Unlocking the Value of Green Buildings

CAGBC
Canada Green Building Council
Conseil du Bâtiment Durable du Canada

Content

ISBN: 978-1-998647-02-6

Introduction

Thomas Mueller
President & CEO
CAGBC

Canada's green buildings sector is creating good jobs, driving economic growth, and helping with household affordability – and we've barely scratched the surface of its potential. Our industry does a great deal for Canada's economy. As of 2018, the green building sector employed more than 460,000 people and almost $50 billion in GDP. We plan to update these numbers in 2025 and expect to see an increase in employment and GBP growth.

Our modelling finds that thoughtfully designed policies could triple those numbers by 2030.[1] And since these jobs are not tethered to any specific geographic region, Canadians and workers in every province and territory stand to benefit from investments in green building.

Further, green buildings are also simply good business. Canadian homeowners appreciate the lower energy costs they provide and rest easier knowing their green home will be safer and more comfortable for their families through extreme weather events. Commercial tenants also benefit from lower operating costs and a healthier workforce, while commercial owners report higher occupancy rates for their green properties.

Meanwhile, Canada's green building transition is spurring demand for sustainable building materials and technologies, driving innovation and opening new value-added opportunities in forestry, steel, cement, and other sectors.

Cost-of-living considerations are currently top of mind for Canadians. However, extreme weather events continue to have significant impact, resulting in increased insurance costs. Fortunately, green buildings help address both resilience and affordability. By targeting energy efficiency and renewable energy technologies, Canada could eliminate up to 40 million tonnes of carbon emissions – helping lower utility costs for millions of homeowners, renters and commercial tenants.

In short, green buildings are already driving a stronger and more prosperous economy while helping Canadians keep more of their hard-earned money in their pockets. We are excited to illustrate how unlocking the value of green buildings can deliver on this potential – and hope this resource proves useful in your work.

1 CAGBC, Canada's Green Building Engine. 2020.

About CAGBC

The Canada Green Building Council® (CAGBC) leads and accelerates the nation's transition to green buildings. Founded in 2002, our organization represents, supports, and builds capacity within the construction and real estate sectors. We conduct research and lead training to actively grow Canada's green building workforce, share industry expertise, and oversee certifications such as LEED® and the Zero Carbon Building Standards™ to help the industry achieve, report and verify building performance.

Beyond our industry access, we maintain trusted relationships with the public sector, organized labour, and academia – providing research-supported recommendations and market-changing tools and services.

By bringing together policy-makers and industry leaders in constructive dialogue, CAGBC is helping ensure Canada remains sustainable, resilient, and competitive in the long term.

820+

Corporate members

14,100+

Active professionals

6,523+

Certifications[2]

68.6M+

Square metres of floor space currently certified through CAGBC

=

2000

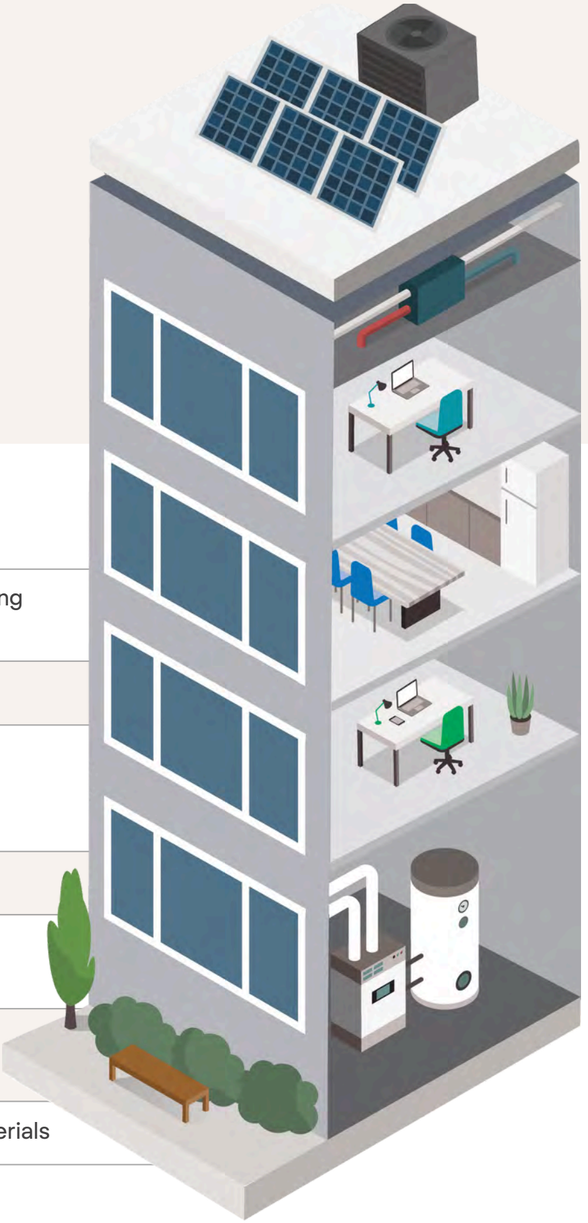
Parliament Hill's Centre Block buildings

2 Includes all project certifications under CAGBC's Zero Carbon Building™ (ZCB) standards, Leadership in Energy and Environmental Design (LEED®), Investor Ready Energy Efficiency™ (IREE), and TRUE to January 1, 2025.

Breaking down the benefits

A green building is designed, constructed, renovated, and/or operated to exceed regulatory requirements across various sustainability criteria, such as energy and water usage, waste generation and the health implications of its materials and indoor air. Through these practices, CAGBC is working to minimize environmental impacts, improve resilience, and enhance people's well-being in the built environment.

Did you know? "For every dollar put into energy efficiency there has been a $2 return in avoided energy generation costs."[3]



Attribute	Benefit
Thoughtfully selected and carefully installed windows, doors, and insulation	Lowers energy bills while improving occupant comfort – including during extreme-weather events
Efficient use of energy, water, and other resources	Protects building owners and managers from utility cost spikes
Excellent indoor air purification	Improves health, comfort, and productivity outcomes
Consideration of occupant quality of life in design, construction, and operation	
Pollution- and waste-reduction measures, and enabling re-use and recycling	Limits landfill waste and can help reduce costs
Reduced greenhouse gas (GHG) emissions from operation and construction	Increases tenant retention and may unlock premium lease rates Increases marketability to companies with GHG targets
Inclusion of equipment to produce or utilize renewable energy on-site, such as solar, geothermal, or waste-heat recovery	Diversifies energy supply and can contribute to resilience Support grid capacity
Selection of safer and ethically sourced building materials and finishes	Drives demand and innovation for Canadian-made building materials

3 Minister Lecce Directive to the IESO, November 2024, https://www.ieso.ca/corporate-ieso/ministerial-directives

CAGBC Canada Green Building Council | Conseil du Bâtiment Durable du Canada

Improving every Canadian community

Canada is a global leader in green buildings. Our nation consistently ranks among the top international markets for LEED® certified buildings. Further, CAGBC has established the world-leading Zero Carbon Building Standards™ (ZCB) – the first of their kind globally. Each year, these buildings help make Canadian communities cleaner, healthier, and more resilient – and each new building or retrofit adds to the collective benefit.

2 Canada's rank amongst the 10 largest international markets for green buildings certified under LEED® [4] in 2024.

13 Provinces & Territories with LEED® certified buildings [5] and 7 with ZCB-certified buildings.

4 These international rankings exclude the United States, which has more LEED certifications than any other nation. As of 2023, our southern neighbours had certified 51+ million gross square meters (GSM) of floor space.

5 Yes, that's all of them. In 2023, the Canadian High Arctic Research Station in Cambridge Bay, Nunavut became the northernmost facility in the country to achieve LEED certification.

Northeast Scarborough Community & Childcare Centre

Zero Carbon Building–Design

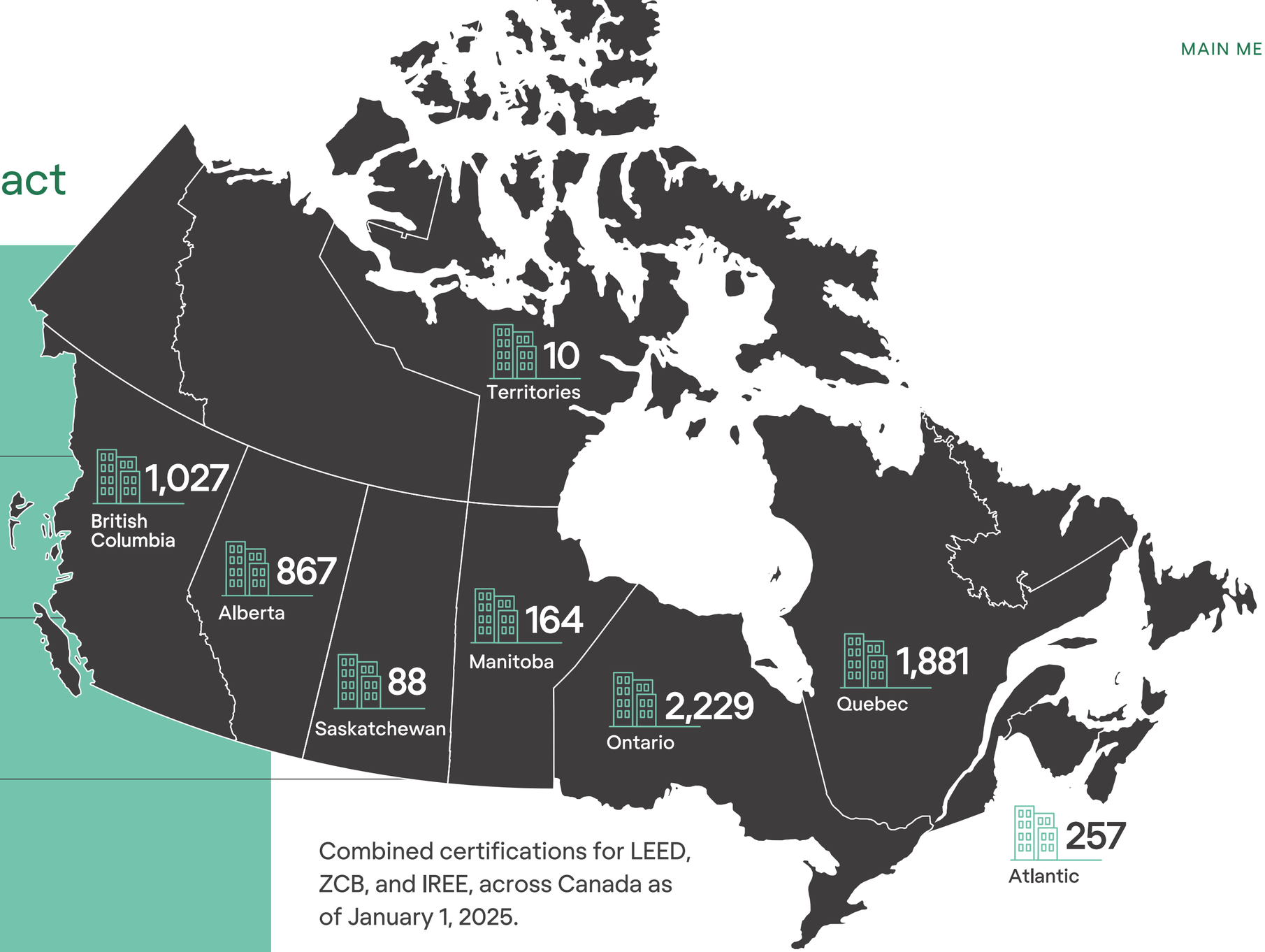
Project rendering by Perkins&Will

Our collective impact

70
ZCB-Performance buildings

100
ZCB-Design buildings

6,286
LEED Certified projects



Combined certifications for LEED, ZCB, and IREE, across Canada as of January 1, 2025.

How buildings achieve a net-zero emissions balance:

- Upfront carbon - emissions from materials and construction process
- Use-stage embodied carbon (from design to demolition/reuse)

- Direct and indirect emissions coming from operating the building (mainly heating and cooling)

- Energy generation, storage or export back to the grid through renewables or batteries (solar panels, geothermal, etc.)
- Carbon offsets

What is a zero-carbon building?

A building that is highly energy-efficient and minimizes greenhouse gas (GHG) emissions from building materials and operations. Until all emissions can be eliminated, high-quality carbon offsets can be used as a counterbalance.

What green buildings certified by CAGBC contributed to Canadian communities (2005-2023)

Value	Metric	Equivalency
40.5 Million eMWh	Conserved **Energy**	Enough to power **1.4 Million** Canadian homes for a year
70 Billion litres	Conserved **Water**	Enough to fill **28,000** Olympic-sized swimming pools
7.8 Million tonnes CO_2e	Avoided **Carbon pollution**	Equivalent to the impact of **1.6 Million** Vehicles driving for a year
4.2 Million tonnes	Diverted **Construction and demolition waste**	Enough to fill **15 times** Toronto's Rogers Centre

Solving the housing crisis while protecting affordability

Canada's housing crisis is galvanizing all levels of government into action. Some jurisdictions have introduced densification policies, while others directly incentivize new supply. The federal government committed to work with the industry to build 3.87 million new homes by 2031, requiring at least two million new homes above and beyond those already in the pipeline.[6]

Governments can help ensure affordability for the everyday Canadians who will live in these new homes by requiring or incentivizing industry to move beyond "building as usual" practices. Energy-efficient green buildings lower energy costs and enhance resilience. As a result, Canadians living in green buildings will keep more of their take-home pay because of reduced utility costs from heating, cooling and powering their homes.These buildings are also future proofed against changing building codes, lessening the risk of costly retrofits down the road.

Where to begin? CAGBC's recommendations include supporting smart building technologies, facilitating access to clean energy, and incentivizing energy-efficient, low-carbon buildings.[7]

The surprising truth about the low costs of building green

A recent BC Housing survey of 38 new properties found no clear correlation between a building's construction cost and its energy and carbon performance. The provincial agency concluded that green buildings can be built at, or below, the cost of a "typical" building if an experienced design team considers sustainable features from the outset.[8]

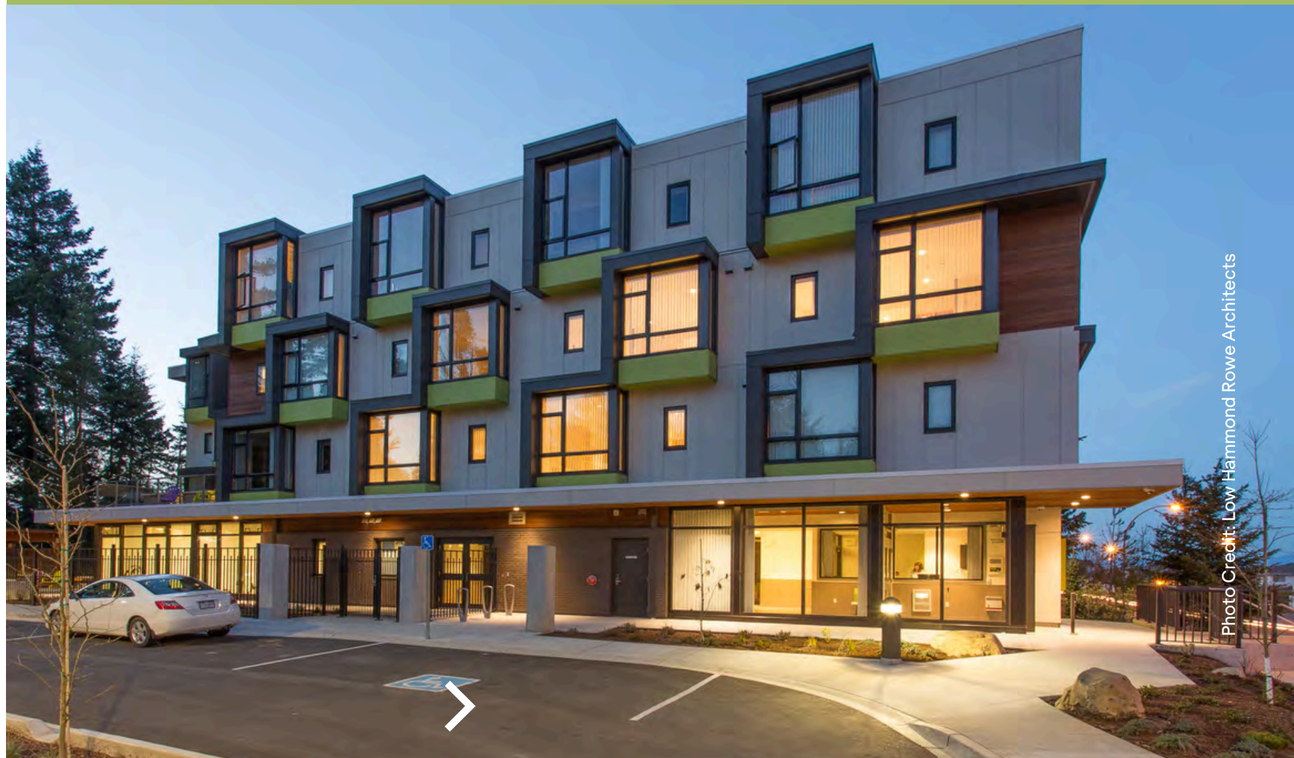


Photo Credit: Low Hammond Rowe Architects

6 CAGBC. "Two Million Green Homes: Ensuring Canada's Needed New Housing is Affordable, Attainable, and Sustainable." November 28, 2024.
7 The National Housing Accord.
8 BC Housing. "Building Innovation: Does High Performance Construction Cost More?" Research Bulletin. June 2024.

Action opportunities: Housing crisis

De-risk deep energy retrofits

The green building sector is rising to the challenge of delivering highly efficient buildings. The sector is introducing new technologies, approaches, and third-party certifications that help ensure both new and existing buildings achieve peak performance. The Investor Ready Energy Efficiency (IREE) certification, available through CAGBC, helps retrofit projects align with industry best practices and ensure confidence in proposed energy efficiency gains.

Savings you can take to the bank

An IREE certification allowed Toronto's WoodGreen Community Housing to lock in financing for an ambitious energy retrofit project, giving investors the confidence that the captured energy savings would easily pay back their loan.[9]

$141K
Annual utility cost savings

1.7
Gigawatt-hours of energy reduced

10
Years guaranteed energy savings

9 "Efficiency Capital achieves Canada's first IREE-certified efficiency project at WoodGreen Community Housing." CAGBC. November 1, 2020.

Photo credits - WoodGreen Community Housing, Toronto, ON

Peel away the red tape and build green from the get-go

In a recent survey, builders cited development cost charges, levies, and permitting snags as lead drivers of increased construction costs and delays.[10]

To make up the difference, developers might choose cheaper-but-inferior materials and technologies. However, Canadian homeowners and tenants will end up footing the bill as these buildings will almost certainly need deep retrofits down the road to lower utility costs and improve comfort.

Instead of cutting back on sustainability measures that benefit Canadians, regulators can help encourage new housing by streamlining development approval processes and lowering development fees.

Regulators can help encourage new housing by focusing on streamlining development approval processes and lowering fees.

10 BC Building Industry Members Support Climate Policies for New Construction." Zero Emissions Innovation Centre. October 10, 2024.

23294 GeoPark, Kingston, ON
ZCB Design - Render courtesy of Lemay

Align housing programs with sustainability requirements

Governments and industry must continue collaborating to align housing programs with sustainability requirements. Doing so will maximize returns on investment while lowering energy costs for owners and renters. It will also avoid the risk of "paying twice" – the first time to build the housing as quickly and cheaply as possible, and the second time to retrofit the homes to remain affordable and comfortable in a changing climate.

Sustainability and affordability are complementary goals, not competing priorities. We can spur much-needed new, affordable and resilient housing by ensuring industry uses cost-effective and sustainable technologies, and governments adopt supportive policies and expand innovative financing mechanisms.

Render courtesy of University of Winnipeg Community Renewal Corporation & UWCRC 2.0 Inc.

Strengthening Canada's economy

Though some perceive Canada's green building sector as a boutique industry, in reality it is an economic juggernaut that employs hundreds of thousands of Canadians. In 2020, CAGBC assessed the sector's contribution to national GDP at $48 billion. That placed the industry in the same ballpark as Canada's agriculture and agri-food industry, and the retail sector.

The assessment also found more than 460,000 Canadians were working in green-building operations, construction, education, and manufacturing. Demand for green buildings remains high today; employers in the building sector have more than 40,000 vacancies to fill.[11] Young Canadians searching for well-paying jobs that positively impact their communities need to look no further than the green building sector for opportunities. However, public investment in skilled trades training is critical to support young Canadian workers.

A reliable employment engine

As of 2018, Canada's green building sector contributed 462,150 direct jobs to Canada's economy.

$48 Billion

Contribution to national GDP

460,000+

Canadians were working in the green building sector

210,668

Green buildings jobs in construction alone

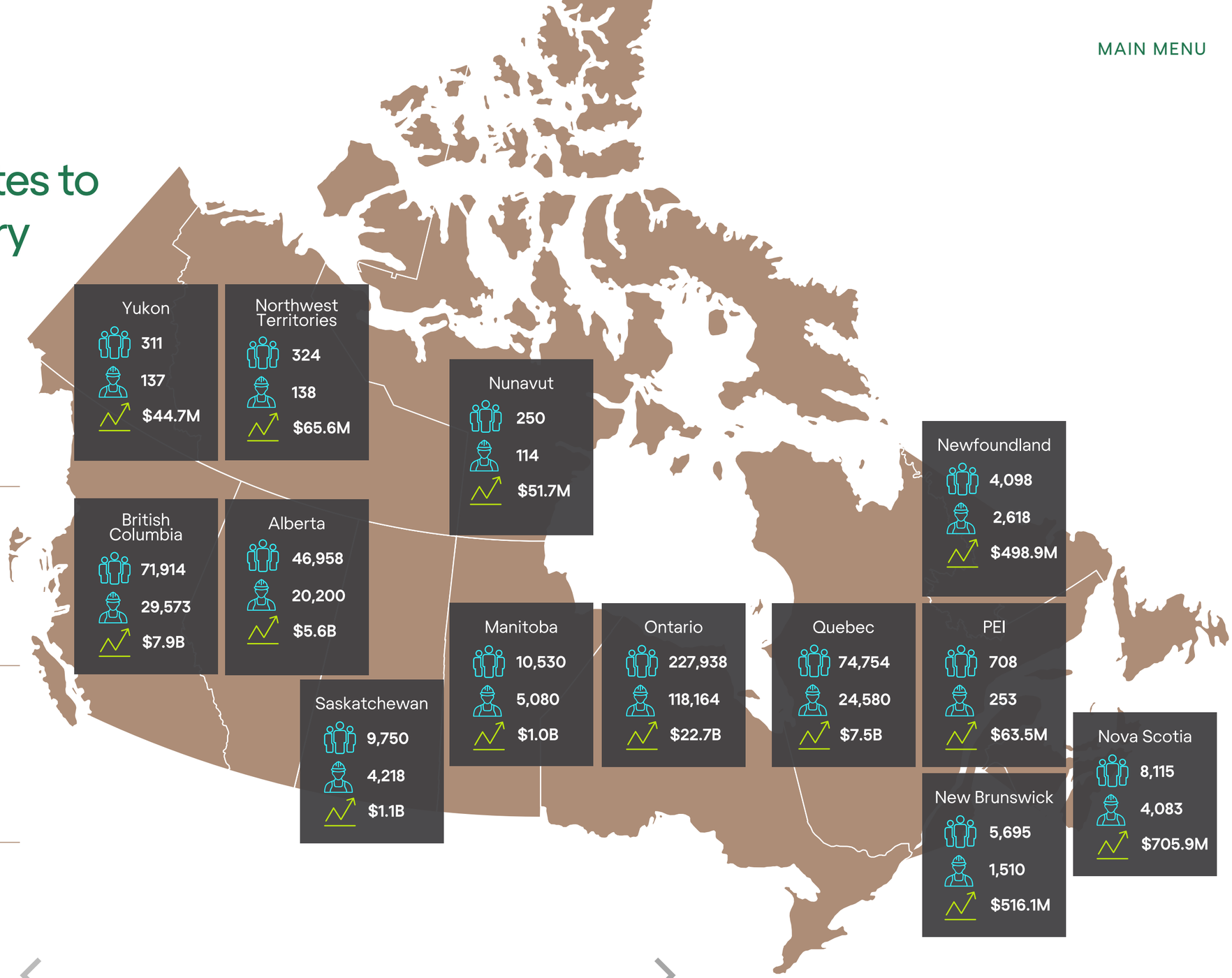
11 Build Force, Reviewing Canada's Construction Sector 2023, 2024.

Green building contributes to every province & territory

Green Building Jobs

Green Construction Jobs

GDP



Who does what?

From the first sketch on a napkin to move-in day, here are some of the people who work to bring green buildings to Canada's communities.

Role	Responsibilities	Examples
Decision makers	Make choices about when and where green building projects will happen	Developers, estimators, planners, financial professionals
Designers and consultants	Determine what a project will look like, what it will accomplish, and how it will come together	Engineers and architects
Construction trades	The hands-on trades and professionals that work on the job site to execute the project	Contractors and supervisors, electricians, carpenters, installers, crane operators, welders
Building performance specialists	Ensure the success of the project and ongoing performance of the building	Facility operators, maintenance managers

Industries involved in green building:

Construction & trades

Materials & manufacturing

Professional services

Training & education

Waste & recycling

Utilities & energy providers

Market transformation that benefits Canadians

Green building is an innovation strategy for the building sector and fundamental to market transformation. It shifts how developers approach new projects and how building owners will prioritize and implement needed retrofit projects. CAGBC has identified two key drivers for this market shift.

First, regulators in several large markets are requiring building owners and managers to report and eventually lower their energy and emissions – or have signalled that they plan to do so. For example, provinces including Ontario, British Columbia and Quebec have specific energy or carbon requirements, as do cities like Toronto, Vancouver and Montreal. By putting in place requirements, these jurisdictions are signalling to the market that capital investments must align with climate and energy policies.

Second, there is increasing demand from the market, as investors and insurers link corporate sustainability goals, including energy and emissions goals, with business success. More than 7,600 companies have committed to targets for emissions reduction, and meeting them means building, building retrofit, acquisition or leasing of low-carbon real estate is part of corporate sustainability targets and strategy.[12]

With strategic policy support, Canada can claim a larger share of the growing green building market. Without it, private investment will seek more favourable markets, and Canada will miss out on new construction and manufacturing jobs.

12 Science Based Targets Initiative.
13 "Decarbonizing Canada's Large Buildings." CAGBC. December 2021.
14 "The Effects of Decarbonization on Building Profitability." Fonds immobilier de solidarité. September 2024.
15 JLL Research. "The Green Tipping Point." April 2024.
16 "Idem".

Existing buildings

- Owners and managers of all of Canada's large buildings can cut energy use by more than 70%.[13]
- Despite many economically viable projects, building owners are not upgrading their properties at the needed depth or scale.
- CAGBC helps the market advance retrofits with support for transition planning at the building and portfolio levels, which requires access to energy and carbon performance data.

New buildings

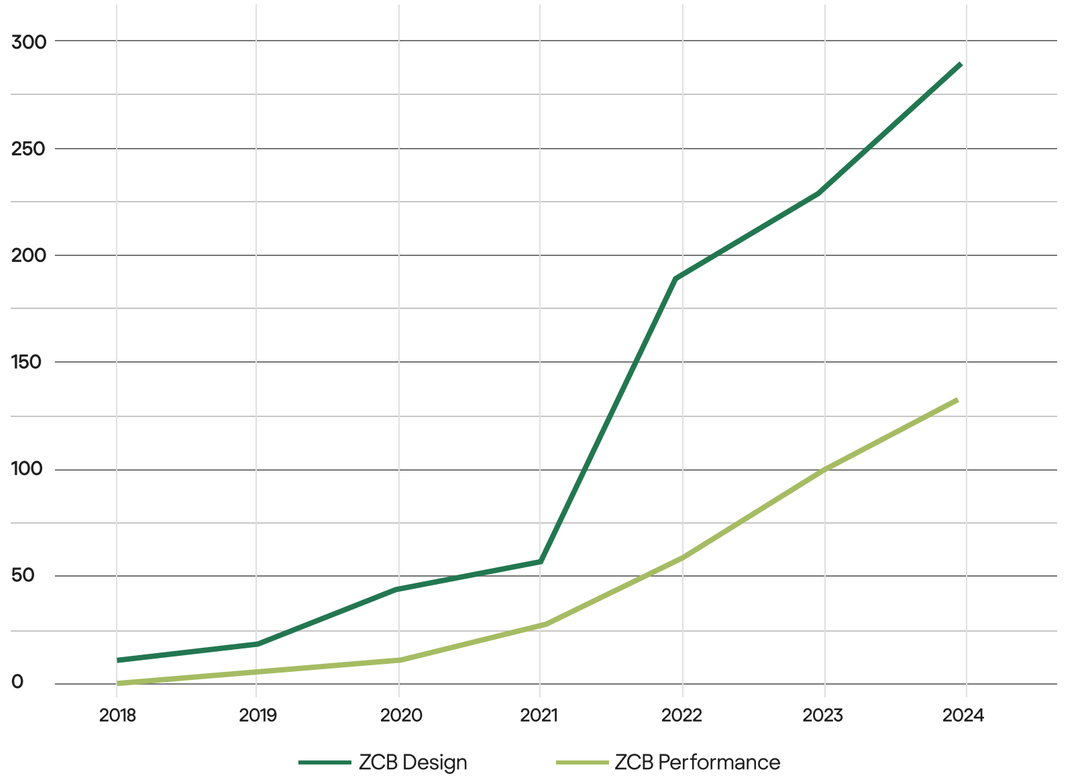
- A recent Quebec study found that the value of a sustainably designed building can increase by as much as 45% by its 10th year of operation.[14]
- Over the coming years, Canada needs to increase its zero-carbon building supply, or the market demand for such spaces will not be met.[15]

Did you know?

A recent survey of 21 global cities – including Toronto – found that 30% of projected demand for low-carbon commercial space is not being met, leading to a potential shortfall exceeding 70% by 2030.[16]

Demand for zero-carbon buildings is growing.

Cumulative ZCB Registrations (2018 to mid-2024)



Richmond, BC - credit V. Kyrylyuk

Supporting innovation to ensure long-term competitiveness

Governments can help position Canada as a leader in the global shift to green buildings by investing in emerging building technologies, materials, and processes. Here, we detail a few of the more promising opportunities.

Data and digitization for better business insights

Canadian companies are harnessing technology to manage building systems but require energy and carbon performance data to make informed decisions about capital investments. Access to data (energy consumption in particular) is critical to reduce emissions from commercial buildings.[17] For example, some portfolio managers are using Canadian AI-driven technology to develop effective net-zero plans across their entire enterprise. Others are building powerful data-visualization tools that leverage Natural Resources Canada's EnergyStar® Portfolio Manager®. Developing tools for the lucrative global smart building market represents a huge business opportunity.

$127B

Size of the global smart building market in 2023, according to one recent assessment. The market is expanding at a combined annual growth rate of 10.7%.[18]

17 CAGBC, REALPAC, Smart Prosperity Institute "Decarbonizing Canada's commercial buildings". December 2024. Recommendation 9.
18 Zoting, S. "Smart Building Market Size Share, and Trends 2024 to 2034." Precedence Research. August 2024. Figure converted to CAD from USD$90.72 billion, at $1.401.

Brock Commons, UBC – Vancouver, BC. Photo by Brudder, courtesy of naturallywood.com.

Innovation in materials

Advances in materials are revolutionizing the way we build. Canadian innovators are at the forefront of emerging technologies such as 3D printing for building components, and mass-timber products which laminate layers of wood under pressure to create strong, lightweight, and sustainable structural materials. Others are pioneering low-carbon concrete and steel. As Canada's trading partners adopt sustainability standards for building products, the market for low-carbon building materials will only grow, creating opportunities for the resource and manufacturing sectors – and providing good paying jobs for Canadians.

$811B

Projected size of the global low-carbon construction material market as of 2032. The market is expected to expand at a rate of 8.7%.[19]

19 Narayan, D. "Low-Carbon Construction Material Market - A Global and Regional Analysis." BIS Research. November 2023. Figure converted to CAD from USD$578.85 billion at $1.401.

Modern building processes

Weather and site conditions are significant challenges facing traditional on-site construction, and even a barrier to attracting new workers to the sector. Advancements in innovative materials such as mass timber and the adoption of modular, prefabricated and panelized construction offers compelling alternatives, especially for residential construction. By creating replicable building sections in a factory setting, these new construction processes often resulting in lower costs, better working conditions, greater productivity, and faster completion times.[20]

$32B

Projected size in 2030 of the global prefabricated building systems market, which is expected to expand at a rate of 6%.[21]

20 Dragicevic, N. and Riaz, K. "Seizing the Modular Construction Opportunity." Canadian Standards Association. January 2024.
21 "Prefabricated Building Systems Market Global Opportunity Analysis & Industry Forecast, 2024-2030." IndustryARC. 2024. Figure converted to CAD from USD$22.72 billion at $1.401.

Making communities more resilient

Green buildings bring a host of benefits to Canadians and their communities. They improve comfort and safety through extreme temperatures and poor air quality, keep workers productive, and improve community health.

Keeping Canadians safer

Green buildings enhance people's sense of safety in their homes and workplaces by promoting resiliency in construction. Climate change and extreme weather events call on us to design better buildings and upgrade existing ones with airtight enclosures, improved air quality, more effective stormwater management, and other measures.

A summer for the history books

The summer of 2024 shattered records for insured losses due to severe weather events, according to the Insurance Bureau of Canada. The expected total of $7.7 billion is 10 times higher than the average $701 million per year that the industry paid out for severe weather losses between 2001 and 2010.[22]

$7.7 Billion

The insured losses for the 2024 summer alone are higher than the losses between 2001 and 2010 combined.

22 Summer 2024 shatters records for severe weather damage." Insurance Bureau of Canada. September 2024.

Boosting worker productivity

Green buildings measurably improve worker productivity by prioritizing natural lighting, better acoustics and ventilation, and by facilitating access to green spaces. They also increase tenant satisfaction, lower stress, and lead to fewer absences for mental health.

A landmark Harvard School of Public Health in Syracuse study found that workers in well-ventilated green buildings scored 101% higher on cognitive function compared with those in a conventional workplace.[23]

23 Allen, J. et. al. "Associations of Cognitive Function Scores with Carbon Dioxide, Ventilation, and Volatile Organic Compound Exposures in Office Workers: A Controlled Exposure Study of Green and Conventional Office Environments." Environmental Health Perspectives. 2016.

Strengthening community health

Green buildings contribute to better health outcomes by prioritizing indoor air quality. Between work and home, people are inside buildings for roughly 90 percent of their lives, so the indoor environment directly impacts human health and well-being. Green buildings contribute to lower rates of respiratory issues, allergies, and other health challenges through better indoor air quality, better temperature control, the use of non-toxic materials and finishes, and advanced ventilation systems.[24]

According to a 2017 study, the move to green buildings resulted in 30% fewer asthma, respiratory allergies and sick building symptoms in high-performing, green certified buildings.[25]

24 Allen, J. et. al. "Green Buildings and Health." Current Environmental Health Reports. September 2015. Volume 2, Issue 3, pp 250–258

25 MacNaughton, P et al. "The impact of working in a green certified building on cognitive function and health." Building and Environment, Volume 114, March 2017.

How can CAGBC help?

The Canada Green Building Council (CAGBC) helps industry, policy-makers, and academics unlock the value of green buildings. We provide the training, products and services the sector needs to construct and manage buildings that are easier on resources, healthier for people, and more cost-effective for all. We also convene cross-sector leaders to advance green building research, training and implementation.

The transition to green building is a world-wide economic shift as most recently embodied in the Declaration de Chaillot, signed by representatives of 70 nations, including Canada, in March 2024.[26] CAGBC helps support the Canadian market on the global stage in two ways. First, the organization gained observer status with the United Nations Framework Convention on Climate Change. Second, CAGBC is a member of the World Green Building Council (WorldGBC)– a network representing 80+ green building councils.

26 The Government of France and the UN Environment Programme (UNEP) co-hosted the first Buildings and Climate Global Forum in Paris. It concluded with the adoption, by attending representatives of 70 countries, of the Declaration de Chaillot—a commitment to international cooperation on green buildings.

We would be pleased to meet with you to discuss the ideas presented in this resource and to help you unlock the potential of green building to further policies that will help Canadians.

Please reach out at any time:

General interest:
info@cagbc.org

For our advocacy team:
advocacy@cagbc.org