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5 reasons to be inspired by hardwood cross-laminated timber

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The Smile, made from American tulipwood CLT, designed by Alison Brooks architects and engineered by ARUP. Originally on display at the Chelsea college of arts, London, during London Design Festival 2016. Cross-laminated timber (CLT) is inspiring architects worldwide. Here in North America, architects throughout Canada and the United States are designing innovative CLT-framed buildings as sustainability showpieces. Until recently, softwoods provided the primary lumber to manufacture CLT. The newest innovation in mass timber is hardwood cross laminated timber. Architect Magazine called hardwood cross-laminated timber one of the “Material Trends to Watch in 2017.” If pioneering architects have anything to do with it, hardwood CLT could become the defining building material of the 21st century . From reasons ranging from engineering to environmental, see why hardwood cross laminated timber is drawing so much attention from architects.

#1 – Framing with Hardwood CLT Shortens Construction Time

Because CLT is digitally designed, factory pre-cut and then assembled at the construction site, building with hardwood CLT is faster than building with traditional steel and concrete. How much faster? Try 30%.

The Stadthaus, a 9-story residential building in East London completed in 2009, and Forté, a 10-story apartment building in Melbourne, Australia finished in 2012, were completed 30% faster than their traditional counterparts .

“If you can build your building three to six months faster, that’s a lot of time saving as well as money saving,” says Boris Iskra of Australia-based Forest and Wood Products Ltd.



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#2 – Hardwood CLT Buildings Are Safer in a Fire

A common misconception about framing a building with hardwood CLT is that it will be a fire hazard. On the contrary, it's actually safer than steel and concrete. Why? When steel heats, it bends and warps—quickly. When CLT is exposed to fire, it chars on the outside—at a predictable rate. The interior actually stays just as solid and stable while the exterior chars.

Fire safety testing and research prove it. “Cross laminated timber has an inherent fire-resistance due to its ‘massive’ cross-section ,” notes Christian Dagenais, Eng. M.Sc., in [“Fire-Performance of Cross-Laminated Timber \(Fire Research & Testing\)”](#).

#3 – Hardwoods Are Strong & Resilient

Hardwood cross-laminated timber may be fast and fire-resistant, but isn't steel and concrete a stronger, and therefore, better choice than CLT?

In short, no.

To understand why, you have to understand what CLT is. Cross-laminated timber is an engineered wood product created by adhering together pieces of timber layered on top of each other in opposite directions. The results are large—up to 10 feet long by 40 feet wide by 1 foot thick—solid wood panels that maximize the inherent tensile strength of wood. Sheets of hardwood CLT are “exceptionally strong, dimensionally stable and rigid”—making them perfect for tall building [construction](#) .

#4 – Hardwoods are Sustainable & Good for the Environment

“Wood is the most sustainable building material we have,” says [Chris Guth](#), Timber Resource Manager for Northwest Hardwoods. Not only that, CLT can be made using trees that are otherwise undesirable, such as younger, smaller diameter trees and even dead trees. This usability can provide new economic incentives for the timber industry to harvest trees in ways that can improve forest health.

Plus, turning trees into logs, lumber and buildings is not only easier on the environment than extracting the raw materials and manufacturing steel and concrete, but it's also better for climate change. We all know that trees remove CO2 from the atmosphere, right? Well timber keeps that CO2 trapped inside it. A high-rise building made of CLT is better than carbon-neutral—it's carbon negative, explains [Popular Science magazine](#) .

#5 – Save Money with Hardwood CLT Framing

Building with CLT can shave, on average, 15% off a building construction's [cost](#) —at least in Europe and Australia where it's a more popular form of building material. Those upfront savings are potentially impressive by themselves, but there are additional cost-savings to be found for owners and operators of tall timber buildings.

Because wood is 350x more insulating than steel and 5x more insulating than concrete, a building framed with hardwood cross laminated timber will have lower energy costs—saving thousands of dollars of operating costs each year.

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Promega Corporation, a biotechnology firm headquartered in Madison, WI, completed construction on the 260,000 ft² (24,155m²) state-of-the-art Feynman Center manufacturing facility in 2013. The ceiling of the facility's client and staff reception area, called The Crossroads, is constructed of cross-laminated timber (CLT), the largest installation of cross-laminated timber (CLT) in the United States.

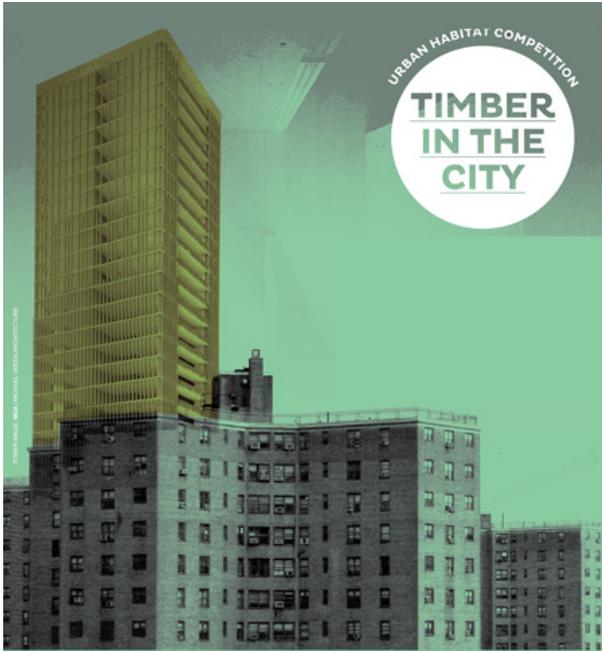


- Canadian high-rise will be the tallest timber structure in the world



- 'Most advanced' engineered wood building in the U.S. opens at UMass
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**Timber Competes in Midrise Buildings:
Softwood Lumber Council**

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