



# Cross Laminated Timber

Highly adaptable, strong and sustainable alternative to concrete.

## TECHNOLOGY

**Cross-laminated timber (CLT)** is a highly popular mass timber product in the U.S., following its successful adoption in Europe. It's the focal point of ASCC research due to its widespread use.

CLT panels consist of lumber boards arranged crosswise and glued at 90-degree angles, enhancing performance. With strength, dimensional stability, and rigidity, CLT is ideal for mid- and high-rise buildings. Access to spruce-pine-fir-south lumber is crucial for CLT production, and Maine, in the Northeast, stands out for its abundant spruce-fir and red pine sawlogs. CLT ingeniously transforms otherwise unusable wood into sustainable and durable building materials.

## DEVELOPMENT

**The ASCC** has recently qualified two new CLT grades, utilizing MSR-graded Spruce-Pine-Fir-South (SPF-S) lumber from Maine. Research conducted at UMaine has highlighted the exceptional suitability of Maine-grown timber as a feedstock for CLT production. There has been significant exploration into the structural performance of Hybrid CLT, showcasing ongoing advancements in this innovative wood building material.



## IMPACT



### Environmental

CLT emerges as a sustainable alternative due to its rapid construction times and reduced waste generation compared to concrete.



### Construction

Construction using CLT offers a rapid construction advantage through its panelized construction method, outpacing traditional steel and concrete structures.



### Performance

The combination of alternating grains and the lightweight nature of CLT enhances its strength and overall performance, making it well-suited for the construction of buildings up to 18 stories.



### Fire Performance

CLT has a natural charring property that creates a protective outer layer during a fire, enhancing its resilience and safety. This inherent ability of CLT contributes to a higher level of fire resistance, making it a preferred and safer choice for construction projects.

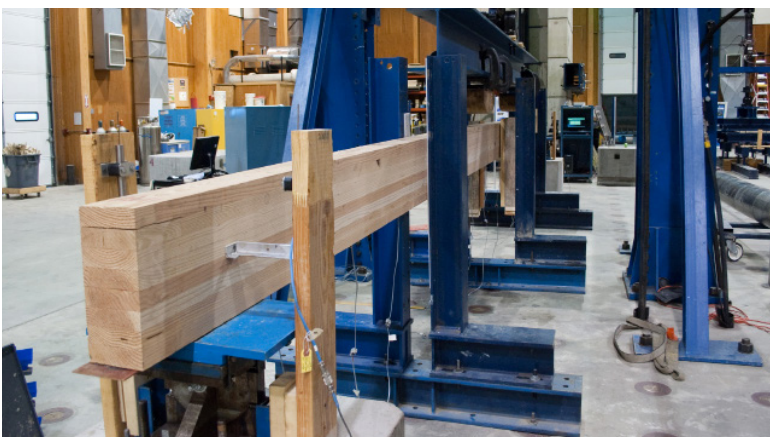
# CROSS LAMINATED TIMBER INNOVATION

CLT transforms wood that is not usable by itself into **sustainable and durable wood building materials.**

## Qualification of 2 New CLT Grades

Researchers at UMaine recently qualified two new grades of CLT using machine stress-rated (MSR) grades of SPF-S lumber. The two grades being evaluated were “E21” utilizing 1650f-1.5E SPF-S MSR lumber in the longitudinal layers and “E21M1” utilizing 2100f-1.8E SPF-S MSR lumber in the longitudinal layers. Both of these grades utilize No. 3 SPF-S lumber in the transverse layers.

The E21M1 grade has the highest published bending properties in the longitudinal direction of any CLT grade currently listed in PRG 320. The E21 grade is comparable to “E2” grade CLT, which is manufactured with Douglas-fir, a species known for its high stiffness and strength. Introduction of these grades to those currently available in North America will make manufacturers of CLT in Maine and New England more competitive with other regions domestically and globally.



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