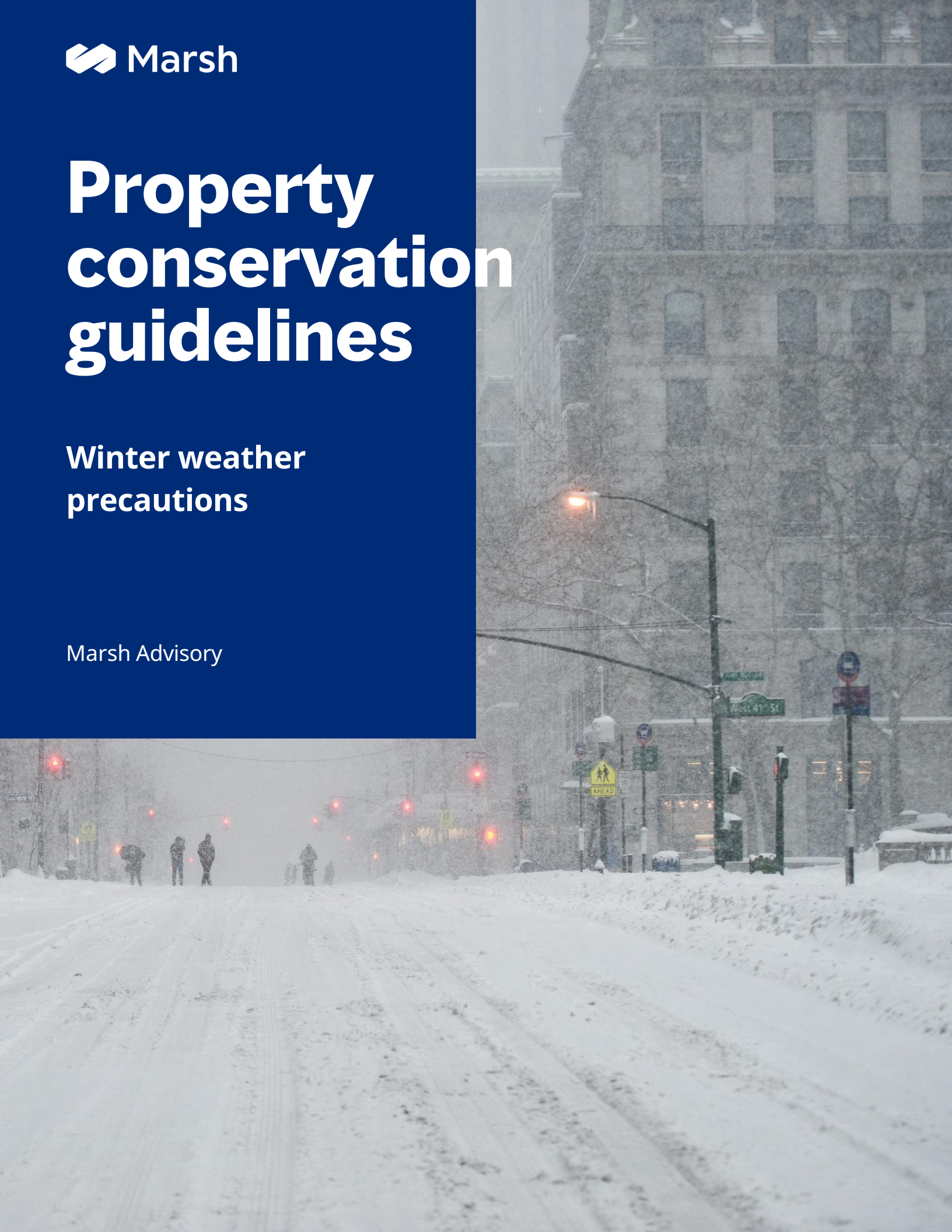
Marsh

Property conservation guidelines

Winter weather precautions

Marsh Advisory



Gusting winds, heavy snow, and freezing temperatures during winter months can lead to costly losses for businesses, no matter what climate region they are located in. Direct and indirect impacts from winter conditions include damage to buildings and infrastructure, freeze-ups, water damage, heat and power losses, business interruption, and supply chain disruptions. Advance preparation can help mitigate these impacts on your operations and business continuity.

The guidance that follows, though not all-inclusive, is intended to provide recommended actions and guidelines to help you better assess your risks and prepare for winter storms and cold weather conditions in order to protect your facilities and manage potential damage and claims.

Managing the risk

Pre-emergency planning

Advance preparation can help mitigate winter weather impacts on your operations and business continuity.

Emergency plans should address the impact of severe winter weather, abnormal snowfall, or extended periods of subfreezing temperatures on your operations.

These plans should include steps for early building closures during severe weather, notifications to all employees during such events, and managing operations if temperatures inside your facility drop towards freezing.

General precautions

- Update emergency plans to reflect changes in operations at your physical properties, or in your personnel.
- Review (at least annually) the emergency plan with management, maintenance, key employees, emergency response teams, and public emergency services (fire, police, and emergency medical services).
- Ensure backup communications are in place in the event primary communications systems are impacted.
- Ensure your emergency power supply is readily available and in service.
- Maintain adequate fuel supplies to operate emergency generators and heat your buildings.
- Establish a weather watch with procedures to monitor conditions and alert management and maintenance personnel.
- Keep battery-operated and weather-alert radios in your locations to enable your people to monitor weather reports.
- Establish a list of emergency phone numbers and post the list in visible locations. Ensure that all employees have access to these emergency phone numbers, including while off site.
- Provide adequate emergency and first-aid supplies.
- Ensure space heaters have appropriate safety interlocks, are fueled, functional, and properly vented.
- Familiarize yourself with any local requirements for snow removal. Establish contracts for snow removal or have a snow removal contractor on call to assist your staff if they cannot handle snow removal.
- Create a plan that allows your staff or contractor to safely remove snow, ice, and/or water accumulation from rooftops.
- In case you do not own or maintain the exterior of your property or common areas, collaborate with your property manager or owner to make sure plans are in place to remove snow and ice accumulation during and following a storm.
- Designate snow deposit areas that do not obstruct access to fire hydrants, post-indicator valves, emergency exit doors, or fire-pump house doors.
- Identify snowplow obstructions and emergency equipment so they are visible under heavy snow. Among others, obstructions include fire hydrants, post indicator valves, and speed bumps.
- Maintain adequate supplies of sand and snow-melting chemicals on site.
- Ensure that access to fire protection equipment is included in snow removal plans.

Buildings and structures

Building maintenance is critical when preparing for winter. Look for any evidence of past damage to your building's structure, pay special attention to damaged roof equipment that may need replacement, and take note of any areas of likely instability during severe winter weather.

- Review building additions or new roof equipment that may contribute to increased snow drifts. Areas where snowdrifts are likely to occur include intersections of low and high roofs; valleys between two peaked roofs; and intersections of roof and roof-mounted equipment. Note that excessive snowdrifts may increase the weight applied to roof structures and could lead to collapse.
- Ensure that all building openings are weather-tight to avoid admitting cold air that could cause fire protection systems to freeze.
- Schedule routine inspections of heating equipment.
- Check that gutters and downspouts are secured to buildings and clear of leaves and debris.
- Check that all roof equipment (including air conditioners, fan housing, antennas, and signage) mounts are secure to minimize damage during periods of heavy winds.
- Clear yard drains.
- Test low building temperature alarms.
- Check that emergency lights are in proper working condition.
- Maintain roofs in good condition, including repairing leaks and securing flashing.
- For more information and illustrative examples on protecting your properties from snow load risks, refer to FEMA's Snow Load Safety Guide.

Heating equipment

Boilers, furnaces, and other heating equipment should be inspected and maintained in accordance with local regulatory and manufacturers' guidelines. Winter storms frequently cause electrical power failure, which may deactivate your heating system. If this occurs, water-filled piping (such as those related to sprinklers, domestic water pipes, and air conditioning systems) may freeze and rupture.

- Inspect heating coils, air-handling units, and space heaters.
- Store combustibles safely away from heating equipment.
- Inspect and test safety shutoff valves and cutoff switches on combustion equipment.

Mechanical and process equipment

Equipment located outside or near exterior walls is vulnerable in cold weather. Check all outside tanks and indoor pipes for moisture and to ensure they are in proper operating condition. Remember to secure outdoor equipment against strong winds.

- For water-cooled equipment, provide adequate heat, locate in a heated enclosure, or provide the proper antifreeze solution.
- Remove low points and dead ends from piping where possible; otherwise, elevate low points and provide drain valves.
- Provide heat tracing and insulation on water-filled instrumentation and control lines and inspect this equipment.
- Drain and close all exposed water pipes and valves.

Fire protection water supplies

As with other equipment, fire protection equipment can be highly vulnerable to drops in temperature during a severe weather situation.

- Ensure that fire hydrants are drained and properly working.
- Ensure that hydrants are properly marked so they can be easily located and the surrounding area cleared after a heavy snowstorm.
- Drain connections to water motor gongs and fire department connections properly.
- Drain wall hydrants and fire pump test connections to minimize the risk of remaining water freezing. Check the packing on post-indicator control valves for leaking, and repair as necessary.
- Check hydrants for tightness and repair any leaks; also check buried valves and repair leakage.
- Check that portable and wheeled fire extinguishers located in areas subject to freezing are suitable for such locations.
- Ensure that underground water mains have adequate depth of cover.
- Put plans in place to isolate mains that are not properly buried.
- If the fire pump suction is from an open reservoir, make sure the intake and pipes are buried below the frost level and deep enough in the water to prevent ice obstructions.

Automatic sprinkler systems

Sprinkler systems are a vital part of fire protection and can be the best means of containing an outbreak. As such, it is important to make sure that all systems are functioning properly in advance of a severe winter weather event.

- Inspect and maintain all sprinkler systems in accordance with National Fire Protection Association (NFPA) 13 or equivalent local codes. Maintain air pressure and set dry-pipe valves.
- Provide heat for dry-pipe and deluge-valve enclosures. Make sure the heaters are in good operating condition.
- Drain dry-pipe low points and condensate collection points. Carry out weekly checks until no water will drain.
- Test solutions in all antifreeze sprinkler systems and add antifreeze as necessary.
- Ensure correct temperature ratings for sprinklers located near steam pipes, unit heaters, or other heat-producing equipment.

During winter weather

When snow begins to fall and the temperature drops, review your emergency plans again to ensure all aspects are functioning properly. Notify snow removal contractors if there are no automatic contracts in place. Close doors, windows, roof vents, and openings. Assign security guards to tour unattended building areas and check building heating conditions.

Buildings and structures

Accumulations of snow on the roofs of buildings and/or structures, may result in structural and/or roof-covering damage, as well as damage to the contents below. Damage may result from inadequate structural design, drifting of snow in areas of differing roof elevations, and/or excessive weight of rain following snow.

- Maintain an indoor temperature above 40˚ F (5˚ C).
- Circulate indoor air so temperatures near outer walls do not drop.
- Check indoor temperatures regularly or install building temperature supervision alarms.
- Monitor snow, ice, and water accumulations on rooftops (especially those vulnerable to snow drifting), and remove excessive accumulations if safe to do so.
- Keep roof drains clear of ice and snow, and clear paths to the drains.
- Take action to keep floors, including rugs, as dry as possible to minimize slip and fall risks.

Warning signs of overstress conditions during a winter storm

- Sagging ceiling tiles or boards, ceiling boards falling out of the ceiling grid, and/or sagging sprinkler lines and sprinkler heads
- Sprinkler heads deflecting below suspended ceilings
- Popping, cracking, and creaking noises
- Sagging roof members, including metal decking or plywood sheathing
- Bowing truss bottom chords or web members
- Doors and/or windows that can no longer be opened or closed
- Cracked or split wood members
- Cracks in walls or masonry
- Severe roof leaks
- Excessive accumulation of water at no drainage locations on low slope roofs

Mechanical and process equipment

For idle air conditioning systems, remove water from oil coolers and water jackets, and drain condensers of chilling units.

Check pressure vessel vents, relief valves, and safety valves to assure that moving parts are protected from water accumulation or freezing of vapor.

Fire protection equipment

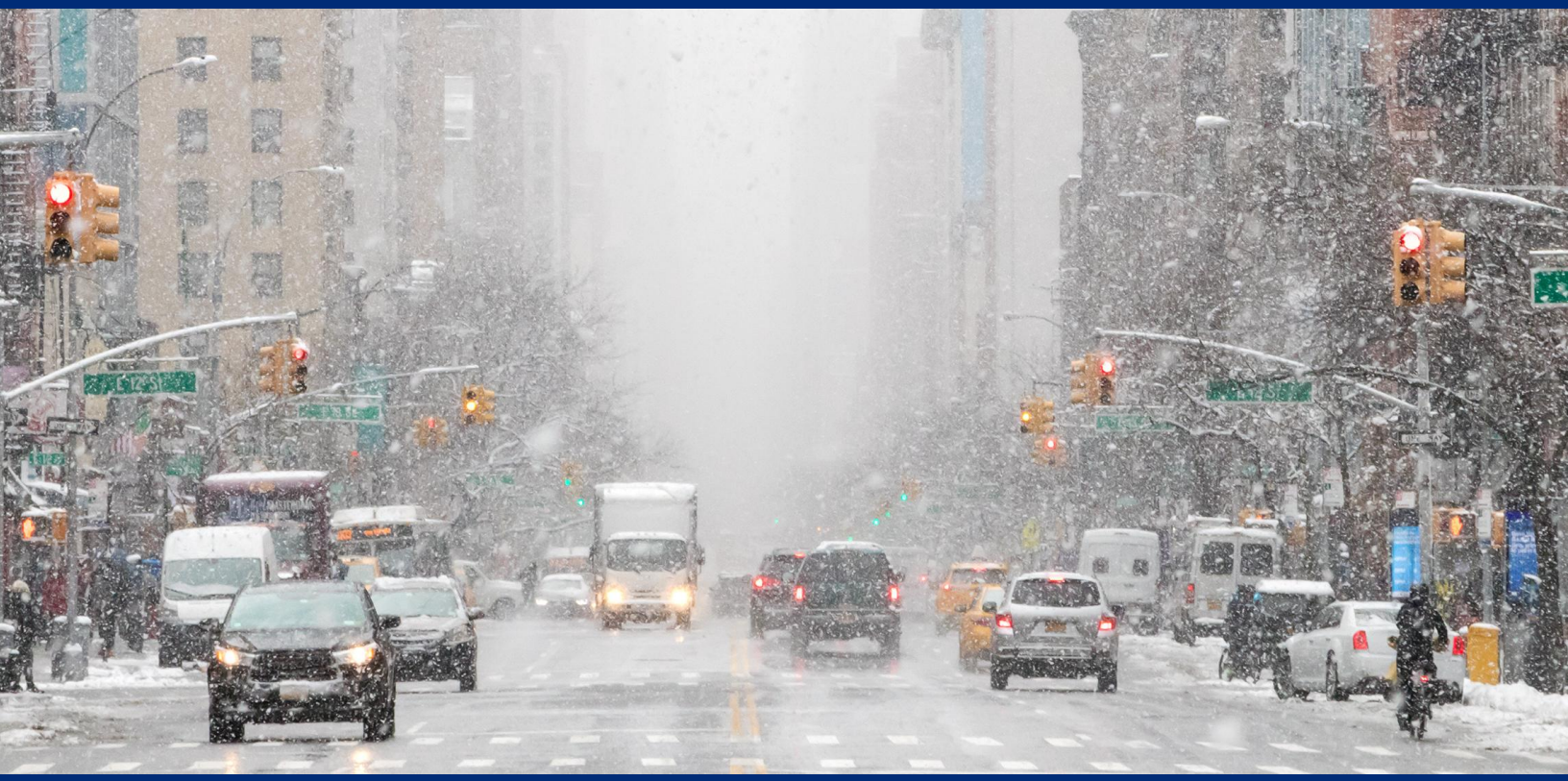
Maintain proper heat above 40˚ F (5˚ C) for dry-pipe valve, deluge-valve, and pump enclosures. Maintain air pressure within normal range.

Keep outdoor sprinkler valves clear of snow.

Check the water temperature of the fire pump's suction tank daily, if provided. Tank vents should be kept clear of ice.

Facility closures

- Close all affected sprinkler valves and all fire-pump water valves.
- Drain fire-pump motor jacket(s), sprinklers, domestic water pipes, instrument pipes, process pipes, boilers, toilet water closets, heaters, and coolers.
- Close domestic water valves and water valves to process lines.
- Heat trace (with electric wire) pipes that cannot be drained.
- Use only Underwriters' Laboratories (UL) listed or Factory Mutual approved portable heaters where they can be safely supervised and where there is adequate ventilation. Use extreme caution to prevent ignition of surrounding combustibles.
- As soon as sufficient building heat is restored, reactivate fire protection systems.



After winter weather

If you experience an extended loss of building heat, take immediate action to prevent freeze-up of mechanical process systems, domestic water piping, and wet pipe automatic sprinkler systems. If water pipes freeze, do not use torches to thaw frozen equipment. Note that steam can cause an explosion, and torches have caused many large fires.

- Check on your people and prioritize immediate recovery needs and resources.
- Assess any hazards that could lead to injuries for employees, customers, or vendors.
- Clear pathways to entrances and remove snow and ice from walkways.
- Report any damage to insurers as soon as possible.
- If you need to address hazardous damages before insurers can visit your side, take photographs and retain detailed documentation of actions taken. Where possible, retain any damaged or destroyed items until your insurer has approved disposal.
- Maintain regular communications with your broker, insurer, and claims team and seek to address recovery issues as they arise.
- Seek specialist support to help you with claims involving extensive property damage and business interruption.
- Work with your insurance advisor or broker to review applicable insurance policies — including property, business interruption, and contingent business interruption coverage — to better understand what may be covered.
- Capture all costs incurred to prepare for the storm, clean up, and restoration, including internal labor costs and contracted work.

For more help with planning for winter weather, response, and recovery issues, including managing your claims, as well as customized guidance specific to the location(s) affected, contact your local Marsh Advisory representative.

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