Beyond Carbon: Where does your wood come from?

This course resituates timber architecture in an expanded material context by analyzing timber construction as a design process that includes not only construction components, but also forests, silviculture, cultures of land, milling, and deconstruction. Beyond life-cycle assessment and carbon storage, this approach utilizes assemblage theory as a method to assess a wider array of ecological and social impacts of material choices. Assemblage theory is a key concept in urban theory, but it is also used productively in cultural anthropology to investigate relationships between human and non-human actors, organic materials, and technologies. Anna Tsing's *The Mushroom at the End of the World* follows mushrooms to bring together ecologies of the Pacific Northwest; *Beyond Carbon* hopes, in a humbler and linear way, to follow wood.

This course is being proposed as one outcome of three years of research into the timber infrastructure in the Pacific Northwest (Laila Seewang, "From Forest to Frame: Representation and Exception in the Regional Modernism of the Pacific Northwest," *Building with Timber: Architectural Theory Review,* Vol. 25, 2021: 7-27; Laila Seewang, "Timber Territory: Salvaging a Resilient Architecture in the Pacific Northwest" *GAM 17: Wood: Rethinking Material* (Berlin: Jovis, 2021): 168-187; Irina Davidovici and Laila Seewang*, Timber constructed: Towards an alternative material history*, special edition of *Architectural Theory Review,* Vol. 25 (Sydney: Taylor and Francis, 2021); "Portland: The Siskiyou Trail," a series of drawings researching the history of Indigenous Willamette Valley ecosystems exhibited as part of *Conceiving the Plan* at the 2021 Venice Biennale; "Portland: The Siskiyou Trail," *Conceiving the Plan,* The Cooper Union, 2022).

While I have taught related studios that focused on building design, this course will act to answer a specific gap in contemporary research that I have discovered in these years, which many local firms are trying to answer: where does your wood come from, and how sustainable is it? Currently it is practically impossible for architects and clients to answer that question, given the complexities in the timber material chain. At least two leading timber architecture firms in Portland have had to employ specialists to do this research for them on a project-by-project basis: tracking the material chain is time-consuming and opaque.

The research aim of the course is therefore simple, but it is not easy. We will map Oregon's timber assets to understand the concrete relationship between architecture on (a specific) job site and trees in (specific) forests. We will take stock of Oregon's forests, detailing Indigenous forests, small landowners, variable retention forests, National forests, large private company forests; its mills, including CLT mills, plywood mills, smaller mills; timber research centers including experiments with using recycled material as CLT; deconstruction companies and sites, given that Portland passed a Deconstruction Ordinance in 2016; and sites of burning / landfill. This work will benefit from a collaboration with Sustainable Northwest Wood, local timber sourcers for the Northwest, who have spent a decade developing relationships with foresters and mills, and will be a valuable source of information in the data collection phase.

The course will take place as a 4-credit research seminar: it will be one of three required Architectural Theory electives that both graduate and undergraduate students must take to satisfy their degree. The course meets for two hours, twice a week and will include a multi-disciplinary cohort of undergraduate architecture students, graduate architecture students, graduate students in Urban and Regional Planning, and any community members enrolled in the Graduate Certificate of Urban Design.

The course is designed to test how an expanded understanding of designing with timber can change classroom pedagogies and design strategies. By thinking of the forest as something that we are designing with every building we specify must lead to changes in design methods. Students in my current design studio, *Building with timber: Rethinking reciprocity, scale and stewardship in architecture*, have called this approach 'designing backwards.' As outlined in the ACSA call for a Timber Education prize, "recent life cycle assessment studies demonstrate that buildings made of wood require the least energy compared

to those constructed from other building materials." But as the architectural industry shifts to using more timber, it is important to recognize that not all wood is equal. The impacts of clear-cutting on ecosystems are clear: chemicals contaminate the water, machinery compacts the soil, and displaces wildlife in a catastrophically short period. It encourages monocultures. The difference between plantations of species needed for lightweight framing and a healthy forest of diverse species and ages is well documented. As we educate a new generation of designers who have experienced, some first-hand, the racial, political, and ecological reckoning of the past years, courses like this can guide teachers, designers, and students alike to be aware of more ethically-responsible design choices.

The course will ask of students: how can timber construction not just do less harm to our planet, but actually improve our forests and eco-systems? While it does not necessarily encourage mass timber as a site for investigation, the course content does recognize that this form of construction does have the potential to make a significant contribution to timber design and forestry practices. From my own research, I have identified three sites of design improvement, across scale: the forest (making sure we know where our wood comes from); the mill (being able to track wood); the joint (developments in wood dowel joints for mass timber). But I am certain that, through this course, students will be able to identify many more sites of improvement and development as timber architecture scales up.

Selected bibliography

Ted Cavanagh, "Dream or Dilemma: The Unconscious Construction of the Modern House," *Journal of Architectural Education* Vol. 70, No. 2 (2016): 300-310.

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Paul E. Sprague, "Chicago Balloon Frame: The Evolution During the 19th Century of George W. Snow's System for Erecting Light Frame Buildings from Dimension Lumber and Machine-made Nails," H. Ward Jandl, ed. The Technology of historic American Buildings: Studies of the Materials, Craft Processes, and the mechanization of Building Construction (Washington, D.C: The Foundation for Preservation Technology, 1983): 35-61.

Proposed Schedule

[Tuesdays / Thursdays]

Seeing the Forest: Collecting data

Week 1: Reading discussion 1 / Site Visit 1

Week 2: Technology Session 1: GIS / Working session

Week 3: Working session / Workshop 1: GIS maps, Outlining assets, with guests

Networks: Architecture-forest relationships over time

Week 4: Reading discussion 2 / Site Visit 2

Week 5: Technology session 2: Autocad to Illustrator / Working session

Week 6: Working session / Workshop 2: Representing Data, Adding value to data, with guests

Identifying nodes in the assemblage: What nodes we can design better?

Week 7: Reading discussion 3 / Site visit 3

Week 8: Technology session 3: Diagramming material flows / Working session

Week 9: Working session / Workshop 3: Communicating opportunities, with guests

Presenting findings

Week 10: Working session / Final presentation of findings, in-class

Week 11: Exhibition, roundtable, and booklet publication