

## WHAT WOULD WOOD Fabrication Workshop

MIT 4.185 Workshop Syllabus, Spring 2025

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### ODDS & MODS

WHAT WOULD WOULD is the second in the multiyear ODDS & MODS cross-disciplinary research and design initiative on material circularity in architecture. With a different material focus each year, ODDS & MODS seeks to create new architectural possibilities through the reuse and upcycling of geometrically variable natural materials as well as diverse inventories of materials harvested from factory 'waste' streams.

### WORKSHOP & WORKSHOP AJACENCY

Central to the ODDS & MODS pedagogy is the integration of Workshop research through design discovery and learning with computation tools and Workshop based material exploration and fabrication. The WHAT WOULD WOOD Fabrication Workshop is offered in conjunction with an adjacent Options Workshop (MIT 4.154) in Spring 2025. With a thematic focus on material circularity for undervalued wood, the two subject areas are closely interrelated. This thematic adjacency is organized to enrich students' exposure to research that integrates historical and cultural contexts, projective architectural design, 'high' and 'low' technologies, and hands-on fabrication without the pressures of addressing these inter-related topics in a single Workshop or having to separate research from architectural design. While students may take the Workshop independently, **it is anticipated that MArch Option Workshop students will also be taking the Workshop to benefit from these synergies.**

### WORKSHOP SUBJECT DESCRIPTION

The WHAT WOULD WOOD Workshop is intended to enable research and full-scale fabrication that supports the experimental wood design of collective housing for US Forest service workers and Washoe Tribal community members in the Palisades Tahoe Forest area of what is now called California. The Workshop will explore wood construction of two emergent, unconventional, and seemingly opposite typologies of wood. **Messy Mass Timber** (MMT) is our term for irregular scraps plywood, dimensional lumber and CLT off cuts harvested from factory waste streams. **Wild Wood** is our term for minimally processed, small diameter, and forest felled wood with varying branch geometries. The Workshop students will engage a Digital Circularity Toolkit to explore and fabricate a fundamentally new relationship of part to whole in architecture. This approach moves away from the traditional value accorded to physically continuous, uniformly milled wood in favor of a transformative 'alchemy' where diverse sets of small wood pieces, considered in the mainstream as 'waste', can be aggregated and designed to take on high value spatial and structural capacities.

The irregular and unpredictable dimensions of **Messy Mass Timber**, (MMT) offer a spatial experience that contrasts with the uninterrupted 'clean' 'blank' aesthetic of cross laminated timber (CLT). Extracted as commercial crop in industrially cultivated forests, contemporary CLT production perpetuates modern era systems of standardization and modular pre-fabrication that create significant material waste. On the other end of the industrial-forest spectrum, **Wild Wood** encompasses small diameter mixed-tree species of varying branch geometries. Wild Wood is an abundant and potentially renewable material for building that could reduce the deforestation of mature trees that are needed to best sequester carbon through long term growth. With minimally processing and expenditures of energy, individual small members of locally harvested Wild Wood could be designed to work together to create new forms, spaces, and structural capacities.

Against the visible context of ongoing forest fires and climate crisis, Messy Mass Timber and Wild Wood are undervalued, provocative and increasingly combustible parts of a fragile, and fast disappearing ecological commons. The WHAT WOULD WOOD workshop and studio ask how wood – and the architectural discourse around design with wood--would need to change to enable a circular, carbon sequestering materiality and envision possible futures for wood in architecture.

## **WORKSHOP SCHEDULE**

The role of the WHAT WOULD WOOD Workshop is to advance research and knowledge into industrial laminated wood production, to study relationships between ‘waste’ wood sourcing and forest ecologies and to tackle some of the thorny technical challenges of designs that assemble irregular undervalued wood in support of the Studio’s architectural proposals for community Housing in Tahoe.

### **Wood Production: Joints & Connections**

In the first project, students will work in teams to research mainstream industrialized production processes of wood lamination, such as nail lamination dowel, cross laminated timber, and glue lamination as well as more traditional demountable ways of joining wood structurally using compression, notches and shims. Students will research and present the workflow steps and major pieces of equipment in these mainstream production processes and identify areas of wood ‘waste’ and/or by-products. They will build full scale example joints and speculate on how the mainstream production method might need to be modified for irregular ‘waste’ wood connections.

### **Wood Sourcing, New England Sawmills & Forest Ecology**

The second project will investigate smaller scale local wood production and wood milling practices of local sawmills and forestry resources in the New England Area. Students in the WHAT WOULD WOOD Workshop will visit local sawmills and forest lands in New England and study the relationship between wood extraction, local milling and forest ecology. Students will produce a wood sourcing concept diagram that speculates on how ‘waste’ wood elements taken from the Studio’s Bird Blind project could become reproducible at scale via these local means of production.

### **Housing Demonstration Design: Prototyping ‘Waste’ Wood Components**

After the Spring Break, In the second half of the semester, Studio students will present their architectural demonstration proposal designs (in progress) of for Tahoe area housing. The Workshop will apply learnings from prior assignment to the regional wood stock from the 2021 Caldor Forest Fire and the role of cultural burning, thinning and firewood collection in Sierra forest ecology. Supported by documentation from the Studio visit to Tahoe, students will study the production capabilities of the Tahoe Forest Products sawmill and select wood components elements from the Studio Housing Proposals – Messy Mass Timber or Wild Wood -- that could be sourced and produced at Tahoe Forest Products sawmill. Students will work in teams to fabricate experimental partial full scale component prototypes that show joints, connections, and methods of assembly that enable undervalues wood to be upcycled in housing construction.

## **WORKSHOP CULTURE**

Wild Wood and circular Mass Timber harvested from wood ‘waste’ are emergent forms of wood still new to the discipline and MIT. This means that our collective learning experience will be informed by discussion, exploration, and knowledge sharing. Participation in the Workshop can occur across many forms, including collaborative research teams work, contributing to discussions with peers, speakers and guests. The WHAT WOULD WOOD Workshop will be fully in person, except for 4 class sessions with guest lectures/virtual desk crits that will be conducted via zoom. Working with wood materials in the MIT Workshop workspace and with MIT shop resources will be instrumental for Workshop design projects and fabrication.

The WHAT WOULD WOOD Workshop is intended to support a positive and respectful environment for critical thinking and innovation in material circularity conducted through material exploration, research and

architectural design. Respectful collaboration, information sharing, experimentation and engagement among teaching assistants, instructors, students, Workshop guests and administrative staff are encouraged.

**WORKSHOP GRADING RUBRIC:**

Grades for the Workshop Design Problems will be based upon the following criteria:

- **Grading Rubric**
- Class Attendance & Discussion Participation
- Digital Tool Kit Skills Acquisition
- Completion of Class Assignments
- Spirit of Exploration & Iteration
- *Knowledge Sharing and Good Citizenship*

**READINGS & REFERENCES**

On the Workshop Canvas site students will access WHAT WOULD WOOD Precedent Handbook and bibliography that includes online and technical resources for Workshop and Workshop subjects. This reference collection is intended to support student design and research and includes book references, online articles, and technical papers on material circularity in architecture, wood production and construction, forest ecology, and histories of the Tahoe region and the Washoe First Nation as well as work by modern era and contemporary artists working in wood.