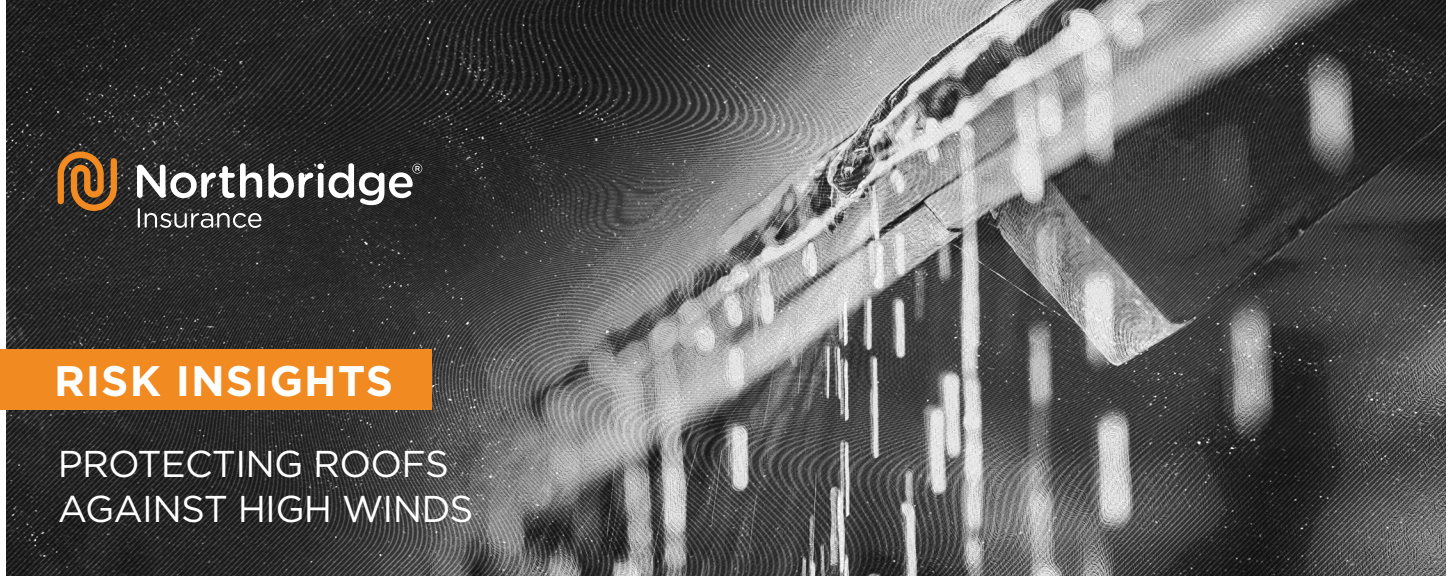

Northbridge® Insurance

RISK INSIGHTS

PROTECTING ROOFS AGAINST HIGH WINDS

Strong winds have the strength to blow the roof off your building. Dealing with roof damage is a disruptive and costly matter. Property damage from high winds can occur in any geographical area, even if it doesn't occur often. Low-pressure areas are more prone to severe windstorms and tornadoes. These weather conditions produce high winds and rain that can damage your roof and disrupt your business operations.

ROOF MAINTENANCE HELPS KEEP THE STRUCTURE WELL-BALANCED AND SECURE TO WITHSTAND HIGH WINDS.

However, there is always a chance your roof is affected during a storm. Implement these loss prevention tips to protect your roof or at a minimum, reduce the severity of damages.

Roof design and construction

It's important to choose the appropriate roof design and construction specific to your operations for stability, durability and damage resistance in high wind areas.

Roof pitch refers to the steepness and angle of roofs. Commercial buldings have either flat roofs, low-slope roofs or steep-slope roofs. Flat roofs have a pitch of 1 to 10 degrees and are the most common roof design for commercial buildings. You may also see flat roofs on residential apartments and office buildings. Low-slope roofs typically have a pitch of 11 to 17 degrees and are common among warehouses, big box stores and shopping centres. Steep-slope roofs have a pitch of 18 degrees or more, and are mostly seen in residential homes.

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The six most common roof constructions observed by Risk Services include:

- **Built-Up Roofing (BUR) membrane –** BUR, also known as tar and gravel roofs, are composed of layers of roofing asphalt and asphalt felts which are installed so that multiple interwoven plies form a roofing membrane.
- **Metal roofing –** A metal roof is a roofing system made up of metal pieces or tiles. Metal roofing is a popular commercial roof type because of the various metal materials available such as steel, aluminium, metal tile sheets, copper and tin.
- **Modified bitumen (MB) roofing –** MB is asphalt-based, similar to BUR, and designed for buildings with flat or low-slope roofs. It is made of asphalt combined with polymerized rubber or plastic, then reinforced with fiberglass to create a rugged yet flexible waterproof membrane.
- **Thermoset roofing membrane –** Thermoset roofing membrane, also known as EPDM (ethylene propylene diene terpolymer) roofing membrane, is an extremely durable synthetic rubber material widely used in low-slope buildings.
- **Thermoplastic roof membrane –** Thermoplastic polyolefin (TPO) and polyvinyl chloride (PVC) roofing systems are a single-ply roofing membrane made up of a synthetics and reinforcing scrim that can be used to cover flat roofs.
- **Green roofing –** Green roofs may be the most versatile kind of commercial roof available. A green roof is a layer of vegetation planted over a waterproofing system that is installed on top of a flat or slightly sloped roof.

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How do high winds blow off roofs?

When high winds travel over your roof, it creates a low pressure in the atmosphere. The pressure around your roof is lower than the atmospheric pressure below it. Concurrently, when air currents enter your building from an open window or door, it creates pressure inside that causes an upward thrust of air. This suction effect causes the roof to lift and blow off in the wind. The pressurized air inside your building is combined with the powerful force of wind pulling on the outside to lift your roof off. This is known as Bernoulli's principle.

Ways to prevent roof damage

- **Ensure the roof is installed according to code or better –** This is particularly important with older roofs because a previous owner may not have hired a reliable, licenced roofer. In addition, local building codes change over time and may be upgraded after a disaster. Ensure you are adhering to current code standards.
- **Seal your roof –** Ensure the edge of the roof is sealed with a roofing cement to prevent gale-force winds from penetrating underneath. In addition, make sure the roof decking is also sealed.
- **Install windproof sheathing –** When installing a new roof, be sure that the sheathing is windproof. Roof sheathing is the second line of defense against heavy winds.
- **Maintain your roof coverings –** Inspect the roof regularly for cracked, worn, curled or missing roof coverings, as well as signs of water damage on the underside of the roof. This will help reduce the risk of having your roof blown off due to deteriorating components. Replace the roof as it approaches the maximum lifespan for its roofing material.
- **Maintain your roof supporting frame –** Inspect the structure regularly for cracked, worn or rotting trusses, rafters and supporting frame.
- **Do not open windows or doors when a major windstorm is expected –** Opening windows or doors before a storm only exposes your building to more damage from both wind and rain.
- **Add roof/hurricane clips –** Roof/hurricane clips are galvanized steel clips that attach your roof to the rafters or trusses of your building to protect the roof from blowing off in severe weather conditions. The uplift protection strengths of these clips range from 136-680 kg (300-1500 lbs). Select your clip strength according to your local wind danger. Local wind danger can be calculated using the Government of Canada's Wind Load Calculator for roof cladding and vegetated roof assembly.
- **Rope your roof down –** For smaller commercial low rise buildings, if a windstorm is predicted to hit your building, anchor your roof tightly in place by holding your roof down with a system of ropes. The ropes are attached at opposite ends of your building to concrete blocks on the ground.

Consult with a roofing expert for further information on adding a roof to your new building, replacing an old roof, or simply maintaining an existing roof. Experts can point out possible signs of damages and make recommendations.

What to do after high winds or storms?

After a storm, it may be difficult to identify the severity of damage done to your roof, especially if you are only inspecting from the ground. Inspect and document as much as you can from a safe distance. Your roof may have minor abrasions, loose components, areas missing asphalt, and detached cladding or other roofing materials. Fallen objects or debris from affected trees and powerlines may have damaged your roof as well. Hire a licenced and professional roofer to inspect your roof, especially from an elevated angle. Some may bring in a drone and other advanced tools to survey the area for safety purposes. You don't want a caved in roof down the road due to unidentified problem areas. When safe to do so, clean up debris from your roof and yard. Check inside your building for leaks, wall discoloration and other damages. Protecting your building on the outside keeps everyone safe inside.

Speak with your Risk Services Consultant for ways to mitigate your roofing risks and to prevent property damage.

For more information on making your business safer, contact our Risk Services team at **1.833.692.4111** or visit us at **www.northbridgeinsurance.ca**.

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