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A COMING REVOLUTION IN THE FOREST PRODUCTS INDUSTRY

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By Jack Petree

Architects, structural engineers, and other construction industry professionals, along with environmental activists, are expecting cross-laminated timber (CLT) to become a viable "go to" building material in the near future—even for skyscraper-sized projects. If even moderate projections come to pass, the impacts on the forest products industry are likely to be revolutionary, equally impacting product sourcing, harvest availability and techniques, milling, the industry workforce, and the secondary processing of wood as the demand for lumber soars.

Think of CLT as a new kind of plywood; engineered panels are created by layering boards (often, but not always, 2x6) in alternating directions with everything bonded using structural adhesives. The result is a panel, pre-engineered for the particular application it is destined for in a building. CLT is lightweight, yet strong enough to replace concrete or steel throughout much of the structure. It is a scenario much studied in the academic community and seen as an important way to reduce greenhouse gas emissions in the future.

Environmental Activists and CLT

Thoughtful and influential environmentalists are increasingly championing CLT because the panels can be processed from the small logs typically removed from a forest to reduce catastrophic wildfires. Material from fuel reduction treatments and/or thinning projects for forest health was previously underutilized, usually with the subsequent return to the atmosphere of the carbon contained in the fiber. Today, that material can be profitably processed into CLT.

One environmentalist voice among many is Washington State Commissioner of Public Lands Hilary Franz. According to Franz, "Mass timber complements the Department of Natural Resources forest health work in central and eastern Washington, which will produce byproducts like small-diameter trees that can be used to make CLT and create jobs in rural, timber-dependent communities. When we remove diseased and dying trees, we allow healthy, strong trees to thrive, and we create a vital building material. CLT is less expensive and more environmentally friendly than steel and concrete, making it ideal for building affordable housing in our urban areas."

Harvests Aimed at Forest Health Will Increase

Landowners, public and private alike, acknowledge the need for more fuel reduction and thinning treatments to help combat the catastrophic levels of fire seen in recent years. Despite that, only a fraction of the necessary forest treatment has been addressed, at least in part because of the expense involved.

Growth in the markets for CLT and the subsequent ability to realize a profit from previously unsalable fiber will help remedy that problem. Craig Rawlings, president and CEO of the Forest Business Network, publisher of the 2021 International Mass Timber Report, and a nationally recognized expert on the forest products industry, has noted, "The mass timber movement has the potential of giving forestland managers a new market for the small-diameter and underutilized timber now overcrowding our forests."

Accompanying the increased demand, the industry will likely see formerly unavailable lands become available for harvest. One example is the Washington DNR Good Neighbor agreement with the U.S. Forest Service (USFS), authorized in the 2014 Federal Farm Bill. In a joint introduction of the agreement with USFS, Franz pointed out that fire, disease, and other forest-destroying events know no boundary saying, "The social, economic, and environmental issues tied to public lands go far beyond their boundaries. This agreement is an important tool that brings these issues together and makes problem-solving through collaboration possible. We can get farther by working together than apart."

Expanding CLT Production

Based in Colville, Washington, Vaagen Timber LLC is one of the West's six manufacturing companies emphasizing mass timber. Russ Vaagen, founder and CEO of Vaagen Timber, recently participated in a Pacific Forest Foundation (PFF) podcast.

Regarding the future, Vaagen commented, "We started this [podcast] by talking about challenges and opportunities and excitement, and I think that these challenges are all opportunities.

"We're going to need more forest products, not less. I think we need creative ways to go unlock that, because one of the things we know is we've got more trees than we've ever had. We've got a forest that really needs treatment, especially in the Intermountain West. We've got states that have almost no sawmill infrastructure at all, no logging infrastructure at all, yet they have vast forests that are dying of insects and disease. They're burning up, and people are asking for answers. I think that mass timber could help us create some of those answers, while at the same time building markets and building values for those that are managing forests…"

According to Rawlings' Mass Timber Report, fifteen plants capable of CLT production have been built in North America since the product began to emerge as a viable building approach. Six of those plants are in the U.S. West—two each in Washington and Oregon, one in Montana, and one in Arizona. According to the report, total production capacity in North America (using nominal sizing) is about 1.3 billion board feet.

Manufacturing plants focusing on mass timber are expensive propositions. The Katerra plant in Spokane, Washington, reportedly cost about $150 million and employs in excess of 100 people. Industry projections are that the number of buildings constructed with CLT will continue to double each year for perhaps decades, so while building a new manufacturing plant dedicated to CLT is not to be taken lightly, the future of the industry sector seems strong.

Expanded demand is likely to significantly benefit harvesting contractors and equipment manufacturers as well. More timber equals more jobs, and regarding equipment, Rawlings comments, "Without question,

in order to thin out those overstocked forests, high-tech harvesting equipment will be essential in keeping the costs down."

More harvests—including more targeted harvests—and more demand may mean some contractors will want to look at future equipment mixes that are especially suited to treating a variety of forests for health and resilience.

By way of example, Kenneth Swanstrom has worked the area around Kalispell, Montana, for 46 years. Ken's Skookum Timber Company offers the full gamut of harvesting services with a special focus on thinning for forest health and resilience. Speaking to equipment, Ken says, "Here in arid, high-elevation Northern Montana, you have to be prepared for all types of timber and spots to work."

To assure that preparedness, Ken utilizes the 2021 TimberPro 745D with a 24" Quadco saw head, a 2015 John Deere 2154D with a Waratah 622C processing head, a 2013 John Deere 748H grapple skidder, and a 2007 Cat 320C log loader, which (in Ken's words) are "the four main machines that go every day."

Supporting that equipment mix, Skookum maintains two graders, three dozers, another Cat 320 loader, two older Timbcos that see occasional use, and a spare JD 648 skidder, on top of a miscellany of associated equipment.

Cooperation Replacing Conflict

CLT is a place where the forest products industry and the environmental industry come together in relative comfort. The environmental industry sees CLT, a substitute for steel and concrete, as a way to dramatically reduce greenhouse gas emissions to the atmosphere by sequestering emissions for a hundred years or more while reducing the enormous emissions created by wildfires. The forest products industry is the tool needed to accomplish the huge task of addressing climate change effectively.

In the future, CLT may be viewed by historians as one of the most significant contributions to society the forest products industry, working hand-in-hand with the environmental industry, achieved during the past hundred years or more.

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