They Grow Without Us

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They grow without us is a temporary public furniture installation grown from mushrooms. The project builds upon transdisciplinary research at the intersection of material science, mycology, and sustainable building technology. To fabricate the furniture, damp sawdust was sterilized and inoculated with a blend of Pleurotus ostreatus mushroom spores and nutrients and poured into aerated hexagonal molds. While in the mold, the fungus produces mycelium, a cross-linked matrix of polysaccharides in the pore spaces between sawdust particles. The process produces solid mycelium bio-composites objects that can be removed from the mould as little as five days. The white coating at the exterior is a hydrophobic material called chitin produced naturally by the mushrooms.

Mycelium bio-composites suggest a future in which biodegradable architectural components are grown rather than manufactured, adding valuable material to local ecosystems at the end of their life. Most architectural materials are discarded long before their useful life is over, spending longer in landfills than they do in the form of a building. Sustainability in the context of rapid cycles of demolition and construction calls for flexible and radically biodegradable materials. The installation encodes organic decay into its basic structure, anticipating future demolition and using it as an opportunity to provide valuable material to local ecosystems. In contrast to relentless cycles of extractive consumption, the project suggests an alternate future in which regenerative architectural materials transform over their lifetime, adapting to change and serving needs that are simultaneously structural, aesthetic, and visceral.
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1. Soak sawdust in water for 24 hours.
2. Pour practiced mushroom spawn/liquid into sawdust.
3. Incubate in a warm environment for 14 days.
4. Spawn grows into sawdust, forming azan in pores of sawdust matrix.
5. Desired blocks are formed.
6. Dry in an oven.
7. Blocks are demolding.

Research: The raw materials of the installation consist of sawdust and mushroom spawn, which propagates in the corners of the sawdust matrix, producing compressive strength and thermal resistance of the dry mushroom-based blocks that are comparable to that of rigid foam insulation.

Installation: The installation consists of mushroom-based blocks that are grown in a vertical manner and then assembled into a structure that can be used for seating or as a visual element in public spaces. The blocks are formed by pushing sawdust into molds and then drying them inside an oven. The finished blocks are then assembled into the desired installation shape.

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