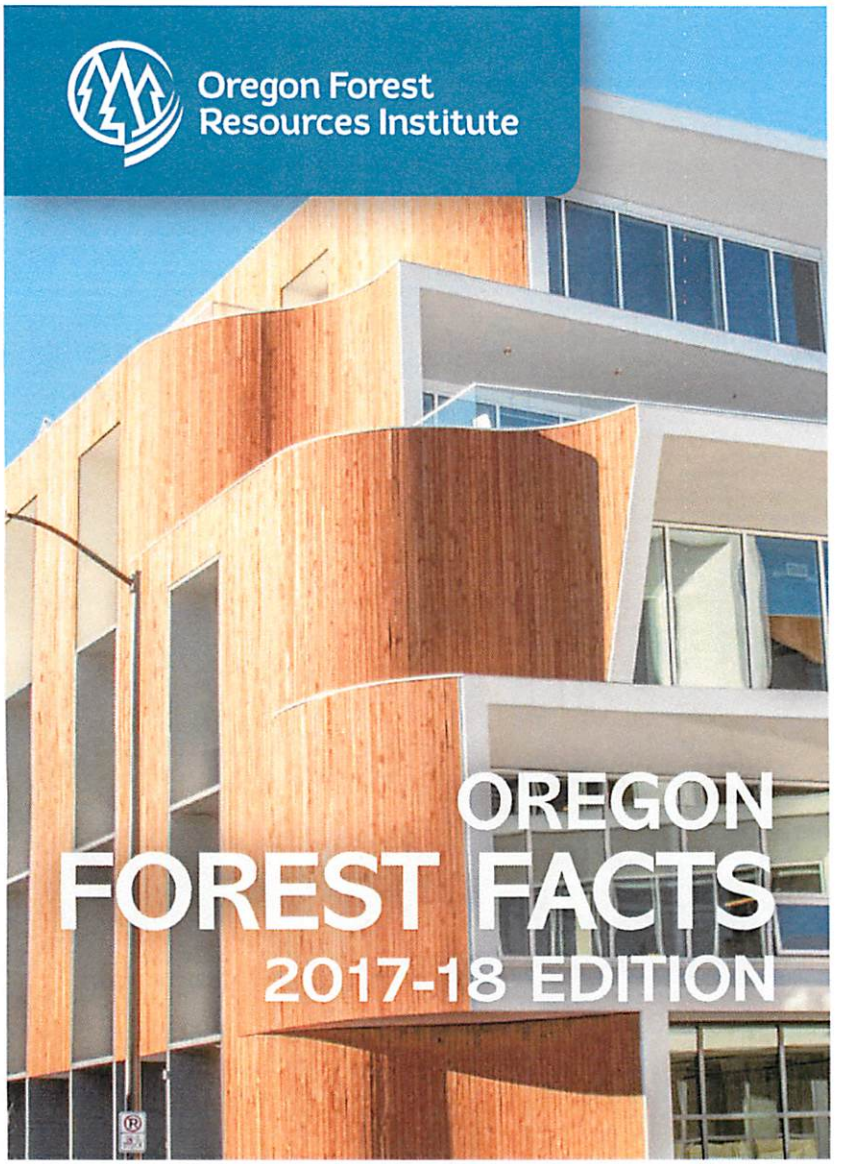
Oregon Forest
Resources Institute
OREGON
FOREST FACTS
2017-18 EDITION

Forest to frame: Oregon's forest economy[8]

Oregon's forest sector economy encompasses forest management, logging and producing wood products such as lumber, plywood, poles, paper, energy and even garden bark chips. It also includes value-added manufacturing such as producing doors, window frames, packaging, furniture, cabinets, treated wood, mouldings, millwork and innovative engineered wood products.

The forest sector is especially vital to many rural Oregon communities. In some rural counties, the sector is responsible for nearly a third of the economic base. The importance of forest sector jobs to rural communities is one reason state and federal officials have supported initiatives aimed at increasing the demand for wood as a sustainable building material.

Overall, the forest sector included about 61,000 jobs in Oregon in 2015, according to the Oregon Employment Department. (For a complete breakdown of the job figures, see the back cover.) The average annual wage of those jobs was $50,000. This is 4 percent higher than the average wage of $48,300 for all Oregon employment.

Photo: D.R. Johnson Wood Innovations

An array of jobs

Oregon's forest sector includes a wide variety of employment, from forestry, logging, millwork and cabinetmaking to engineering, hydrology, business management and academic research. Economists estimate that each million board feet of timber harvested creates or retains about 11 forest sector jobs.

Here's a rundown of Oregon's forest sector jobs by type of employment in 2015:

Oregon's forest sector jobs - 2015 [8]

Forest Management	
Company management	1,221
Forestry and environmental consultants, researchers, academics	226
Bureau of Land Management	2,039
State of Oregon	1,063
U.S. Forest Service	3,148
Subtotal	**7,697**
Forestry Support	
Forestry support (nurseries, machinery manufacturing, firefighting)	5,932
Logging	7,567
Subtotal	**13,499**
Primary Forest Products	
Pulp and paper manufacturing	4,482
Sawmills and wood preservation	6,753
Veneer, plywood and engineered wood	9,009
Subtotal	**20,244**
Secondary Forest Products	
Millwork (doors, windows, custom)	5,564
Wood kitchen cabinets and countertops	3,237
Other (manufactured homes, wood buildings, pallets, furniture)	2,682
Subtotal	**11,483**
Distribution, Transportation and Other	
Wood products wholesalers	2,369
Paper products wholesalers	762
Transportation of logs, chips, goods	4,670
Other (biomass electric power, airport operations, marine cargo handling, etc.)	286
Subtotal	**8,087**
TOTAL	**61,010**

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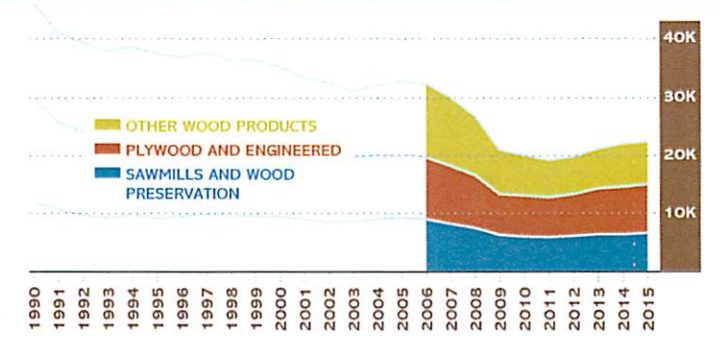
Forest to frame: Wood products manufacturing[9]

Wood product manufacturing is an important part of Oregon's forest economy, but mill employment has not recovered as quickly as the state's timber harvest, which bottomed out in 2009 and has since returned to pre-recession levels.

Employment in primary wood products manufacturing, which includes pulp and paper, veneer and plywood, sawmills and engineered wood products, steadily decreased between 2005 and 2010. Then it turned a corner, adding nearly 3,000 jobs, or about 17 percent, from 2011 to 2015.

Oregon wood products manufacturing employment



No. 1 in softwood lumber

Oregon has led the nation in softwood lumber production for many years.

Oregon's lumber output of 5.2 billion board feet in 2015 accounted for about 16.5 percent of total U.S. production. That's an increase of 36 percent from the recessionary low in 2009. However, Oregon sawmill output in 2015 was only about 70 percent of the pre-recessionary high in the early 2000s.

Softwood lumber production Top 10 states and U.S. total production (in millions of board feet)[10]

	2010	2011	2012	2013	2014	2015	% of U.S. total for 2015
Oregon	**3,994**	**4,134**	**4,659**	**5,119**	**5,448**	**5,222**	**17%**
Washington	3,637	3,685	3,763	3,942	4,035	3,745	12%
Georgia	1,856	1,995	2,111	2,190	2,363	2,454	8%
Alabama	1,455	1,613	1,808	1,950	2,034	2,155	7%
California	1,435	1,623	1,838	1,937	1,938	1,957	6%
Arkansas	1,638	1,737	1,808	1,859	1,944	1,937	6%
Mississippi	1,523	1,604	1,622	1,715	1,824	1,821	6%
Idaho	1,258	1,353	1,494	1,647	1,667	1,717	5%
North Carolina	1,248	1,331	1,521	1,564	1,664	1,678	5%
Texas	1,055	1,101	1,191	1,260	1,296	1,332	4%
TOTAL U.S.	24,803	26,508	28,257	29,951	31,496	31,644	

No. 1 in plywood

Oregon dominates U.S. production of softwood construction plywood. In fact, Oregon accounted for about 29 percent of total U.S. plywood production in 2015, up from 25 percent in 2010.

Through 2015, 15 plywood mills were operating in Oregon of 53 total nationwide. A Springfield mill that was destroyed by fire in 2014 reopened in 2016.

Overall, U.S. plywood production has been challenged by cheaper strand-board products that have taken market share in some uses. Oregon has no mills that make strand-board. Yet plywood is still a significant business that has rebounded from its recessionary low in 2009.

Top plywood producing states [1]
(million square feet, 3/8" basis)

	2010	2011	2012	2013	2014	2015	% of U.S. total for 2015
Oregon	**2,303**	**2,149**	**2,553**	**2,704**	**2,589**	**2,534**	**29%**
Louisiana	996	1,111	1,236	1,251	1,191	1,195	14%
Washington	777	706	751	791	760	756	9%
Texas	809	750	763	726	700	671	8%
Georgia	591	571	649	609	589	588	7%
Mississippi	584	650	656	654	611	582	7%
Arkansas	867	837	470	505	520	481	5%
. . .							
TOTAL U.S.	9,131	8,986	9,181	9,345	8,985	8,817	

A leader in engineered wood

Some Oregon companies are using innovative techniques to turn raw timber or lumber into value-added engineered wood products.

Here are some examples of engineered wood products:

- **Cross-Laminated Timber (CLT)** is made by adhering dimension lumber into large panels several layers thick, with each layer's wood fibers running perpendicular to the adjacent layers. Currently, the largest CLT panels produced in the world are about 65 feet long and 20 feet wide. CLT panels typically range in thickness from 5 to 16 inches and are used to build walls, floors and roofs. Panels can be prefabricated with cutouts for windows, plumbing, electrical wiring and ventilation, and assembled into large, multistory buildings that otherwise might be built from steel or concrete.

- **Glued-Laminated Timber (Glulam)** is a stress-rated engineered wood product made up of wood laminations or "lams" that are bonded together with strong, waterproof adhesives. Glulam is used in commercial and residential applications, ranging from simple garage door headers and floor beams to huge, dramatic, curving beams that are an architectural focal point.

- **Laminated Veneer Lumber (LVL)** is the most widely used structural composite lumber product. It is produced by bonding thin wood veneers together into a large board called a billet. The LVL billet is then sawed to desired dimensions depending on the construction application. The many uses of LVL include headers and beams, rafters, rim board, scaffold planking, studs and flange material for prefabricated wood I-joists and truss components.

- **Mass Plywood Panel (MPP)** is a veneer-based engineered wood product that is similar to plywood, but at a massive scale. Finished panels can be up to 12 feet wide, 48 feet long and 24 inches thick. The panels can be used as an alternative to CLT in similar applications, including constructing multistory buildings.

- **Nail-Laminated Timber (NLT)** is created by nailing together dimension lumber stacked on edge into a single structural element. NLT is used in floors, decks and roofs, as well as elevator and stair shafts.

- **Parallel Strand Lumber (PSL), Laminated Strand Lumber (LSL) and Oriented Strand Lumber (OSL)** are all structural composite lumber products made from flakes of wood (strands) that are combined with adhesive and used for studs, headers or beams.

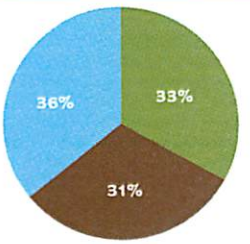
A balanced approach: Three classes of forest management[14]

Oregon's forests are managed to reflect the interests and practices of different owners. A study by the Oregon Department of Forestry showed that in general, the forestland base is managed for three primary purposes.

TIMBER PRODUCTION – 36%

Forests managed mostly for income or timber production by large and small private owners and tribes. Private forests, managed under the Oregon Forest Practices Act (see page 18) to protect non-timber values, supply about three-quarters of the annual statewide timber harvest.

Forestland management classifications



TIMBER PRODUCTION
MULTI-RESOURCE
RESERVE

MULTI-RESOURCE – 33%

Forests managed for multiple uses, including recreation, water, wildlife habitat and timber production. These forestlands are primarily in public, tribal and small private ownership. When harvest occurs on state and private land, it also is subject to the Oregon Forest Practices Act.

RESERVE – 31%

Forests managed and conserved mostly for environmental or cultural reasons, with limited timber harvest. These forests are largely owned by the federal government and may be set aside as parks or wilderness areas, or as riparian, old-growth or endangered species habitat.