MASSTAC
Washington Mass Timber Accelerator

Cluster housing

MASS TIMBER HOUSING OPPORTUNITIES – UTILIZING LOCAL RESOURCES TO DELIVER HOUSING AT ALL SCALES

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This book series reflects the deep commitment and innovation of organizations dedicated to developing projects with mass timber across different typologies. We would like to thank the MASSTAC Housing Committee members and individuals for their participation and support.

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Washington State Department of Commerce

About the Washington Mass Timber Accelerator

The Washington Mass Timber Accelerator (MASSTAC) is a non-profit organization working to advance high quality, low-carbon construction through increased utilization of locally manufactured mass timber. With representation from Indigenous communities, government agencies, private industry, labor organizations, and forestry, we are the central hub of mass timber activity in the State of Washington.

Our Mission

To sustainably and equitably accelerate the adoption of mass timber in construction, in Washington and nationally.

Our Vision

Locally manufactured mass timber is driving cleaner, faster, safer construction and healthier, more beautiful buildings in Washington and beyond.

We envision a future where mass timber is not only a standard in construction but also a catalyst for economic growth, community development, and environmental stewardship. Where sustainable mass timber buildings provide healthy and inspired environments for living, working, learning, playing, and healing. Where reciprocal relationships between cities and forests, urban and rural communities, support social, environmental, and economic well-being for our region.

Our Funders

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Contents

Foreword

Rico Quirindongo

DIRECTOR, OFFICE OF PLANNING
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From Vancouver, British Columbia to Portland, Oregon, Seattle, Washington and the Olympic Peninsula, the Pacific Northwest has deep roots in the timber industry. Timber production in the state of Washington has not only shaped our cities but has also been pivotal in defining the region's economic trajectory. The state's forests, particularly in the Olympic Peninsula and the Cascade Range, have long been a rich source of timber, which fueled the state's development into one of the nation's most prosperous regions.

And so, the timber industry in Washington was not just about extracting resources, it was about transformation. The rise of the timber industry put Washington on the map and contributed significantly to the establishment of the Pacific Northwest as an industrial hub during the early 20th century. Cities like Seattle grew rapidly due to the vast timber resources of the region. The iconic sawmills and logging camps that dotted the Puget Sound provided raw materials for much of the nation's infrastructure and built the foundation of the Pacific Northwest economy. Washington's timber industry, along with its proximity to the Pacific Ocean, also played a key role in the development of ports and transportation networks, which allowed timber products to be exported globally. The growth of the railroads, shipyards, and other transportation networks followed in the wake of intensive timber harvesting, creating a powerful industrial economy. As Seattle and the surrounding areas became the epicenter of timber production, the state's economy flourished. For decades, timber was the cornerstone of the region's prosperity.

However, as the world has grown more environmentally conscious in the last several decades, the traditional timber industry has faced many challenges. Unsustainable logging practices and deforestation concerns prompted a call for a different approach to the work. Today, the demand for timber remains strong, and we are moving into a more sustainable relationship with the forests. Simultaneously, we are recognizing the power of wood to be used as a substitute for energy intensive and carbon-emitting structural materials.

This is where the new frontier of mass timber comes into play. Today, we find ourselves at a crossroads where the timber industry, once defined by traditional methods, is evolving into something even more revolutionary with the development of cross-laminated timber (CLT). Utilizing products such as CLT, mass timber construction is not just reshaping construction, but paving the way for a more sustainable, carbon-neutral future while creating jobs, spurring economic growth, and supporting the state's industrial and architectural innovations.

CLT is an engineered wood product that has been hailed as a breakthrough in sustainable building, offering a new way to utilize the region's rich forest resources while dramatically reducing carbon emissions from traditional construction. A shift to mass timber is critical for Washington's ambitious goals of achieving carbon neutrality in the coming decades.

Mass timber is not just a material; it represents a new vision for the state's future, combining the historical legacy of timber production with cutting-edge innovations in architecture and construction. As a renewable resource, mass timber is part of the solution to reducing the carbon footprint of our built environment. When sourced and produced sustainably, mass timber buildings can sequester carbon, locking away greenhouse gases that would otherwise contribute to climate change.

" Utilizing products such as CLT, mass timber construction is not just reshaping construction, but paving the way for a more sustainable, carbon-neutral future while creating jobs, spurring economic growth, and supporting the state's industrial and architectural innovations. "

The Canyons, LSW Architects
Photo: © Marcus Kaufmann Photography

The production of mass timber also uses far less energy than traditional construction materials like concrete and steel, making it a key component in Washington's transition to a carbon-neutral economy.

Beyond its environmental benefits, mass timber has the potential to invigorate the state's economy and provide a pathway to future job growth. From blue-collar construction industry jobs in the assembly and erection of mass timber buildings to white-collar jobs in architectural design and engineering of carbon-neutral buildings, the industry holds tremendous promise for diverse job creation. The growth of mass timber manufacturing could revitalize rural communities in the state's timber-producing regions, such as the Olympic Peninsula, creating opportunities for local manufacturing across the region. Investment in the development of mass timber production facilities and the necessary infrastructure to support the industry is critical to the state's economic future.

This investment will also help foster innovation in construction techniques. The ability to build mass timber skyscrapers, residential buildings, and even single-family homes represents a new era for the construction industry. For Seattle and its neighboring cities, mass timber offers a more efficient, sustainable way to build for the growing population. It opens new possibilities for housing production, from small accessory dwelling units (ADUs) to large-scale transit-oriented development (TOD) projects. Mass timber allows for faster construction timelines, which is essential in addressing the housing crisis that many cities across the U.S. are currently facing. Whether for mid-rise apartment buildings in Seattle or sustainable affordable housing projects in rural communities, mass timber provides a scalable solution that can meet the housing demands for urban and rural communities across the region.

What's more, the integration of mass timber into the design and construction of tall buildings, including mass timber towers, is breaking new ground in architectural design. Washington, a region known for its innovative architectural firms and design-driven approach to construction, is poised to lead this charge.

Mass timber provides a unique material aesthetic, warmth, and versatility that cannot be replicated with traditional construction materials. As architects and builders increasingly turn to mass timber, Washington could position itself at the forefront of a global movement toward sustainable building practices.

Investing in mass timber represents a chance to honor the region's timber roots while propelling the state toward a more sustainable, carbon-neutral future. Washington's timber industry has always been a powerful economic engine, and the mass timber sector offers the potential to continue that legacy while aligning with a green energy and materials strategy and a carbon neutral future. Supporting the emerging mass timber industry will strengthen our economy, reduce global carbon emissions, create green jobs, and improve the quality of life for residents in both urban and rural communities. Mass timber is part of the sustainable future that I want to see for myself, my family, and the diverse communities of which we are all a part.

This book outlines a vision for how we can invest in and see a sustainable vision forward, one that leans into our housing needs for the state and the region.

I am grateful to the leadership and investments of Washington Governor Bob Ferguson, Policy Director Sahar Fathi, Housing Senior Policy Advisor Nicholas Carr, City of Seattle Mayor Bruce Harrell, Office of Economic Development Director Markham McIntyre, Manufacturing and Maritime Strategic Advisor John Persak, and Washington Mass Timber Accelerator Executive Director Erica Spiritos. Their vision, their efforts, and their commitment in partnership with state, city, and industry leadership makes me hopeful for our collective future.

The Canyons, LSW Architects
Photo: © Jeremy Bitterman Photography

Introduction

Stronger, Faster, Greener: Mass Timber Housing in Action

The mass timber industry is evolving rapidly, reshaping the way we think about building design and construction. Once a niche material, mass timber has rapidly gained acceptance across the architectural and construction industries, thanks to its remarkable versatility, sustainability, and economic advantages. With advancements in technology and updates to the International Building Code (IBC), including allowances for taller structures currently up to 18 stories, mass timber is poised to transform skylines and communities alike.

Mass timber offers a compelling suite of benefits that make it a smart choice for developers, institutions, and private clients alike:

- **Revenue Generation:** Mass timber buildings offer opportunities for increased density, faster speed to market, and enhanced leasing velocity due to the beauty of exposed wood.
- **Streamlined Construction:** Harnessing the potential of prefabrication to reduce construction timelines, mass timber buildings are erected quickly, quietly, and with minimal waste generated on-site.
- **Carbon Reduction:** A renewable material sourced from sustainably managed forests, mass timber reduces reliance on high-carbon materials and stores carbon throughout its lifecycle.
- **Building Performance:** Mass timber buildings offer durability, thermal comfort with energy efficiency, fire-resistance, and higher indoor air quality due to a reduced reliance on finish materials.
- **Health and Wellness:** Mass timber buildings enhance occupant well-being by fostering connections to natural materials. Research links such environments to improved cognitive function, reduced stress levels, and overall psychological benefits.

The state of Washington has emerged as a leader in this movement, with forward-thinking policies that enable mass timber's use in taller buildings. However, broader adoption will require continued collaboration among architects, developers, policymakers, and builders as we co-create a better way to build.

This Mass Timber Housing look book celebrates the vast potential of mass timber in housing projects throughout the Pacific Northwest, showcasing examples across categories such as modular and custom single-family homes, accessory dwelling units (ADUs), cluster housing, townhome, low- rise and mid-rise developments, tall timber housing, and skyscrapers. These projects — both built and unbuilt — demonstrate the material's adaptability and its ability to meet diverse housing needs. While the focus is on Washington State, the lessons and inspiration drawn from these projects resonate across North America and beyond. The projects in this look book demonstrate what is possible.

The next step is yours.

CLT Townhome Building Kit, Green Canopy Node
Photo: © Inside Spokane Photography

Meet Washington's Mass Timber Manufacturers

Cascade Joinery • Bellingham, WA

FABRICATOR

For 33 years, Cascade Joinery has been crafting timberwork for high-end, commercial, residential, and municipal buildings, in a vast range of architectural styles. Today, we're one of the Northwest's leading producers of structural and decorative crafted timberwork, providing creative solutions to complex structural challenges. We believe in Mass Timber, and we're devoted to, and passionate about, delivering on it. From design-phase consultation to fabrication and on-site installation, we're by your side to manifest the most ambitious Mass Timber projects.
For more information, contact: Allen Stoltzfus, Sales Engineer
allen@cascadejoinery.com • *cascadejoinery.com*

Composite Recycling Technology Center (CRTC)

MASS TIMBER PANELS (CLT)

The CRTC Building Innovation Center was established to provide mass timber-based housing solutions to rapidly deployable military housing, emphasizing durability and protection. With access to vast stands of rapidly growing coastal western hemlock on the Olympic Peninsula, CRTC-BIC is the first entity worldwide to utilize thermal modification to stabilize and enable this underutilized species in CLT. ACLT - Advanced Cross Laminated Timber, is a CLT product that uses thermal modification (TM) of the lamstock in place of kiln-dried lumber. The TM process imparts improved dimensional stability as well as increased resistance to mold and mildew attack. Sourcing our primary lumber supply from the Makah Tribe, we have expanded to provide tribal and other affordable single-family modular detached homes.
For more information, contact: Glenn Ellis Jr, Housing Business Manager
(505) 274-9198 • gellis@crtc-wa.org • *compositerecycling.org*

Green Canopy Node • Seattle, WA

PREFABRICATED MASS TIMBER HOUSING

Green Canopy NODE builds sustainable housing using offsite and traditional methods. We service developers in Washington and Oregon to acquire, plan, and construct their low rise multifamily and multi-unit projects. We innovate construction methods and components to increase cost control, reduce timelines, and improve sustainability. Green Canopy NODE offers a catalog of mass timber modular houses, townhomes, and apartments that are pre-designed and customizable to deliver carbon negative housing for developers and neighborhoods.
For more information, visit: *greencanopynode.com*

Mercer Mass Timber • Spokane Valley, WA

COMPLETE MASS TIMBER STRUCTURES

As a global mass timber manufacturer with operations in Washington, we provide high-performance prefabricated solutions for residential construction at all scales. Our vertically integrated approach—combining digital design, off-site manufacturing, and construction services—reduces project risk, accelerates schedules, minimizes site disruption, and enhances energy performance. From modular homes to mid- and high-rise developments, we enable sustainable, innovative, and resilient housing solutions.
For more information, contact: clt@mercerint.com • *mercermasstimber.com*

Tieton Cabin Co. • Tieton, WA

PREFABRICATED MASS TIMBER HOUSING

Tieton Cabin Company, located in Tieton, WA, builds ready-made, thoughtfully designed one and two bedroom small homes optimized for versatile functionality as guest accommodations, income properties, or personal retreats. Robustly built with Cross Laminated Timber, Rockwool installation, steel frames and premium fixtures for energy efficiency, durability and performance, their elegant simplicity offers modern, timeless warmth with essential features. IBC compliant and WA State L&I certified, these homes arrive complete and install in one day with minimal disruption, ready for immediate use.
For more information, contact: Alex Mondau, Director of Strategy • 509-673-1030
alex@tietoncabinco.com • *tietoncabinco.com*

Vaagen Timbers • Colville, WA

COMPLETE MASS TIMBER STRUCTURES

Vaagen Timbers is a leader in sustainable mass timber manufacturing, transforming small-diameter logs from forest restoration into premium glulam and cross-laminated timber (CLT) products. By sourcing wood from within 100 miles of their Colville, WA (USA) facility, they reduce emissions and support local economies. Their precision-engineered glulam beams offer exceptional strength and beauty, meeting stringent ANSI/APA standards. Choosing Vaagen Timbers means investing in resilient, low-carbon buildings while actively contributing to healthier forests and wildfire pcrevention. From Forest to Frame — with purpose.
For more information, contact: Joel D. Rohrs, Executive Vice President
(206) 708-3260 • *vaagentimbers.com*

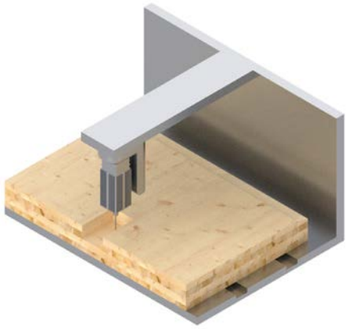
Mass Timber in Washington

Manufacturers Map

Mass Timber Products

Glue Laminated Timber (Glulam)

Fabrication



Mass Timber Panels (CLT, DLT, MPP)

Prefab Mass Timber Housing

Connectors and Hardware

Complete Mass Timber Structures

Typology 3
Cluster Housing

What is cluster housing?

A residential development pattern in which individual homes are grouped together on one portion of a site around shared open spaces and amenities—such as landscaped courtyards, parking areas, or recreational facilities—while the remaining land is preserved for green space, conservation, or agriculture, with each dwelling retaining separate ownership.

Photo: Blockhouse, Uptic Studios

Why mass timber for this typology?

Mass timber, specifically Cross-Laminated Timber (CLT), is ideal for the cluster housing typology because it offers sustainability, efficiency, and adaptability. CLT enables higher density on small urban lots with minimal site impact. Modular design streamlines construction, reducing waste, site disruption, and overall build time. As a locally-sourced, prefabricated material, mass timber has a reduced environmental impact relative to traditional wood-frame construction due to the efficiency of on-site assembly.

Additionally, CLT's strength and precision allow for flexible, space-efficient designs that integrate seamlessly into existing neighborhoods, making it a responsible choice for addressing our housing shortage.

What are the opportunities to scale?

Modular, CLT-based construction enables efficient replication across different urban settings, making it a viable solution for addressing housing shortages. The cluster housing typology can be adapted to various lot sizes, individual unit sizes and layouts, and zoning conditions while maintaining high-density, sustainable living. Characteristics of speed to market, minimal environmental impact, and community integration make mass timber cottage clusters an attractive option for cities seeking innovative housing solutions.

Blockhouse

Spokane, WA

Blockhouse is a modular, CLT, micro-living project located in Spokane's Perry District, with short-stay and long-term rental units ranging from 200SF studios to 800SF 3-bed units. Originally three single family lots, the site was rezoned over 18 months and transformed into 14 dwelling units, maximizing density without compromising living quality—a result of close collaboration with local stakeholders.

Blockhouse showcases modular CLT design while reshaping housing with a commitment to sustainability, affordability, and minimal site disturbance. The foundations are on posts, not concrete slabs, reducing the amount of tree root clearing and damage. The prefabricated CLT, restored siding, solar energy, and smart wall system all come together to create a simple smart design. All together, this innovative approach allowed us to create residences that harmonize seamlessly in the neighborhood.

Addressing the urgent demand for housing in the city, Blockhouse emerges as a unique and efficient solution.

Website: Blockhouse

"We chose CLT for our Blockhouse project because it supports healthy, wildfire-resilient forests and offers a low-carbon, sustainable alternative to traditional materials. Its biophilic beauty enhances well-being, and its precision fabrication makes on-site assembly fast and efficient."

– Andy Barrett, Client

Drawing courtesy of Uptic Studios
Photos: © Oliver Irwin Photography

Site plan illustrates flexibility of modular units to conform to site constraints

PROJECT TEAM

Shy Guy LLC
OWNER

Uptic Studios
ARCHITECT

Land Expressions
LANDSCAPE ARCHITECTURE

Baker Construction
CONTRACTOR

DCI Engineers
STRUCTURAL & CIVIL ENGINEER

Vaagen Timbers
CLT

MASSTAC

Washington Mass Timber Accelerator

visit us at wamasstimber.org