

MASS TIMBER & New England

GLOBAL RESEARCH STUDIO | ARCH 9000 Fall 2022 | Professor Tom S. Chung FAIA



COURSE DESCRIPTION

Mass Timber has tremendous potential to address issues of climate change, disrupt outdated construction processes and create unique spaces that promote user well-being. Students will investigate these potentials through research and apply them in a semester long design project.

Focusing on the New England region, studio travel will give students direct exposure to all major elements of Mass Timber architecture and construction:

- New England's rural context, sustainable forestry and tree harvesting
- Softwood Lumber yard and production of laminates for Mass Timber products
- Advancements in digital fabrication technology and CNC machinery
- Prefabrication and Assembly Line Optimization of Building components
- Testing & Research of building products in the Mass Timber category
- Exemplary works of Mass Timber architecture in New England area

The studio project location will be based in a rural town center in Millinocket ME, using elements of Mass Timber to provide amenities that benefit the community and the town. The project will engage the community and city agencies such as Our Katahdin and the Northern Forest Center.

SELECTED READINGS:

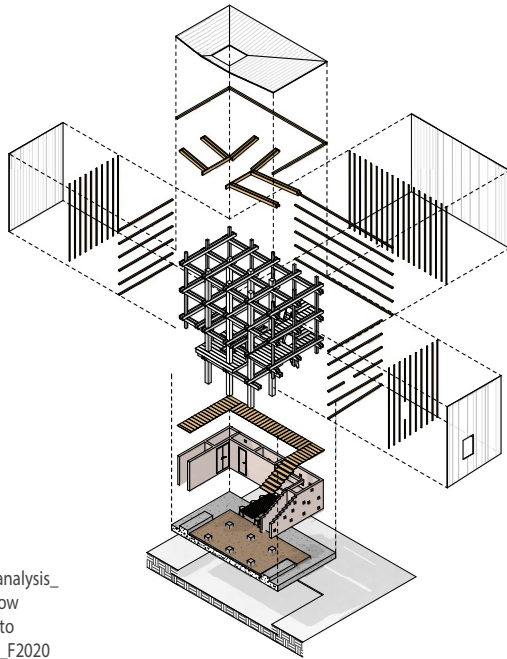
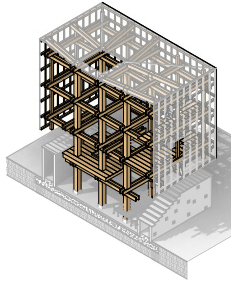
- Solid Wood, Case Studies in Mass Timber Architecture, Technology and Design, Joseph Mayo
- Timber in the City, Design and Construction in Mass Timber, Edited by Andrew Bernheimer
- Tall Wood Buildings, Design, Construction and Performance, Michael Green
- Mass Timber: Design and Research, Susan Jones
- Turning Point in Timber Construction: A New Economy, Ulrich Dangel
- 100 Projects UK CLT, Waugh Thistleton Architects
- Advancing Wood Architecture: A computational approach, Achim Menges, Tobias Schwinn and Oliver David Krieg

TRAVEL / Tracing Timber Life Cycle Across New England

Travel throughout New England provides direct experience of key stages in the life cycle of mass timber from sustainable forestry, harvesting, lumber production, digital fabrication, construction to built precedents. Through direct observation, inquiry and sketching, students will gain understanding of the whole picture of mass timber economy and the role of the architect within and the responsibility as an architect to question, explore and think "out of the box" to realize the vast potential of this emerging technology to benefit society. As an urban institution in Boston, travel throughout the many rural regions of New England will provide wider perspective of issues that are common to both as well as culture that is uniquely rural to understand how Mass Timber, a renewable material with its origination/fabrication in rural America and its prevalent construction/application in urban America, can be a glue that bridges gaps and provides prosperity to both.



ARCH 9000 | MASS TIMBER & New England | Studio Work



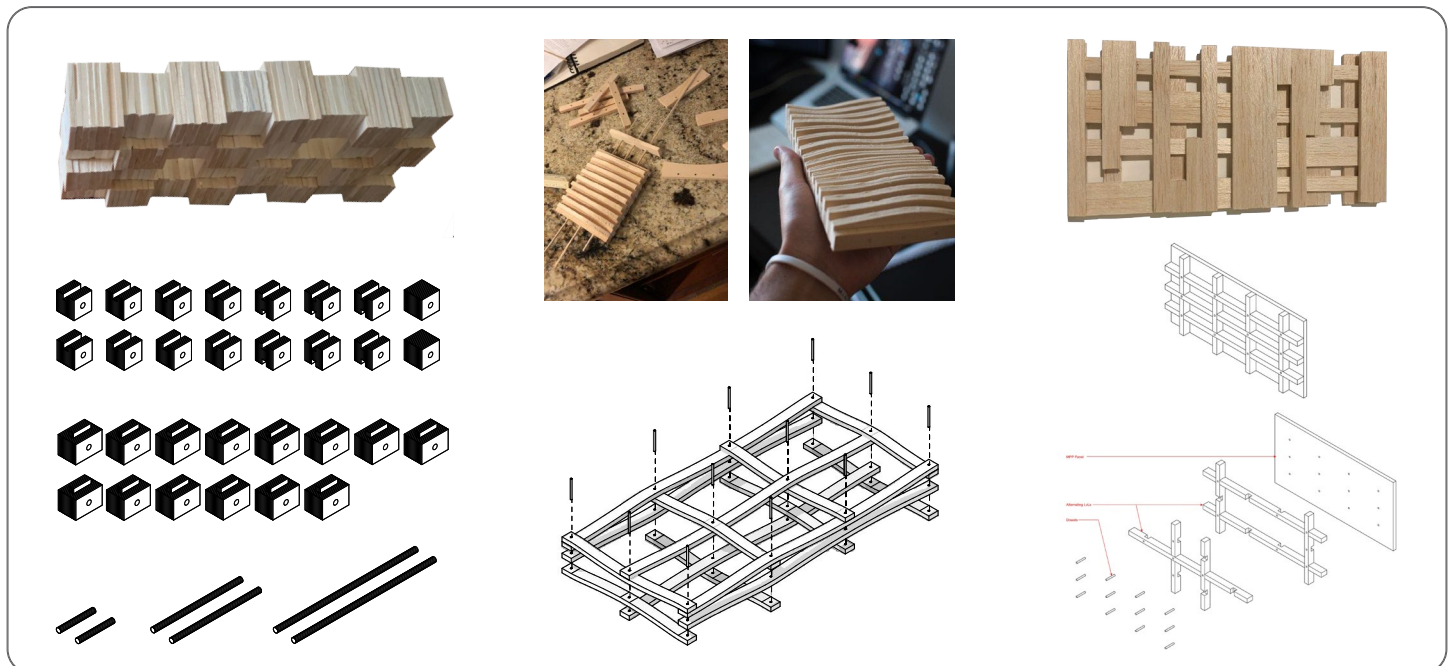
Precedent analysis_
Nest We Grow
Dan Deodato
ARCH 9000_F2020

PRECEDENT ANALYSIS

Studio begins with analysis of mass timber precedents, each selected for a specific creative approach. This exercise equips the studio with a wide catalog of references for inspiration and approach to mass timber design, tectonics, details, construction and spatial quality.

Precedents:

- Adohi Hall | [Leers Weinzapfel Associates](#)
- Anthony Timberlands Center | [Grafton Architects](#)
- Chile Pavilion Expo Milan 2015 | [Undurraga Deves Arquitectos](#)
- Common Ground High School | [Gray Organschi Architecture](#)
- Haus Gables | [Jennifer Bonner](#)
- John W. Olver Design Building | [Leers Weinzapfel Associates](#)
- Mill River Park Carousel Pavilion | [Gray Organschi Architecture](#)
- Nest We Grow | [UC Berkeley & Kengo Kuma and Associates](#)
- Nine Bridges Country Club I | [Shigaru Ban](#)
- Nuremberg Concert Hall Competition Entry | [Gilles Retsin and Stephan Markus Albrecht](#)
- Ronald McDonald House | [Michael Green Architecture](#)
- St-Michel Soccer Complex I | [Saucier + Perrotte](#)
- Termite Pavilion | [Softroom Architects](#)
- Wood Innovation Design Center I | [Michael Green Architecture](#)
- Yusuhara Wooden Bridge Museum | [Kengo Kuma & Associates](#)



MASS TIMBER PANEL EXPLORATION

Students are tasked with “inventing” their own mass timber panel, beyond available products such as CLT, NLT, DLT & MPP to investigate mass timber’s architectural and structural potential regarding material reuse, efficiency, systems integration and aesthetics & spatial quality

ARCH 9000 | MASS TIMBER & New England | Studio Work

SEMESTER DESIGN PROJECT

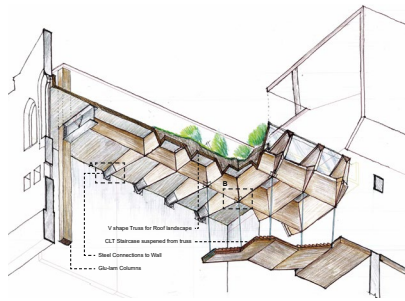
Semester long design projects have explored the potential of mass timber across scales and typologies, from adaptive reuse of an existing building in inner-city Boston, a mix-use development to revitalize a rural town in Maine, industrial application for a CLT factory in Western MA, and currently in 2021 a small scale housing & nature center in a forested site in Millinocket, Maine. Future studios will expand on these to complete the wide range of mass timber applications as an academic portfolio.



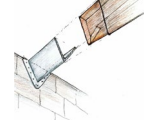
Adaptive Reuse for Housing & Community
Roxbury, MA

Melissa Allen & Christian Roidt
ARCH 9000_F2018

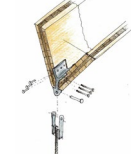
CLT Truss Structure



A - Steel Connection to Masonry Wall

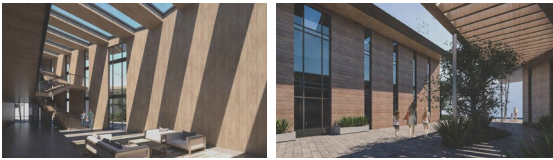


B - Rigging point connection for Staircase



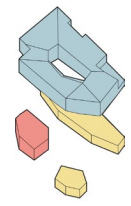
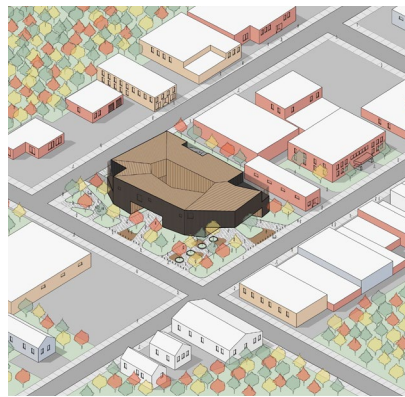
Adaptive Reuse for Housing & Community
Roxbury, MA

James Fan
ARCH9000_F2018



Mix-Use Development
Millinocket, ME

Jake Pirulli
ARCH 9000_F2019



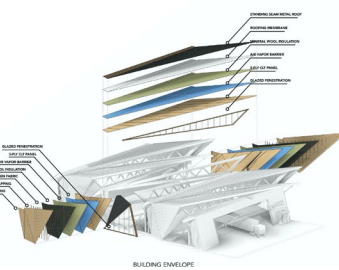
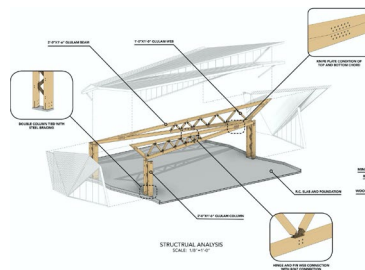
RESIDENTIAL SPACE

COMMUNITY SPACE

COMMERCIAL SPACE

Mix-Use Development
Millinocket, ME

Casey Clement
ARCH 9000_F2019



CLT Factory
Russell, MA

Dan Deodato
ARCH 9000_F2020



CLT Factory
Russell, MA

Lauren Farnan & Lane Couture
ARCH 9000_F2020