The Honourable Navdeep Bains
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RE: Canada's building energy codes fail to provide for rapid transition to high-performance, energy efficient and carbon-neutral buildings.

Minister Bains,

We are writing to encourage you to clearly mandate Canada's national model codes development community to develop a highly energy efficient and zero-carbon, outcomes-based model building code as a way to reduce energy waste and emissions associated with energy use in new buildings.

Canada's buildings sector risks falling behind

The *Pan-Canadian Framework on Clean Growth and Climate Change* (PCF) committed to developing and adopting increasingly stringent model building codes starting in 2020, with an ultimate goal of having all new buildings constructed to a "net-zero energy ready" standard by 2030.[1] However, challenges related to an uncertain and limited scope for the net-zero energy ready (NZEr) objective have compromised the role our national model codes are expected to play as a tool for achieving NZEr standards in buildings, as well as the government's stated commitment to achieving net-zero emissions by 2050.[2]

This disconnect exists, in part, because the process used to develop the model codes is geared towards creating a minimum legal performance standard. It is based on consensus of what minimum standards should be and is ill-suited to adopting a building energy code aimed at pulling Canada towards leading-edge construction practices. Instead, building energy code provisions have been pulled downward to the lowest common denominator amongst provincial governments, as well as organizations with a vested interest in maintaining mediocre building energy performance standards.

As a result, despite technological availability and feasibility, as well as examples of effective standards and regulations in other jurisdictions,[3] Canada's current and proposed building energy codes fall short of providing the policy and regulatory framework required for a rapid transition to high-performance, carbon-neutral buildings, while promoting excellence and innovation in the industry.[4]

[1] Government of Canada, "Pan-Canadian Framework on Clean Growth and Climate Change," 2018.
[2] Liberal Party of Canada, "A net-zero emissions future." Accessed November 2020.
[3] Advances Toward a Net-Zero Global Building Sector, Diana Ürge-Vorsatz, Radhika Khosla, Rob Bernhardt, Yi Chieh Chan, David Vérez, Shan Hu, Luisa F. Cabeza. Annual Review of Environment and Resources 2020 45:1, 227-269.
[4] Office of the Senator Rosa Gonsalves, "Canada's Building Code in the Context of Climate Change, Adaptation, and Sustainability. White paper on the urgency of building code modernization and implementation. June 2019.

The path forward: Clear direction and measurable outcomes

Development of the 2020-2025 national model codes has already begun. Experience with the 2015-2020 model codes development cycle has demonstrated the need for clearer direction from the Minister on the role of building energy codes in meeting the government's net zero energy-ready and net zero emission objectives.

For the 2020-2025 model code cycle, we urge the Minister of Innovation, Science and Economic Development to issue a directive, clarifying the role of building codes as a tool for market transformation. This includes:

1) Revisiting the NZEr performance standard to ensure it achieves the energy efficiencies needed to transition the buildings market towards a net-zero emissions economy.
2) Requirements for zero-emission space and water heating performance.
3) Requirements to evaluate energy performance based on projected outcomes instead of improvements over a reference building.
4) Airtightness testing for all buildings.
5) Incorporation of embodied and operational carbon metrics.
6) Promotion of electric vehicle charging.

A directive of the building code's renewed purpose will provide a clearer mandate to those developing the code and avoid the pressures that exist to define the code solely as a minimum standard. It would also clearly connect the objectives of the national model codes with Canada's climate change commitments.

Cohesive policy mix

The path to NZEr standards for all new buildings by 2030 can be accelerated through a holistic and consistent policy approach that supports both the national model codes development system and effective enforcement mechanisms.[5] This can be achieved by delegating development of a cohesive policy mix, for example training, guidance surrounding adoption, and improvements in compliance, to a "champion" within government, such as a minister, parliamentary secretary, or senior public servant.

A building policy "champion" within the federal government is needed to ensure the national model codes is based on outcomes, actual energy performance and that place building codes as part of a whole-government approach towards reducing energy use and associated emissions in Canada's built environment.

Closing remarks

Aside from the industrial and transportation sectors, buildings are the highest impact areas of energy use where a significant decrease in energy use and associated emissions can be achieved while enhancing the amenities provided to Canadian home and business owners. Stringent building energy codes can deliver good local jobs as well as stable and comfortable environments to live and work in that provide increased air quality, resilience, and durability. Moreover, stringent building energy

[5] United Nations Economic Commission for Europe. "Promoting Energy Efficiency Standards and Technologies to Enhance Energy Efficiency in Buildings." ECE Energy Series No. 60. Geneva, 2020.

standards implemented today ensure we avoid locking in inefficiencies and emissions from new buildings that are incompatible with a net-zero emissions economy.

Thank you for your consideration in reviewing our comments. We are pleased to be a part of this important discussion and welcome any question you may have.

Sincerely,

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References and Additional Data

- *Strengthening Canada's Building Code Process to Achieve Net-Zero Emissions* (Efficiency Canada, 2020)
- *Advances Toward a Net-Zero Global Building Sector* (peer-reviewed article in Annual Review of Environment and Resources)
- *Regulating Excellence* (Policy paper, Passive House Canada)
- *The Reference Building Approach* (Policy paper, Passive House Canada)
- Updated Framework Guidelines for Energy Efficiency Standards in Buildings (United Nations, 2020)