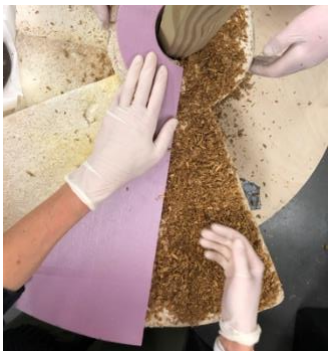
Spring 2023: Arch 4102 / 7211 / 7212

How to Grow a House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Fungi-based materials are among a class of biotechnologies showing promise in vastly offsetting the impact of the short lifespans of buildings in the modern era. In their most common form, lignocellulosic fibers sourced from agriculture or forestry material streams are bound together with an entangled web of mycelia, the root-like structures of fungi. Commonly known as “myco-materials”, they are produced at commercial scale, have promise to replace petro-chemical materials, and at end-of-life can be fully composted. Although mycelium’s inherent structural, isolative, and fire-resistant properties suggest it is possible, beyond imaginative pavilion structures, no-one has grown an entire house out of mycelium due to the numerous challenges and limitations associated with using these materials at building scale. To improve and diversify the potential applications of myco-materials in art, design, and construction, we must move beyond the component and the pavilion and ask, what are the steps needed to grow a house? What are the multi-material relationships needed to need to establish myco-material construction systems? What is the role of digital fabrication tools and procedures in this context. How long should we expect a house made with myco-materials to last?

This design and research studio will convene undergraduate and graduate architecture students around the topic of low-energy and renewable biohybrid materials. Students will design and employ a range of fabrication methods that highlight new opportunities to use fungi-based biomaterials in the context of residential architecture. Students in this this studio will learn digital fabrication techniques, basic wet lab techniques, and the health and safety and the cultivation of mycelium (fungi) in a safe and sterile manner. They will get hands-on experience working with myco-materials to grow their own designs and collaborate on a full-scale building mockup.