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A Timber-Based Building Method Draws Praise, and Skeptics

Cross-laminated timber is today's hottest sustainable construction material, but can it really slow climate change?

BY PETER FAIRLEY 05.04.2020

LAST SEPTEMBER, Washington Gov. Jay Inslee stepped to a lectern in a sprawling 270,000-square-foot factory outside Spokane and declared it the "best day so far" in his six years in office. Earlier that day, he had marched downtown as part of the youth-driven climate strike that united 4 million people worldwide. Now he was in nearby Spokane Valley, heralding a new factory with an innovative product that, he said, answered the "kids'" calls for climate action.

The plant — one of the largest of its kind in North America — produces today's hottest sustainable building material, called cross-laminated timber, or CLT. Rollers and lifts shuffle and stack lumber, feeding a giant press that glues the assembled boards to form immense 12-foot by 60-foot panels. With up to nine stacked layers, each laid perpendicular to its neighbors, the panels are stronger — pound for pound — than concrete. The multi-ton panels are then precision-cut to fashion them into floors and walls for office and apartment towers — pre-fabricated panels that will snap together at the construction site like Lego blocks.

What fired up Inslee was that those panels are designed to replace steel and concrete — traditional construction materials whose production accounts for about 13 percent of global carbon dioxide emissions. Cross-laminated timber panels, in contrast, contain the carbon-cutting dividends of photosynthesis: While growing as trees, the wood in the panels pulled CO2 from the Earth's atmosphere. And as long as a CLT building stands, that carbon should remain locked up in its walls and floors.

What's more, advocates of the technology say, the snap-together fabrication of CLT panels may be both cleaner than and as affordable as building with concrete and steel. Here, gushed Inslee, was an example of a "somewhat older generation who's using their technological prowess and entrepreneurial zeal" to create a "solution to climate change" — not to mention jobs in economically depressed eastern Washington.

The governor was in top rhetorical form, fresh off his short-lived, climate-focused presidential bid. But CLT's Pacific Northwest juggernaut is lacking in one crucial element:

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Proof that it will really help slow climate change. Some forest scientists, climate modelers, and materials experts are raising tough questions about the wisdom of boosting the region's wood harvests. They argue that forestry's carbon footprint is far more complex than the "wood is good" message pushed by CLT's supporters. Forests are only able to regenerate if the lumber industry makes sustainable choices, they say, and plenty of carbon gets dumped into the atmosphere when logs are transformed into snap-tight CLT buildings.

"The carbon story is actually rather complicated for wood compared to other building products," says Frances Yang, a San Francisco-based sustainable materials specialist with the global engineering giant ARUP. "There's carbon dioxide constantly going in and out of the system."

Some forest scientists and climate experts are raising tough questions about the carbon-cutting dividends of cross-laminated timber construction in the Pacific Northwest, and the wisdom of boosting the region's wood harvests.

This story was produced in collaboration with InvestigateWest, a nonprofit newsroom in Seattle with a focus on the environment, public health, and government accountability.
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