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KEY SECTOR OVERVIEW **BUILDINGS**

BUILDINGS

OVERVIEW

Canada's building sector is one of the country's largest sources of emissions and material consumption, making it a high-impact target for clean technology innovation. With growing demand for net-zero buildings, deep retrofits, and resilient design, the sector is scaling up its use of energy-efficient materials, smart systems, and low-carbon construction methods. For cleantech providers, this is a sector actively seeking solutions, with opportunities for partnerships in everything from building automation to sustainable materials and decarbonized heating. Canada's building sector encompasses residential, commercial, and institutional buildings.

BUILDINGS REPRESENT

- Canada's 3rd largest source of emissions: 13% of Canada's total direct GHG emissions, with indirect emissions from electricity use further increasing its footprint to 18%.
 - The sector generates a total of 89 million tonnes of direct greenhouse gas emissions annually.
 - Majority of emissions (96%) stemming from space heating and water heating.
- Over 26% of Canada's plastic waste is from the construction sector, much of which is hard-to-recycle plastic.
- A significant contributor to Canada's economy, generating approximately \$150 billion annually in GDP, accounting for roughly 7.4% of Canada's GDP, and supporting jobs in construction, real estate, and building operations.
- The sector is set for expansion, driven by strategic investments, positive demographic trends, and supportive government policies focused on improving housing and infrastructure.

DRIVERS & LEADERSHIP

- Canada's building sector is at the forefront of a transition shaped by a growing emphasis on energy efficiency, sustainable materials, and resilience.
- Government policy aims to modernize building stock by scaling up retrofits, integrating resilience, and ensuring all new construction meets net-zero standards.
- Building codes mandate energy performance standards for building systems such as HVAC, lighting, and insulation, driving energy efficiency in new and existing structures.
- Provincial initiatives are promoting adoption of innovative low-carbon building and construction materials such as mass timber.
- Federal and provincial energy efficiency programs provide financial incentives to support the adoption of high-performance building technologies, reducing cost barriers for homeowners and businesses and accelerating demand for technology.



CLEANTECH CHALLENGE AREAS



Incorporating resilience to adapt to a changing climate. Floods, wildfires, and extreme weather events are driving the need for new technologies such as enhanced insulation, flood protection, and efficient cooling solutions.



Transitioning from high-emission materials like concrete and steel to low carbon and renewable alternatives, such as mass timber, recycled materials, and low-emission concrete and steel, to reduce embodied emissions.



Deep retrofit solutions to address Canada's aging building stock. Advanced technologies are required to affordably upgrade building envelopes and integrate energy-efficient systems.



Waste management from the buildings and construction sector remains a significant challenge. Innovations in recycling, reuse, and circular construction are needed to reduce landfill dependency and material waste.



Innovations like smart sensors, sustainability analytics, and stormwater management solutions are needed to cut energy and water use.

OPPORTUNITIES: AREA OF ALIGNMENT WITH EU STRENGTHS & SOLUTIONS PROVIDERS

Climate Resilient Building Technology

EU has fostered innovation in this area through its policy leadership and is one of the leading regions globally for climate-resilient buildings technology, with significant potential for Canadian adoption.

Low-Carbon and Renewable Building Materials

EU leadership is driving innovation in sustainable construction with potential for Canadian adoption. The European Innovation Council (EIC) is active in this space, with startups working on carbon-negative materials.

Plastic Construction Waste Reuse and Recycling Technology

The EU has expertise in solvent dissolution technologies for handling contaminated plastic waste.

Energy Efficiency & Retrofits

Energy efficiency and retrofitting older buildings has been a key priority in the EU. Many startups in the EU specialize in this area with directly relevant innovations.

Energy and Asset Management Technology

Widespread presence of startups focusing on building automation and control.

Resilient Infrastructure

Advanced software solutions in the EU provide precise flood risk assessments for building retrofits and insurance purposes.

Smart City Technologies

The EU has a strong presence in sensor technology, data analytics, and urban digitalization.

Wood-Based Structures/Mass Timber Construction

The EU has strength and expertise in this area that could be leveraged.

District Energy Systems

The EU leads in district heating and cooling innovations, particularly in Eastern and Central Europe.

Building Sustainability Data Tracking

Some startups in the EU are working on solutions for sustainability data tracking in buildings.

