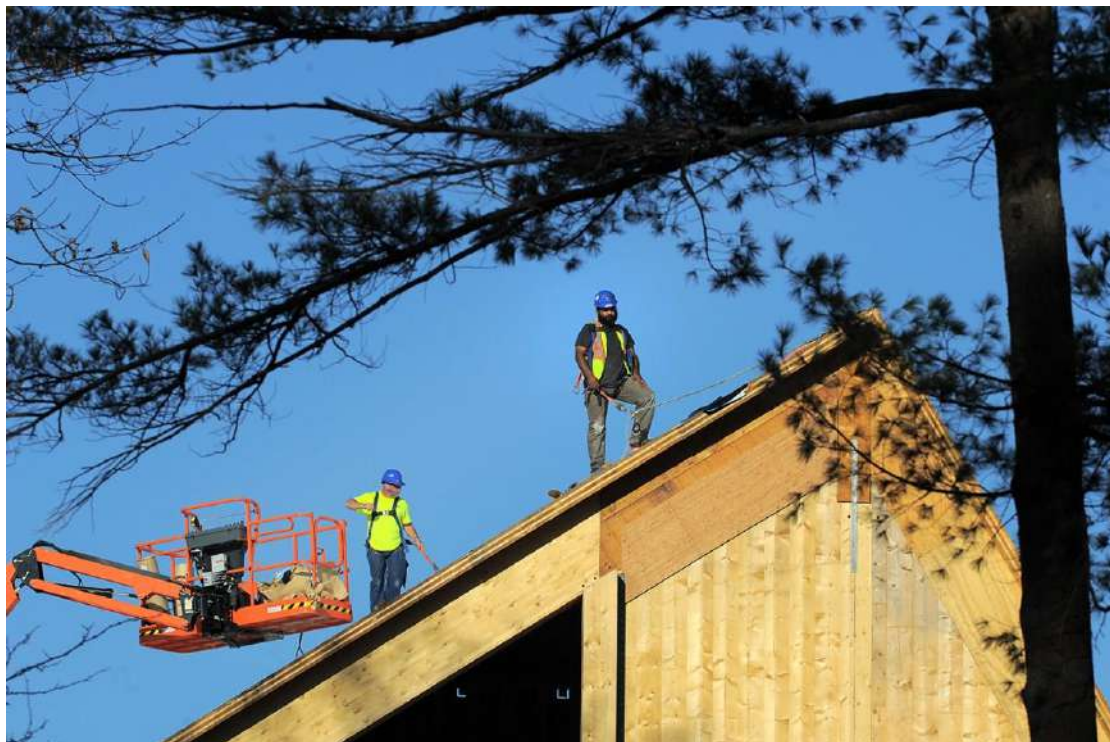


In Maine, mass timber seen as a climate solution and an economic opportunity

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The engineered wood material is made by attaching thin layers of wood with glue, nails or dowels to create strong structural elements that can replace steel beams in building construction.

by Sarah Shemkus November 10, 2022



Construction at Bowdoin College using mass timber. Credit: Bowdoin College / Courtesy

As the engineered wood material called mass timber gains traction in Maine, supporters believe it could both help lower carbon emissions from new buildings and galvanize the growth of the state's forestry industry.

"It has enormous potential to take on the market," said Ellen Belknap, a sustainable architect and president of Portland architecture firm SMRT.

Mass timber is the generalized name given to a class of engineered wood materials in which thin layers of wood are attached with glue, nails, or dowels to create strong structural elements that can then be assembled onsite. Advocates say it offers environmental, financial, and aesthetic benefits. Several institutions across the state

have undertaken large mass timber projects in recent years, and there is widespread belief that adoption will only accelerate.

Many also hope that Maine could become a producer as well as a consumer of mass timber, helping to bolster the state's forest products sector, which has suffered significant job losses in recent years with a series of paper mill closures.

"It could mean quite a lot for the economy," said Andrea Colnes, director of the Exemplary Forestry Center at the New England Forestry Foundation.

The desire to make construction more climate-friendly is one of the main drivers of mass timber's growing popularity. The wood sequesters carbon, keeping it out of the atmosphere. At the same time, the embodied carbon — the total emissions associated with the entire life cycle of the product including manufacturing and transportation — is lower than that of more conventional building materials like steel or concrete.

For example, Belknap and her team are developing a new building for the medical school at the University of New England in Biddeford. The design promises to reduce embodied carbon by 28% as compared to a building the same size made with a conventional steel framing, Belknap said.

"I don't think I've ever been more excited about a building system having such a positive impact on the planet," she said.

Mass timber can also cut carbon during the construction process. Because these buildings are assembled from manufactured panels and beams, construction times — and the associated equipment emissions — are generally significantly lower than in conventional construction. Bowdoin College in Brunswick is building a pair of new buildings using two types of mass timber, which are expected to be finished early next year. Erecting the structures from component pieces has taken roughly 25% less time than putting up steel-framed buildings would have taken, said Matt Orlando, Bowdoin's senior vice president for finance and administration.

"It's almost like putting Lincoln Logs together," he said.



Construction at Bowdoin College using mass timber. Credit: Bowdoin College / Courtesy

Bowdoin and the University of New England are among several colleges and universities using mass timber right now. At the University of Southern Maine's Portland campus, a mass timber residence hall is under construction, and the College of the Atlantic in Bar Harbor has already completed a mass timber academic building and is now developing a student residence using the material.

For many involved in these buildings, the use of mass timber also offers an aesthetic and emotional connection to the character of the heavily wooded state.

"You walk into a building that's framed in mass timber and it lowers your blood pressure — they're beautiful," Belknap said. "It's celebrating a heritage material that is in abundance here."

At the moment, however, the connection is more conceptual than anything: There are no producers of mass timber operating in Maine. Bowdoin had to buy its components from Austria and account for the emissions involved in transatlantic shipping in its carbon calculations.

This gap, however, presents an opportunity, mass timber advocates say. Nearly 90% of Maine is covered in forest, more than any other state in the country. Forest products are already an important part of the state's economy, generating more than \$8 billion in direct and indirect impact each year, according to state estimates. However, the closures of several paper mills in recent years has put a dent in the sector.

At the same time, the vast forests are an underutilized resource, according to [a report](#) released in October by the New England Forestry Foundation. And mass timber represents a promising market. In addition to an abundance of natural resources, Maine has proximity to major population centers in Boston and New York as well as existing transportation networks from its forests, said [a report](#) from the Maine Mass Timber Commercialization Center at the University of Maine.

The natural question is whether cutting down carbon-sequestering trees to make mass timber has a net benefit for the climate. Studies suggest the answer is yes, as long as old-growth trees are never harvested and the wood used is grown as part of a sustainable management plan. Colnes pointed, for example, to the practice of pre-commercial thinning, in which young trees are selectively culled, creating better conditions for the remaining trees to grow even more robust and, in the process, sequester even more carbon.

"If you go to the root of it, using wood that's grown well benefits the people who own the land and the people who sell the timber across the region," Colnes said.

Maine already has a long tradition of sustainable harvesting. Some 97% of existing logging activities eschew clear-cutting and instead use strategies that keep a large proportion of mature trees — along with their carbon-capturing capacity — standing and reduce impacts on soil, ecology, and wildlife.

Efforts are underway to usher in this new industry. The Maine Mass Timber Commercialization Center is working with the construction, forestry, and architecture industries to propose policies that would encourage the growth of a mass timber sector in Maine. And when the industry gets going, there will be plenty of demand, advocates agreed.

"There's no question this is the beginning of a trend," Orlando said. "The match has been lit here."