



Eastern hemlock CLT panels, made at SmartLam, Alabama's mass timber plant, were tested at American Plywood Association's lab in Tacoma, WA. Courtesy of Innovative Natural Resources Solutions, LLC

Expanding Centuries-Old Interest in Eastern Hemlock

New England's colonial settlers readily tapped the abundant eastern hemlock at hand in constructing their homes and businesses. Over time, its use in construction declined, outpaced by interest in other species from the southeastern United States and Canada. However, exploding interest in building with mass timber is creating a renewed demand for eastern hemlock.

One such initiative to meet this demand is underway. Funded in part with a \$250,000 grant from the U.S. Department of Agriculture (USDA), Forest Service's Wood Innovations Program, the North East State Foresters Association (NEFA) has implemented its

hemlock cross-laminated timber (CLT) certification and demonstration project. Other funding and development partners included the Commonwealth of Massachusetts and the University of New Hampshire (UNH).

CLT is a type of mass timber. It is formed by gluing or fastening pieces of lumber in layers to make solid wood panels of exceptional strength, stability, fire-resistance, and beauty. Mass timber also sequesters carbon throughout a building's life and, almost universally, its production generates fewer greenhouse gases than other construction materials (such as concrete and steel).

Charles Levesque, executive director of NEFA and president of Innovative Natural Resources Solutions, LLC, says the project had two objectives. The first was certifying eastern hemlock CLT to the American National Standards Institute/American Plywood Association (ANSI/API) PRG-320 standard for performance-rated CLT in building construction. The second was to use eastern hemlock CLT in commercial applications.



First-of-its-kind eastern hemlock CLT panel installed at the Fairbanks Museum. Courtesy of Innovative Natural Resources Solutions, LLC.

Building with Eastern Hemlock

Two demonstration projects incorporate certified CLT: A 10,000 square-foot addition at the Fairbanks Museum in Vermont, and a 30,000-square-foot, five-story mixed commercial and multifamily housing structure, dubbed 154 Broadway, in Massachusetts.

The museum addition is the first to use hemlock CLT panels; 154 Broadway incorporates CLT floors and ceilings. “Although the museum addition is unique, 154 Broadway is a type of project that is easily replicable,” says Levesque.

For both projects, trees were harvested, milled, and kiln-dried by businesses in Maine, Vermont, and New Hampshire. From there, the hemlock was transported to a CLT manufacturing plant in Alabama, as there were no CLT manufacturing facilities in the Northeast at the project’s initiation.

Bringing the Harvest Home

The ultimate goal is to build in New England with what is harvested, processed, and manufactured in New England. Andrew Fast, UNH forest industry specialist/extension professor, says “Using local wood leads to healthier forests, promotes regional economic development, reduces transportation and processing costs, and increases financial opportunities for landowners. Moreover, it is an example of how the region’s working forests and manufacturers support climate change mitigation.”

Meeting this goal is challenging. For example, Levesque explains facilities that manufacture CLT must also meet PRG-320 standards. “NEFA,

along with partners such as the UNH Cooperative Extension and the Forest Service, is exploring ways to stimulate the development of a CLT manufacturing plant in the Northeast.” He and Fast are also facilitating development of the supply chain to increase capacity and demand for dried, planed, and graded eastern hemlock boards suitable for CLT.

“The support of the Forest Service has spurred work with multiple regional collaborators, resulting in a pathway to commercially available CLT using Northeast timber species. It is exciting for those of us involved,” says Fast.

More Information

Charles Levesque, President
Innovative Natural Resources Solutions, LLC
levesque@inrslc.com, 603-588-3272

Patrick Rappold
Regional Wood Utilization Specialist,
USDA Forest Service
patrick.rappold@usda.gov, 414-477-9167

FAST FACTS

- Interest in mass timber construction is creating markets for eastern hemlock.
- Funding from the Forest Service supported a NEFA hemlock CLT certification and demonstration project.
- Forest Service assistance has spurred work with regional collaborators, building a commercial pathway to CLT using eastern hemlock and other species.



Eastern hemlock CLT installation at 154 Broadway. Courtesy of Innovative Natural Resources Solutions, LLC.