

How Mass Timber Buildings Can Address Climate Change

KEY POINTS

1. A five-story residential building in laminated timber can store more carbon than the above ground biomass of the typical native forest in New York State.¹
2. The carbon stored in a mass timber building can be equivalent to the carbon that would be released by the energy used in the building during 11 years of operation. In other words, after 11 years of operation, all of the carbon released by energy use within the building has been offset by the building structure.²
3. The production of steel and the production of Portland cement release about 15% of the carbon emitted to the atmosphere by human activities. Mass timber construction with sustainable forestry can capture more carbon than it releases during the construction of the building structure.^{3,4}
4. Significant reductions in both systolic and diastolic blood pressures are found in environments with majority wood coverage on walls and floors.

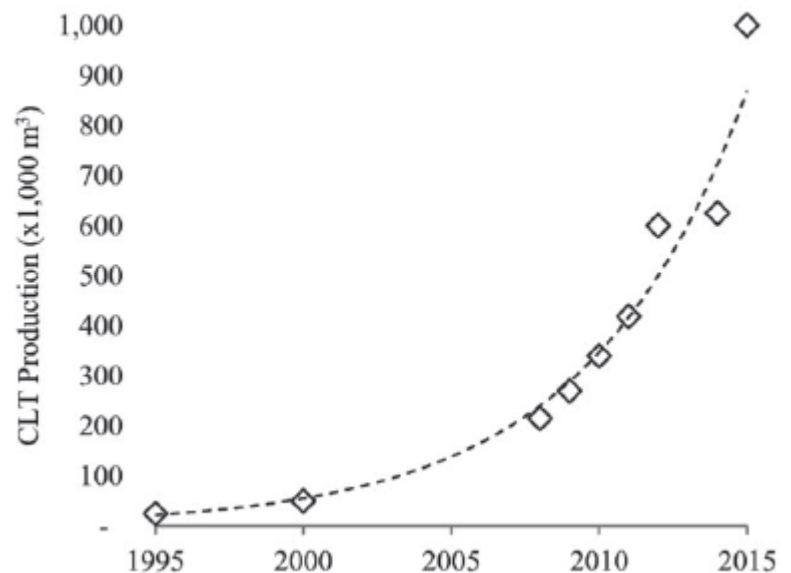


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WHAT IS MASS TIMBER CONSTRUCTION?

- A new construction approach that uses large wooden members to replace the steel and reinforced concrete typically used for the structure of commercial buildings up to 18 stories.
- A method which can turn commercial building construction from a carbon-emitting process to a carbon-capturing process.
- A method which has been tested and accepted in the US building code as providing equivalent life safety performance as typical steel and concrete approaches.
- An approach which can accelerate the overall construction process, reduce congestion around the construction site, and save costs of foundations in seismically sensitive areas.
- When the timber is left exposed, an approach that can provide biophilic benefits for the building occupants, helping to lower blood pressure, heart rate and stress hormones.

Cross-Laminated Timber: Status and Research Needs in Europe



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ECONOMIC FORECAST

- In NYS, our forest growth is more than twice our forest removals, ensuring that we can promote this method while not reducing our current forest stocks.
- Currently NY manufactures some of the components used in mass timber buildings. As demand grows manufacturers will look to increase production to meet demand.
- New York City provides significant potential growth for this approach, due to the high-rise construction used and the high costs of on-site construction labor in that market.
- While current mass timber manufacturing is done primarily with softwoods, the potential exists for low grade hardwoods and softwoods to be used.



Source: GBD Architects

A path forward

- Create a policy for carbon-capturing construction to receive expedited review for building code approval. Create policy documents for local communities to adopt to allow carbon capturing construction to receive zoning considerations such as reduced parking requirements, and greater density and floor to area ratios.
- Support NYS Department of State and NYC Department of Buildings to adopt the 2021 International Building Code, allowing Type IV A,B,C (mass timber) construction.
- Support SUNY Dormitory Authority to develop design guidelines for the use of mass timber for new dormitory construction.



Source: Albina Yard – Lever Architecture

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