Jake Elbrecht

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V. Assistant Research Professor
Auburn University, CADC, BSCI
201 M. Miller Gorrie Center

Education

Master of Science in Architecture — **May 2020**
Auburn University, Graduate School & Rural Studio

Bachelor of Architecture — **May 2019**
Auburn University, College of Architecture, Design and Construction

Research Experience

Visiting Assistant Research Professor of Building Construction — **February 2023 - Ongoing**
Auburn University, CADC, McWhorter School of Building Science
Researching mass timber building systems, from forest to occupancy. See 'Academic Research' for my current or recent research endeavors.

Research Associate — **October 2021 - February 2023**
Council on Tall Buildings and Urban Habitat, Chicago, IL
Created case studies on key tall mass timber buildings and studied the benefits of steel-timber hybrid construction through the analysis of life cycle and cost assessments on a variety of structural scenarios.

Research Fellow — **June 2020 - June 2021**
EskewDumezRipple, New Orleans, LA
Developed Timber Tool—a parametric mass timber sizing tool—to further integrate mass timber as a structural system within the construction industry.

Graduate Research Assistant — **May 2019 - June 2020**
Auburn University's Rural Studio, Newbern, AL
Researched and tested the Breathing Wall engineering theory that utilizes mass timber as structure, insulation, and ventilation at multiple scales.

Publications

Mass Timber and the Potential to Advance the Construction Industry in Alabama — **White Paper**
Elbrecht et al. "Mass Timber and the Potential to Advance the Construction Industry in Alabama." 2023

Tall Timber: Mass Timber for High-Rise Buildings — **Book**
Wood et al. "Tall Timber: Mass Timber for High-Rise Buildings. Chicago: Council on Tall Buildings and Urban Habitat. 2023

Safarik et al. "State of Tall Timber: 2022." CTBUH Journal | 2022 — **Journal Article**
Issue 1. March 1, 2022.

The Design of Mass Timber Panels as Heat-Exchangers — **Peer-Reviewed Journal Article**
Craig et al. "The design of mass timber panels as heat-exchangers (dynamic insulation)." Frontiers in Built Environment 6 (2021): 606258.

Academic Research

Designing New Methods of Lifting and Installing Mass Timber Members **Nov. 2024 - Nov. 2025**
Role: PI
Other Researchers: Rusty Lay
Funder: Center for Construction Innovation and Collaboration ($14,700)

Exploring RFID Technology to Extend the Life of Mass Timber through Material Reuse **Nov. 2024 - Nov. 2025**
Role: PI
Funder: Auburn University CADC Seed Grant ($8,000)

Light-Weight Mass Timber Panels for Protective Facilities **April 2024 - March 2026**
Role: Co-PI
Other Researchers: David Roueche (PI); Kiel Moe, Kadir Sener
Funder: Department of Defense, Air Force ($674,144)

Wood Innovation Grant: Auburn Timber Collaborative **Sept. 2023 - Sept. 2025**
Role: Co-PI
Other Researchers: Kiel Moe (PI); Tom Chung, Wes Collins, Yucheng Peng, David Roueche, Kadir Sener, Brian Via
Funder: USDA / US Forest Service ($299,949)

Timber Overclad Panels for Net-Zero Carbon Retrofit of Affordable Housing **Nov. 2023 - Nov. 2024**
Role: Co-PI
Other Researchers: David Shanks (PI); Brian Via (I)
Funder: Auburn University CADC Seed Grant ($7,896)

Exploring the Potential of Mass Timber in Single-Family Housing: Phase 1 **Nov. 2023 - Nov. 2024**
Role: PI
Other Researchers: Mackenzie Stagg (Co-PI); Christian Ayala (I)
Funder: Auburn University CADC Seed Grant ($8,000)

The Opportunity for Mass Timber Construction by Designing for Disassembly **Nov. 2023 - Nov. 2024**
Role: PI
Other Researchers: Tom Chung (Co-PI)
Funder: Center for Construction Innovation and Collaboration ($14,000)

Teaching / Pedagogy

BSCI 5960 & ARCH 3500 **Fall 2023, Fall 2024**
Interdisciplinary seminar comprised of Building Science and Architecture students. A semester-long project paired students of both disciplines together to analyze and consider the construction implications of the Architecture students' studio design projects. Lecturers introduced topics ranging from the forest to the built environment. Co-taught with Tom Chung.

Conferences

International Mass Timber Conference **March 2025**
Presented mass timber case studies that were designed for disassembly.

Guest Lectures

Auburn University - Rural Studio **March 2025**
Introduced 5th year architecture students to the concept of life cycle assessments and discussed ways to evaluate the embodied carbon impact of their design-build projects.

Auburn University - ARCH 4260 **Spring 2024, Fall 2024**
Introduced 2nd and 4th year architecture students to the concept of life cycle assessments and the TallyCAT software in a 75min lecture.

Outreach / Service

CADC Research Council **Ongoing**
Currently a McWhorter School of Building Science representative to the College of Architecture, Design and Construction's Research Council. Duties include reviewing University-level research proposals and deliberating on School-level research proposals.

Auburn Mass Timber Collaborative, Founding Member **Ongoing**
Currently a CADC representative for the Auburn Mass Timber Collaborative. Duties include working on interdisciplinary teams to further and promote mass timber research, education, and outreach at Auburn University.

Skills

Digital
(proficient) Autodesk AutoCAD, Autodesk Revit, Rhino 7, Grasshopper, Sketchup, Adobe InDesign, Adobe Illustrator, Tally
(familiar) Dynamo, Adobe Photoshop, HTML, JavaScript, CSS, ShapeDiver

Physical
(proficient) Hand Drafting, Model Building, Wood Processing
(familiar) CNC Routing, 3D Printing, Carpentry, Fine Wood Working, Welding