

Environmental Benefits of Mass Timber Buildings



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Multiple Life Cycle Assessment (LCA) studies conclude that using mass timber products (MTP) as building materials have environmental benefit over traditional building materials, such as steel and concrete.

However, to import MTP from other provinces means longer transportation distances and negative environmental impacts.

- LCA is a tool that can be used to assess environmental impact of a product (i.e., buildings) throughout its life cycle.
- This study will conduct LCA on two representative buildings: Forestry and Geology Building (90 years old, opened in 1930) and IUC New Forestry Building (44 years old, opened in 1976).
- Scope of the LCA is from cradle to gate.
- By consulting with Bird Construction, models of mass timber version of two buildings will be made. The models will have same structural performance or meet current building code for institutional buildings.
- Results from LCA of current buildings will be compared with LCA result of mass timber models to show the benefit of using mass timber building materials by assuming mass timber products are locally available.
- The environmental impact of long-distance transportation will be added into the results to determine if using MTP in buildings have environmental benefits in the real-world scenario since MTP needs to be shipped from other provinces to New Brunswick.

A preliminary study on LCA for IUC New Forestry building showed that the walls (interior and exterior) had the highest global warming potential (GWP), followed by foundation, then columns and beams.

While the foundation must be reinforced concrete, interior walls, columns and beams can be replaced with MTP and other wood materials to reduce their global warming potential. The benefits can be significant because of the high GWP contribution of these parts.



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