

# STATE OF THE TECH: CROSS-LAMINATED TIMBER

## WHAT IS CROSS-LAMINATED TIMBER?

Cross-laminated timber (CLT) is a large-scale, prefabricated, solid engineered-wood panel. Lightweight yet very strong, with superior acoustic, fire, seismic and thermal performance. CLT is a highly advantageous alternative to conventional materials like concrete, masonry, or steel. Wood is also the

only renewable primary structural material that, unlike steel, masonry, and concrete, grows naturally. It therefore comes with no surprise that CLT has lower carbon emissions than all of these alternatives when evaluating the life cycle of these building materials.

## OTHER UNIQUE FEATURES

CLT consists of several layers of kiln-dried lumber boards stacked in alternating directions, banded with structural adhesives, and pressed to form a solid, straight, rectangular panel. Panels consist of an odd number of layers, usually three to seven, and

are typically sanded and pre-finished before shipping. The tightly packed panels trap 90% of the heat that would ordinarily escape a building, contributing greatly to the building's thermal performance.



## BETTER FIRE RATING

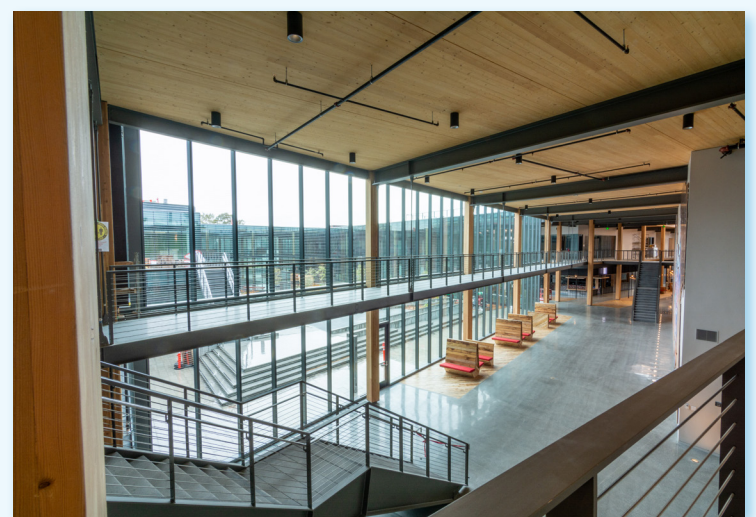
In the event of a fire, the high thermal mass of a CLT panel prevents the conduction of heat from one side of the panel to the other. Because of the slow rate at which a fire can burn through CLT's many layers (their slow

charring rate), CLT elements can withstand flames and remain structurally intact for much longer than traditional frame-built wood buildings.

## PROS AND CONS

At the mill, panels are cut to size with CNC routers, including door and window openings, giving them the ability to be cut into complex shapes and sizes. CLT is significantly more expensive than other building materials, but there are downstream savings from preassembly during manufacturing and an increased speed of installation in the field due to its lightweight properties.

All of these technical benefits, coupled with the pleasing aesthetics of the material, have led to a sharp increase in CLT's use in our industry. Rudolph and Sletten is currently working on one of the largest CLT projects in the U.S. for a large corporate client in Mountain View, CA, and most recently completed a five-building CLT project for a large corporate client in South San Francisco.



**EARTH WEEK: APRIL 19 - 23, 2021**  
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