

Green Buildings – A Climate Change Solution



Every Building Greener

Photo Courtesy of Waterfront Toronto



Canada Green Building Council
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Canada Green Building Council



Mission:

Lead and accelerate the transformation to high-performing, healthy green buildings, homes and communities throughout Canada

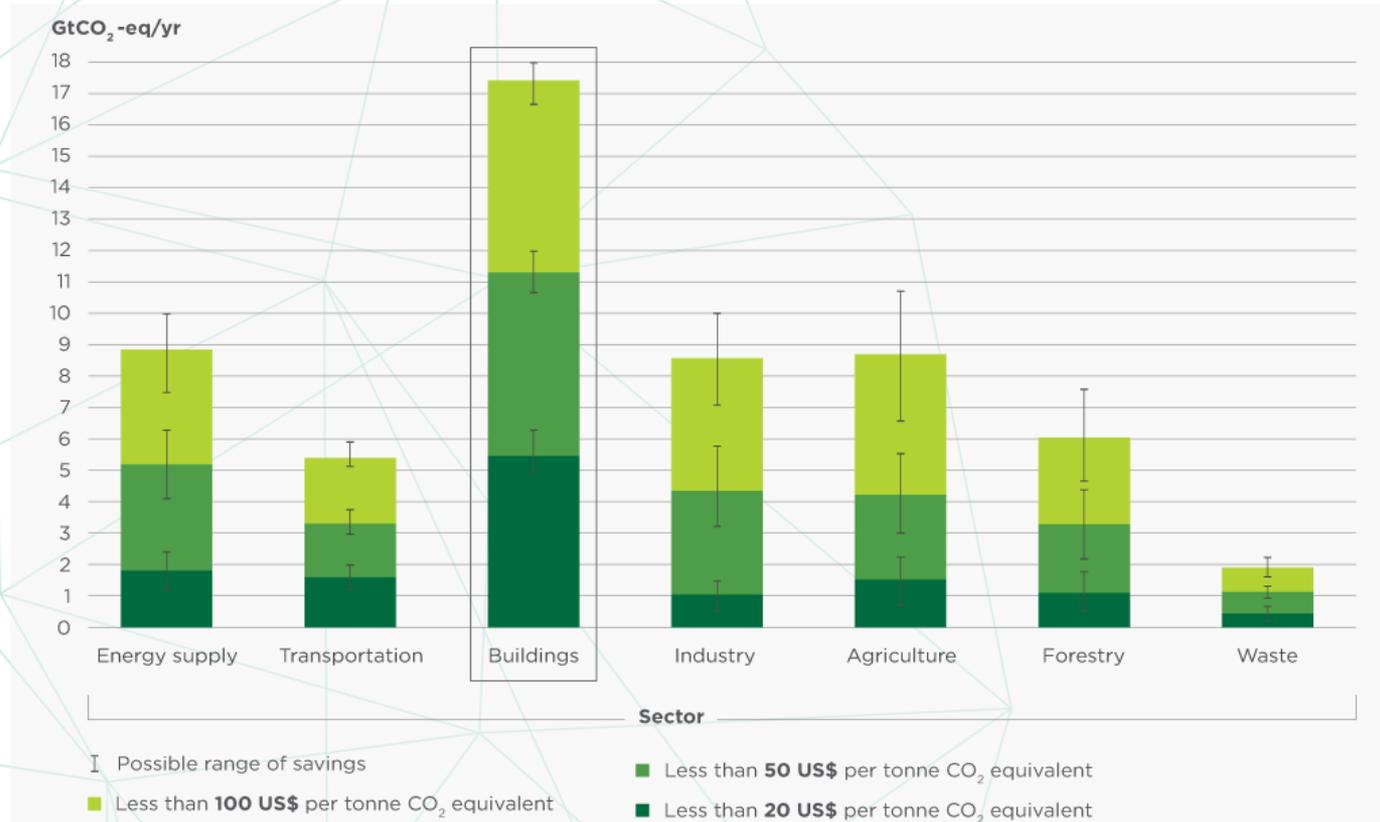


Atlantic
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Find out more visit www.cagbc.org

Buildings – A solution to Climate Change

- In 2006, buildings accounted for 30% of energy use and 28% of greenhouse gas emissions in Canada.
- The UN Environment Program identifies buildings as offering the greatest potential for achieving significant energy and GHG emission reductions, at the least cost.



Find out more visit www.cagbc.org/Advocacy

Benefits of Green Building



- Reduced municipal infrastructure for services, transportation, and energy
- Lower operating costs
- Reduced greenhouse gas (GHG) emissions
- Increased profitability and/or return on investment
- Improved indoor environmental quality (IEQ)
- Improved protection from energy and water shortages and volatile commodity pricing
- Improved occupant satisfaction, health and wellbeing
- Accelerated economic development through the local green building industry

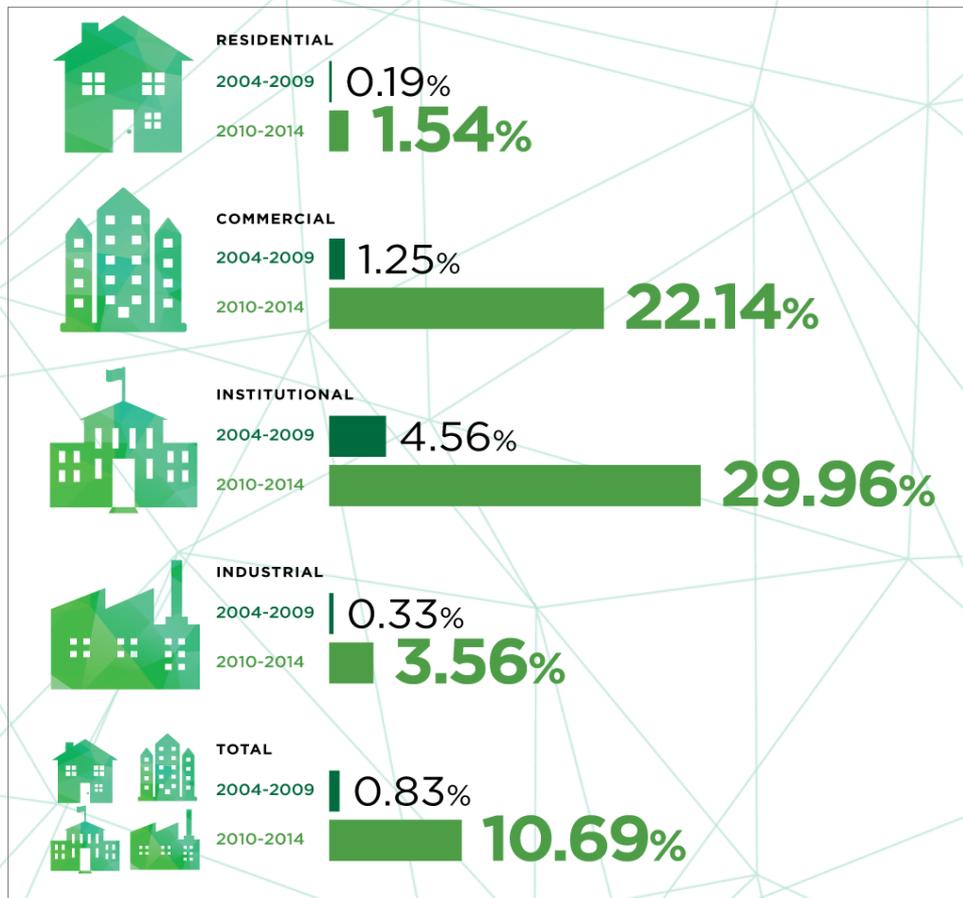
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Green Building Has Seen Widespread Voluntary Adoption Across the Building Sector in Canada

Green building programs such as the Leadership in Energy and Environmental Design (LEED) rating system have led the market to high-performance buildings

Market penetration of LEED certified projects as a percent of new floor space in Canada



- LEED is a voluntary certification system that has transformed the design and construction of buildings for over a decade
- High-performing green building rating systems such as LEED have led the market in adopting higher performing standards for:
 - energy efficiency + carbon
 - waste reduction + recycling
 - water conservation
 - occupant health, and
 - resiliency

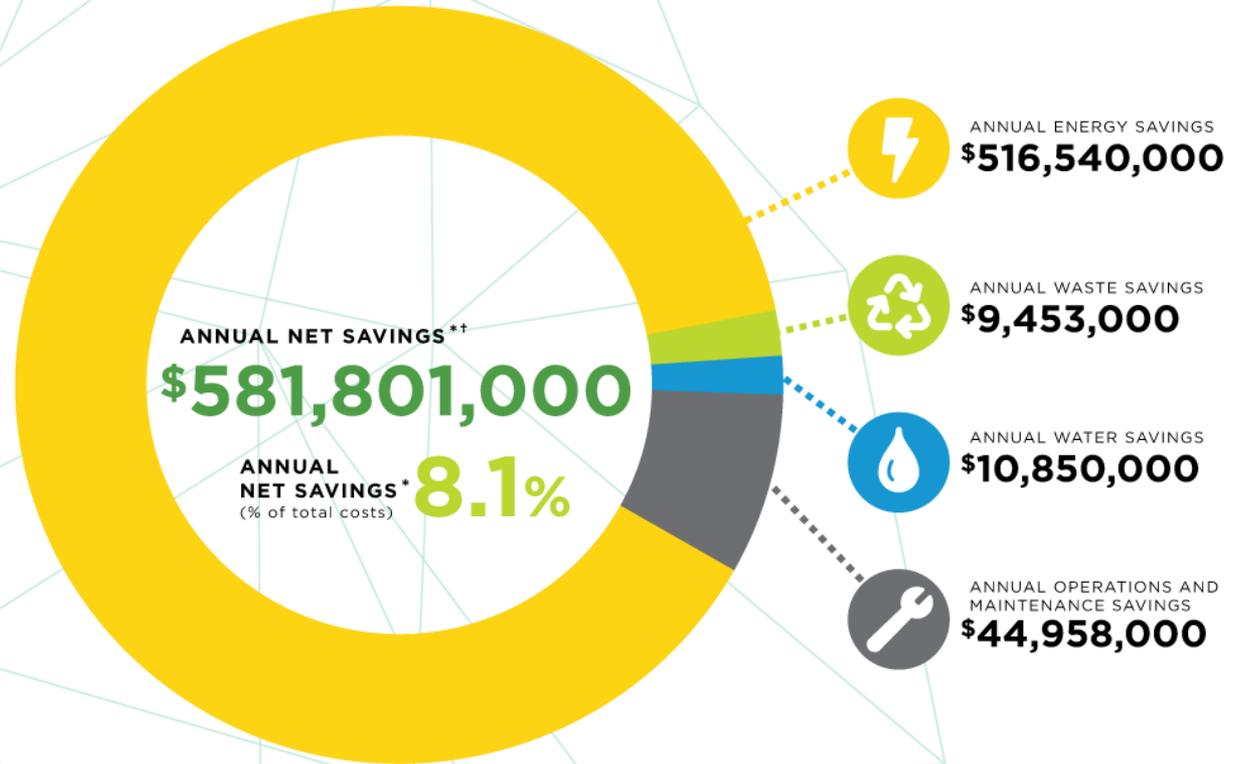


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Lifecycle Savings from Buildings in Canada

LEED Certified

Since 2005 LEED® certified Buildings have benefitted Canadians by increasing energy efficiency, reducing carbon emissions, and reducing other environmental impacts.



This represents a net savings of **\$6,806,417,000** over the economic lifespan of LEED™ buildings.

* Net savings are the difference between the 33 year present value of savings and the green building investment.

† This data is for 2275 LEED™ certified buildings, representing 23,757,640 square metres in Canada.



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LEED® Policies Across Canada



Find out more visit www.cagbc.org

RETROFITS - THE POTENTIAL OF BUILDINGS AS A SOLUTION TO CLIMATE CHANGE

- 1** Recommission buildings that have yet to achieve high performance status by optimizing existing building systems for improved control and operational performance;
- 2** Undertake deep retrofits in buildings to high-performance standards such as LEED, focusing on energy reduction and ensuring that key building systems such as lighting, HVAC and envelopes are upgraded;
- 3** Incorporate solar or other on-site renewable energy systems in buildings; and
- 4** Work with jurisdictions and the private sector to switch to low-carbon fuel sources in buildings.

These four actions could enable large buildings in Canada to achieve a 51% reduction in carbon emissions (21 Megatonnes of carbon dioxide equivalent greenhouse gas emissions), surpassing the Canadian 30% reduction target³.

↓ 51%
Carbon Emissions



Zero Carbon Buildings as the new Benchmark

CaGBC's Zero Carbon Building Standard is a made-in-Canada solution to reduce carbon emissions, providing a path for buildings to achieve our climate change commitments



THE KEY COMPONENTS OF THE ZERO CARBON BUILDING STANDARD

The Canada Green Building Council's **Zero Carbon Building Standard** represents a unique, made-in-Canada solution that can help us achieve our climate change commitments.



1

ZERO CARBON BALANCE

No net greenhouse gas (GHG) emissions are associated with building operations. GHG emissions are offset by generating clean, renewable energy onsite or offsite.



2

EFFICIENCY

New construction projects consider peak energy while maximizing energy efficiency with a focus on the building envelope and ventilation strategies that drive down thermal energy demand.



3

RENEWABLE ENERGY

Onsite renewable energy is incorporated into new construction projects to provide added resiliency, minimize offsite environmental impacts, and prepare buildings for a distributed energy future.



4

LOW-CARBON MATERIALS

An assessment of the carbon associated with structural and envelope materials—from manufacturing to end of life—informs design decisions.



TO LEARN MORE, VISIT WWW.CAGBC.ORG.



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Find out more contact www.cagbc.org/ZeroCarbon

Zero Carbon Buildings as the new Benchmark



READ THE COMPLETE REPORT AT CAGBC.ORG/MAKINGTHECASE

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Making The Business Case For Building To Zero Carbon

Zero Carbon Buildings eliminate greenhouse gas emissions while reducing operating costs and achieving positive returns

INCREMENTAL LIFE-CYCLE RETURNS ACROSS CANADA

- Over 4 million tonnes of CO₂e/year could be avoided
- Outcomes are strongest in Halifax due to the high carbon intensity of the NS electricity grid
- Outcomes for Montreal, Ottawa, Toronto & Calgary are economically strong with upfront capital cost premium mitigated over the life-cycle by higher operating and emissions savings
- Less strong in Vancouver due to low-carbon intensity of electricity grid which results in lower carbon cost savings, the low cost of natural gas, and the milder climate which reduces energy demand

NATIONAL RESULTS

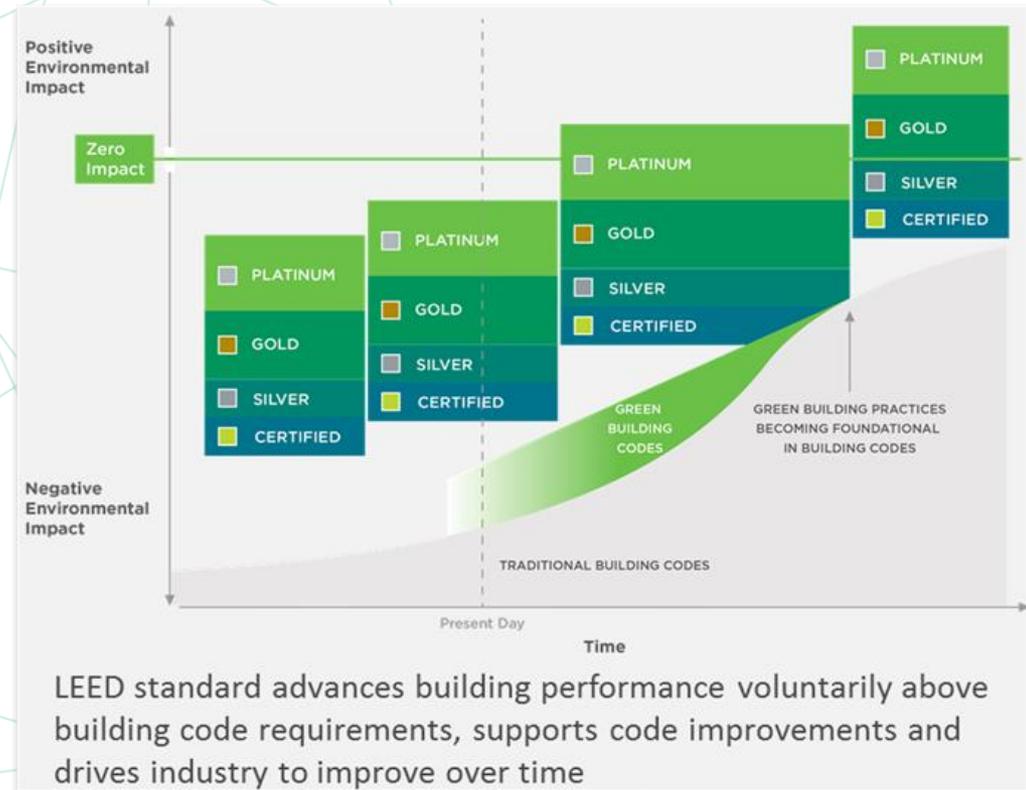
Incremental Life-cycle Return
\$27/m² | \$34/tCO₂e | **1%**

Incremental Capital Costs
\$253/m² | **8%**



Leverage the Industry Capacity and Knowledge Built Through Voluntary Standards

- LEED and other industry-led voluntary programs have built industry capacity and knowledge to help achieve continuous performance improvements in buildings from minimum requirements to Net Zero Energy-ready buildings
- Support industry uptake by facilitating alignment with established industry methods and current standards for high performing buildings
- Lead by example, update HRM's green building policy to LEED Gold or Platinum for new and existing buildings, and Zero Carbon on select projects



Green Building Goals for HRM?

- All new construction Zero Carbon by 2030
- All Buildings Zero Carbon by 2050

Municipal governments can take a leadership role in meeting Canada's 2030 GHG targets through government-owned buildings by:



Adopting a retrofit strategy and operational practices for existing buildings to achieve high-performance to Zero Carbon and LEED standards



Ensuring innovation in building design and construction by adopting the Zero Carbon Building Standard for new buildings

Find out more visit www.cagbc.org



Thank You!

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