Why does Mass Timber matter?

Steve Marshall, Mass Timber Strategies

Yale School of the Environment, September 9, 2021
“The best time to plant a tree was 20 years ago. The second best time is now.” - Chinese proverb
The big choice:
Renewable Buildings vs. Fossil Buildings.
Replenishment rates

- **Timber**: Decades
- **Limestone**: Millions of years
Close to 40% of carbon emissions are due to buildings.
Floor area in buildings is expected to rise by 75% between 2020 and 2050.
Focus on operational and embodied carbon
Mass Timber can help us zero out embodied carbon.
New tools to evaluate the embodied carbon of buildings.

Such as the Athena Impact Estimator, 1-Click LCA, Tally, EC3, WoodWorks Carbon Calculator.
It is a solar-powered construction material.
So what is Mass Timber?
Mass Timber is made by fastening other wood products together.
Cross Laminated Timber
CLT
Murray Grove
9 stories
London
GLT
NLT
T3 Building
Minneapolis
DLT
Public Library
Washington, D.C.
ETC

For example, interlocking glueless CLT
CLT originated in the early 1990s in Austria and Germany.
As recently as 2013, there was almost no use of CLT in the United States.
Mass Timber projects in design and constructed in the US (June 2021)

545 projects built or started so far
624 in design
Production is expanding with more than a dozen Mass Timber production facilities in North America.
This rapid expansion in Mass Timber is largely due to its sustainability.
Platte Fifteen
Life Cycle Assessment

Authors
KL&A Engineers and Builders
Adolfson & Peterson
Embodied carbon is being recognized.
Where are we at with Mass Timber?

2021 IBC covers Mass Timber up to 18 stories
Ascent in Milwaukee

But you don’t have to stop at 18 stories.
Ascent, which is under construction, will be 25 stories.
Doing Mass Timber buildings of 10 stories just got easier in the U.S.
Mass Timber momentum is increasing due to:

- Successes so far
- Carbon and sustainability
- Building code changes
- More product available
- More types of products available
- More experience
- More tools
- Federal, state, and local support
What’s next?

Yosemite Expands Lodging Accommodations With New Log Cabin High-Rises
What’s next: Infills and overbuilds

Taking Mass Timber to where people live, work, and play
Taking advantage of an existing foundation

We often think about this as a construction advantage but it is also a community benefit.
We can get construction **and** community benefits from:

- 30% faster
- 50% less crew
- 60% less truck traffic
- Quieter
- Can use existing structures
Mass Timber connects sustainable buildings and sustainable forests.
Biophilic Design

Initial data indicates health and wellbeing benefits from building with wood.
Expanding use of CLT in school buildings
We will see more:

- Tall buildings
- Modular construction
- Pre-designed buildings
- Hybrid technologies
- Multiple building projects
- Timber districts
- Affordable housing projects
We will continue to see rural and urban communities come together

Sustainable forests and sustainable communities supported by:

- Forest Practice Acts
- Forest Certification
- Life Cycle Analysis
- Environmental Product Declarations
Introducing the Mass Timber Marketplace:

www.masstimberstrategy.com/key-resources
MASS TIMBER
Taking the Building Industry to New Heights

Because of the unique structural and fire resistance characteristics of mass timber, in 2016, the International Code Council (ICC) appointed a committee of building and fire officials, architects, engineers, and industry experts to examine and propose appropriate code requirements for tall mass timber buildings. Their work and the resulting code changes mean code officials, designers and developers can now turn sketches into reality.

Mass timber research achieved a fire resistance rating of 3 hours for a CLT wall wall assembly. 1

Substituting wood for other materials in buildings and bridges could prevent 14 to 31% of global carbon emissions. 4

One firm found that mass timber, compared to concrete construction, is roughly 25% faster to build with and causes 90% less construction traffic. 3

ICC approved mass timber construction up to 18 stories. 2

American Wood Council summary
We can build Renewable Buildings now