

CONSTRUCTING A

BETTER FUTURE

WITH WOOD

S|L|B®

SOFTWOOD
LUMBER BOARD

INTRO, Cleveland, OH
9,200,000 Board Feet
Credit: HP Architecture



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Sideyard, Portland, OR
Architect: Skylab
354,286 Board Feet
Credit: Stephen Miller

2020 PROGRAM IMPACT

Continuing Momentum and Increasing Market Share

The Softwood Lumber Board's vision is to have softwood lumber based building systems become the preferred material choice in the built environment.

1.6 BILLION BOARD FEET OF INCREMENTAL DEMAND **IN 2020 ALONE.**



8 NEW JURISDICTIONS including cities and states across the country, with the support of the AWC, are in the rule-making process or have showed interest to the 2021 IBC allowing for taller mass timber building.

STRONG MARKETS SUPPORT STRONG COMMUNITIES. The softwood lumber industry supports more than **775,000 direct and indirect jobs** in lumber harvesting and manufacturing, including the economic impact of 546 operating mills in 45 states.

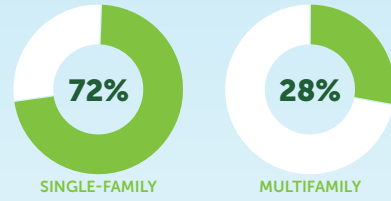
IN 2020, WOODWORKS DIRECTLY CONVERTED 304 light-frame buildings and 96 mass timber buildings—with a total of **1,572 projects** in the United States being influenced thanks to the collective impact of the SLB's programs.

MORE THAN 115,700 HOURS of education were taken by pros in 2020, a **7% year-over-year increase.** The SLB-funded program's offerings kept key target audiences engaged in the virtual world.



THE WOOD INSTITUTE WAS LAUNCHED IN JULY
The first industrywide e-learning platform for architects, engineers, contractors, and building code officials to learn about wood design and construction features a catalog of 110 courses from the AWC, Think Wood, and WoodWorks and ended 2020 with 1,200 registered users.

IN 2020 1.38 MILLION housing starts took place, an overall 7% increase from the previous year. Single-family starts increased by **11.7% compared with multifamily**, which saw a decrease year-over-year.¹



ACCORDING TO THE NAHB, THE HOME RENOVATION AND REMODELING MARKET SAW A 6% INCREASE IN 2020, with more people spending time at home because of the pandemic. Updates to bathrooms, decks, and kitchens topped the list of projects homeowners were interested in during the year.²



RESPONSIBLE FOREST MANAGEMENT

has resulted in more than 50 consecutive years of net forest growth.

Currently, **35 JOBS** are supported for every 1 million board feet processed.

THE CARBON BENEFIT FOR 2020 REPORTED PROJECTS is the equivalent to taking **945,100 cars off the road for a year** or 4.5 million metric tons of carbon dioxide.

3 NEW TREES PLANTED FOR EVERY 1 HARVESTED
Strong markets for lumber keep **forests as forests.**



¹<https://www.nahb.org/news-and-economics/industry-news/press-releases/2021/01/Housing-Starts-End-2020-Strong-Risks-Ahead>
²U.S. Bureau of Economic Analysis (BEA): National Income and Product Accounts (NIPA) and NAHB forecast

Guided by the Past, Primed for the Future

Dear Industry Colleagues,

It is my pleasure to present the Softwood Lumber Board's (SLB's) 2020 Annual Report. Despite a challenging year globally, the SLB and its funded programs delivered outstanding results against all key performance indicators and advanced our common goals of maintaining and expanding markets and promoting the economic and environmental benefits of building with wood.

I am proud that the SLB continued on a path of strategic and operational excellence aided by its exceptionally capable partners, the American Wood Council (AWC), Think Wood, and WoodWorks. The SLB achieved year-over-year growth across all metrics and, in 2020, delivered 1.6 billion board feet of incremental softwood lumber demand, a 12% increase from 2019.

In 2020, the Board of Directors conducted a comprehensive strategic review, affirming that the SLB is charting the right course for continued positive impact. The review, which included interviews with more than 50 industry investors and stakeholders, took stock of where we have been; reviewed our investment and program approaches; and plotted a way forward for the next five years that will accelerate conversions, increase education and training, and contribute to other pressing issues affecting our industry, such as carbon and sustainable forestry.

Guided by its mission, mandate, and the Strategic Overview, along with additional resources afforded by an assessment increase, the SLB is well positioned to expand its efforts to promote and pursue newer markets for softwood lumber and stimulate demand. The SLB will also continue to combat growing competitive threats, including increased pressure from competitors who aggressively promote their materials and attack wood in an effort to regain market share.

To support the refined strategy, we laid the groundwork for the SLB's future success by working with the U.S. Department of Agriculture (USDA) and industry investors to approve an assessment rate increase from \$0.35 to \$0.41 per

thousand board feet. These additional funds will allow the SLB to build on its success and deliver on its expanded mission. With additional funds, the SLB will strengthen current programs and address gaps currently limiting the SLB's ability to protect existing markets and expand market share for softwood lumber. Additionally, the funds will allow the SLB to ensure program successes are not eroded by competitor campaigns as well as recapturing share of voice taken by competitors.

Additional funding will allow the SLB to explore:

- Establishing a wood education program targeting postsecondary architecture and engineering students and young professionals.
- Expanding trade training programs for general contractors and installers to address training gaps and skills development, specifically focused on mass timber and related lumber-based building systems.
- Increasing support for applied technical research, innovation, and early-adopter programs to maximize and leverage public and private funding.

It has been a great professional and personal privilege to serve as the SLB's Board Chair, and I am confident that incoming Chair, Caroline Dauzat, owner of Rex Lumber, will continue to build on the momentum and advance the SLB's impact on behalf of the industry. I wish Caroline every success and look forward to working with her and each of you as we embark on the SLB's next chapter to strengthen and grow opportunities and markets for our industry. Thank you for your continued commitment to the SLB.

Sincerely,



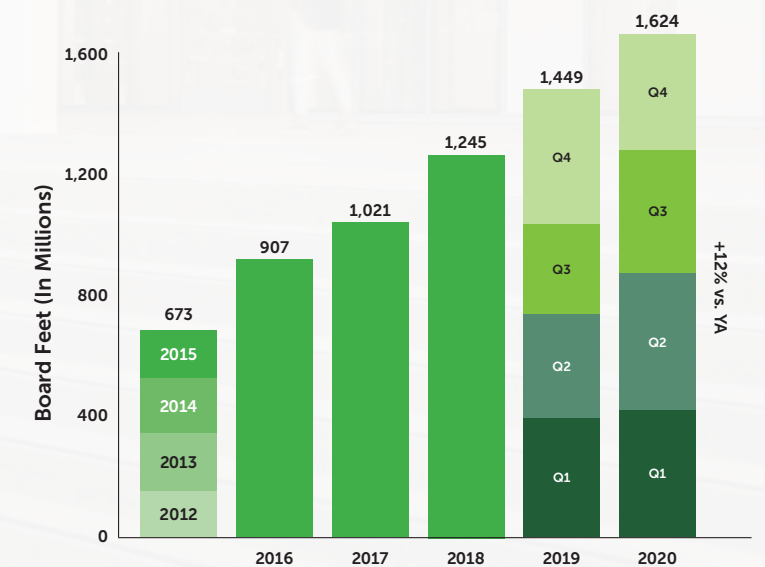
George Emmerson
 Softwood Lumber Board Chair 2019-2020
 Sierra Pacific Industries President

SLB Investments Continue to Increase Demand

7.9 + BBF

of new demand has resulted from SLB investments since 2012

Demand Generated by SLB-Funded Programs



Source: 2020 Prime Consulting ROI Report

Forging A Brighter Future With Wood

Dear SLB Investors and Industry Colleagues,

Thank you for your continued commitment to and investment in the SLB. I am proud of our collective accomplishments this year, as well as our history of exemplary achievement. This year, in particular, I want to commend the AWC, Think Wood, and WoodWorks for their tremendous performance and thank their talented leadership and teams of professionals for their hard work, creativity, and flexibility, which enabled each program to meet and exceed their targets, despite the remarkable extenuating circumstances caused by the pandemic.

The SLB's [2021-2025 Strategic Overview](#) confirmed that our program approaches, as embodied by the AWC, Think Wood, and WoodWorks, are well calibrated to the interests and needs of our industry. The five-year evaluations and metrics review, which we undertook as part of our accountability to the industry and had validated by the USDA, confirmed that the SLB's methodology for measuring and reporting investment impact is credible and accurate. These two reviews combine to tell us that, together, we are moving the market, increasing demand for softwood lumber products, and fulfilling our mission.

The Strategic Overview also brought to the forefront the industry's widespread interest in contributing solutions to additional priority areas, including carbon and climate change; forest management; changes affecting the built environment; and mass timber, hybrid, and residential construction. I think of these issues in much the same way that Secretary of Agriculture Tom Vilsack spoke about climate change during his recent confirmation hearing. Vilsack noted that climate change is one of several "why not" opportunities the United States faces, and that if we answer the call, there are real opportunities for us to create markets, incentivize carbon sequestration, build a rural economy based on biomanufacturing, protect forests, and create jobs, all while reducing carbon emissions.

In the fall, USDA's Agriculture Marketing Service (AMS), the organization that oversees the operations of the SLB, conducted a management review of the SLB and its activities funded with assessment funds under the Order. I'm pleased to report that the AMS determined that the Board is being managed effectively and efficiently. The SLB remains committed to following the same disciplined approach that

brought us here—we will continue to manage industry funds judiciously, ensure funded programs are focused on delivering within the scope set out by the Board, and regularly measure the impact of our investments to ensure they deliver the return the industry expects.

We are at a unique moment in time: Forest products are positioned better than other building materials to help address the environmental and economic challenges the country is facing.

I look forward to working with you and all our industry partners to ensure that softwood lumber continues to be recognized, valued, and specified in our established markets and also to pursue cutting-edge initiatives to capture exciting new opportunities in nontraditional segments.

If you have feedback about the SLB's work, would like to get more involved, or would like us to speak with your company in detail about what we do, please reach out. We want to hear from you. Until then, thank you for your continued support.

Sincerely,



Cees de Jager
Softwood Lumber Board
President and CEO

111 East Grand, Des Moines, IA
Architect: Neumann Monson Architects
Engineer: Raker Rhodes Engineering,
StructureCraft (Timber Structure EOR)
1,200,000 Board Feet
Credit: Mike Sinclair
2020 WoodWorks Wood Design Award Winner



Willson Hospice House, Albany, GA
Architect: Perkins+Will
544,000 Board Feet
Credit: Jim Roof Creative, Inc.



Refine, Adapt, Expand, Succeed

Dear Industry Colleagues,

I am pleased to report that, for the ninth consecutive year, the SLB delivered year-over-year growth across its key performance metrics in 2020. While always a point of pride, the SLB and its funded programs' performance stands out as particularly remarkable this year in light of the challenges posed by the pandemic.

Thanks to their strong leadership and dedicated teams, underpinned by sound program strategies and knowledge of audiences, the SLB's program partners quickly leveraged virtual and remote formats to provide high-quality and seamless support, engagement, and content to design and construction professionals throughout 2020. Key performance highlights from each core funding area included:

Codes – The AWC supported multiple jurisdictions to early adopt tall wood provisions and led standards development to support codes to be more compatible across jurisdictions.

Communications – Think Wood intensified its lead generation and nurturing efforts, increasing its marketing engagements by more than 660% year-over-year, adding 23,300 new contacts to its database, and increasing the number of sales qualified leads by 425% year-over-year.

Conversions – WoodWorks directly converted 304 light-frame buildings and 96 mass timber buildings—with a total of 1,572 projects influenced in 2020, which represent 78.56 million square feet of building area and 716 million board feet (mmbf) of incremental softwood lumber consumption.

Education – The SLB's funded programs exceeded their targets for specifier continuing education, growing 7% over 2019. Funded program education is now available online at The Wood Institute, which, since its launch in July, has attracted 1,199 registered users who logged nearly 1,400 hours of education.

Research/Innovation – The SLB continued to invest in practical applied research to fuel innovation, overcome market barriers, and increase softwood lumber consumption, including launching the next round of the Wood Innovations Grants program in partnership with the USDA Forest Service.

In 2020, the SLB also completed an independent, five-year [evaluation metrics review](#) in accordance with USDA regulations. The review included more than 500 of WoodWorks' completed and reported projects and confirmed the integrity of the data collection and influence reporting. The review concluded that, from 2016 through 2020, the SLB's investments generated a \$69.74 return for each \$1 invested and contributed to a nine-year average return of \$30.62 for each \$1 invested or

73 BBF
Per \$1 invested.

In 2021, the SLB will continue to focus on the five key investment areas of codes, communications, conversion, education, and innovation. The SLB is also setting up a Programs Advisory Working Group to explore how best to respond to growing challenges in residential construction, which investors noted as a priority during the strategic review. These challenges include market share loss to concrete masonry in the U.S. South and to non-wood substitutes in decking; wood's competitiveness in prefabricated, modular, and off-site manufacturing, where steel, in particular, is gaining at wood's expense; increasing regulations limiting wood use in wildland-urban interface areas and high-wind zones; and changing market dynamics that favor single-family homes and expanded floor plans featuring offices and gyms.

I look forward to working with you in 2021 as we continue to build momentum for our industry across each of our programs, undertake new initiatives to expand wood-based education and mitigate against key threats, and further the SLB's and softwood lumber's impact on the built environment.

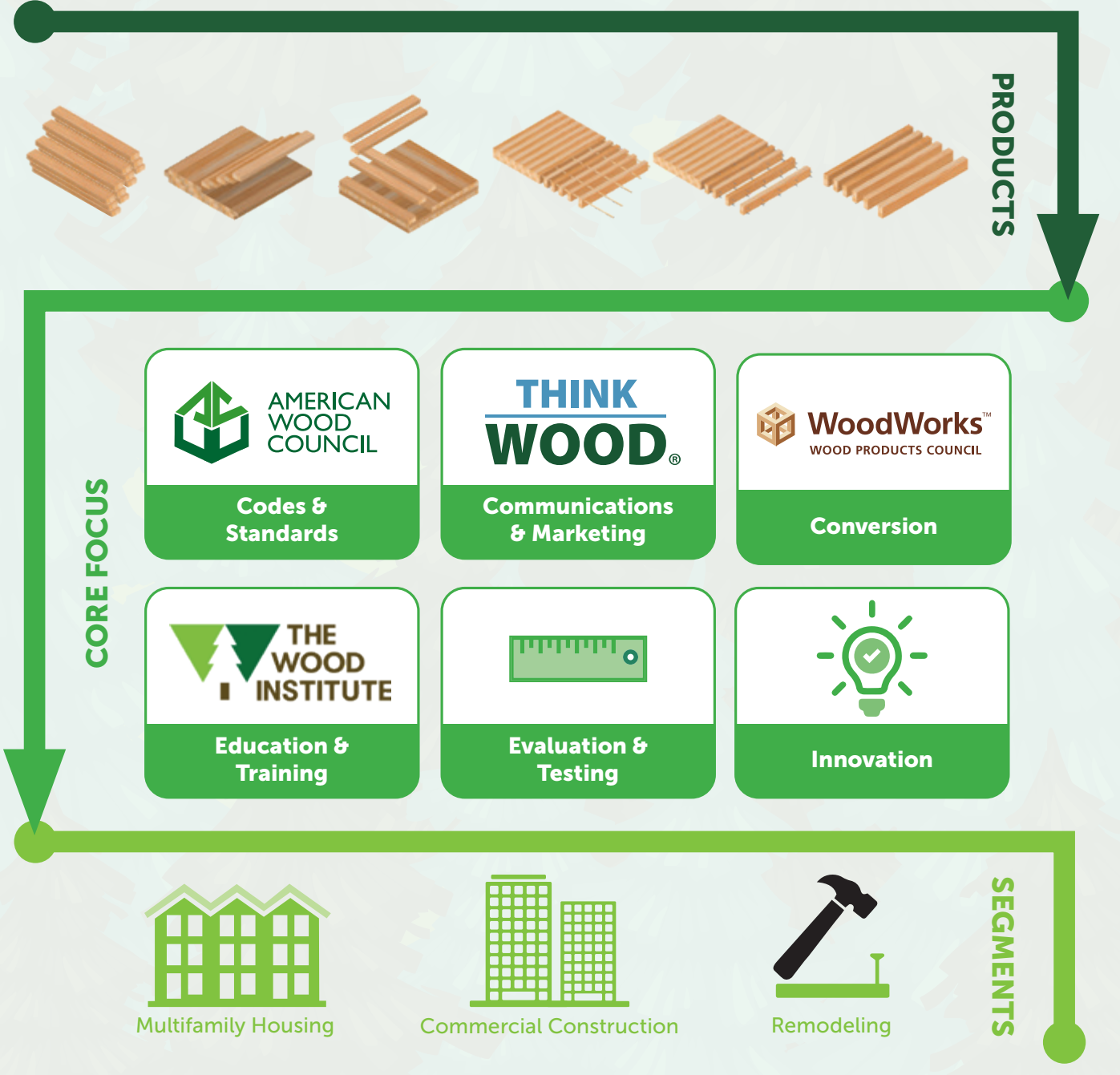
Sincerely,

Brian Luoma
SLB Research and Promotion Programs Committee Chair
Westervelt Company President and CEO



THE SLB'S MISSION IS TO

Promote the economic and environmental benefits and uses of softwood lumber products.



PARTNERS



Harmonizing Standards to Ensure Opportunities for Wood

In 2020, the AWC marked its 10th anniversary as an independent trade organization; welcomed new leadership in Q3 as Jackson Morrill became its second President and CEO following the retirement of Robert Glowinski; and continued its track record as an influential partner to the SLB and softwood lumber industry.

The AWC remained at the forefront of the industry's efforts to maximize opportunities for wood through consensus standards development, research, and education. The AWC reviewed hundreds of potential changes and prepared a dozen proposals for the International Code Council Group A Committee Action Hearings for the 2024 International Building Code, and its staff was appointed to several code development committees that will assess the 2024 proposals. Through technical assistance, the AWC continued to convert its past success in standards development into tangible opportunities for wood use, particularly with regard to early adoption for the 2021 International Building Code. The AWC supported eight new jurisdictions that adopted early or showed strong interest in 2020, with Virginia being the most recent notable win.

"Through its diligent, evidence-based work, the AWC has earned a seat at the table of the country's leading code and standards development processes. Time and again, they have successfully made the case for wood's inclusion, while also defending against provisions that would damage wood's market share."

— Furman Brodie, Vice President, Charles Ingram Lumber Co., SLB Board of Director Member and the AWC Board Chair

Updating Standards

The AWC published the SDPWS-2021 and Permanent Wood Foundation Design Specification (PWF-2021) consensus standards, both in time for incorporation into the 2021 codes.

The AWC's three-year effort to recognize tall mass timber buildings in the National Fire Protection Association (NFPA) 5000 Building Construction and Safety Codes® (referenced in five jurisdictions) and NFPA 101 Life Safety Code® (adopted in a majority of states) was successfully completed, with the NFPA Standards Council adopting the provisions. These provisions will ensure that the IBC and NFPA provisions for tall mass timber buildings are compatible, thereby furthering the market opportunity for tall mass timber buildings.

Building the Case for Wood

Together with partners, the AWC successfully completed:

- Two full-scale 24' x 24' cross laminated timber (CLT) diaphragm tests, which provided strength and deformation data to evaluate CLT's resistance to lateral wind and earthquake forces. This work will help researchers identify ways to further advance the use of this technology in floors and roofs.
- Sound-transmission testing on mass timber floor/ceiling assemblies, which will enable the AWC to expand Technical Report 15, Calculation of Sound Transmission Parameters for Wood-Framed Assemblies to include mass timber assemblies and add more components, including mineral wool insulation, to existing lightweight wood frame.
- Shear wall/seismic hold-down testing, which indicated that shear walls enhanced with end-post and hold-down details meet structural performance targets. The AWC will use these results to write a technical paper to substantiate a change to required strength reduction in the next edition of the AWC Special Design Provisions for Wind and Seismic (SDPWS).

2020 AWC By The Numbers



Educational Events



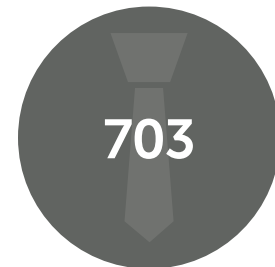
Contact Hours Provided



Education Attendees



Students using AWC Standards



Code Official Connections



Rhode Island School of Design - North Hall, Providence, RI
477,257 Board Feet
Credit: Odeh Engineers
2020 Wood Design Award Winner

Generating and Nurturing Leads Toward Greater Wood Use

Think Wood continues to be a powerful marketing campaign aimed at growing and defending softwood lumber's share in the one- to eight-story building segment. In 2020, Think Wood undertook several new initiatives to improve its lead generation and nurturing campaigns, including refreshing the Think Wood brand, launching a new website, and performing regular surveys of its database to stay current on specifier insights and trends.

"Think Wood's efforts to sharpen their lead generation and nurturing strategy mean that more well-curated and convincing education, resources, and tools are reaching architects, developers, and contractors. We have transformed the program from a pure marketing effort originally designed to raise awareness of wood's value proposition to an initiative focused on facilitating and enabling the specification of wood with reduced reliance on direct one-on-one support. Less than a year in, we're seeing considerable growth in those professionals expressing interest and favorability toward wood, and more importantly, project conversions." – Ryan Flom, SLB CMO

Tailoring Content to Audience

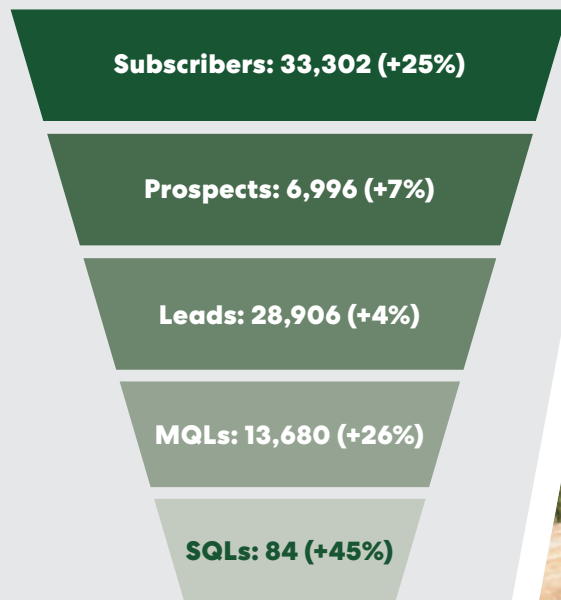
Think Wood continuously created fresh content for its own channels, earned media, and media partnerships to generate and nurture leads as well as to promote AWC and WoodWorks resources and events. Content was precisely informed by and tailored to audience insights, as gathered through audience surveys. In September, 87% of marketing qualified leads reported that they learned something new from Think Wood resources, and 66% indicated that they intended to apply what they learned in a project within the next nine months, a 5% gain over March 2020 results. Marketing qualified leads also reported increased awareness of AWC and WoodWorks' technical and online resources, a 7% increase in just six months.

Lead Generation

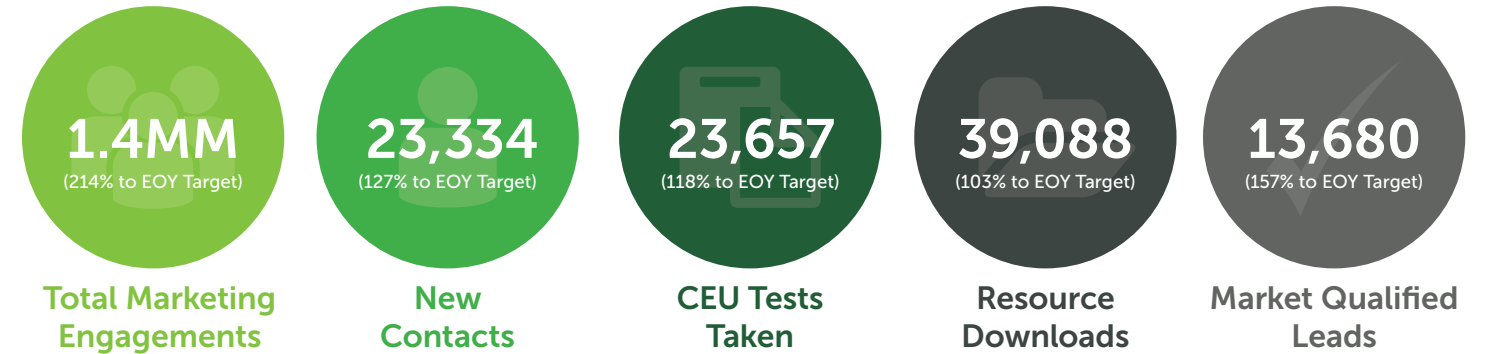
In 2020, courses offered through Think Wood's online platform delivered nearly 24,000 education hours to design and building professionals. Top-performing continuing education units (CEUs) addressed forestry; wood in low-rise, hybrid construction, evolving codes and standards; and wood structural systems. Accredited classes continue to be an important asset in generating new contacts and leads—of the more than 100 active projects that Think Wood has influenced to date, the majority have originated from Think Wood courses. In addition, working with its Association Partnership Program and WoodWorks, Think Wood sponsored several virtual conferences, resulting in nearly 4,500 new contacts. In 2020, Think Wood independently generated 10 new wood building projects, a twofold increase in lead conversions year-over-year, and Think Wood and WoodWorks combined to convert an additional 32 projects, resulting in 73.1 mmbf of softwood lumber consumption.

The Think Wood Mobile Tour hosted hundreds of building professionals in the first quarter of 2020 before its operations were suspended because of pandemic-related shutdowns and travel and gathering restrictions. The Mobile Tour will resume when possible, in the meantime, a virtual tour launched in April 2021 on thinkwood.com to promote wood's value proposition to key audiences.

Q4 Lead Scoring Funnel (QoQ)



2020 Think Wood By The Numbers



Timber Lofts, Milwaukee, WI
700,952 Board Feet
Credit: Engberg Anderson Architects

WoodWorks Seamless in Providing Project Support

Throughout 2020, WoodWorks continued to provide a wide range of timely expert technical support services to developers, architects, engineers, construction managers, and mass timber installers nationwide to assist them in specifying and installing wood in their projects. As its roster of project conversions illustrates, WoodWorks diversified the building types it supported this past year—ranging from low-rise commercial to urban overbuilds to mid-rise hybrids—and worked to emphasize scalability and repeatable, large-volume projects to efficiently extend its reach and accelerate the use of innovative wood building systems.

“WoodWorks repositioned its go-to-market strategy at the onset of the pandemic. Their ability to convert to, embrace, and leverage virtual formats to maintain and expand their reach and increase their efficiency in a short timeframe speaks volumes about their capabilities and commitment to the wood products industry.” – Bart Bender, Senior Vice President, Interfor & WoodWorks Board Chair

2020 WoodWorks By The Numbers



Project Conversions and Influence

WoodWorks converted 400 projects to wood and influenced a total of 1,572 projects in 2020, continuing an impressive track record of year-over-year growth, up from 14% over 2019 results. These projects represent more than 78 million square feet of building area and 716 mmbf of incremental softwood lumber consumption.

Online Engagement and Education

WoodWorks quickly and successfully embraced virtual formats and online education. Since April, WoodWorks’ experts participated in 485 virtual client engagements, reaching more than 3,000 individuals. The WoodWorks’ help desk provided more than 1,300 project assists and managed a 4% year-over-year increase in calls. WoodWorks completely reimagined and expanded its remote education offerings and ultimately awarded over 49,000 education hours (exceeding its target by 142%!) through 249 events in 2020. WoodWorks also generated nearly 5,500 new contacts from its and third-party-hosted virtual events.

Scaling Up Market Development and Project Support

In June, WoodWorks launched the WoodWorks Innovation Network (WIN), an online community that connects developers with design and construction professionals who have experience with mass timber. Building on WoodWorks’ proven approach to growing markets for wood, WIN is designed to connect people and support innovative wood solutions on a larger scale. WIN currently includes more than 150 individual member profiles, 66 company profiles, and 137 mass timber project profiles. In December, WIN expanded to include manufacturing partners and will add light wood-frame, modular, and a wider range of hybrid projects in 2021.

*Target was set prior to pandemic. WoodWorks exceeded its education hours target after pivoting to virtual events.



The SLB to Expand Timber Education in U.S. Universities



The SLB has always understood that building the capacity of design and construction professionals to specify wood is a critical intervention toward recapturing and growing market share, as research shows that upward of 60% of material selection happens during design.¹ SLB investments in continuing education for architects and engineers have yielded unmistakable results, including notable increases in the number of structural wood buildings and wood champions. However, timber education has long been and largely remains absent from architecture and engineering school curricula, meaning that softwood lumber and mass timber products are unfamiliar to these schools' graduates. In 2020, the SLB hit an important milestone in strengthening remote learning for design and construction professionals with the launch of its e-learning management system, The Wood Institute. Found online at woodinstitute.org, The Wood Institute is the first comprehensive, industrywide course catalog providing architects, engineers, contractors, students, and building code officials a single place to learn about wood design and construction and bringing together the education offerings of the SLB's funded programs, the AWC, Think Wood, and WoodWorks.

The Wood Institute currently features a catalog of 110 classes accredited by the American Institute of Architects, the International Code Council, Green Business Certification, and others. Courses cover topics that are both broadly relevant and in-depth, including design and engineering specifics, code compliance, and performance advantages of wood construction. At the end of 2020, The Wood Institute had 1,199 registered users who had logged more than 1,388 hours of education.

Looking ahead, the SLB will work to change where and how wood education is taught and reach next-generation design and construction professionals while they are still in their formative education years.

Starting in 2021, the SLB will team up with the Association of Collegiate Schools of Architecture (ACSA) to construct a comprehensive timber education program for faculty and students. The multiyear effort will develop digital, video, and print course materials on timber and wood-based building solutions for use in architecture and relevant affiliated disciplines, and will create a Timber Education Prize to recognize and profile outstanding university-level curricula being taught today. The SLB will also sponsor the third Timber in the City design competition, which will be held in 2021-2022, and as in the past, the competition will challenge students to create and deploy innovative wood building systems with sustainable materials and create healthier living and working environments.

¹Ogilvy, 2018



UMass Amherst Design Building, Amherst, MA
 Architect: Leers Weinzapfel Associates
 1,400,000 Board Feet
 Credit: Albert Vecerka



WSU Everett University
 Cantilevered Staircase, Everett, WA
 Credit: Benjamin Schneider



Wilson School of Design, Richmond, BC, Canada
 Architect: KPMB Architects + Public
 708,571 Board Feet
 Credit: Adrien Williams

Updated Mass Timber Outlook Outlines Opportunities for Growth by 2035

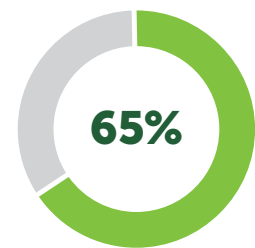
Interest in building with wood continues to grow across the United States, driven by next-generation lumber and mass timber building systems and rising recognition of mass timber's economic, environmental, and social benefits. Mass timber has existed for many years, with a patent being granted in the United States in 1923 for a product that looks like today's CLT.² To fully capture the future opportunity of mass timber, the industry must first accurately assess it. The SLB took substantial steps to do so in 2020 by partnering with FPIInnovations and Ben Romanchych Consulting to update its Mass Timber Outlook, first published in 2016, and chart potential incremental softwood lumber opportunity in the United States by 2035. The Mass Timber Outlook is available for download at www.softwoodlumberboard.org/masstimberoutlook.

Using a combination of current and historical market shares, wood-building construction trends in residential and non-residential sectors, and long-term forecasts, the updated Mass Timber Outlook identifies a potential 3.7 to 6.7 billion board feet (bbf) of incremental opportunity by 2035.

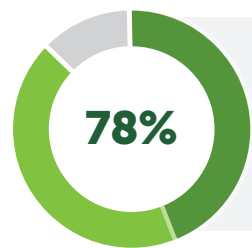
Five-story, light wood-frame buildings are increasingly common across the United States as a growing number of building designers turn to wood to cost-effectively and sustainably increase density. With support from WoodWorks, a developer in Sacramento, California, recently went further by developing 1430 Q., the first six-story, light wood-frame over two-story concrete podium residential building in the United States. The hybrid design enabled the developer to optimize density on a small but desirable site while also maximizing the financial return. WoodWorks has documented this project in a case study to inspire and educate other design and construction professionals considering similar hybrid solutions.



"We learned that building a six-story wood building is very doable, and we can count the lessons we learned on one hand. We showed that wood beats the price of steel and concrete for this type of construction, and comparatively speaking, it was not difficult to add that one additional story."
 – Tony Moayed, Tricorp's CE



65% of **ESTIMATED VOLUME OPPORTUNITY** is projected to occur in non-residential construction.



78% occurs in the **ONE-TO-SIX-STORY** range (occurring in both residential and non-residential segments.)

with **ONE-TO-FOUR STORIES** accounting for **44%** of the total volume opportunity.



20% comprised by **WOOD CORES**.

The Mass Timber Outlook expects that market opportunities will accelerate after 2030, as target shares in non-residential construction increase.

The increased use of wood cores, which include elevator shafts and structural cores, is an exciting development that is gaining traction in the western and southern United States. The analysis outlines an estimated volume opportunity of 1 bbf by 2035. This estimate is based on increasing the market share for one to 12 stories in residential multifamily buildings by 35% and non-residential buildings by 65% by 2035. This is a readily achievable goal; in British Columbia, 59% of cores in mid-rise buildings are already constructed with mass timber.³

Notably, the analysis also refined the anticipated positive impact that hybrid building systems will have on softwood lumber consumption, including but not limited to combinations of mass timber with steel, light-frame, or concrete podiums. Within the forecasted opportunity of mass timber panels going into hybrid construction, this opportunity offers the potential of another 600 million board feet of incremental softwood lumber demand by 2035.

Using the Mass Timber Outlook as a guide, the SLB and its funded programs will continue to deploy multiple strategies and approaches pending regional contexts, with an emphasis on advancing commercially viable opportunities up to 12 stories. At taller heights, such as the 25-story Ascent building in Milwaukee that is referenced later in this report, the SLB and its partners will continue to demonstrate the basis for more inclusive building codes and promote and showcase the exciting innovations occurring in modern wood construction.



Catalyst, Spokane, WA
 Architect: Michael Green Architecture
 2,923,886 Board Feet
 Credit: Benjamin Benschneider

²(Franks J. Walsh and Robert L. Watts. Composite Lumber. U.S. Patent 1,464,383, filed March 17, 1920, and issued August 21, 1923)

³Woodwork's BC, FPIInnovations and Ben Romanchych Consulting

Identifying and Overcoming Obstacles to Increase Mass Timber Adoption

Mass timber offers a sustainable, unparalleled solution to improve the carbon footprint of the built environment and to meet the world's growing demand for housing for its growing population. Mass timber continues to rapidly gain acceptance in the United States, as evidenced by the increasing number of completed and in design mass timber projects and thanks to investments by the SLB, the U.S. Forest Service, Forestry Investment Innovation, and a multitude of academic and private institutions.

However, for all of the early successes, there are other projects that started with mass timber concepts but did not conclude with mass timber structures. With support from the ClimateWorks Foundation (climateworks.org), WoodWorks recently set out to learn more about the key barriers that ultimately dissuaded these projects from using wood.

By interviewing teams associated with 84 projects, WoodWorks identified the four most frequently cited reasons for shifting away from wood as perceived cost (50% of surveyed projects), a lack of experienced general contractors and/or installers (38%), design limitations (37%), and design-team education needs (21%). Additional reasons included: the need for comparative business cases, non-inclusive building codes, a lack of owner/developer familiarity with wood, uncertain material supplies, and perceptions about mass timber's durability.

Many of these barriers are interlinked—for example, WoodWorks commonly encounters projects where a general contractor's lack of

experience with newer wood products and systems has led to overly high bids, or where an unfamiliar design team does not lay out a structure optimally and therefore increases costs and perceived design limitations. This can happen when a building is designed in concrete or steel first and then converted to a wood system versus starting with a wood-based solution and leveraging its advantages. WoodWorks' continued focus is to expand educational programming and grow the knowledge base in the design and construction community, through platforms like WoodWorks Innovation Network.

A number of solutions exist for each challenge identified. Some—such as WoodWorks' program to educate general contractors and installers on mass timber system installation—are already underway, while others—such as code adoption—will likely take a national effort to resolve at scale. The information gathered provides a critical first step to enabling WoodWorks, the SLB, and the rest of our industry partners to tailor strategies, investments, and efforts to minimize and remove these barriers and smooth the pathway for more mass timber construction in the future.

The study's results also give cause for optimism about mass timber's future. As of December 2020, 462 mass timber projects were built or under construction across the United States, and another 598 were in design. Considering that 17,000 commercial and multifamily buildings are built annually in the United States, there is tremendous potential to improve the carbon footprint of the built environment through the use of mass timber.

The SLB joins the building community in closely monitoring the rise of Ascent, the 25-story, 410,000-square-foot mass timber tower that was supported by WoodWorks and is now under construction in Milwaukee, Wisconsin. When complete, Ascent will become the tallest mass timber building in the world, with 19 stories of mass timber sitting on six stories of concrete.

As Engineering News-Record (ENR) recently reported, Ascent's journey from idea to reality is based in part on the experience of another much-anticipated wood tower—the 12-story, all-timber Framework building in Portland, Oregon. Framework's development was funded by the 2015 U.S. Tall Wood Building Prize, sponsored by the SLB, USDA, and the Binational Softwood Lumber Council. Framework was permitted but never built. However, the Framework project amassed a body of groundbreaking design, research, and testing results that proved both instructive and, in this case, directly applicable to Ascent and its code approval, including two-hour CLT fire tests.

Responding to Market Opportunities and Threats

Demand for softwood lumber surged in 2020, particularly in the repair/remodeling and single-family home segments—the industry’s largest markets historically. To better understand future demand, the SLB has analyzed multiple industry forecasts, which suggest up to 9.25 bbf of growth potential for softwood lumber in the United States from 2021 through 2025. This includes strong repair and remodeling and single-family market segments, which will continue to anchor the industry and grow annually, though the greatest proportion of growth is expected to be low-rise, non-residential, and multifamily buildings, which offer significant opportunities for growth, as wood is already permitted by existing code.

Besides opportunities, the SLB is also tracking several threats that could disrupt wood’s standing, particularly in residential markets, including:

- Ongoing demand and supply tension may open doors for competitors in single-family housing and lower-story multifamily and commercial projects.
- Off-site and modular construction continues to gain traction, assisted by multiple next-generation and prefabricated steel, composite, and concrete products that are aggressively courting this market with promises of quality and steady supply. While modular represents only 4% of new construction starts in the United States in 2019, analysts predict that modular will grow precipitously in line with trends in Europe and Asia.
- Labor shortages remain a serious challenge. According to the NAHB, the top three labor challenges affecting the construction industry are related to carpentry skills, with well over 70% of builders surveyed reporting shortages.
- Wood’s market share continues to be challenged in outdoor living—especially decking—as composites and other substitutes maintain popularity, launch new products, and compete at lower price points.

Wood’s competitors in the concrete and steel industries continue to challenge softwood lumber products through responses to misperceptions about the impact of wood on climate change. The concrete-masonry industry advanced the formation of its own mandatory checkoff program to protect and promote its products.

The SLB continues to actively track these market challenges in equal measure with opportunities and will explore tailored protection and promotion activities to secure and grow wood’s market share.

Wood’s competitors have challenged wood’s performance and sustainability benefits, despite wood having a clear edge over other manufactured materials when it comes to contributing solutions to climate change. The SLB and its funded programs stand ready to offer evidence-based responses to misperceptions about the impact of wood on climate change.

The Economist (2020) noted that “substituting mass timber for concrete and steel can reduce greenhouse gas emissions in construction without compromising quality.” Meanwhile, the New York Times (2020) reported on the concrete industry’s attempt to stymie wood’s momentum based on its fear that “wood will nudge concrete aside,” but that a growing body of empirical data “show[s] big wood panels and stout support beams defied fire and performed well in earthquakes.”



Susan Jones CLT House, Seattle, WA
Architect: atelierjones LLC
Credit: Lara Swimmer

The growth of single-family built-for-rent—“the newest, hottest trend in residential development” according to Forbes—also presents a significant opportunity for wood. Though currently at approximately 4.5% of the total single-family market (NAHB), analysts expect this segment will grow exponentially in the near future as the United States undergoes a demographic shift southward and several production builders enter the market. As with the regular single-family market, built-for-rent homes are at a size and scale where wood is well positioned.



Venture Capital Office HQ, Menlo Park, CA
Architect: Paul Murdoch
42,855 Board Feet
Credit: Eric Staudenmaier



Detroit Eco Homes, Detroit, MI
Architect: SmithGroup
200,571 Board Feet



901 East Sixth, Austin, TX
 1,600,000 Board Feet
 Credit: Casey Dunn
 2020 WoodWorks Wood Design Award Winner



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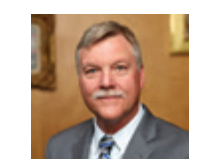
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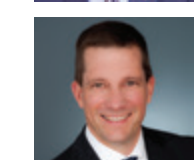
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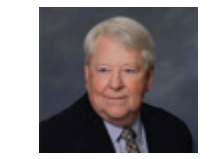


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