

# Conversation: Building code updates for mass timber

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With British Columbia's decarbonization targets in mind, [RJC Engineers](#) principal [Grant Newfield](#), P.Eng., is focusing on making buildings more sustainable. In March, updates to the B.C. Building and Fire Codes came into effect that allow for taller mass-timber buildings, up to 18 storeys. We spoke with Newfield about the significance of these changes.

**How are code updates reflecting the increased use of mass timber?**

For a long time, there was high public awareness of fires involving dimensional lumber in stick-frame buildings up to four or six storeys. Most of these fires occurred during construction, not after drywalling, but they gave wood a negative connotation.

When we started developing provisions for encapsulated mass timber, which came over from Europe in 2009 and 2010, we differentiated it from dimensional lumber because it performed very differently in a fire. One of mass timber's intrinsic properties is it takes a long time to get ignited. It's like when you put a big log into a fireplace with nothing else to start a fire. You can hold a torch to it, but you can't get that big log going!

As mass-timber construction started to be demonstrated in buildings that met the same fire-safety requirements as for steel and concrete, people became comfortable with it and the public perception changed. Around 2019, the B.C. government mandated provisions to allow mass-timber construction up to 12 storeys, as part of a push to get more wood into buildings, both for sustainability reasons and to support the local forestry industry.

**“One of mass timber's intrinsic properties is it takes a long time to get ignited.”**

Meanwhile, national codes were starting to move in the same direction to limit carbon emissions. The 2020 National Building Code (NBC) adopted B.C.'s provisions for encapsulated mass-timber construction up to 12 storeys. And now the 2023 B.C. Building Code, which has just been adopted, is in turn based on the 2020 NBC.

### **How does mass timber help meet sustainability targets?**

Wood is a low-embodied carbon material. While concrete and steel require energy-intensive processes for their production, wood is harvested at low energy intensity. It's a lighter material and it sequesters carbon.

The first wooden buildings were post-and-beam structures. Cross-laminated timber (CLT) can span in two directions like plywood, so for a straightforward residential building, you can work with the architect on a grid layout and specify point-supported CLT with no beams. That's a very efficient approach, reducing both the amount of materials in the building and the cost of constructing it.

**“You add more drywall the higher you go.”**

### **What needs to change for mass-timber buildings to become taller?**

The provisions for 12 storeys required 50 minutes of encapsulation, which meant two layers of drywall. You could either drywall even further to provide full fire protection or allow some charring of the timber, as long as you came up with a two-hour burn fire assembly.

In 2023, a joint provincial group between B.C. and Quebec wrote a proposed change form for the NBC to allow mass timber up to 18 storeys. That change was reviewed by the Canadian Board for Harmonized Construction Codes (CBHCC) and went out for public comment. It could become part of the 2025 NBC, but the provinces might not wait that long—they could implement changes ahead of time.

The new provisions for 18 storeys require more encapsulation, getting us from 50 minutes up to 70 minutes. You add more drywall the higher you go. It's a logical approach that follows provisions that have already been adopted in the U.S., in the International Building Code (IBC).

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