

# High-rise wood buildings: Part of the solution to fight climate change

## CONTEXT

Efforts to reduce greenhouse gases (GHG) are growing worldwide. As urbanization evolves, in order to reduce road congestion and improve quality of life, it has become essential to design taller buildings in which commercial spaces are integrated.

Wood is increasingly recognized as a way to reduce the GHG intensity of materials used to construct buildings. In Quebec, the Building Code requires that wood used for structural elements must be clad and finished with incombustible materials. What is the GHG impact of these requirements? Is the effort still worth it?

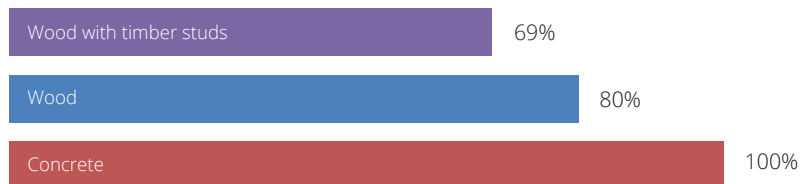


**For more information:** Essoua, Géraud and Lavoie, Patrick. Analyse de cycle de vie (ACV) environnementale comparative de la construction de bâtiments de grande hauteur en bois massif et en béton. FPInnovations, 2019.

## KEY MESSAGES

- Use of a wood construction system in an eight-storey building (Arbora C) means reducing emissions by 20% from an equivalent building (1,750 tonnes) during a 60-year lifecycle.
- Production of materials represents 72% of total emissions of a concrete building during its lifecycle.
- Replacement of materials like steel, concrete and aluminum with wood equivalents means a reduction in GHG compared to conventional concrete construction.

## ENVIRONMENTAL PROFILE COMPARISON: WOOD BUILDING VS. CONCRETE GLOBAL WARMING



## RECOMMENDATIONS

- Encourage the use of wood and other low-carbon-footprint materials in high-rise buildings if they can, at a minimum, match performance of carbon-intensive products like those currently used.
- Offer training that targets the potential uses of wood in high-rise buildings.
- Maintain policies to encourage the use of clean energy instead of fossil fuels throughout the manufacturing industry; improve policies so as to consider reductions in all construction materials.
- Sensitize manufacturers, real estate developers and certification organizations to the importance of producing environmental product declarations to evaluate the carbon footprint of buildings at the early-design phase.
- Develop construction materials, products and systems to reduce carbon intensity of buildings by expanding beyond a concern for operational energy.