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Can Insurance Play a Role in Climate-Resilient Building Systems in Canada?

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This question is not new, yet more relevant than ever. Canada's climate reality is no longer abstract, it shows up in billion-dollar storms, flooded neighbourhoods, wildfire smoke emergencies, and rising insurance premiums. Canadian building systems face urgent challenges (housing affordability, climate change, and infrastructure resilience) that demand building systems must function as interconnected and adaptive frameworks that promote health, equity, and sustainability. Building systems, in construction and architecture, means focusing on how all the components of a building interact (Wilson, 2021). It includes everything from the exterior to the interior, extending to concerns of municipal sewer lines and electrical grids. Insurance, as part of the building life cycle, is also a key financial and risk management tool, and can play a big role in climate resilience.

Source: https://www.insurancebusinessmag.com/ca/news/breaking-news/what-is-next-for-the-insurance-industry-325410.aspx

The Opportunity

Unlike many sectors that react to climate impacts in the aftermath, insurers are concerned with the data. They have a granular, real-time understanding of what damages homes, what features reduce losses, and where the risk lies. That knowledge, paired with their financial leverage, puts them in a powerful position to reshape how buildings are designed, constructed, and maintained.

Insurance companies influence construction practices through risk assessment, pricing, and incentives. By aligning underwriting models with climate resilience goals, insurers can help build healthier, more sustainable buildings and communities.

Core Contribution from an Insurance Perspective

Known by many professionals, there are five fundamental functions of general insurance

(i) Spread of Risk - losses of the few are shared among the many.

(ii) Basis of Credit System.

(iii) Eliminates Worry - Encourages Entrepreneurship.

(iv) Loss Prevention and Loss Reduction.

(v) Source of Employment and Investment Capital.

Apart from these known contributions from insurance to the economy, I propose two additional parameters:

1. Risk Assessment and Pricing for Climate Resilience

Insurance companies influence construction practices through risk assessment, pricing, and incentives. Let's take a look at how insurers price their risks. According to Brett McGregor, president of Insurance Brokers Association of Canada, "*Insurance doesn't work based on one year terms and pricing doesn't work based on just one year of results. So, you know, insurance companies are taking a much longer time frame into account. And when you look at the trends over the past four or five years with NatCat [natural catastrophe] and some of the average payouts and compared to 20 years ago, it's just unbelievable how much it's increased over that time period. So one good year is definitely helpful, but we need to see that become a trend and*

unfortunately, the trend so far has pointed towards climate change is impacting the severity and the frequency of these huge weather-related incidents and wildfires" (Canadian Underwriter, 2026)

Insurers evaluate risks related to extreme weather using predictive analytics, satellite imagery, machine learning, and who-knows-what-else in underwriting buildings. There seems to be a plethora of approaches, in journal articles and technical reports, that point to different metrics of climate risk modeling in the insurance realm. For example, insurers use satellite imagery to map out their portfolio and decide on the market concentration of certain areas, which acts as a financial incentive to avoid buildings in high-risk areas in an ideal situation.

Source: https://www.ncei.noaa.gov/news/calculating-cost-weather-and-climate-disasters

There are other innovative approaches to pricing models for weather events. For example, Zurich Insurance offers parametric flood insurance in North America, where payouts are triggered by rainfall or river level thresholds rather than damage assessments (Zuchna.com, 2022). Parametric insurance *"fills the gaps often left by traditional insurance, providing an alternative to help fund the delay costs and economic losses of a project due to extreme weather events such as rain, wind, snow accumulation, heat or cold"*. Parametric insurance sets predetermined parameters and payments — agreed upon by the insurer and the customer — for risks that can be objectively measured and verified by a third-party authority. Instead of waiting months for damage assessments, payouts are triggered instantly by rainfall thresholds. That speed can be transformative for Canadian cities like Calgary or Toronto, where massive stormwater events are becoming much more common.

Another example of resilience planning is cooperation with provincial governments for at-risk areas. Since 2021, BCAA has partnered with and annually invested in FireSmart BC to help

educate British Columbians on wildfire preparedness and increase access to their resources for those who live in remote, rural, and most at-risk communities (BCAA, n.d.).

2. Incentivizing Sustainable Design

Playing a role in quantifying and pricing the risks, insurers can mitigate NatCat risks by premium-based incentives for proactive design. As Brent McGregor put it, "*they [consumers] are wanting to understand the impact and so I think the more the brokers can do to explain the benefits, you know, both insurance premium wise, but also, you know, just the fact of not having insurance claim is really beneficial to them financially as well*" (Canadian Underwriter, 2026). He continues, "*simple things like extending downspouts further away from homes with a basement. And when you're choosing a building material, choosing something that is more hail-resistant. You know, moving away from vinyl siding if we can. Those things are all decisions that are being made, you know, as people are renovating their homes".*

Illustrations by Kaitlin Brito

Home insurance discounts and surcharges geared towards sustainable design are nothing new on the market, and usually these upgrades come at a cost. At Square One Insurance Services (Square One, 2026), discounts applied for fire protection (distance from your home to a fire station, a hydrant, areas at risk of wildfire or not, non-combustible roofs and siding); New roofs -

less vulnerable to wind damage and help protect the home from severe weather; Sump pump or sewer backflow valve can help reduce the chance of a severe sewer backup claim. According to the Insurance Bureau of Canada, one of the ways to help save money on home insurance is to install loss prevention devices such as a burglar alarm system, reinforced roofing, a sewer backwater valve, storm shutters, sump pumps and sprinkler systems (IBC, n.d.).

Still, the industry faces a choice. It can continue reacting to climate losses—raising premiums, withdrawing from high-risk regions, limiting coverage—or it can step into a collaborative role as a partner in resilience. We're already seeing early leadership.

Aviva Canada's investment in climate-resilient affordable housing in Alberta signals a shift from merely pricing risk to actively reducing it (Insurance Business, n.d.). Partnered with Habitat for Humanity and the Institute for Catastrophic Loss Reduction, it's a pilot project that integrates climate-resilient construction into new housing developments, aiming to reduce the frequency and severity of insurance claims. Two housing projects, a 24-unit affordable development in Chestermere and a 92-unit build in Calgary's Belmont community, demonstrated that climate-resilient features, such as Class 4 hail-rated shingles, hurricane ties, reinforced siding, triple-pane windows, and hail-resistant roof vents, can be incorporated without significantly increasing construction costs.

Shauna Mamini, Aviva's assistant vice-president of property portfolio and exposure management, highlighted that "*building homes with enhanced weather-resistant features protects not only residents but also the insurer's balance sheet by reducing the likelihood and cost of claims*". Alberta has historically experienced some of Canada's costliest insured disasters, including the 2024 Calgary hailstorm, which caused $3.1 billion in insured damage, underlining the financial stakes for insurers.

Why It Matters

Integrating insurance into building system strategies ensures financial resilience alongside physical resilience. Insurance companies play a role in construction practices through risk assessment, pricing, and incentives. By aligning underwriting models with climate resilience goals, insurers can help build healthier, more sustainable buildings and communities.

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