

# How to protect your business operations

**Another winter storm is headed to your region. Is your business prepared? Whether it's snow, ice or freezing conditions, taking action now is critical for continued operations. Use the winter weather preparation general guidelines and the detailed checklists to protect your business.**

## General guidelines

### Snow load

- What if the snowfall weight exceeds the roof design load? To avoid a building collapse, plan ahead a predetermined snow depth to trigger snow removal. This can be less than 30 cm (1 ft) in regions where buildings are not designed for snow load accumulation.

### HVAC systems

- Make sure to drain outside unprotected pipes or adjust the antifreeze concentration in exposed HVAC systems.
- Make sure all heating systems are thoroughly checked before the start of the heating season. This includes boilers and their associated steam lines, heaters, heat tracing, etc.

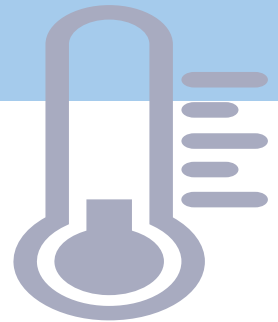
### Fire protection systems

- Make sure all fire protection systems are prepared for winter: drain water from dry systems, test antifreeze to insure proper concentration, confirm heater and low temperature alarm are working on the fire pump room and suction tank, etc. following any significant snowfall.
- Mark the location of all fire hydrants on site and clear them

## Winter, snow and freezing checklists

Use the five checklists starting on page 2 to protect your business operations. Take action now to ensure that your business is prepared and ready to withstand the next winter storm.

**Losses will increase dramatically where freezing temperatures are less frequent and unexpected. Systems may be outdoors, above ground, or in unheated buildings.**



### 1. Access to plant and critical equipment

- Make arrangements to have roads to the plant cleared of snow
- Emergency crews have been identified for key plant equipment:
  - Boilers  AC Systems
  - Compressors  Site Security
- Make sure any mobile yard equipment is properly winterized, especially if they are critical to operations (i.e. mine equipment, large fork trucks, track mobiles)
- An emergency team has been established and arrangements made for an extended stay in the plant in the event of a severe snow storm.
  - Number of people on the team \_\_\_\_\_
  - All emergency equipment is available for team use
  - Emergency vehicles are serviced & winterized
  - Emergency medical equipment is available
- Have a procedure for snow load and ice removal if in excess of roof design

### 2. Roof areas

- Inspect the roof to determine:
  - Areas of potential snow accumulation (e.g. where buildings of different height join)
  - Areas of potential water ponding
  - Areas that have been trapped by the addition of roof top equipment
  - Areas of splitting, cracking, or deterioration of the roof covering
- What actions/repairs have been made to solve the above problems?  
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 \_\_\_\_\_  
 \_\_\_\_\_
- The roof structure has been inspected for:
  - Cracked or bent beams, joists, or columns
  - Rusted or deteriorated beams, joists, columns or roof deck
  - Spalled concrete from roof deck, beams, joists, or columns
- What actions/repairs have been made to solve the above problems?  
 \_\_\_\_\_  
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- Roof drainage has been checked:
  - Are drains and roof clear of rubbish?
  - Are drain pipes and down spouts clear?
  - Are gutters clear?

### 3. Heat and low building temperature

- Weathertight all building openings including ventilation louvers to avoid freezing problems inside the building
- In buildings protected by wet sprinkler systems:
  - Are thermostats properly set to maintain temperature above 5°C (40°F)?
  - Are all non-operating or unoccupied buildings provided with low building temperature supervision, OR provided with thermometers and regularly visited by a watchman that takes readings?
- Are there pipes (sprinkler, process lines, etc.) located in unheated attics, concealed spaces, or dead air spaces in walls?
  - If yes, how are they protected from freezing?  
 \_\_\_\_\_  
 \_\_\_\_\_
  - Are they heat traced?  Yes  No
  - Are they shut off (isolated) and drained?  Yes  No
- All heating appliances (i.e. heating & process boilers, furnaces, ovens, space heaters, heaters for fire protection or process water tanks, etc.) have been inspected by a qualified person
  - Inspection included fuel valves, pumps, and regulators, as well as flame supervision devices
  - Inspection included all gas and oil pipe lines, supply valves (away from the equipment, out near the tanks, etc.), and control equipment
  - Steam traps have been checked to ensure they function properly
  - Procedures have been set up to arrange for temporary heating if needed (e.g. a trailer mounted boiler)
- Adequate fuel (including that needed for standby) is on hand or in a nearby storage

### 4. Process equipment

This portion of the checklist should be developed by plant personnel to fit the operation of the plant.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- Explosion protection: If vents are installed, keep them free of snow or ice accumulation

## 5. Fire protection equipment & fire alarms

### Wet pipe systems:

- All concealed spaces are adequately heated
- Areas along outer walls, especially near doors and windows, are adequately heated  
If not, what action is being taken to prevent freezing? \_\_\_\_\_  
\_\_\_\_\_

### Dry pipe systems:

- Valve enclosures are adequately heated
- Enclosures are insulated
- The valve air pressure and the heat within the enclosures are checked daily through the winter
- All low point drains have been examined for condensate and drained as necessary

### Anti-freeze systems and cold weather valves:

- All anti-freeze systems have been tested for proper solution concentration
- All sprinkler systems controlled by cold weather valves have been properly drained, control valve closed and identified by a "RSVP Valve Shut" card

### Water spray and special systems:

- All low points have been drained

### Yard equipment:

- All yard hydrants, outside sprinkler control valves and hose cabinets locations have been marked with snow poles
- There are established procedures to maintain accessibility after snow or ice storms
- All yard hydrants and outside sprinkler control valves have been examined for leakage
- All hydrants have been flushed
  - Did all hydrants and fire department connections drain properly?  Yes  No
- Fire department connection caps are in place and secure
- Were all valve pits found water free?  Yes  No
  - If not, were they pumped out and corrective action taken to prevent a recurrence?  Yes  No

### Water supplies and control valves:

- All water supply tanks are full
- Tanks have been examined for signs of leakage and corrective action taken where necessary
- All tanks are properly heated or equipped with low temperature devices to sound an alarm
  - Have the alarms been tested?  Yes  No
- Suction ponds and tanks are aerated to prevent freezing
- All water supply and sprinkler control valves are lubricated and operational

### Fire alarm equipment:

- All fire alarm equipment associated with the fire protection equipment has been tested and is in proper working order
  - Are there any portions susceptible to freezing?  Yes  No  
If so, what action has been taken? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Portable fire extinguishers:

- All water-based extinguishers have been removed from unheated buildings and other areas subject to freezing, and have been replaced by suitable types

### Fire pumps:

- The pump house is adequately heated to maintain temperature above 5°C (40°F)
  - The electric motor is in good condition
  - The diesel engine is in good condition
- The diesel engines have engine block coolant heaters
- Battery chargers and batteries are in good condition
- The diesel fuel tank is located in a heated area
  - If not, the diesel fuel is suitable for winter use