

# WINTER WEATHER PRECAUTIONS



# CONTENTS

▶ Before Winter Weather Strikes	1
▶ Emergency Planning	1
▶ Buildings and Structures	2
▶ Heating Equipment	2
▶ Mechanical and Process Equipment	2
▶ Fire Protection Equipment	2
▶ Sprinkler Systems	3
▶ Snow Removal	3
▶ Employee Awareness	3
▶ During Winter Weather	4
▶ Buildings and Structures	4
▶ Equipment	4
▶ Fire Protection Equipment	4
▶ Facility Closure Due to Winter Weather	4
▶ How Marsh Risk Consulting's Property Risk Consulting Practice Can Help	5

# ADVANCE PREPARATION CAN HELP TO MITIGATE WINTER WEATHER IMPACTS ON YOUR OPERATIONS AND BUSINESS CONTINUITY

The gusting winds, heavy snow, and freezing temperatures associated with winter are normal and often anticipated occurrences throughout most of the world's cold weather climates. However, not only cold weather locales are vulnerable to extreme winter weather losses. In fact, moderate climate regions not normally associated with harsh winter weather tend to suffer the most costly losses as they are typically unprepared to endure such conditions.

Winter weather events mixed with a lack of preparation can lead to building damage, freeze-up, flood, and business interruption losses. Advance preparation can help to mitigate winter weather impacts on your operations and business continuity.

The checklist that follows, though not all-inclusive, can be an effective part of your organization's loss control program. The issues highlighted herein should be addressed by appropriate personnel within your organization so that severe winter weather impacts may be more successfully alleviated.

## BEFORE WINTER WEATHER STRIKES

### EMERGENCY PLANNING

Your emergency plans should address the impact of severe winter weather, abnormal snowfall, or extended periods of subfreezing temperatures on your operations. Your plan should include steps for early building closures during severe weather, notification of all employees during such events, arrangements for food and accommodations in case your employees must remain on-site, and managing operations if temperatures inside your facility drop towards freezing.

- Update your emergency plan to reflect changes in your operations, physical plant, or personnel.
- Review your 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 of a loss to normal communications systems.
- Ensure emergency power supply is readily available and in service.
- Keep battery-operated and weather-alert radios in constantly attended locations for monitoring weather reports.
- Maintain adequate fuel supplies for building heat and emergency generators.
- Make arrangements for food and sleeping accommodations in the event your staff must stay on-site during severe weather.
- List emergency phone numbers in your emergency plan, and post the list at all telephones. Ensure that all employees have these emergency phone numbers at home or somewhere off-site.
- Provide adequate emergency and first-aid supplies.
- Establish a weather watch with procedures to monitor conditions and alert management and maintenance personnel.
- Ensure space heaters have appropriate safety interlocks, are fueled, functional, and properly vented.

## BUILDINGS AND STRUCTURES

Do not overlook the importance of building maintenance 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 increase snow drifting. 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. Excessive snowdrifts increase the weight applied to roof structures and may cause collapse.
- All building openings should be weather-tight so they will not admit 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 (air conditioners, fan housing, antennas, signs) mounts are secure against damage during heavy winds.
- Clear yard drains.
- Test low building temperature alarms.
- Check emergency lights for proper working condition.
- Maintain roofs in good condition, including repairing leaks and securing flashing.

## HEATING EQUIPMENT

Boilers, furnaces, and other heating equipment must be inspected and maintained in accordance with regulatory and manufacturers' guidelines. Winter storms frequently cause electrical power failure, which may deactivate your heating system. If this occurs, water-filled piping (i.e., sprinklers, domestic water pipes, 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 or condensate and proper operating condition. Remember to secure outdoor equipment against strong winds.

- For water-cooled equipment, provide adequate heat, locate in 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 EQUIPMENT

As with other equipment, fire protection equipment—from water mains, to extinguishers, to hydrants—can be highly vulnerable to drops in temperature during a severe weather situation. If a fire emergency does occur, you might find yourself without sufficient means to contain it. Remember to verify that all fire protection equipment is operating effectively.

- Ensure that fire hydrants are drained and properly working.
- Ensure that hydrants are properly marked for easy locating and clearing after a heavy snowstorm.

- Drain connections to water motor gongs and fire department connections properly.
- Drain wall hydrants and fire pump test connections of water that may be exposed to 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.
- There should be plans in place to isolate mains that are not properly buried.
- If pump suction is from an open reservoir, make sure the intake and pipe are below the frost level underground and deep enough in the water to prevent ice obstructions.

## SPRINKLER SYSTEMS

Sprinkler systems are a vital part of fire protection, and can be the best means of containing an outbreak. As such, you should 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 NFPA 13. 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. Continue your check weekly until no water will drain.
- Test solutions in all antifreeze sprinkler systems and add antifreeze as necessary.
- Ensure correct temperature rating for sprinklers located near steam pipes, unit heaters, or other heat-producing equipment.

## SNOW REMOVAL

Make sure that snow and ice removal equipment and manpower are readily available. Keeping active walkways, driveways, and parking lots clear will help minimize slips, falls and motor vehicle accidents. Designate a safe area for dumping snow. Remember that melting and freezing will occur until the snow pile is gone. Your snow removal plan should also address situations and conditions that require additional equipment or manpower (lack of manpower due to illness or strike, extreme snowfall or icing that may require special equipment or ice melting chemicals).

- Service snow removal equipment. Make sure the keys are accessible.
- Contract for snow removal or have a snow removal contractor on call to assist your staff if they cannot handle snow removal.
- Designate snow deposit areas. These areas should not obstruct access to hydrants, post-indicator valves, emergency exit doors, or fire-pump house doors.
- Create a plan that allows your staff or contractor to safely remove snow, ice, and/or water accumulation from rooftops.
- Identify snowplow obstructions and emergency equipment so they are visible under heavy snow. Obstructions include fire hydrants, post indicator valves, and speed bumps. Emergency equipment includes hydrants, post indicator, and in-ground curb box valves.
- Maintain adequate supplies of sand and snow-melting chemicals on-site.
- Ensure that fire protection equipment access roads are included in snow removal plans.

## EMPLOYEE AWARENESS

Advise employees of your emergency plans. Make sure they know how to obtain closure information.

- Remind employees to carry emergency supplies such as blankets, shovel, flashlight, and jumper cables in their vehicles in case they are stranded during a storm.

## 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 and close doors, windows, roof vents, and openings. Assign security guards to tour unattended building areas and check building heating conditions.

### BUILDINGS AND STRUCTURES

- 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.

When snow begins to fall and the temperature drops, review your emergency plans again to ensure all aspects are functioning properly.

- 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.

### 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 CLOSURE DUE TO 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. Shut down fire protection systems, including sprinkler systems, and fire-pump systems, in conjunction with appropriate impairment handling precautions. Notify your public fire department and property insurance underwriter. Shut down all hazardous process equipment, and survey affected building areas. Always have persons trained and equipped with first aid and fire suppression equipment on-site. As soon as sufficient building heat has returned, restore fire protection systems. If water pipes freeze, do not use torches to thaw frozen equipment. Steam can cause an explosion, and torches have caused many large fires.

- 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 valve to process lines.
- Heat trace (with electric wire) pipes that cannot be drained.
- Use only 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.
- Advise all building occupants of building closure.
- As soon as sufficient building heat is restored, reactivate fire protection systems.

# HOW MARSH RISK CONSULTING'S PROPERTY RISK CONSULTING PRACTICE CAN HELP

## WINTER HAZARD PREPAREDNESS ASSESSMENTS

Marsh Risk Consulting's Property Risk Consulting (PRC) Practice can assist you to determine if a structure or area inside your operations is susceptible to snow accumulation, ice, or sub-freezing temperatures. Our experts can then provide loss scenarios, projected loss expectancies, and solutions for various levels of exposure.

## CHECKLIST SURVEYS

Our tailored winter weather checklist can help you to evaluate multiple sites quickly to identify "show-stoppers" and prioritize risks in a consistent manner.

## WINTER WEATHER PREPAREDNESS TRAINING

Our PRC experts can perform training sessions to focus your organization's attention on winter weather issues. It allows individuals to recognize weather concerns and understand the active role they can play, providing them with the knowledge to respond accordingly. These sessions address the management tools and controls, operational controls, and technical solutions available.

## EMERGENCY MANAGEMENT AND RESPONSE

Our emergency management professionals can help you determine and establish the proper emergency management process and plans to help you respond to a winter weather event as it approaches, once it is underway, and after the event. Through a gap analysis, we can identify where plans can improve and then, based on our knowledge and experience, help you develop and implement appropriate solutions. This can include training, exercising and scenario testing, depending on the outcomes of the gap analysis and your organization's preparedness needs.

## WHAT SHOULD YOU DO TODAY?

### MAKE SURE YOUR RESPONSE PLANS ARE UP TO DATE

Compliance, safety, property conservation, and insurance functions all touch winter weather issues. Cross functional cooperation as well as knowledge of resources and contractors can produce a clear strategy to minimize the impact to your staff and operations.

### ACT ON WHAT MATTERS

Validate your hazards and mitigation capabilities to focus on solutions that support staff safety and operational reliability.

### EXPAND YOUR VISION

Increase your understanding of the risks associated with equipment and processes and how those risks expose your operation upstream and downstream of the area of concern. Specifically, how does the winter emergency event impact your operations or increase the risks.



# MARSH RISK CONSULTING

For additional information about winter weather preparations and our best practice risk mitigation and management solutions, please contact your local PRC or Marsh representative or:

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