

SUJIT BHANDARI, Ph.D.

Laboratory Manager

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Google Scholar: scholar.google.com/citations?user=l3zcQkgAAAAJ

EDUCATION

Ph.D., Civil Engineering and Wood Science (dual major), Oregon State University, Oregon, USA, 2022.

Dissertation: Modular Cross Laminated Timber Structures Using Underutilized Ponderosa Pine

M.S., Structural Engineering, Tribhuvan University, Lalitpur, Nepal, 2019.

Thesis: A Simplified Capacity Assessment Technique for Multi-Leaf Stone Masonry Structures

B.E., Civil Engineering, Tribhuvan University, Lalitpur, Nepal, 2012.

Undergraduate Senior-Year Project: Detailed Design and Estimate of Karmanasha River Corridor Road

EMPLOYMENT EXPERIENCE

Laboratory Manager, Northeastern University, Massachusetts, USA – Jun 2022 – Present

- *Lead the experimental research activities at Structural Testing of Resilient and Sustainable Systems (STReSS Laboratory)*
- *Conduct specimen design, experimental test setup, experimental testing execution and disassembly of large-scale structural, infrastructure, and mechanics-based tests*

Postdoctoral Scholar, Oregon State University, Oregon, USA – Jul 2022 – Jun 2022

- *Designed test setup and instrumentation plan for structural fire testing of mass timber connections*
- *Modeled mass timber connections in finite element package*

Graduate Research Assistant, Oregon State University, Oregon, USA – Jul 2019 – Jun 2022

- *Designed and prototyped a mass timber modular system that can be rapidly assembled, disassembled, and reassembled*
- *Fabricated and tested cross laminated timber elements and connections*

Consultant (Structural Design) Engineer, Frontier Engineering Consultancy, Kathmandu, Nepal – Jul 2017 – Jun 2019

- *Conducted structural analysis of 10 residential buildings*
- *Inspected the construction of residential buildings*

Project Engineer, Deutsche Welthungerhilfe e.V., United Nations WFP Funded Project, Dhading, Nepal – May 2018 – Dec 2018 and Dec 2016 – Jun 2017

- *Served as acting project manager and technical head leading 10 engineers*
- *Designed and implemented about 700 small rural community infrastructures, such as drinking water projects, irrigation projects, community housing, roads, and trails*

Civil Engineer, Earthquake Reconstruction Project, Ministry of Urban Development, Government of Nepal – May 2016 – Dec 2016

- *Trained more than 1,000 engineers and construction workers on earthquake-resistant building practices*
- *Inspected 500 residential buildings for earthquake resiliency and provided technical support*

Project Engineer, D.S. Engineering, Kathmandu – May 2015 – May 2016

- *Supervised construction of industrial steel structures*
- *Prepared shop drawings and as-built drawings for the steel structures and elements*

Civil Engineer, Al Madina Palace General Contracting, Abu Dhabi, United Arab Emirates - Mar 2013 – Apr 2015

- *Prepared tender documents and shop drawings and procured materials for construction*
- *Oversaw construction of 8 residential buildings with around 50 workers*

TEACHING AND ADVISING EXPERIENCE

Lecture:

CE 481/581 – Reinforce Concrete, 1 lecture, Oregon State University, Oregon, USA – Fall 2021

Teaching Assistantships:

CE 481/581 – Reinforce Concrete, Teaching Assistant, Oregon State University, Oregon, USA – Fall 2021

WSE 425/525 – Timber Tectonics in The Digital Age, Teaching Assistant, Oregon State University, Oregon, USA – Fall 2021

Advising and Mentoring:

Maxim Hidzick (B.S., Forest Engineering, Oregon State University), Graduate-undergraduate Mentorship Program (GUMP) mentor – academic year 2020/21

Zhixin Luo (B.Arch., University of Oregon), Research and Extension Experiences for Undergrad (REEU, USDA) co-mentor – Summer 2019

SCHOLARLY ACTIVITIES

Research Projects

Demonstrating Use and Performance of a CLT Modular Building Utilizing Low-Value Pine Lumber from Logs Harvested in Pacific NW Forest Restoration Programs, Oregon State University (2019 -2022)

Defining Project-Specific Custom CLT Grade Utilizing Low-value Ponderosa Pine Lumber from Logs Harvested in SW Oregon and Northern California Forest Restoration Programs, Oregon State University (2019-2022)

Simplification of Capacity Assessment Techniques for Masonry Structures, Tribhuvan University (2017-2019)

Survey, Detailed Design, and Estimate of Karmanasha Corridor Road, Tribhuvan University (2011-2012)

Peer-reviewed Publications

Bhandari, S., Riggio, M., Jahedi, S., Fischer, E.C., Muszynski, L., & Luo, Z. (2023). A Review of Modular Cross Laminated Timber Construction: Implications for Temporary Housing in Seismic Areas. *Journal of Building Engineering*, Vol 63 Part A. <https://doi.org/10.1016/j.jobe.2022.105485>

Jahedi, S., Muszynski, L., Riggio, M., Blengino, B. B., & **Bhandari, S.** (2022). MoE Distribution in Visually Graded Ponderosa Pine Lumber Harvested from Restoration Programs in Southern Oregon and Northern California. *Wood and Fiber Science*, Vol 54 No. 2. , pp. 90-98. <https://doi.org/10.22382/wfs-2022-10>

Shrestha, J. K., & **Bhandari, S.** (2020). A Model for In-Plane Capacity of Multi-Leaf Stone Masonry Walls. *Journal of Engineering*. <https://doi.org/10.115/2020/4028675>

Shrestha, J. K., **Bhandari, S.**, Pradhan, S., & Gautam, D. (2020). Simplified frame model for capacity assessment of masonry buildings. *Soil Dynamics and Earthquake Engineering*, 131(January), 106056. <https://doi.org/10.1016/j.soildyn.2020.106056>

Conference Proceedings

Bhandari, S., Jahedi, S., Riggio, M., Muszynski, L., Luo, Z., & Polastri, A. (2021). CLT Modular Low-rise Buildings: A DfMA Approach for Deployable Structures using Low-grade Timber. *World Conference in Timber Engineering*, Santiago, Chile

Jahedi, S., **Bhandari, S.**, Muszynski, L., & Riggio, M. (2021). Investigating a Potential for Utilization of Low Value Ponderosa pine Lumber in CLT Modular Structures. *World Conference in Timber Engineering*, Santiago, Chile

Bhandari, S., Riggio, M., Fischer, E., Muszynski, L., & Jahedi, S. (2021). Behavior of In-plane Butt-Joints with 45° screws in Ponderosa Pine CLT. *Proceedings of SWST 64th International Convention*, Flagstaff, Arizona, USA

Bhandari, S., Shrestha, J. K., & Pradhan, S. (2019). In-Plane Capacity of Multi-leaf Stone Masonry Walls. *Proceedings of IOE Graduate Conference, 2019-Summer*, pp. 93–100, Lalitpur, Nepal

Pradhan, S., Shrestha, J. K., & **Bhandari, S.** (2019). The Influence of Brick Bond in a Brick Masonry Using Simplified Micro Modelling Approach. *Proceedings of IOE Graduate Conference, 2019-Summer*, pp. 499–504, Lalitpur, Nepal

Presentations/Posters at Professional Meetings

Bhandari, S., Riggio, M., Muszynski, L., Fischer, E.C., Jahedi, S. (2022). Modular Cross Laminated Timber Structures from Underutilized Ponderosa Pine – A Prototype Study. *International Mass Timber Conference*, Portland, Oregon, USA. Poster

Bhandari, S., Riggio, M., Fischer, E., Muszynski, L., & Jahedi, S. (2021). Behavior of In-plane Butt-Joints with 45° screws in Ponderosa Pine CLT. *Society of Wood Science and Technology International Convention*, Flagstaff, Arizona, USA. Presenter

Bhandari, S. (2021). Behavior of In-plane Butt Joints with 45° Screws in Ponderosa pine CLT. *Society of Wood Science and Technology International Convention*, Flagstaff, Arizona, USA. Poster

Bhandari, S., Jahedi, S., Riggio, M., Muszynski, L., Luo, Z., & Polastri, A. (2021). CLT Modular Low-rise Buildings: A DfMA Approach for Deployable Structures using Low-grade Timber. *World Conference in Timber Engineering*, Santiago, Chile (Virtual). Presenter

Bhandari, S., Jahedi, S., Luo, Z., Riggio, M., & Muszynski, L. (2020). On Use of Low-Grade Cross Laminated Timber in Low-Rise Buildings. *Forest Products Society International Conference*. Portland, Oregon, USA (Virtual). Presenter

Bhandari, S., Jahedi, S., Luo, Z., Riggio, M., & Muszynski, L. (2020). Use of Low-Grade Cross Laminated Timber in Low-Rise Buildings. *Western Forestry Graduate Research Symposium*. Corvallis, Oregon, USA (Virtual). Presenter

Bhandari, S., Shrestha, J. K., & Pradhan, S. (2019). In-Plane Capacity of Multi-leaf Stone Masonry Walls. *IOE Graduate Conference*, Lalitpur, Nepal. Presenter

Invited Speaker

Bhandari, S. (2021). *Grad Inspire (Ted-style presentation)*. Corvallis, Oregon.

Bhandari, S. (2021). Modular CLT Emergency Housing using Ponderosa Pine from Restoration Forests. *Oregon Society of Certified Public Accountants, Forest Products Conference*, Oregon (Virtual)

Submitted Papers/Proceedings

Bhandari, S., Fischer, E.C., Riggio, M., Muszynski, L., Jahedi, S. [In Review]. Mechanical Characterization of Connections for Modular Cross-Laminated Timber Connections Using Underutilized Lumber. *Journal of Structural Engineering*

Bhandari, S., Fischer, E.C., Riggio, M., Muszynski, L. [In Review]. Numerical Assessment of In-plane Behavior of Multi-Panel CLT Shear Walls for Modular Structures. *Engineering Structures*

Jahedi, S., Muszynski, L., Riggio, M., **Bhandari, S.** [In Review]. Mechanical Characteristics of Custom CLT Layups Laminated by Ponderosa Pine Harvested from Restoration Programs. *Wood and Fiber Science*

Jahedi, S., Muszynski, L., Riggio, M., **Bhandari, S.** [In Review]. Integrity of Melamine Formaldehyde Bonds in Ponderosa Pine Cross-laminated Timber Isolating Adhesive Compatibility Effect. *Forest Products Journal*

Fischer, E.C., Madland, H., **Bhandari, S.**, Sinha, A. (2023). Experimental Monotonic and Cyclic Testing of Glulam Beam-to-Column Connections. *Proceedings of World Conference on Timber Engineering*, Oslo, Norway

SKILLS

Software Experience

Abaqus, ANSYS, OpenSees, SAP2000, ETABS, AutoCAD, Revit, 3Muri, GIS, SketchUp

Programming Experience

Python, MATLAB, FORTRAN, VBA Excel, C++

PROFESSIONAL SERVICE

Secretary, Earthquake Engineering Research Institute (EERI), OSU Chapter (2020 – 2022)

Member, Diversity Taskforce, Structural Engineering Engagement and Equity (SE3), Structural Engineers Association Oregon (SEAO) (2021 – 2022)

Member, Graduate School Advisory Council (GSAC), Oregon State University (2021-2022)

Department Representative, Graduate Student Council, College of Forestry, Oregon State University (2020-2022)

Member, American Society of Civil Engineers (ASCE) (2019)

Member, Structural Engineering Institute (SEI) (2019)

Member, Nepal Engineering Association (2013)

CERTIFICATION

Engineering Intern (EIT), Oregon, 03/2022 – Present

Registered Engineer, Nepal Engineering Council, 03/2013 – Present

AWARDS AND RECOGNITIONS

P.F. and Nellie Buck Yerex Graduate Scholarship (2021-2022)

Forestry Graduate Fellowship (2021-2022)

John E. Crumb Memorial Scholarship in Forest Resources (2021-2022)

Forestry Graduate Fellowship (2020-2021)

Oregon Lottery Graduate Scholarship (2020-2021)

College of Forestry Scholarship (2020-2021)

Charles F. and Elaine Mellen Sutherland College of Forestry Education Fund Scholarship (2020)

Oregon State University Provost's Distinguished Graduate Scholarship (2019-2020)