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April 15, 2015

Senator Arnie Roblan  
Senator Tim Knopp  
Senate Committee on Education  
Oregon State Capitol  
Salem, OR 97301

RE: Senate Bill 950

Dear Chair Roblan, Vice Chair Knopp, and Members of the Committee:

As Dean of the College of Forestry at Oregon State University, I appreciate the opportunity to offer this testimony in support of SB 950 which seeks to appropriate lottery funds toward the operational budget of the National Center for Advanced Wood Products Manufacturing and Design.

**Overview**

Oregon State University and the University of Oregon are joining forces to launch the National Center for Advanced Wood Products Manufacturing and Design. Housed at the OSU College of Forestry, the Center brings together a one-of-a-kind collaboration between leading architecture, wood science, and engineering programs to focus on development of innovative wood products and building components capable of being produced in Oregon. The applied research center will actively partner with Oregon building design professionals and wood products manufacturers to drive innovation and testing for engineered wood materials, allowing Oregon to compete in emerging domestic and global markets.

SB 950 will provide operation and research funding for the Center which is described at length in attachments to this testimony. The budget of \$3.4 million is exclusively dedicated to help our Universities partner with private sector businesses to provide research programs necessary to position Oregon as a leader in emerging global markets for new wood products. In doing so, the Center's work will support increasing the value of Oregon's forests to support sustainable management, growing the number of manufacturing jobs in our rural communities, and solidifying our State's current stature as a worldwide leader in innovative design of sustainable buildings.

Attachment A to this testimony describes the initiative, the organizational structure, the facilities, and outcomes you can expect the Center to provide. Attachment B provides an overview of the types of research and educational programs the Center will provide. Attachment C is an overview of the budget and funding sources for the Center (including state funds proposed by SB 950, federal, university, and private funding sources).

What follows below, are the "top ten" things I want you to know about the Center as part of this hearing today.

## **Ten Important Things to Know About the Center for Advanced Wood Products**

- 1. This is a singularly unique initiative in North America.** The collaboration between the two universities to bring together expertise in design, wood science, and engineering to form an applied research center focused on innovative utilization of wood materials in buildings is a first in the United States and Canada. It is powerful for two important reasons: First, because the creation of this Center will leverage the strengths of world-class programs at both universities – OSU for work on innovative wood products, and UO for sustainable building design. Second, because the Center will connect businesses that are already part of the supply chain for wood products capable of being made in Oregon, and provide research to support manufacturing of value-added wood products for use in buildings being designed here and across Pacific Rim markets.
- 2. This Center is about driving competitiveness and innovation.** Research and education programs will focus exclusively on issues that are important to commercial applications of wood products that can be manufactured in Oregon and serve growing domestic and Pacific Rim markets where our state can have a competitive advantage over existing material suppliers in Canada and Europe.
- 3. The Center is not just about wood buildings.** While the Center's work will include testing design performance of new structural wood building components (such as cross laminated timber), research will also focus on connection systems, coatings, adhesives, and new applications of concrete and wood-based composites used together as structural and finished components of buildings. In addition, the design expertise will focus on new applications of technology for utilization of wood in mass produced consumer products.
- 4. Funding will support research and education programs at both Universities.** While the Center budget will be administered by the College of Forestry at OSU, research dollars will flow to UO Department of Architecture, the OSU College of Engineering, and the OSU College of Forestry. Research and education projects will be conducted jointly and under the supervision of an Advisory Board comprised of each of the Deans along with private sector manufacturing and design professionals who will set strategic direction and priorities for research and education initiatives.
- 5. Funding will add research capacity and expertise – not permanent faculty positions.** All new funds, regardless of source, will be used to enhance (not replace) the existing research capacity already housed at each University. Acquired research and education expertise will be project-based, and therefore flexible and capable of change in emphasis or area over time. No funds will be used to hire tenure or tenure-track faculty. Funds will be used to fund applied research in targeted areas or in support of private and public sector demonstration projects.
- 6. Funding will be matched at a minimum 1:1 ratio with federal and private grants.** Already, the Center has secured approximately \$1 million per year federal grant funds to match the state funds sought here, and discussions are underway with private sector companies to provide and maintain state-of-the-art manufacturing and testing equipment that will be used in the new Advanced Wood Products Lab building slated for construction on the OSU campus.
- 7. The Center is about education programs too.** An important part of the Center's mission will be to provide expanded degree programs conducted jointly by both universities, and work with the wood products industry and community colleges to provide programs that support industry work-force needs in rural, timber-dependent communities.

8. **The Center is about research and education – not advocacy.** Everything this Center does will seek to support the competitiveness of new and innovative wood products capable of being produced here in Oregon – but only through applied research and education programs. This mission is distinct and separate from advocacy of public policies or product marketing to advance the wood products sector. Our role is to advance credible and timely research that is relevant to utilization of wood-based materials in new and innovative ways that will be recognized in growing markets.
9. **The Center will be housed in the new Forest Science Complex at OSU.** While individual research projects will be conducted at existing facilities at both universities, a new Advanced Wood Products Laboratory will greatly expand the type and sophistication of research facilities, and will ultimately house the bulk of the Center’s research work. The new research facility is part of a \$60 million capital construction project to renovate and expand the OSU College of Forestry’s current research and classroom facilities. The new “Forest Science Complex” on the Corvallis campus is a public/private partnership equally-funded by donations from members of the forest industry and state construction bonds.
10. **The Oregon wood products sector is perfectly positioned to capitalize on new global market opportunities but research and testing is essential.** Oregon’s access to these growing pacific rim and domestic markets is not a given if we fail to act strategically and quickly to establish an inter-connected supply chain for this new generation of engineered wood products supported by robust and targeted research programs. By acting now and strategically, however, and the proximity of Oregon’s design professionals to our forest products industry offers a synergy of expertise and story that cannot be duplicated anywhere else in the world.

I will be pleased to answer any questions that may arise as this legislation is considered. Please feel free to contact me at any time.

Sincerely,



Thomas Maness  
Cheryl Ramberg-Ford and Allyn C. Ford Dean

Attachment A: Background and Initiative Description  
Attachment B: Research and Education Programs  
Attachment C: Budget Overview

# Oregon State University and University of Oregon National Center for Advanced Wood Products Manufacturing and Design



Budget Proposal for 2015/2017 Biennium

## Background and Initiative Description:

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Oregon State University and the University of Oregon are joining forces to launch the National Center for Advanced Wood Products Manufacturing and Design. Housed at the OSU College of Forestry, the Center brings together a one-of-a-kind collaboration between leading architecture, wood science, and engineering programs to focus on development of innovative wood products and building components capable of being produced in Oregon. The applied research center will actively partner with Oregon building design professionals and wood products manufacturers to drive innovation and testing for engineered wood materials, allowing Oregon to compete in emerging domestic and global markets.

As the automation of existing commodity sawmills continues to advance, improving the economies of forest-dependent, rural communities will require intense focus on creating secondary manufacturing jobs producing engineered wood products. Demand in Asia and North America for these “green” products continues to grow, and Oregon’s timber industry is positioned to capitalize by growing its capacity to manufacture mass-timber building components (like glulam beams, laminated veneer lumber, composite wood panels, and cross-laminated panels) as well as new wood product consumer items for use in households and commercial spaces.

Similarly, Oregon’s building design profession is ideally positioned to expand on its stellar reputation for sustainable design, and establish itself as North America’s hub for expertise in innovative wood building design. Engineered wood building components offer a host of new design opportunities, and the proximity of Oregon’s design professionals to our forest products industry offers a synergy of expertise and story that cannot be duplicated anywhere else in the world.

The sole mission of the Center is to help position Oregon as a leader in emerging global markets for new wood products, thereby increasing the value of Oregon’s forests to support sustainable management, and growing the number of manufacturing jobs in our rural communities. This unique partnership between the OSU College of Forestry, UO School of Architecture and Allied Arts, and OSU College of Engineering will expand Oregon’s current stature as a worldwide leader in innovative design of sustainable buildings.

**Organizational Structure:** The Center will be housed at the OSU College of Forestry on the Corvallis campus with an Advisory Board comprised of Deans from the three Colleges, and professionals from Oregon’s design, engineering, and wood products manufacturing sectors. In collaboration with University programs, the Advisory Board will set strategic direction and priorities for research initiatives. The Center Director will report to the Dean of the College of Forestry and will be responsible for all facets of Center administration, industry relations, project management, and fundraising for Center programs. The program budget for the Center will be administered by the OSU College of Forestry, with distribution of program funds to each of the Colleges participating in the research program initiatives.

The Center builds on existing faculty expertise at both Universities, but with a funding model that invests in project-based research opportunities that can change over time and are not tied to salaries for permanent/tenured faculty or staff. Center staff will be comprised of professionals with research and teaching portfolios directed by the Center Director and Advisory Board. All research funding will be targeted to support materials research, product testing, and new product development in collaboration with wood products manufacturers and design professionals.



**Facilities:** A majority of research conducted at the Center will take place in the new Advanced Wood Products Laboratory. The new research facility is part of a \$60 million capital construction project to renovate and expand the OSU College of Forestry's current research and classroom facilities. The new "Forest Science Complex" on the Corvallis campus is a public/private partnership equally-funded by donations from members of the forest industry and state construction bonds.

The new teaching and research facilities will showcase engineered wood products manufactured in Oregon, and reinforce OSU's international status as a premier forestry program. A portion of the complex facilities will include sophisticated manufacturing systems, a "high-bay" lab with a unique strong floor for full scale product testing, and a "design" lab to support interdisciplinary education programs. The complex will simultaneously engage students from all three Colleges (architecture, forestry, and engineering) in project-based coursework addressing specific commercialization challenges posed by private sector collaborators.

## Expected Outcomes:

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The Center will produce positive outcomes in four important and connected areas to position Oregon as a leader in the industry and emerging global markets. These include:

1. **Applied Research** to expand and develop new commercial products, building components, and materials that can be manufactured in Oregon, including commercial applications for new technologies (such as 3D printer applications) in design and wood product manufacturing. All research will promote product innovation and commercialization.
2. **Expanded degree programs** that incorporate elements of wood science, engineering, manufacturing process design, and utilization of wood in building design and construction. Joint course offerings and concurrent degree programs will combine the expertise of OSU's Wood Science and Engineering and Civil Engineering programs with University of Oregon's Architecture and Product Design programs.
3. **Continuing education and hands-on training programs** in support of industry workforce needs. Co-designed training programs with employers will use computer controlled manufacturing systems at the Center that are continuously updated to reflect state-of-the-art manufacturing technology. Collaboration with Community College technical training programs will support the workforce needs of Oregon's timber industry.
4. **Product testing and certification** of materials needed to support commercial applications of wood products including testing design performance of structural building components, connection systems, coatings, adhesives, and materials for compliance with code and building certification requirements. On-demand expertise for projects seeking to incorporate innovative applications of wood building components and consumer products will be offered.

## Biennial Budget:

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OSU seeks \$3.4 million in state funds to match the anticipated \$4.0 million in federal and private funds for the Center's operational budget for the 2015/17 biennium. This will be "new" funding beyond existing faculty and resourcing commitments being made by OSU and UO. As such, the requested funding will build on existing research programs that also support the Center's mission and add expertise in new areas of applied research targeted to support the competitiveness of Oregon industry and products. The funding model for the Center will invest in project-based research that will change over time, and will not be used for salaries for permanent/tenured faculty or staff. Detailed information on the Center's research competencies and budget is available in documents separate from this overview.

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For questions regarding the Center contact Geoff Huntington, Director of Strategic Initiatives, OSU College of Forestry, at 541-737-9103 or [geoff.huntington@oregonstate.edu](mailto:geoff.huntington@oregonstate.edu); or, Judith Sheine, Professor and Department Head, UO Department of Architecture, at 541-346-3656 or [jesheine@uoregon.edu](mailto:jesheine@uoregon.edu).

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## Education and Research Programs

### National Center for Advanced Wood Products Manufacturing and Design

Oregon State University and the University of Oregon are joining forces to launch the National Center for Advanced Wood Products Manufacturing and Design. Housed at the OSU College of Forestry, the Center brings together a one-of-a-kind collaboration between leading architecture, wood science, and engineering programs to focus on development of innovative wood products and building components capable of being produced in Oregon. The applied research center will actively partner with Oregon building design professionals and wood products manufacturers to drive innovation and testing for engineered wood materials, allowing Oregon to compete in emerging domestic and global markets.

#### Education Programs

##### Program Offerings

###### Degree/Credit Offerings

- LONG TERM: Joint Sustainable Design PhD program
- LONG TERM: Non-Thesis Master's program in Renewable Materials at OSU (cross listed courses with U of O)
- MID TERM: Jointly conducted project-based course with students from three colleges on practical topics of commercial interest to industry
- MID TERM: U of O Master's Degree specialization in design with wood building components
- MID TERM: Multiple cross-listed courses jointly taught at both universities focused on science of wood, manufacturing processes, and design
- SHORT TERM: Pilot project design labs in partnership with Oregon companies and municipalities

###### Professional Training Programs

- LONG TERM: Venue for workforce training by advanced manufacturing equipment companies and providers
- LONG TERM: Certificate programs for architects interested in specializing in wood utilization.
- MID TERM: Continuing education modules for architectural licensing credits
- SHORT TERM: International trade and educational programs for industry professionals — manufacturing, engineering, and design focus

###### Vocational Skills Programs

- LONG TERM: Link community college technical training programs to university degree programs
- MID TERM: Access and short courses for manufacturing equipment training

#### Research Programs

##### Industry Competitiveness

###### Product and Materials Testing

- Performance testing of new building design concepts, assessing new products (and assemblies) and use of existing products in new ways
- Performance testing of new wood product consumer items designed for specific markets (e.g. mass produced furniture markets such as schools, public spaces, health care, security/defense)
- Performance testing of wood building components and materials to inform manufacturing quality control and processes

###### Code Compliance/Validation

- Testing to support public and private wood building design and engineering projects
- Perform code research for use of wood materials in buildings
- Collaboration with state and local building code agencies to develop and/or test performance standards

###### Building Certification/Lifecycle

- Perform life cycle testing and analysis of building materials for compliance with certification standards
- Support alternative certification and rating system analysis, research, and validation
- Assess post occupancy performance of wood building materials in relation to user wellness, satisfaction, and use patterns

##### Product Innovations

###### New Product Incubation

- Develop new mass timber building components and connection systems
- Evaluate new coatings and impregnation products to increase durability of exterior wood building components, interior surfaces, and mass produced furnishings
- Research and commercialization of 3D printer technology applications in wood products and building components
- Develop innovative modular building panels and systems (structure, cladding, and insulation)
- Develop high performance composite materials and bio-based adhesive systems

###### New Applications of Current Technology

- Experiment with new or different applications of wood materials in building design and/or consumer items for mass market applications

###### Manufacturing and Material Innovation

- Enhance degrees of precision in manufacturing of wood building components and connection systems
- Evaluate systems supporting supply chain transparency to track product and processes from source to final use

## Budget Framework

### National Center for Advanced Wood Products Manufacturing and Design

The following are budget components for the Center that are “new” funds (beyond existing resourcing commitments of either OSU or University of Oregon), and do not include existing research programs that will support the Center’s mission.

Program Area	2015/2017 Budget Biennium		
<b>Administration and Facility Operations*</b>			
• <b>Proposed State Funding Package</b>	<b>\$600,000</b>		
• <b>New University Program Commitments</b>		<b>\$350,000</b>	
• <b>New Federal Funds</b>			0
• <b>Private Funds or In-Kind Match</b>			0
<b>Education and Applied Research Program Funds**</b>			
• <b>Proposed State Funding Package</b>	<b>\$2,050,000</b>		
• <b>New University Program Commitments</b>		<b>\$325,000</b>	
• <b>New Federal Funds</b>			\$2,300,000
• <b>Private Funds or In-Kind Match</b>			?
<b>Equipment and Testing Technology</b>			
• <b>Proposed State Funding Package</b>	<b>\$750,000</b>		
• <b>Private Funds or In-Kind Match</b>			>\$1,000,000
<b>Total Funds by Source***</b>			
• <b>Proposed State Funding Package</b>	<b>\$3,400,000</b>		
• <b>New University Program Commitments</b>		<b>\$675,000</b>	
• <b>Federal Funds and Research Expertise</b>			\$2,300,000
• <b>Private Funds In-Kind Project Match</b>			>\$1,000,000
<b>Total Funds All Sources: \$7,375,000 (\$3,400,000 New State Program Funds and &gt;\$3,975,000 Matching Funds)</b>			

**\* Administration:** The Center will be housed at the OSU College of Forestry on the Corvallis campus with an Advisory Board comprised of Deans from the three Colleges, and professionals from Oregon’s design, engineering, and wood products manufacturing sectors. The Board will set strategic direction and priorities for research initiatives in collaboration with the University programs. The Center Director will report to the Dean of the College of Forestry and will be responsible for all facets of Center administration, industry relations, project management, and fundraising for Center programs. The program budget for the Center will be administered by the OSU College of Forestry, with distribution of program funds to each of the colleges participating in the education and research program initiatives.

**\*\* Education and Applied Research Program Funds:** Applied research funds will be divided to build research capacity at both OSU and U of O in areas targeted to support competitiveness of Oregon companies seeking to develop and commercialize innovative applications of wood products and materials. Work will include testing design performance of structural building components, connection systems, coatings, adhesives, and other new wood-based materials, as well as new applications of technology for manufacturing and design of structural and consumer wood products.

Education programs will provide hands-on training in support of industry workforce needs, as well as expanded degree offerings that combine the expertise of OSU’s Wood Science and Engineering and Civil Engineering programs with University of Oregon’s Architecture and Product Design programs. Acquired research and education expertise will be flexible and capable of change in emphasis or area over time. The Center will also seek to collaborate with community college technical training programs to support workforce needs of Oregon’s timber industry.

**\*\*\* Targeted Budget:** The fixed costs of the Center will be provided with a mix of existing and new funds, and will remain static even as funds available for research grow. The total biennial budget for the Center is targeted to leverage every new state dollar invested at a minimum of a 1:1 ratio with new funds from other sources by 2017. Already, nearly \$1.0 million in new federal research dollars are available to the Center on a continuing basis beginning this fiscal year to match state funds. All new funds, regardless of source, will be used to enhance (not replace) the existing research capacity already housed at each University that already support industry competitiveness and product innovation.