

WINTERIZATION CHECKLIST

ALLIANZ RISK CONSULTING



Extreme weather conditions are occurring more frequently with the impact on businesses becoming more severe. This bulletin is designed to highlight some key actions which can be taken by clients to address winter weather-related hazards to their business and includes a sample checklist to provide guidance and heighten awareness of the risks.

Changing weather can impact any business especially at the onset of winter. Extreme cold, heavy snow and ice can immobilize a facility or an entire area, leading to asset damage and an interruption of business operations.

Winter storms can also result in power outages, flooding, closed transport networks and blocked roads. Locations not normally experiencing such extremes are now seeing these effects more frequently.

Examples of winter weather-related hazards include:

- Heavy snow or ice accumulation on building roofs, outdoor equipment, power lines, etc., leading to potential collapse.
- Low temperatures causing freezing of water filled pipes, including process and sprinkler systems.
- Blocked roof drainage systems and guttering leading to a back up of water and subsequent ingress into buildings.

- Temporary heaters creating potential fire hazards.
- Lack of access to facilities due to heavy snow, ice or flooding.
- Heating system failures leading to low temperatures within facilities and a cessation of operations.

In an effort to help you minimize the damage that may occur from winter weather, Allianz Risk Consulting has developed the following checklist that should be completed before, during and after a winter storm. This checklist is not intended to be all inclusive and should be used as a guide, taking into consideration your specific site conditions and processes.

Winter storms may also produce high winds, and flooding may occur as snow and ice melt. Please refer to the separate Windstorm Checklist and Flood Checklist for detailed guidance preparation and precautions for these perils.

Should you have any questions about winterization or want to discuss any aspect of risk management in greater detail, please feel free to contact your local engineer at Allianz Risk Consulting. For any insurance claims, please contact your insurance broker or Allianz Global Corporate & Specialty.

PRE-WINTER PLANNING

The key to minimizing damage is adequate preparation before cold weather arrives.



If your site is subject to winter storms, the following should be completed prior to the storm:

- Develop a comprehensive written winter emergency plan to mitigate the exposures. The plan should include:
 - Assigning emergency organization roles and responsibilities.
 - Providing training at least annually.
 - Assembling emergency supplies and equipment in a safe location, such as plastic tarps, mops, squeegees, emergency lighting, battery operated radio, emergency temporary heating equipment, snow and ice clearing equipment, road salt, etc.
 - Planning for salvage and recovery, including maintaining a list of key vendors, contractors, and salvage services.
 - A business continuity plan for restoring operations after the event.The plan should be reviewed at least annually and updated as needed.
- Designate a person to monitor weather reports and warn management and maintenance personnel of any winter storms. Allow sufficient time needed to implement the emergency procedures.

- Make arrangements for snow removal from roads, roofs, gates, doorways, outdoor sprinkler control valves, fire hydrants, explosion vents, etc.
- Identify and consider removing any large trees or limbs that could fall due to snow or ice loading and damage buildings, outdoor equipment, power lines, etc.

BUILDINGS

- Ensure all buildings are “weather tight.” Close all windows, doors, vents, etc., and seal any openings in exterior walls, ceilings/roofs, and floors to prevent exposure to outside air.
- Verify the indoor temperature for all heated buildings is maintained above 40°F (4°C). When in doubt, provide thermometers in key areas that may be exposed to freezing temperatures.
- Provide low building temperature supervision or hourly recorded inspections for all non-operating or unoccupied buildings subject to freezing.
- Use portable heaters only if necessary. Schedule periodic inspections to verify they are operated safely with adequate clearances to combustible materials.

ROOFS

- Evaluate your roof’s snow load capacity. Be prepared to remove excessive snow build up during storms if necessary.
- Inspect roofs for any obvious structural or maintenance issues and repair as needed:
 - Cracked or bent beams, joists or columns.
 - Rusted or deteriorated decking.
 - Cracked or deteriorated roof coverings.
 - Areas subject to water ponding.
- Verify all roof drains, drain pipes and gutters are free of debris and will provide adequate water drainage.

PROCESS EQUIPMENT AND UTILITIES

- Inspect all heating systems to ensure proper operation (i.e. heating & process boilers, furnaces, ovens, space heaters, heaters for fire protection or process water tanks, etc.).
- Inspect all process, water, fuel oil, steam and condensate lines subject to freezing for proper insulation or heat tracing.
- Verify heat tracing systems are operating properly.
- Confirm adequate fuel supplies are available, including that needed for standby.
- Check alternate fuel systems for proper operation.
- Drain any water laden equipment or piping located in unheated areas.
- Test the freezing point of solutions in antifreeze sprinkler systems and adjust solution strength or refill as necessary.
- Inspect sprinkler systems controlled by cold weather valves for the following:
 - Control valve closed and identified by a "Valve Shut" card.
 - Water drained from system.
- Inspect fire hydrants and fire department connections for the following:
 - Water is fully drained.
 - Caps are in place. Exception: caps subject to freezing to the outlet should be removed (i.e. above ground pillar hydrants).
 - Marked for easy location during heavy snow storms.

FIRE PROTECTION EQUIPMENT

- Inspect wet pipe sprinkler systems for the following:
 - Areas are maintained above 40°F (4°C).
 - Concealed spaces and areas along exterior walls are adequately heated.
- Inspect dry pipe sprinkler systems for the following:
 - Valve enclosures are maintained above 40°F (4°C).
 - Water drained from low points.
 - Air or nitrogen supply is adequate to prevent tripping.
- Inspect water tanks for the following:
 - Verify tanks are full by overflowing (level indicators are not always reliable).
 - No signs of leakage.
 - Properly heated or equipped with low temperature devices to sound an alarm.
- Inspect fire pumps for the following:
 - Pump house/room is maintained above 40°F (4°C).
 - Diesel engine heaters operate properly.
 - Diesel fuel tank is full.
 - Diesel engine batteries are fully charged and charger operates properly.

DURING A WINTER STORM

- Emergency response team personnel should remain at the facility if safe to do so and be prepared to respond.
- Continue to monitor weather reports for information on potential storm damage, access to property, utility outage, etc. Update management and maintenance accordingly.
- Monitor snow loads on roofs, particularly in areas subject to drifts, such as lower levels of multilevel roofs. Promptly remove snow if needed and safe to do so.
- Regularly inspect and remove snow and ice as permitted from roads, roofs, gates, doorways, outdoor sprinkler control valves, fire hydrants, explosion vents, etc.
- Conduct periodic inspections of all space heaters to verify they are operated safely with adequate clearances to combustible materials.
- Monitor thermometers in key areas that may be exposed to freezing temperatures.
- Conduct hourly recorded inspections for all non- operating or unoccupied buildings subject to freezing.
- Keep fire protection water tank vents free of ice.
- If safe to do so, periodically open main drains and inspector's test connections on wet pipe sprinkler systems to check for frozen pipes during freezing weather.

AFTER A WINTER STORM

- Secure the site to prevent unauthorized entry.
- Organize and prepare emergency crews for salvage and cleaning operations.
- If safe to do so, conduct an immediate damage assessment, paying particular attention to the following:
 - Structural damage to the building.
 - Fire protection equipment, maintaining as much fire protection in service as possible by isolating damaged sections, then making repairs and restoring systems back to service as soon as possible. Notify ARC if any system will be impaired for more than 10 continuous hours.
 - Utilities, including electricity, gas, water, compressed air, HVAC, etc. (isolate as necessary).
 - Production/processing equipment.
 - Areas subject to flooding, including basements.
- Notify utility companies of any outages or damage.
- Call in key personnel and notify contractors to begin major repairs. Make sure facility safety procedures are fully implemented before work commences. This includes controlling ignition sources such as smoking and hot work. Follow all hot work permit procedures.
- Initiate salvage operations to perform the following:
 - Thaw frozen pipes by raising building temperatures. Important: Do not use open flames, such as torches.
 - Relocate damaged stock and equipment to dry areas.
 - Clean and dry equipment, placing priority on critical high-valued equipment.
 - Inspect and repair electrical systems and equipment before re-energizing.
 - Clear any debris from roof and yard drains, gutters, drain pipes, catch basins, etc.
 - Remove water and dehumidify damp areas. Monitor air humidity levels over an extended period of time in areas with highly sensitive equipment.
- Remove snow carefully only from roof areas confirmed to be structurally safe. Always work from the edges toward the center to avoid creating point loading.
- Review the effectiveness of the winter emergency plan and revise as needed.



If needed, please contact your insurance broker or Allianz Global Corporate & Specialty for assistance in reporting a claim.