

## Wood is the Solution to the Building Industry's Carbon Challenge

By: Cees de Jager, Softwood Lumber Board President and CEO

The world over, governments, the private sector, and consumers are registering the growing effects of climate change and are ready to take action to reduce greenhouse gas emissions. Research makes clear that wood is the leading nature-made solution to the challenge, and by choosing wood products, the construction industry can remove an estimated 21 million tons of CO<sub>2</sub> from the atmosphere annually, equal to taking 4.4 million cars off the road.<sup>1</sup>

The Softwood Lumber Board (SLB) has promoted wood's sustainability credentials since its inception. Now, as both the public and private sector coalesce around climate action, it is more important than ever that we continue to amplify wood's environmental benefits with science and verified research. It is critical for building design and construction professionals, developers, and their clients to understand wood's role as a leading climate solution.

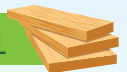
The SLB and its funded programs—the American Wood Council (AWC), Think Wood, and WoodWorks—are aggressively working to communicate and emphasize wood's carbon benefits. In sponsoring the Carbon Leadership Forum, whose mission is to eliminate embodied carbon in buildings and infrastructure by inspiring innovation and spurring change through collective action, the SLB now has ready access to national and local discussions on life cycle assessments (LCAs), material transparency, and carbon, and it will soon contribute to a detailed, industrywide carbon action plan to optimize wood's carbon positioning. The AWC is collaborating with Building Transparency, a non-profit organization seeking to provide open access data and tools necessary to enable broad and swift action across the building industry to address embodied carbon's role in climate change, including efforts to develop new data and tools to improve carbon accounting and environmental product declarations. Think Wood is publishing a steady stream of content promoting wood's role in low-carbon construction, including a recent full-page ad promoting wood in *USA Today's* Sustainability Special Edition, reaching millions. WoodWorks offers a free online carbon calculator to

help designers understand the carbon impact of their material choices and, with Think Wood, is developing whole-building LCAs. All programs regularly develop and deliver carbon education, with the popularity of these courses on the Wood Institute proving that the content is timely and in demand.

Our industry has a unique and tremendous opportunity to shift the materials used in building construction in order to lower carbon emissions. Forest products offer a meaningful and measurable solution to reducing the environmental footprint of the built environment and helping convert the construction sector from a carbon emitter to a carbon sink. The heightened attention to the environmental impact of building materials, provides us the opportunity to expand our market share by promoting the compelling value proposition lumber based building systems offer. The SLB and its programs will continue leverage this opportunity to the benefit of our industry.

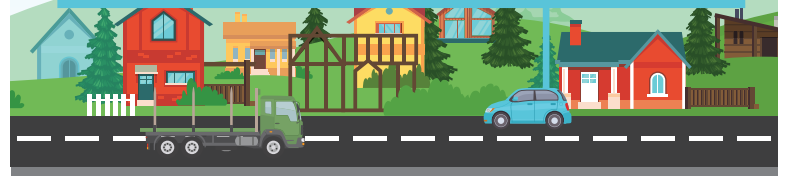
**387 MILLION BOARD FEET  
OF INCREMENTAL DEMAND**

**GENERATED IN Q1 2021**



**THE CARBON BENEFIT  
FOR 2021 Q1 REPORTED PROJECTS**

is the equivalent to taking **300,000 cars off the road for a year** or 1.1 million metric tons of carbon dioxide.



<sup>1</sup>Estimated using the WoodWorks Carbon Calculator

## WHAT'S INSIDE?

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### Depth, Breadth, and Reach: Expanding the SLB's Education Offerings

The SLB continues to support specifier education as a key investment to enable the expanded use of softwood lumber products. The SLB is now expanding its education program to include postsecondary and graduate programs in its outreach to increase the ease and efficiency with which design and building professionals, developers, and contractors can discover offerings, reach new audiences, and seed innovation.

#### A New Partnership with ACSA

The SLB is excited to launch several architecture-focused programs in partnership with the Association of Collegiate Schools of Architecture (ACSA):

- [\*Timber in the City: Urban Habitats Competition\*](#). Georgia Tech will host the 2021/2022 competition, which will challenge students to design a carbon-friendly midrise, mixed-use complex using mass timber and integrating biophilic design.
- *Timber Education Prize*. This new prize will recognize effective, innovative timber education courses and curricula. The prize will be awarded to up to five winners in the 2021/2022 academic year. Faculty from ACSA member schools in the United States and Canada are eligible to apply.

- A higher education timber-resource digital library, which will be stocked with course materials and resources for use in architecture and design school courses.

#### Growing the Wood Institute

Launched in July 2020, the [Wood Institute](#) now has 1,600 registered users, who have access to customized education tracks and more than 140 course offerings from the AWC, Think Wood, and WoodWorks. More than three-quarters of all registered users are architects or engineers, with code and fire officials, commercial and residential contractors, developers, and students rounding out the membership. Courses on mass timber, carbon, sustainable forestry, and codes are among the most popular. The SLB and its partners add course content continually and are taking steps to nurture users and develop leads for potential project conversions.

The SLB's growing portfolio of education offerings, including its partnership with the ACSA, will be overseen by Simon Hyoun, who recently joined the SLB from Zonda (formerly Hanley Wood), where he spent the last 17 years leading marketing, client services, and editorial development efforts.

### First-Ever Mass Timber Design Manual Now Available

WoodWorks and Think Wood have jointly developed and launched the first-ever *Mass Timber Design Manual*. The free-to-access, comprehensive manual covers the latest advancements in tall wood construction, design practices, and mass timber products. The manual is based on WoodWorks-published technical papers, Think Wood continuing education pieces, Q&As with qualified experts, project case studies, and technical guides. Specific topics include: Insurance for Mass Timber Construction, Cost and Design Optimization, Mass Timber Fire Design, Acoustic and Vibration Design, Tall Wood Buildings in the 2021 IBC®, Calculating Carbon Footprints, Impact of Wood Use on North American Forests, and Occupant Well-Being and Biophilic Design.

The manual was officially launched in March 2021 at the International Mass Timber Conference, and to date, has been downloaded more than 8,500 times and led to the identification of over 130 potential mass timber building projects. Download your copy today by visiting [info.thinkwood.com/masstimberdesignmanual](https://info.thinkwood.com/masstimberdesignmanual)



"The design manual is a truly great contribution to the industry! I anticipate forwarding this to many clients. Thank you for delivering the right thing at the right time!"

– Greg Kingsley, President + CEO | KL&A Engineers and Builders

## Think Wood Mobile Tour Ready to Welcome Visitors Online and In Person

The SLB's Think Wood Mobile Tour has launched virtually and will soon restart physical tours at select conventions and trade shows.

Earlier this year, the SLB and Think Wood repackaged the Mobile Tour into a 360-virtual tour in order to expand its reach and bring its high-value content and exhibits to the design and construction community online. Like the physical version, the virtual tour showcases softwood lumber products and their many uses in commercial and residential construction, and it explores sustainability, mass timber design, fire performance, and durability, among other comparative benefits.

As public health guidelines allow, the SLB will relaunch limited in-person tour dates as soon as August and a full tour schedule in 2022.

Event	Dates	Location
SFPA Forest Products and Machinery Show	Aug. 11-13	Atlanta, GA
PNWER Summit	Aug. 16-19	Big Sky, MT
Greenbuild	Sept. 21-23	San Diego, CA
DBIA Expo	Nov. 1-3	Denver, CO

At each stop and for the benefit of staff and guests, the tour will adhere to all prevailing local health guidelines. Keep up to date with the in-person tour and take your virtual tour today at [thinkwood.com/mobile-tour](http://thinkwood.com/mobile-tour).

## WoodWorks and Think Wood Make Most of Virtual International Mass Timber Conference

WoodWorks and Think Wood were the co-host and sponsor, respectively, of the sixth annual International Mass Timber Conference, which was held virtually March 31- April 1. Billed as the largest gathering of mass timber experts in the world, the conference welcomed more than 1,800 participants and featured over 40 expert presentations; four unique education tracks, including one created by WoodWorks; more than 100 exhibitors; and building tours.

As an event co-host, WoodWorks played a significant role in overall content creation and had numerous opportunities to promote its [WoodWorks Innovation Network](#), which prompted a surge in membership and project profiles and brought WIN's total membership up to more than 330 individuals and companies and over 200 published project profiles. WoodWorks continues to leverage the conference to grow WIN and to offer technical support to contacts so that mass timber project ideas translate into mass timber consumption.

As a lead sponsor, Think Wood secured priority branding and resource placements, which led to conference attendees downloading over 220 Think Wood resources over the course of the event, resulting in 68 net new contacts for the Think Wood database. Think Wood also used the conference to launch both the *Mass Timber Design Manual* and the virtual Think Wood Mobile Tour, immediately tapping into the momentum and enthusiasm for mass timber that the event created.





# Q1 PROGRAM HIGHLIGHTS

Code:

## American Wood Council

- The AWC testified on numerous proposals during the International Code Council (ICC) Group A Code Development Hearings, helping to advance proposals to increase the allowable area of exposed mass timber ceilings; add two new wood fire-resistance-rated floor/ceiling assemblies to code; and delay the installation of costly noncombustible topping on CLT floors during construction.
- The AWC teamed with lumber-grading agencies and the American Lumber Standard Committee to develop a table of multispecies lumber grade marks to assist designers and regulators in assigning the correct values to lumber produced from multiple species.
- The AWC presented on the new CLT shear wall system in high-seismic hazard areas at the National Institute of Building Sciences Building Seismic Safety Council's Symposium. The system was accepted into the 2020 edition of the NEHRP Recommended Seismic Provisions for New Buildings and Other Structures, the first new structural system to be adopted for seismic design in 20 years.

Communications:

## Think Wood

- Think Wood published several popular pieces of custom content during the quarter, including the digital film, *Legacy*, which highlights wood's carbon and well-being benefits; the 2021 Timber Trends report; a Biophilic LookBook; and a report on "Understanding the Role of Embodied Carbon in Climate-Smart Buildings."
- Think Wood surveyed its database to quantify the impact of its lead-nurturing efforts based on intent to specify. Think Wood's marketing qualified leads are roughly 24% more likely to report building with wood than its prospects; this metric continues to grow more favorable quarter-over-quarter (QoQ) and year-over-year (YoY).
- Through the first quarter (Q1), eight new, active WoodWorks' projects were influenced by Think Wood via education or referrals, up 14% YoY, and Think Wood is teaming with WoodWorks to co-nurture an additional 101 active building projects.



Educational  
Events



Education  
Attendees



Contact Hours  
Provided



New  
Contacts



Resource  
Downloads



Marketing  
Qualified Leads

Penn State West 2 Building, Type III-B, four stories, 1,140,000 board feet. Courtesy: Payette

Andy Quattlebaum OEC, Type IV-HT, 411,429 board feet. Courtesy: Jonathan Hillier



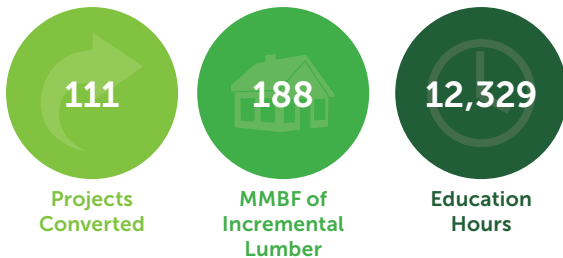
*Construction and Conversion:*

## WoodWorks

- In Q1 2021, WoodWorks directly converted 111 projects, with 416 projects being influenced, which represent nearly 20 million square feet of wood construction and an incremental 188 million board feet of demand. Sixty percent of the projects reported in Q1 were multifamily, slightly higher than the historical average.
- WoodWorks delivered more than 12,000 hours of education in Q1 at 74 WoodWorks-hosted and third-party events (mostly virtual).
- In Q1, WoodWorks released the findings of a study, funded by the ClimateWorks Foundation, on why specific mass timber projects were not built with wood. Based on a sample size of 84 projects, the findings indicate that cost, lack of experienced contractors, and design limitations were the leading barriers that stopped projects from going forward. WoodWorks produced several white papers and design guides in Q1 in an immediate effort to mitigate these barriers.

*Education:*

- In Q1, the SLB's three funded programs provided more than 30,000 education hours combined, reaching design and building professionals through continuing education units and events.
- 450 new users joined the Wood Institute in Q1, and users completed 719 courses, for a total of 940 learning hours.
- By the quarter's end, the Wood Institute's course catalog contained 140 courses (+27% QoQ).
- Top-performing courses in the quarter included: "Mass Timber Enables Beauty, Warmth, and Functional Design in The Soto" (WoodWorks), "2018 IRC Significant Changes to Deck Provisions" (AWC), "Meeting Residential Energy Requirements With Wood-Frame Construction" (AWC), "Tall Wood Structures: Current Trends and Related Code and Standard Changes" (AWC), and "Designing Sustainable Prefabricated Buildings" (Think Wood).



1430Q, Type III-A over Type I-A podium, 3,500,000 board feet. Courtesy: Greg Folkins

OSU Forest Science Center, WoodWorks Wood Design Award Winner. 1,800,000 board feet. Courtesy: Josh Partee



## Innovative, Expert Content Meets Specifiers Where They Are

For years, Think Wood and WoodWorks have worked to produce high-quality materials and content that impart knowledge and inspire their unique audiences to choose wood. As new industry and operational trends and opportunities have emerged—for example, the advent of social media, the growing acceptance of tall mass timber buildings, among others—content, too, must rapidly evolve.

Guided by the findings of its [2021 Timber Trends](#) piece, Think Wood recently published the digital film [Legacy](#) to highlight the carbon and well-being benefits of wood construction, and a new report, “[Understanding the Role of Embodied Carbon in Climate Smart Buildings: Report on Carbon Reduction Policy and Design Best Practices](#),” which was funded by the Binational Softwood Lumber Council.



WoodWorks, meanwhile, published several technical guides covering [floor vibration design](#), mass timber connections, and an [index](#) of approved connections in the United States, as well as white papers addressing “[Insurance Risk for Mass Timber Construction](#)” and “[Mass Timber Construction Management](#),” both of which can be key barriers to mass timber construction.

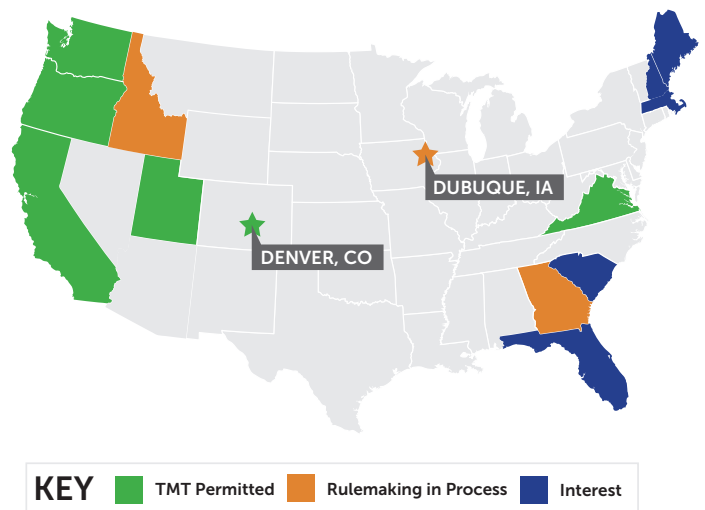
Think Wood and WoodWorks also teamed up to publish both the *Mass Timber Design Manual* and a new [Biophilic Design LookBook](#) to inspire wood design.

All told, resources from Think Wood and WoodWorks were downloaded more than 16,500 times in the quarter, creating important name recognition for both programs and adding value to the efforts of design and construction professionals nationwide.

## The AWC Plays Key Role in Mass Timber Code Adoption

The AWC continues to provide information and customized technical support to a host of jurisdictions that are looking to early adopt the 2021 ICC tall mass timber construction standards. The AWC is finding growing success by documenting and sharing the experiences of early-adopting jurisdictions to help others find their most feasible pathway to incorporating the provisions into their building codes. For example, after the AWC presented several state-level examples of early adoption to the Idaho Building Code Board, members concluded that the state should follow the course set by Washington state and add an appendix to its current code to adopt the provisions. ICC itself is embracing the value of such exchanges and has begun posting statewide amendments adopting the 2021 tall mass timber provisions on its Digital Code website.

Currently and with the AWC’s support, Virginia and Idaho are now on track to adopt the provisions statewide; Georgia and Dubuque, Iowa, each made progress in Q1 toward early adoption; and Maine, New Hampshire, Massachusetts, South Carolina, Florida, Wisconsin, and north-central Texas have expressed interest in early adoption and demand for the AWC’s technical support.



The AWC expects that this number will continue to grow as tall mass timber becomes mainstream. This appears imminent based on the 2024 ICC cycle, wherein not a single proposed code change challenges the allowable height and area provisions of the tall mass timber construction provisions of the 2021 code.

## 2024 ICC Code Development Creates More Opportunities for Tall Mass Timber

The ICC Group A Code Development Cycle for 2024 is underway, and committees are considering approximately 140 proposed changes important to the wood industry. Thirty proposals, including 12 from the AWC, constitute opportunities, including proposals to:

- Increase allowable exposed mass timber areas on the ceiling from 0% to 40% in Type IV-A construction, and from 20% to 100% in Type IV-B construction. This proposal is based in part on RISE Mass Timber Fire Testing that the AWC supported in 2020.
- Reduce gypsum-based encapsulation from the currently required 20% to 0% in 9 to 12-story mass timber buildings.
- Reduce the currently required one inch of concrete top coating on CLT during construction; data is now in hand proving that this costly measure does not offer promised fire-protection benefits.

If adopted nationally and locally, each of these changes will translate into a combination of labor, time, and direct cost savings, which in turn will help wood-based systems to remain competitive.

The AWC is working to counter 50 proposals flagged as potential threats, including several proposals from competing materials to limit combustible construction and increase the heights of noncombustible construction. The AWC staff will continue to track all these developments throughout the 2024 code cycle, including via their roles as appointed committee members on the International Building Code Fire Safety and Fire Code committees.

## Program Technical Support Delivers Immediate Wins

The SLB's three program partners—the AWC, Think Wood, and WoodWorks—each fill a unique and complementary niche in the SLB's efforts to help more building professionals and projects embrace and specify wood. As the following examples demonstrate, each program's provision of expert technical support is proving to be a key difference maker in whether and how much wood a project uses.

### *AWC Support Results in Project Savings, Continued Use of Wood*

Armed with the latest data and research, the AWC frequently provides authoritative input to municipal authorities as they consider individual projects or their own agency policy and practices. In Q1, the AWC provided county officials and plan reviewers with a code-compliant basis for accepting a non-rated exterior wall in a California multifamily project, leading

to considerable cost savings. In Phoenix, the AWC assisted city officials in devising acceptance criteria and an evaluation report of impervious moisture barriers for wood deck ledgers. This important program will both ensure deck safety and support the continued use of wood in these systems.

### *Think Wood Creates Specifier Journeys to Wood*

Thanks to its advanced data and tracking system, Think Wood can plot out the journey of its contacts toward wood, one click at a time. For example, over the course of five months in 2020-2021, a Massachusetts developer clicked and shared a welcome email series, newsletters, and an email on timber trends; downloaded resources on fire safety and mass timber; and visited numerous webpages—leading to a handoff to WoodWorks for technical support and the ongoing design of a five-story, mixed-used mass timber building.

### *WoodWorks Tech Support Helps Maryland Project Reach Allowable Heights*

WoodWorks supported the CORE Design Group to achieve one of its most ambitious wood projects to date via the 412,000-square-foot Willard, a large transit-oriented development under construction near Baltimore. CORE had already used publicly available WoodWorks resources and past knowledge gained at WoodWorks events, but called when staff members had lingering questions about the project's structural system and the viability of a podium.



WoodWorks met with CORE to discuss the nuances of podium design and came up with two options to achieve greater floor-to-floor heights and the maximum allowable height of 75 feet, in accordance with the developer's wish. CORE credits WoodWorks' assistance as being pivotal during the project's design and planning. The Willard is scheduled to be completed in 2022 and is set to consume more than 3.2 million board feet of softwood lumber.

## Wood Innovation Grants Poised to Open New Opportunities for Mass Timber

In May, the USDA Forest Service announced the latest round of winners of its Wood Innovations Grant program. The SLB joined the effort by contributing \$200,000 in matching funds to support three particularly innovative and timely mass timber projects:

- Oregon-based Sustainable Northwest and Hacienda Community Development will explore options for increasing affordable housing using regionally sourced mass timber.
- California-based Karagozian & Case, a science and engineering firm, will develop and execute a two-phase testing program to demonstrate the blast-resistance capability and cost-effectiveness of cross laminated timber (CLT).
- Auburn University's School of Forestry and Wildlife Science will advance hybrid systems by establishing a preliminary design for a timber-steel composite system that uses CLT or laminated veneer lumber in place of reinforced concrete slabs in buildings six stories and higher.

The SLB congratulates all the winners and looks forward to tracking their progress and results in the year ahead as part of its ongoing effort to promote wood solutions and expand the use of softwood lumber.

## Looking Back and Ahead

The SLB's 2020 Annual Report is now available. Despite the challenges created by the pandemic, the SLB's program partners performed admirably in 2020, exceeding their targets. Between 2012 and 2020, the SLB's investments have generated more than 7.9 billion board feet in demand, creating an average return on investment of \$30.62 for every \$1. This return rate makes the SLB one of the most successful checkoff programs operating today.

[Download your copy of the Annual Report at softwoodlumberboard.org/annualreport.](https://softwoodlumberboard.org/annualreport)

In 2021 and beyond, the SLB's efforts will be grounded in the findings of its 2021-2025 Strategic Overview, which both confirmed that our program approaches are meeting the interests and needs of our industry and identified the industry's widespread interest in contributing solutions to additional priority areas, such as carbon.

[Download the Strategic Overview at softwoodlumberboard.org/strategicoverview.](https://softwoodlumberboard.org/strategicoverview)



### About the SLB

The Softwood Lumber Board (SLB) is an industry-funded initiative established to promote the benefits and uses of softwood lumber products in outdoor, residential, and non-residential construction and to increase demand for appearance and softwood lumber products.