



ENVELOPE FIRST FOR 2030

Retrofitting Canada's homes and buildings to reduce emissions is absolutely essential to meet governmental climate change targets. As such, building design, construction, renovation and operation professionals need to respond with sustainable structures that are also resilient, accessible, and cost effective.

The Envelope First for 2030 coalition supports long-term infrastructure planning that helps to achieve a net-zero emissions future while growing the national economy and connecting communities. Our work to promote, support and educate policy program decision makers, and Canadian contractors on energy conservation and 'building envelope first' strategies helps to create a more resilient, safer, and robust built environment.

The Pembina Institute projects that reaching net-zero in 2050 will require retrofits at an annual pace of nearly 600,000 homes (11.4 million in total) and the equivalent of 32 million m² of commercial property until 2040, at a cost of roughly \$21 billion per year.

Physical infrastructure has been assessed as one of six major climate change risk areas that are nationally significant and could lead to significant losses, damages, or disruptions over the next 20 years. Infrastructure failures linked to climate change could cost Canada an estimated \$300 billion over the next decade if no further changes are made to existing practices.

According to the federal government's Emission Reduction Plan, over 85% of buildings emissions come from space and water heating, due to the use of fossil fuel equipment such as natural gas furnaces, and extra energy demand to heat and cool buildings with insufficient envelope performance.

A medium to deep energy retrofit must include a sequential process with a proper envelope analysis to enable 'right sizing' of mechanical and renewable upgrades.

Program and policy design must prioritize a sequential retrofit strategy to encourage proper envelope assessment and abatement solutions where appropriate. Far too many incentive programs at all levels of governments focus on remediation towards deferred maintenance. These are measures that would have to be replaced regardless of climate goals whether something is at end of life, damaged or would have to be changed out regardless of incentives.

The Envelope First for 2030 coalition offers much room for collaboration to rapidly increase climate change adaptation through better retrofit uptake across the country with a best practice approach to building science to produce resilient buildings.

A Building Envelope First Approach

The main objectives of sustainable, 'building envelope first' design are to avoid resource depletion of raw materials, energy and water to prevent environmental degradation caused by operational energy demands of buildings and their infrastructure throughout their life cycle.

In many cases, it is more sustainable to retrofit an existing building than to tear one down and construct an entirely new one. Retrofitting of building envelope systems to existing buildings reduces the environmental footprint of construction by re-using structure and other building components rather than sending them to landfill.

Building envelope design responds with increased performance where adverse weather and unfavourable exposures may be present. Interior comfort is critical to occupants, and shielding provided by the building envelope reduces energy demands of heating and cooling systems.

Building envelope retrofit strategies are evolving to the point where houses and buildings may be retrofitted while occupied, meaning less disruption to Canadians.

To undergo a medium to deep energy retrofit may cost anywhere between \$60,000 to \$125,000, depending on the age, condition, and community your home is located in Canada.

We are asking all levels of governments and utility programs prioritize through funding adjustments to make the envelope a priority to encourage sequential retrofits. We also ask that all retrofit funds are stackable, meaning that you can use multiple funding sources together to help reach a larger, more affordable retrofit process.

With a focused 'building envelope first' approach, Canada's buildings will be better prepared for extreme weather events brought on by climate change while also creating more comfortable, vital, and productive places to live and to thrive.

To build the Canada we need by 2030, it is time to launch an 'envelope first' building retrofit mission that goes beyond deferred maintenance. This approach is needed for GHG reduction-focused energy retrofits, requiring taking an 'envelope first' approach to policy, design, and construction that result in resilient retrofits across the nation.

COALITION MEMBERS

