

CATASTROPHES

e-newsletter of the Institute for Catastrophic Loss Reduction



Institute for Catastrophic Loss Reduction

Building resilient communities

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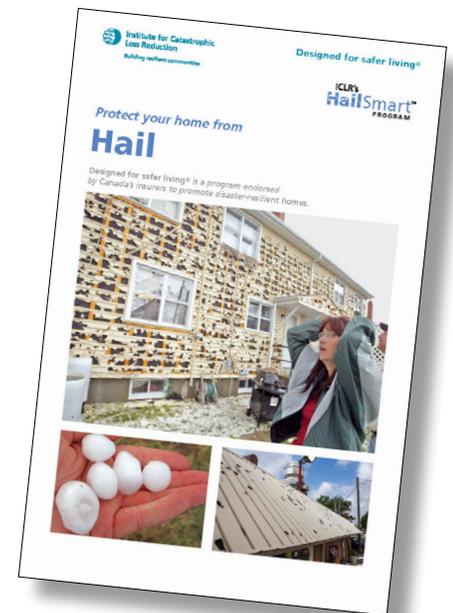
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ICLR launches HailSmart program

In the run-up to the launch of a multi-stakeholder hail awareness campaign for residents of the City of Calgary and area, ICLR has launched HailSmart, an education and awareness program to help homeowners, vehicle owners and small business learn about hail risk and the measures they can take to protect their property.

HailSmart centres around a new website, a new video and ICLR's 2018 publication *Protect your home from hail*, as well as an infographic based off the booklet and additional information on hail mitigation – much of it provided graciously by the U.S.-based Institute for Business and Home Safety (IBHS).

After the June 13, 2020 hailstorm in northeast Calgary, Canada's costliest at \$1.3 billion insured, the need to address the problem of mounting hail-related damage in Canada could not be more acute. From the period 2008 to 2020, hail has generated almost 900,000 insurance claims at a cost of more than \$8.2 billion. And we will surely see more hail damage in Canada going forward. This, not necessarily because of any projected increase in the number of hailstorms, but due to the increased concentration of assets in Canadian cities and suburban housing developments, and the ever-growing costs of replacing damaged and destroyed property.



ICLR's HailSmart PROGRAM

From an insurance perspective, most of the largest hail damage events recorded in Canada have occurred in the province of Alberta. Indeed, the top four or five most expensive hailers have taken place in that province. But this can lead to a false sense of security, as hail can affect every province and territory in Canada and, historically, has to some degree or another. Indeed, the majority of hail days in Canada occur in British Columbia, Alberta, the Prairies and southern Ontario. >



On April 27, Insurance Bureau of Canada, ICLR, the Insurance Brokers Association of Alberta and the City of Calgary launched a multipronged hail awareness campaign for residents of Calgary and area, profiling measures that residents can take to protect their property. While there are several actions that property owners can take to mitigate the impact of large hail, this hail awareness campaign concentrates on two: 1) Use of impact resistant (IR) roofing products; and, 2) Placing vehicles under cover in the run-up to a bad storm.

The campaign includes social media messaging, media relations, webinars, radio public service announcements and other communication and outreach. The outreach campaign relies partly on HailSmart.

ICLR's HailSmart website can be accessed at www.hail-smart.com



Earthquakes are an existential threat to B.C.'s Lower Mainland – but we can defend ourselves now

By Glenn McGillivray, Managing Director, ICLR

British Columbia has an opportunity to reduce the effect of natural gas-related explosions and fires when a major earthquake inevitably happens in the Lower Mainland. But that window is about to be slammed shut – unless we act soon.

First, some background.

I recall checking a major U.S. news website on Oct. 27, 2012, to see how things were going with Hurricane Sandy. The massive storm was due to hit the New York/New Jersey area the next day or two. I nearly fell off my chair when the web page loaded a huge headline: "Japan on tsunami alert as massive earthquake strikes off Canada."

"It's the Big One," I muttered.

It wasn't. It turned out to be a magnitude 7.7 quake – huge, to be sure, but not the large B.C. megathrust earthquake also known as the Big One. It was merely a dress rehearsal for the larger, far more devastating earthquake that will occur at some point, maybe soon.



Photo credit: Lee Robinson, own work, unsplash.com

Researchers have determined that the potential for the Big One is one in three in the next 50 years. Other, less powerful earthquakes located closer to the cities of Vancouver and Victoria are even likelier to occur, and in many ways these are more disconcerting because of their proximities to major population centres.

What's more, new research completed by Natural Resources Canada and the Geological Survey of Canada indicates that the risk of damage from a large West Coast earthquake is far greater than first thought. Using a new-generation "shake model" and other data, researchers have found that damage from a one-in-500-

year earthquake – a very large event that has a 0.2 per cent probability of occurring each year – would be 36 per cent worse than originally believed.

The bottom line is that a very large earthquake under or near the Lower Mainland of B.C. would result in unprecedented loss and damage for the area. But damage from shaking is only one effect of a large earthquake.

Fire is another.

[A major study](#) released last November by the Institute for Catastrophic Loss Reduction (ICLR) found that more than \$10-billion in fire damage could result following a severe earthquake in the Lower Mainland area. The report was prepared by Charles Scawthorn, a leading international authority on managing the risk of fire following an earthquake; Dr. Scawthorn has produced similar studies assessing fire following earthquake risk for the cities of San Francisco, Los Angeles, Tokyo and Montreal.

While \$10-billion is a big number, the upside is that losses could be reduced significantly through investments in mitigation measures, foremost of which is the inclusion of seismic shut-off valves in all gas meters in the Lower Mainland.

The timing of the report couldn't have been better. FortisBC, the main provider of natural gas in the Lower Mainland, has revealed plans to apply to the province's utilities regulator to upgrade meters in its service area to Smart Meters. The new devices will allow FortisBC to measure customer gas use over a wireless network.

Incorporating seismic shut-off capability in these advanced meters to reduce the risk of fire and/or gas-related explosions would be a no-brainer. These valves would immediately shut off the supply of natural gas to a structure in the event of an earthquake, preventing gas flow where damage may have occurred.

In Japan residential natural gas meters are equipped with inexpensive microcomputers

that will shut off gas flow during an earthquake of a minimum intensity. Once it has been determined that gas pipes have not been compromised and there are no leaks, homeowners can turn their gas back on using a simple reset button. There is no need to secure the services of a gasfitter or to call in gas utility personnel.

This approach would work well in at-risk earthquake zones in British Columbia. Along with minimizing the potential for large post-quake urban conflagrations, seismic gas shut-off valves would dramatically reduce the need for response by Lower Mainland fire agencies, which will already be stretched to the limits after a large quake.

FortisBC has yet to deliver its Smart Meter plan to the British Columbia Utilities Commission. There is still plenty of time to incorporate seismic shut-off capability at low cost into the next generation of gas meters in the Lower Mainland. It would be the truly smart thing to do.

Special to the Globe and Mail, published April 5, 2021

ICLR co-authored paper wins NAIC award

A paper co-authored by ICLR Managing Director Glenn McGillivray has won the Journal of Insurance Regulation (JIR) Spencer Le Van Kimball Writing Award for best paper (2020). The paper, *The Earthquake Insurance Protection Gap: A Tale of Two Countries*, was also authored by Dr. Mary Kelly, Professor and Chair in Insurance, Wilfrid Laurier University and Steven Bowen, MS, of Aon, Chicago.

Spencer Le Van Kimball was a world-renowned scholar on insurance law and regulation, who was deeply admired for his integrity, keen insight and zeal for "getting it right." Much of his work in insurance law remains a model for insurance codes today, most notably in the areas of guaranty funds and insurance liquidations.

As an active member of the JIR Board of Directors for nearly 15 years, Kimball played a key role in helping improve the quality and quantity of research on insurance regulatory issues. In 1996, the JIR Article Award was renamed the Spencer L. Kimball Writing Award in honor of Kimball's many contributions to the pages of the JIR and to its various committees.

The Spencer L. Kimball Writing Award acknowledges and encourages outstanding contributions to the Journal of Insurance Regulation. One article is chosen each year for the prestigious award.

The paper, *The Earthquake Insurance Protection Gap: A Tale of Two Countries* provides an analysis into why market penetration of earthquake insurance for personal properties is considerably higher in the Lower Mainland of British Columbia as compared to western Washington state (~60 percent versus ~14 percent) even though both places are subject to similar and significant earthquake risk.

Both a brief summary and the entire paper can be downloaded at <https://content.naic.org/sites/default/files/jir-za-39-11-el-earthquake-prot>

ICLR's Simonovic named in list of top 1,000 climate scientists

Dr. Slobodan Simonovic, Professor Emeritus in the Department of Civil and Environmental Engineering, Western University, and Director of Engineering Studies at ICLR has been included in Reuter's 'Hot List' of the top 1,000 climate scientists worldwide.

According to Reuters "To identify the 1,000 most influential scientists, we created the Hot List, which is a combination of three rankings. Those rankings are based on how many research papers scientists have published on topics related to climate change; how often those papers are cited by other scientists in similar fields of study, such as biology, chemistry or physics; and how often those papers are referenced in the lay press, social media, policy papers and other outlets.

The data is provided through Dimensions, the academic research portal of the British-based technology company Digital Science. Its database contains hundreds of thousands of papers related to climate science published by many thousands of scholars, the vast majority published since 1988."

Reuters continues: "The final score for each scientist is based on the sum of each ranking – the lower the score, the greater the scholar's overall influence, and thus the higher he or she ranks on the Hot List."

Reuters does caution that its list "... doesn't claim to be a rank of the 'best' or 'most important' climate scientists in the world. It's a measure of influence."

Dr. Simonovic is globally recognized for his unique interdisciplinary research in Systems Analysis and the development of deterministic and stochastic simulation, optimization, multi criteria analysis, and other decision-making methodologies. His work addresses challenging system of systems problems lying at the confluence of society, technology and the environment and has been applied with a sustainable development perspective in water resources management, hydrology, energy, climate change and public infrastructure. His main contributions include modelling risk and resilience of complex systems. He has published over 630 professional publications (over 250 in peer reviewed journals) as well as three



major textbooks. He has delivered over 300 keynote and invited talks and was inducted into the Canadian Academy of Engineering in June of 2013. In September 2020, he was named a Fellow of the Royal Society of Canada.

A more complete description of the methodologies and the list can be found at <https://www.reuters.com/investigates/special-report/climate-change-scientists-list/>

ICLR and UofG launch website for Basement Flood Protection Lab

ICLR and the University of Guelph have launched a website to profile the joint work being conducted on basement flood risk reduction at the university.

The lab, a collaboration between the Institute and the University of Guelph's School of Engineering, has sought to better understand technologies that are applied to control urban flood risk in Canada. This collaboration has specifically emphasized understanding of lot-level (household level) methods of managing

flood risk, including interventions such as: Sewer backwater protection; Foundation drainage systems; Sump pump systems; and Stormwater infiltration systems (or low-impact development) applied at the lot and subdivision scale.

The primary intent of the research is to better understand the reliability and efficacy of these measures to control flood risk associated with short-duration, high intensity rainfall flooding in urban areas.

Increased knowledge of flood protection measures will be beneficial for the government and insurance companies, who spend millions of dollars to repair the damage caused by flooding. It will also be valuable for the homeowners who live in flood-prone areas and might help to prevent property damage through the implementation of lot-level flood mitigation measures.

See www.basementfloodlab.com for more information.

New ICLR publication:

Focus on: Types of flooding

Flooding is the most common hazard experienced in most industrialized economies around the world, including Canada. Indeed, it could very well be the most common hazard in all countries.

One of the reasons why flooding is so prevalent is because, unlike most other natural hazards, there are many causes and types of floods.

A wildfire is a wildfire, regardless of whether it was started by lightning or a carelessly discarded cigarette. An earthquake is an earthquake, regardless of whether it was caused by a subducting plate or a crustal fault. But a flood is not a flood, though this matters little to the average property owner.

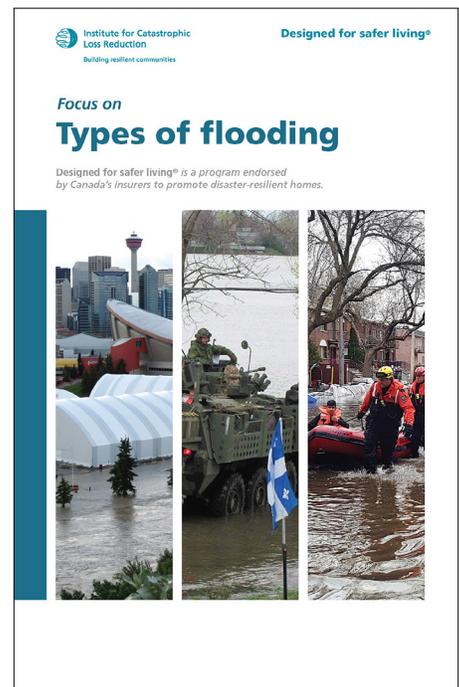
When a homeowner gets water in the house, they call it a flood. It doesn't matter to them how it happened (pipe or municipal water main break; toilet,

water heater, dishwasher or washing machine failure; groundwater seepage; sewer backup; river; storm surge) it just matters that it happened and that the damage get fixed right away.

Exactly how the water damage happened, on the other hand, matters a great deal to insurers.

How a flood occurs is also of great interest to governments (most often local, but also provincial and, sometimes federal, depending on the type and location of flooding experienced), first responders, emergency managers, realtors and others.

This publication explains the various types of flooding most common in Canada and the interrelationship between them. It also provides information on homeowners insurance as it relates to flooding and water damage and contains a handy glossary of terms.



Institute for Catastrophic Loss Reduction

Mission

To reduce the loss of life and property caused by severe weather and earthquakes through the identification and support of sustained actions that improve society's capacity to adapt to, anticipate, mitigate, withstand and recover from natural disasters.

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