



# CLT GAINS MOMENTUM

**USED IN EUROPE FOR  
DECADES, CROSS-LAMINATED  
TIMBER CONTINUES TO GAIN  
TRACTION IN THE U.S. WOOD  
PRODUCTS INDUSTRY.**

**BY RICHARD VLOSKY  
AND MASON LEBLANC**

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**C**ross-laminated timber (CLT) is on the rise worldwide and many existing companies are beginning to ride this new and exciting wave. Throughout 2017 and the first quarter of 2018, 13 new mills were proposed from the United States to New Zealand.

Of those mills, seven are currently under construction and will be online by the end of 2020. In 2016, the global output of CLT was estimated to be 1 million cubic meters and is forecasted to reach 3 million cubic meters by 2025. Some sources state that the North American market alone has the potential of 2-6 million cubic meters. In order for these numbers to become reality, there needs to be a number of issues to be resolved.

The main issues are the need to create awareness, and ultimately adoption by architects, builders, architectural and civil engineers, as well as adoption of building codes that include CLT.

Where is it being manufactured and used globally?

CLT manufacturing is primarily focused in Europe where it has been used in building for more than two decades. There are more than 600 CLT structures in Europe and dozens of manufacturing facilities. More recently, CLT has expanded globally with the exception of Africa and South America.

Australia, Austria, Canada, Czech Republic, Finland, France, Germany, Italy, Japan, Latvia, New Zealand, Spain, Sweden, Switzerland, the United Kingdom and the United States all have CLT producing mills. There are more than 50 mills worldwide and that figure will exceed 60 in 2020 when the 13 new plants come online in Australia, Germany, New Zealand, Sweden, and the United States.

In addition to new production coming on line, existing major players in Europe continue to expand capacity. Stora Enso is constructing a third CLT mill in Gruvön, Sweden; BinderHolz recently announced an expansion of its mill in Burgbernheim, Germany, and KLH in Austria is upgrading to a larger press.



Cross-laminated timber, has been used in Europe for decades and has gained more of a foothold in the U.S. forest products industry in recent years.



These expansions have not stopped newcomers like Japan, which constructed a “CLT Roadmap” in 2014 that includes a three-year plan to prepare building regulations, conduct case studies, and develop a production chain. The Japanese plan to

mostly use their own forest resources and subsidize 50 percent of new mills cost while building one new 50,000 cubic meter capacity mill every year for 10 years to reach a goal of 500,000 cubic meters in 2024. They currently have five mills in operation.



# CLT STUDY RESULTS COMING SOON

Dr. Richard Vlosky, Director of the Louisiana Forest Products Development Center (right), is leading a multi-institutional study with more than 20 university, industry, and foundation partners to examine perceptions, awareness, opportunities, and barriers to using CLT from the perspectives of architects, non-residential builders, architectural and civil engineers, and lumber manufacturers in a 10-state region in the U.S. South. Results from this study will be published in an upcoming issue of *Forest Landowner* magazine.



Europe has built 18 all-timber buildings ranging from 7-14 stories, with nine buildings using both timber and conventional materials from 7-20 stories, and nine proposed buildings from 8-35 stories. Most of these are concentrated in the United Kingdom and France. Australia has plans to build a 26-story timber and conventional materials building in Nigeria. Japan announced that it plans to build the world's tallest timber tower in Tokyo. The tower will be 1,148 feet tall with 70 stories. Most recently, Norway is nearing completion of the world's tallest timber building in Brumenddal at 18 stories.

Where is CLT being manufactured and used in the United States?

The United States has three operating mills and four under construction. D.R. Johnson in Riddle, Oregon and Smartlam in Columbia Falls, Montana, are producing CLT on a made-to-order basis. Smartlam is currently expanding its operations in its Columbia Falls location and has committed to build a new mill in Maine by the fall of 2019.

Ligna Terra also has committed to building a mill in Millinocket, Maine and will be completed early 2019. International Beams in Dothan, Alabama came online late in September and Vaagen Brothers Lumber of northwestern Washington announced last year that they will be opening a subsidiary company, Vaagen Timbers LLC, which will begin CLT production in Colville, Washington this year.

Increases in the demand for structural panels have sparked two other companies' interest. American Laminators and Columbia Vista have proposed starting CLT production lines. In addition to CLT focused on building construction, Sterling Lumber in Phoenix, Illinois is producing CLT for crane mats, but could expand to building applications if markets are found to be attractive.

A promising CLT manufacturing leader in United States' timber construction, Kattera of Menlo Park, California, an-

nounced it received \$865 million in funding to fund its mill in Spokane, Washington as well as additional other ventures. The Spokane mill broke ground in December of 2017 and will be operational in 2020. Kattera recently acquired Michael Green Architects and Lord Aeck Sargent in efforts to remain true to its goal of "better, faster, and cheaper buildings for everyone."

Timber buildings in the United States are being constructed for residential, office, and commercial structures. The T3 office building in Minneapolis was built by Michael Green Architects and was the first modern tall wooden building in the U.S.

A few buildings currently under construction are the largest CLT building at the University of Arkansas for student housing, the second U.S. CLT hotel in Fort Drum, New York, and a six-story building in Portland, Oregon inner east side. A few U.S. universities have developed programs and curricula targeting tall buildings. Leaders in this public/private model are Clemson University, the University of Massachusetts and the University of Oregon. Other universities are conducting research to identify levels of awareness and willingness to use wood in structural multi-story applications.

With the abundance of southern yellow pine, there are opportunities for CLT mills in the U.S. South to be part of the nascent but rapidly growing CLT sector. Rural towns would economically benefit as proven with other mills in the region. Aside from the economic benefits, the introduction of CLT would give architects and builders access to the material, allowing them to reduce the carbon footprint by building with wood instead of steel and concrete.

Region-wide success would be determined by architects, builders, engineers, and the public's acceptance of using timber as a substitute for conventional concrete and steel. Recent studies about the properties of southern yellow pine CLT have proven to surpass the ANSI/APA PRG 320 standard for grade 4 CLT, but knowledge of the material in the south is still low.

Oregon and Washington have proved knowledgeable about the uses of CLT by recently approving statewide building codes that include tall timber buildings. The APA has also recently approved building codes for mass plywood panels, which helps to further the case for wood construction.

Research, development, and successful examples will help to convince southern stakeholders and influencers as well as the public of the soundness and the possibilities of using CLT. As we look to the future, perceptions can change, but it will take open minds and forward thinkers to take advantage of the resources around us. ■

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*Richard P. Vlosky, Ph.D., is Director and Crosby Land & Resources Professor of Forest Sector Business Development and Maston T. LeBlanc is a Masters Graduate Student in the Louisiana Forest Products Development Center School of Renewable Natural Resources at Louisiana State University. This article was adapted with permission from the Louisiana Forestry Association.*