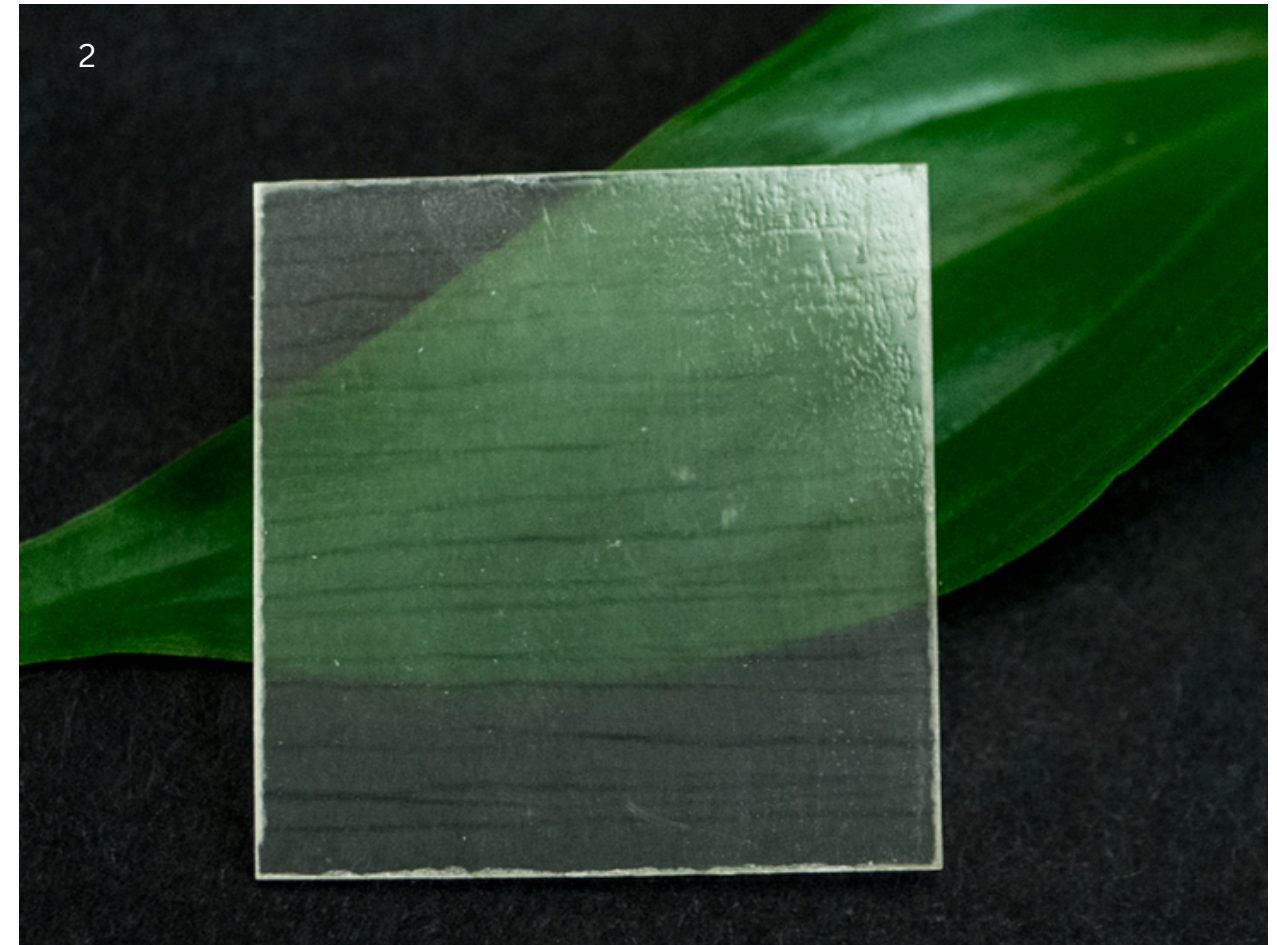


Fig. 2 & 3: Transparent Wood & Process. Wild, S. 2019.

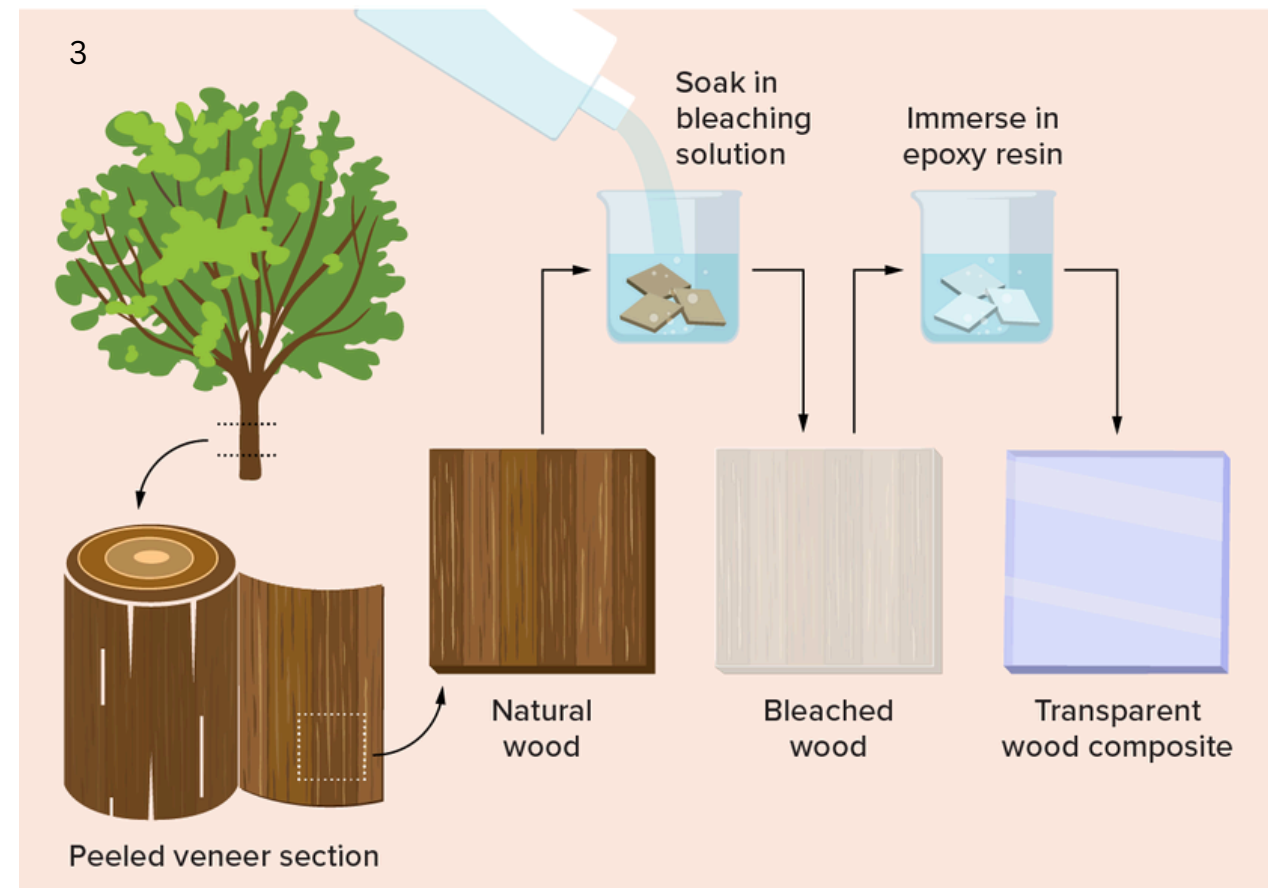




Fig. 4&5: LoopOfFun, n.d.

FUNGAL-BASED MATERIALS

LoopofFun Project- LUMA Arles

What is the LUMA Foundation: The LUMA Foundation produces, supports, and funds artistic projects that aim to deepen the understanding of issues related to the environment, human rights, education, and culture.

What Does the LUMA Foundation Contribute: Atelier LUMA/ LUMA Arles are participants in the LoopOfFun Project, as they specialize in the design and conception of fungi-based materials, and for the dissemination aspect of the project.

What is it: LoopOfFun is a multidisciplinary project based in Europe that focuses on creating a conceptual and technological approach for producing materials derived from fungi.

Innovative Area: Turning fungi into engineered living materials (ELMs) with structural and mechanical properties, turning them robust towards environmental fluctuations. They will test this with two different demonstrator materials, one as structural material and the other one for pollutant degradation.



LoopOfFun Project 4 Pillars:

- Identification of fungal strains with superior properties for material synthesis.
- Development of genetically encoded sensors for reading and writing mechanical and structural properties.
- Development of a robotic platform for efficient production of living materials and new growth protocols.
- Holistic approach to product design.

Fig. 6: LoopOfFun, n.d.

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