SUSTAINABILITY AND HERITAGE CONSERVATION

Retention and conservation make good environmental sense

Buildings have been identified as the largest single source of energy use, waste, and omissions into the atmosphere. Close to half of the greenhouse gases produced in Canada come from buildings.

Buildings are vast storerooms of energy

It takes energy to extract raw materials from the earth and energy to manufacture finished building materials. It takes even more energy to transport those materials to a construction site, and still more energy to assemble the building.

The total energy required to produce and maintain the building over its entire lifecycle is known as embodied energy. If a building is demolished and taken to the landfill, the embodied energy is wasted. There is a tremendous impact on the environment when something new is built. Avoiding new construction by retaining and reusing heritage buildings is an ecologically conscious decision.

Buildings are producers of carbon

Carbon emitted through building construction, including the entire process of extraction, fabrication, transportation, and assembly is called embodied carbon. When an existing building is demolished and a new building is erected, the carbon footprint is much larger than that of a retrofitted or rehabilitated building, in which its life-cycle carbon is largely already spent.

New buildings do not provide simple answers

While new buildings that meet today's highest energy efficiency standards consume less energy for heating and cooling than older buildings without energy-saving retrofits, many new building materials require a tremendous amount of energy to produce and most of the materials cannot be reused or recycled. This is something that must be taken into consideration before a heritage building is demolished.

Impacts in numbers

- It takes a lot of energy to construct a building. For example, building a 50,000 square foot (4645 m2) commercial building requires the same amount of energy it takes to drive a car 20,000 miles (32,187 kilometres) a year for 730 years.
- Recent research shows that it takes 35 to 50 years for an energy efficient, new building to save the amount of energy lost in demolishing an existing building.
- It is known that "even the most energy-efficient new building cannot offset its embodied energy for many years. The United Nations Energy Programme estimates that the embodied energy of a building is 20% if a building is operational for 100 years… the shorter the service life, the greater the ratio of embodied energy to operating energy is."
- According to the Intergovernmental Panel on Climate Change (IPCC), "… over the whole building stock, the largest portion of carbon savings by 2030 is in retrofitting existing buildings and replacing energy-using equipment…"

As an organization of provincial scope, Heritage BC recognizes that its members, and the local history and heritage they seek to preserve, occupy the lands and territories of B.C.'s Indigenous peoples. Heritage BC asks everyone to reflect on the places where they reside and work, and to respect the diversity of cultures and experiences that form the richness of our provincial heritage.

- Approximately 25% of Canada's waste stream, is made up of construction, renovation and demolition waste.
- Demolition projects produce 20 to 30 times more waste material per square metre than renovation or construction projects.
- According to the Building Materials Reuse Association, demolishing a 2,000 square-foot house sends 60 tons of material to the landfill, 85% of which could have been reused.
- 20% of all Canadian landfill is made up of used construction material
- 50% of construction waste is salvageable and reusable
- 45% of construction waste is recyclable

Analyzing available Canadian data, Parks Canada provided the following information in the report "Historic Places Matter":

- The embodied energy of a building increases by 144% by the time it is 50 years old.
- Refurbishing buildings could reduce Canada's waste stream by approximately 6%.
- The energy consumption of existing renovated buildings is relatively similar to the energy consumption for a typical new building.

For more information, please visit our list of resources, as well as A Guide to Making a Case for Heritage.

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