

AHEAD OF THE STORM

Developing Flood-Resilience Guidance

for Canada's Commercial Real Estate

Flooding is the costliest natural disaster impacting Canadians and is the lead driver in rising catastrophic insurable losses for the property and casualty insurance sector in Canada.

- Insured losses averaged \$1.8 billion annually from 2009 to 2018, compared to \$405 million annually from 1983 to 2008.

Commercial real estate owners and managers are exposed to impacts of flooding, and tenants are becoming increasingly concerned with potential business disruption and loss of life during flood events.

- Following the 2013 floods in Alberta, between 150,000 to 180,000 people could not access office buildings located in downtown Calgary for approximately two weeks. This resulted in 5.1 million lost work hours, equivalent to half a billion dollars in GDP loss to the province.

- In August 2018, when a flash flood occurred in Toronto, Ontario, two individuals almost lost their lives as they got trapped in an elevator of a commercial building and nearly drowned as the elevator was stuck at the basement level, full of water.

There are practical measures that can be implemented by the commercial real estate owners and managers to enhance flood-resilience (page 2).

The development of these measures was supported by Intact Financial Corporation, the Real Property Association of Canada (REALPAC) and the Building Owners and Managers Association of Canada (BOMA Canada) and relied on input from a national consultation with commercial real estate owners, managers, institutional investors, asset management consultants, insurance industry representatives and others.

The timely deployment of flood-resilience measures cannot be overstated as flood risk is rising in Canada in concert with changing climate.



CONTACT

For more information, contact: Natalia Moudrak,
Director, Climate Resilience at the Intact Centre on
Climate Adaptation: nmoudrak@uwaterloo.ca

SUPPORTED BY:



Natalia Moudrak and Dr. Blair Feltmate
Intact Centre On Climate Adaptation

Table 1: Key Flood-Resilience Measures for Commercial Real Estate (Office Towers), Canada

Plans and Procedures	Equipment & Supplies	Major Retrofits*
PP1. Emergency plans: emergency preparedness and response plans are in place and include flood event procedures.	ES1. Critical equipment and supplies: critical equipment and supplies are available on-site to respond to flood emergencies, (e.g., sandbags, sump pumps, portable generators, fuel, portable lights, extension cords, dehumidifiers, protective clothing, etc.).	MR1. Elevating and flood-proofing critical equipment: heating, cooling, ventilation, and air conditioning (HVAC) equipment; electrical transformers, switchgear and service panels, as well as communication systems are elevated above expected flood levels. If not feasible to elevate, these systems are flood-proofed (e.g., with equipment elevated off the ground and drains at the lowest points on the floor).
PP2. Practice drills: building operations staff are trained on flood event procedures. Annually, practice drills are performed with tenants and procedures are updated as required.	ES2. Portable flood barriers and sandbags: for buildings with critical operations (e.g., buildings housing data centers), portable flood barriers and sandbags are available to protect the building from overland flooding.	MR2. Protecting server rooms: server rooms are located on higher floors, preferably on a raised platform, with a sump pump installed at the lowest point. Water sensors are installed for leak detection.
PP3. Emergency funds: dedicated funds are available for emergency operations, including flood events. Designated staff have access to both credit cards and sufficient amounts of cash to be used for emergency operations.	ES3. Back-up generation: onsite back-up generation equipment and fuel are available and have the capacity to provide electrical power to at least one elevator; all building sump pumps, heat pumps, boiler, smoke evacuation fans, fire sprinkler and fire alarm systems, stairwell pressurization systems, and emergency lighting equipment for 24-72 hours.	MR3. Protecting high-voltage and telecommunication pull rooms: high-voltage and telecommunication pull rooms are waterproofed and equipped with drainage.
PP4. Tenant communication channels: tenant and stakeholder communication channels have been established for emergency situations, including flood events. Tenant contact details are regularly updated.	ES4. Emergency lighting: battery-operated emergency lighting is available in critical mechanical and electrical rooms, as well as in emergency exit stairwells for building evacuations, should back-up generation equipment malfunction. A process is in place to regularly test all battery-operated lighting and systems.	MR4. Isolating electrical circuits: for multi-level parkades, electrical circuits have been isolated for each parking level.
PP5. Emergency operations centres: designated space is available for building operations staff to use as emergency operations centres. This space is equipped with water, non-perishable food supplies and emergency kits and is located above expected flood levels.	ES5. Elevator water sensors: elevators are equipped with water sensors that prevent them from proceeding to flood-inundated levels.	MR5. Electrical panel upgrades: electrical panels are equipped with WIFI enabled breakers to allow for remote shut off.
PP6. Emergency response supply contracts: standing orders are in place with fuel suppliers, restoration and landscaping companies to provide goods and services at pre-arranged prices, under set terms and conditions, as required for flood events.	ES6. Backwater valves: backwater valves have been installed on storm and sanitary sewer pipes.	
PP7. Emergency contact information: contact information of risk management personnel, insurance adjusters and insurance brokers is maintained and current.	ES7. Hazardous materials storage: hazardous materials are protected from flooding (e.g., chemicals used in building operations are stored in sealed containers, or in inflammable cabinets located above expected flood levels). Where hazardous materials are stored, floor drains are protected from spills.	
PP8. Insurance documentation: documentation to access business interruption insurance (e.g., financial statements, lease agreements and inventory counts) is regularly updated, backed-up electronically and stored offsite.		

* These retrofits may be cost-prohibitive to implement post-construction, but they may be warranted for critical sites.