



Loss Control TIPS

Technical Information Paper Series

Innovative Safety and Health SolutionsSM

Preparing for Winter Weather

Severe winter weather can occur in many forms. Rain, sleet, ice, snow, hail, blizzards, or any combination of these is possible. Often, a change of only a few degrees in temperature can make the difference between a rainy winter day and a severe winter storm. Severe winter storms can be local or cover large areas of the country; they may vary with intensity, depending on location. Severe winter storms and their residual effects can hamper local or distant services critical to your operation. Storms can also occur back to back in quick succession, providing little time to recover from one storm before the next one strikes. Be ready before winter storms strike.

Emergency Preparedness: Before Snow Season Begins

Have A Winter Preparedness Plan Ready Before Snow Season Begins

- Establish an Emergency Preparedness Plan (EPP) that takes prevention, emergency response, and disaster recovery into consideration. If an EPP is already in place, review and update it as needed for winter storm readiness. Include people, buildings, and equipment in the EPP.
- Designate an Emergency Coordinator and an EPP Team. Assign responsibility to specific employees for advance arrangements to initiate the plan.
- Establish contingency plans for staffing, fuel, equipment, fire protection, strategic shutdown, continued business operations, etc.
- Establish policies for early closure, early staff release, delayed opening, strategic or emergency shutdowns, etc. Make sure all employees are aware of the policies, and make sure all employees know where they can obtain updated company information.
- Establish means for communicating with employees, contractors, emergency agencies, etc.
- Designate an individual to monitor the weather forecast.
- Alert maintenance staff when cold or snowy weather is expected.

Prepare Buildings And Facilities For Winter Conditions

- Inspect buildings, equipment, etc.; be sure to include idle facilities and equipment.
- Schedule annual maintenance and repair of building and heating systems well before winter.
- Maintain buildings at 40°F (4°C) or above.
- Designate an individual to monitor indoor building temperatures every few hours. Install thermometers, especially in hard-to-heat areas.
- Insulate piping, and consider installing heat tracing lines on critical piping. Be sure piping systems in concealed spaces are kept warm.
- Check that buildings have adequate insulation and that windows, doors, skylights, louvers, ducts, dampers, and vents are properly closed or sealed.



- Inspect, test, and repair heating equipment, boilers, combustion controls, and safety devices. Remember to test back-up equipment.
- Identify equipment containing water, or through which water flows, that should be drained before cold weather (or in the event that the building's heating system shuts down).
- Check valves, drains, and vents to be sure that moving parts are in working order and that openings are unobstructed.
- Install snow fences and marker poles at hydrants and at fire protection control valves.
- Block walking areas under roof overhangs to prevent falling snow from creating a hazard.

Pay Special Attention To Fire Protection Systems And Equipment

- Check all areas of the building to be certain that sufficient heat (40°F, 4°C or above) is maintained to prevent sprinkler systems from freezing. *Don't* use electrical heat tape on dry pipe valves as a substitute for permanent heating.
- Be sure that fire extinguishers are protected from cold or are of the type that are not vulnerable to cold (e.g., antifreeze or ABC types).
- Check anti-freeze solution strength of sprinkler systems annually.

Prepare Equipment Needed To Respond To Winter Conditions

- Acquire, prepare, inspect, repair, and/or maintain snow removal equipment and machinery (see below).
- List suppliers (with their telephone numbers) for portable boilers, heating units, and/or electric generators.
- Top off fuel in emergency generators; test run generators.
- Check fuel supplies and fueling equipment.
- Prepare or acquire other supplies:
 - tarpaulins
 - space heaters
 - steam hoses (for thawing frozen lines)
 - antifreeze
 - warm clothing, especially hand, head, and foot protection
 - food, water
 - cots, blankets

Plan For Snow Removal

- Acquire, prepare, inspect, repair, and maintain snow removal equipment:
 - shovels
 - ice scrapers
 - wheelbarrows
 - sand/salt spreaders
 - snowblowers
 - ice chippers
 - plows
- Obtain sufficient fuel supplies.
- Be sure the snow removal plan includes roofs, skylights, canopies, and overhangs.
- Screen/select staff carefully for heavy physical activity like shoveling.
- Have a place where workers can get warmed up and fed and where they can rest.

When Snow Removal Is To Be Done By Contractors

- Verify that a snow removal contractor is in place for the season.
- Obtain a Certificate of Insurance to verify the limits of general liability coverage.
- Where possible, name company as an additional insured under the contractor's general liability policy.
- Review the contract to verify that a hold harmless agreement is in effect.
- Determine exactly what services will be provided (e.g., plowing, sidewalks/entries, roofs, etc.)
- Determine when the contractor will respond (i.e. after a certain amount of snow has fallen, at a predetermined time of day, etc.)
- Determine what records they maintain (e.g., weather conditions for the day, time of plowing, depth of snow plowed, unusual occurrences, time work completed, etc.)

Emergency Response: During A Winter Storm

General Preparations

- Depending on the severity of the storm, close early or delay opening to keep nonessential personnel out of the facility.
- Provide updated information to all employees, both on premises and off.
- Check all areas to be sure there is sufficient heat to prevent freezing.
- Forgo planned heating plant or boiler inspections until after the storm has ended.
- Place signs at the exits of the building, in elevators, and/or on each floor to alert employees or residents of weather conditions. Keep a log of the days that the signs are posted.

Prepare Entry Areas

- Place "walk-off" mats at entries during periods of rain or snow.
- Check the condition of the mats to be sure that the edges are flat and do not create a trip hazard.
- Check mats regularly to see if they need to be replaced (due to the amount of water absorbed in them).

Snow Removal Tips

- Clear snow from:
 - hydrants, control valves, and hose houses
 - sidewalks, ramps, and entryways
 - driveways
 - roads
 - heating and ventilation equipment and ducts
 - roofs
 - overhangs and canopies
- Determine the best location for placement of snow that is moved; be sure to communicate this information to the people who will actually be moving the snow. Place snow:
 - away from the main entry and walkways
 - away from hydrants, fire department connections, and outside sprinkler control valves (e.g., PIV post indicator valves)
 - where it will not drain onto the parking lot, street, or sidewalk and re-freeze
 - in designated parking spaces set aside for that purpose
- Maintain communications with on-site snow removal crews.
- Provide a warm area with food, water, and supplies, and perhaps cots and blankets.

Sidewalks

- Develop a written procedures for sidewalk maintenance:
- Determine what will be done (e.g., shovel, place ice-melt, etc.)
- Determine who is responsible for completing each task
- Determine where the removed snow and ice will be placed
- Determine who will check walking surfaces, and when
- Document the times of the shoveling, visual checks, and conditions.

If An Incident Occurs

- Assist the person; provide comfort.
- Do not admit liability.
- Follow established incident procedures.
- Include all statements in an incident report.
- As soon as possible, document the condition of the location. If possible, take an instant picture, and indicate the date/time of the photo and by whom it was taken.
- Conduct an accident investigation.

Use Snowblowers Safely

- Become familiar with the machine. Read and understand the operator's manual. Leave all of the safety features intact. Check the snowblower before every use, and re-familiarize yourself with it before using it at the start of the season.
- Always keep hands and feet away from all moving parts of the machine. If the machine clogs while removing snow, shut the machine off and wait for all moving parts to stop. Some manufacturers recommend removing the spark plug wire from the spark plug. Remove snow with a stick or instrument. Be prepared for a clogged machine to jump once the obstruction has been cleared!
- Work the snow slowly to avoid clogging the machine.
- Never leave a running machine unattended. Never refuel the machine while it is running or if the engine is hot. There is also a risk for burns, as parts of the machine, especially the engine and the muffler, become extremely hot.
- Before beginning to remove snow, make sure that the area is clear. Some machines are capable of throwing snow at distances of 30' or greater. Such machines can also propel rocks or other objects at great velocity. Take special care to discharge snow away from people, buildings, or vehicles. If you use an electric snowblower, be aware of the location of the power cord.
- Wear adequate winter clothing while clearing snow. Being outdoors during the winter always carries the risk of frostbite and hypothermia. Dress in layers and wear boots that have good traction on slippery surfaces. Avoid long scarves and outerwear with strings that may become entangled in the moving parts of the machine.
- Only adults or mature teens should operate snowblowers, and even mature teens should be supervised.
- Concentration is the key to safe operation of a snowblower. Avoid the use of alcohol or other drugs, and do not work when you are angry or depressed. Do not wear headphones; you need to be keenly aware of your surroundings.

Cold Weather Injury Prevention

Injuries that are caused by overexposure to cold can range from uncomfortable to life threatening. Know what can happen.

INJURY	SYMPTOM	DESCRIPTION
Chilblain	Painful injury	Skin becomes tender, red, swollen
Trenchfoot	Serious injury	Extremity becomes numb, amputation potential
Frostbite	Serious injury	Deep layers of skin freeze, tissue damage
Hypothermia	Life threatening	Body core drops < 95°F, death potential

Proper dress will keep you warm and dry. Wet clothes increase heat loss. The best clothing has good ventilation so moisture can escape.

Dress properly:	Stay comfortable:	Get out of the cold:
<ul style="list-style-type: none"> • Dress in layers • Wear a liner in your hardhat • Keep clothes clean • Water resistant boots • Wear outer windproof layer • Wear cotton close to the body • Wear mittens with liners if possible • Change socks frequently 	<ul style="list-style-type: none"> • Avoid dehydration. Drink at least 16 oz. of water every work hour • Use moisturizing lotions, lip balm • Stay in peak physical shape • Stay active to produce heat • Eat nutritious food • Keep extremities dry • Avoid alcohol, caffeine, tobacco 	<ul style="list-style-type: none"> • Take a break inside, if you are shivering • Use warming devices, if available • Work in a shelter, when possible • Work with your back to the wind

Preventing Roof Collapses Due to Snow

Prepare Roofs For Winter Storms

- Review roof design to determine if it can support the weight of snow, ice, and water.
- Inspect roofs, looking for weaknesses.
- Reinforce roofs as needed, particularly where drifting (and therefore increased weight) is likely.
- Inspect gutters, drains, downspouts, and scuppers to be sure that they are clear and in good condition. Consider installing listed or approved heat tracing in downspouts and gutters to keep them clear of ice.
- Have a snow removal plan. Be sure the plan includes roofs, skylights, canopies, and overhangs. Specify who is responsible for monitoring, snow removal, etc.
- Determine a safe snow depth for each roof. Begin removal when snow reaches half this depth.
- Plan to put the snow removal plan into effect immediately; this is especially important in windy weather when snow will drift and accumulate.

During Storm Conditions

- Monitor weather and roof conditions continuously.
- On the roof, check for snow depth, drifting, puddles, ponding, and/or ice accumulation.
- Inspect roofs for leaks or structural deficiencies that may develop as snow and ice accumulate.
- Keep gutters, drains, downspouts, and scuppers clear of leaves, snow, ice, silt, or other debris.
- Connect roof overhang heating wires.

Carefully Plan Snow Removal From Roofs

- Do not send workers onto the roof if it is in danger of collapse.
- Remove snow and ice from roofs, skylights, canopies, and overhangs as soon as possible.
- Remove only as much snow as needed; too much digging and scraping could damage the roof.
- Check where lower and higher roof portions join, where drifting and blowing snow can accumulate.
- Clear paths to drains, and clear the area around each drain.
- On pitched roofs that do not have drains, open paths to the eaves to allow drainage.
- Do not use tools that may damage the roof, such as ice choppers.
- Set snowblower blades high enough so that they won't damage the roof.

If A Roof Collapse Occurs Or Is Imminent

- Evacuate the building.
- Shut off water, gas, electricity, processing systems, etc., but keep *on* as much of the automatic sprinkler system as possible.
- Be extra careful to prevent fire hazards in areas where sprinklers have been shut off.
- Move equipment and stored goods, or cover with tarpaulins to protect from the elements.
- Shore up building and roof sections, if this can be done safely.

After The Storm

- Inspect, document, and repair damage to roofs, skylights, canopies, and overhangs.
- Prepare for the next storm. Replenish supplies, inspect and maintain equipment.
- Evaluate the success of the snow removal operation; make changes as needed.

Emergency Recovery: After A Winter Storm

- Inspect buildings, equipment, and grounds for damage.
- Document storm damage (photos, notes, emergency reports, etc.).
- Initiate emergency repairs to prevent further damage.
- Clear snow from fire access routes, exterior valves, and hydrants.
- Complete snow removal from sidewalks, stairs, driveways, roofs, etc.
- Inspect and repair equipment; refuel.
- Prepare for the next storm.

For more information, contact your local Hartford agent or your Hartford Loss Control Consultant. Visit The Hartford's Loss Control web site at <http://www.thehartford.com/corporate/losscontrol/>

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