Pilot project takes aim at Calgary hail, wind damage

The project integrates hail resilience measures into new multi-family units in southern Calgary

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Meynard David, right, looks on as volunteers help board up his house as residents begin cleaning up in Calgary, Alta., Sunday, June 14, 2020, after a major hail storm damaged homes and flooded streets on Saturday.THE CANADIAN PRESS/Jeff McIntosh

Home construction company Avalon Master Builder has launched a pilot project to integrate hail resilience measures into new multi-family buildings in southern Calgary.

The project is in partnership with Aviva Canada, the Institute for Catastrophic Loss Reduction (ICLR) and the Canadian Home Builders' Association (CHBA). The initiative will demonstrate practical ways to reduce hail and wind damage — two of the most costly and frequent causes of property loss in Alberta.

"Calgary residents have experienced firsthand the devastating impacts of extreme weather," the organizations say in a press release Monday. "Recent hailstorms have damaged tens of thousands of homes and rank among the most expensive natural disasters in Canadian history."

For example, Canada's costliest hailstorm (https://www.ibc.ca/news-insights/news/one-year-later-calgary-s-historic-hailstorm-underscores-urgent-need-for-government-action) in August 2024 resulted in more than $3.2 billion in insured losses.

"Recognizing the need for change, Avalon Master Builder is taking proactive steps to embed resilience into the design and construction of new homes," the release says.

The progressive building practice aims to reduce repair costs, insurance claims and disruption for homeowners while increasing the overall durability and lifespan of homes in the region. The new h ngs will feature hail-resilient roof coverings and siding, as well as enhanced structural m sures to withstand high winds.

For hail, builders will be using UL 2218 Class 4 impact-resistant roof cover — in this case, asphalt shingles, Dan Sandink, ICLR's director of research, tells *Canadian Underwriter*. The builder is using a combination of brick and engineered wood siding for hail resistance; the engineered wood product is LP Smartside.

"In Canada we don't yet have a siding testing standard, but we know from field observations and insurer experience some materials perform much better than others under hail loads," Sandink says, adding LP Smartside is warrantied for hail impacts.

For wind, roof cover is rated for ASTM D7158 Class H wind levels, which pass resistance tests equivalent to wind speeds up to about 241 km/h (150 mph). "Many shingle products comply with this standard, but there are often additional installation requirements," Sandink says, using the example of six nails per shingle rather than four.

"Underlayment is also being added — this is a wind resilience measure, but the builder already applies this practice routinely as a basic good building practice," he says. "The builder is also adding several structural measures to increases wind resistance — e.g., tying the roof structure into the building, tighter roof sheathing fastener patterns, thicker roof sheathing, and several building bracing practices."

Cost-effective measures

As for project costs, Sandink notes it involves multi-unit residential buildings, so costs are shared across the units. Current estimates are that Class 4 shingles added $250 per unit, while LP Smartside added $1,475 per unit, "so not a significant increase in cost."

Other practices, such as using longer nails for roof sheathing and tighter roof sheathing fastener patterns, are more changes in practice that cost increases, Sandink notes. "The cost is small for these measures."

Construction is underway now. ICLR continues to work with Avalon Master Builder and will work to promote the outcomes of the project when it's complete, Sandink says.

"The goal is to develop a set of builders that have applied resilience practices, have learned about their practicality, and can act as information sources and advocates for their own industries," he says. "The pilot projects significantly increase legitimacy of the concept of resilience in the construction industry, instead of just issuing voluntary guidelines, which are typically ignored…"

This field trial is part of the Resilient Homes Task Force (https://www.iclr.org/resilient-homes-task-force/) (RHTF), a national collaboration led by ICLR and CHBA. The task force brings together experts from the insurance, research and homebuilding sectors.

The findings from this Calgary field trial will inform and refine national guidelines for homebuilders, insurers and homeowners, helping to increase the resilience of Canadian homes to extreme events, including hail, wind, wildfire and flooding.

Sandink says work is being done with buildings in British Columbia and Southern Ontario on resilience field trails for wind, basement flooding, wildfire and hail. “We hope to expand this work; the field trials help us understand practicality of resilience options and also significantly increase awareness and acceptability in the building industry.”

Jason Contant

Jason has been an award-winning journalist with *Canadian Underwriter* for more than a decade, including the past three years as associate editor and, before that, as digital editor for seven years.