



Risktopics

Risktopic G-2-E
January 2009

Winter Storms

This Risktopic covers areas of exposure to loss from Winter Storms

Four areas are exposed to loss:

- A. Property
- B. Liability
- C. Personnel
- D. Business Income

A. PROPERTY LOSSES MAY BE

- Building structural failure, such as roof collapse from snow and ice loads
- Freezing of piping and related water damage to contents or equipment in building
- Vandalism, theft, etc. when properties are unattended
- Spoilage or damage to stock such as foodstuffs, pharmaceuticals through lack of refrigeration or heat
- Livestock through lack of ventilation, feed, water.

B. LIABILITY LOSSES MAY ARISE FROM


- Injury to visitors to the premises or other members of the general public
- Injury to tenants or their property
- Failure to protect property of others in your care
- Failure to fulfill contractual or other legal obligations

C. PERSONNEL LOSSES MAY BE

- Unavoidable absences due to personal commitments
- Inability to get to place of employment
- Personnel injury and illness arising from storms and their effects

D. BUSINESS INCOME LOSSES MAY BE THE RESULT OF

- Enforced closing of business through lack of heat or power for production
- Denial of access to premises by order of civil authority
- Communications systems failure
- Reduction in orders from key customers whose own businesses are disrupted



Four key areas that will be exposed during a winter storm are Property, Liability, Personnel and Business Income Losses

- Additional expenses to continue operations (e.g. generator rental)
- Extra expenses to reduce income losses, such as expediting costs
- Disruptions to financial services infra-structure
- Inability to transfer funds
- Future business losses, loss of customers to competitors etc

Safety Of Occupants

When electrical and telecommunications systems fail during these storms, dealing with the fundamental needs of warmth and light can result in neglect of the newly introduced threats to the safety of building occupants.

Do not employ any temporary "survival" devices such as camp stoves, barbecues or other non-vented equipment for heating or cooking indoors.


Allow only qualified personnel to inter-connect emergency power generators with building electrical systems. Do not install any emergency power generator indoors without direct venting.

Excessive exposure to carbon monoxide can cause headache, nausea, mental confusion and death. Therefore it is critical adequate ventilation be maintained near internal combustion engines and any other heating, maintenance or production processes.

Exterior Safety

Actions that will help minimize the chance of accidents during cold weather include:

- Removal of snow and ice from surfaces as soon as possible
- Sanding and salting of sidewalks, walkways, parking areas
- Blocking off areas near building structures susceptible to falling ice, especially near walkways, entrances and access lanes
- Keep business closed if safety of public is threatened by access



Hazards that effect the safety of occupants need to be minimized by taking necessary precautions

Roofs, Building Structures

Failure of roofs from snow and ice loading is not an uncommon event in Canada, in spite of building codes. When failures occur in buildings with high concentrations of people, such as offices, hotels, auditoriums and sports complexes, the results can be catastrophic.

Severe damage to buildings and structures could occur if the accumulated snow/ice weight exceeds the snow-load design allowance.

Collapse can occur several days or weeks after a snow and/or ice storm.

There are several factors that can be expected to influence the snow-load intensity on roofs or portions of roofs. The most significant are:

- Location with respect to meteorological effects
- Exposure to wind
- Thermal condition of the structure
- Slope of the roof's surfaces
- Drifting of snow
- Shape of the roof

In conjunction with snow loads, consideration must be given to additional loads caused by rain-on-snow and ponding (due to improper drainage of flat roofs) loads, both of which have accounted for numerous collapses.

Any cracks or indication of weakness such as sagging, leakage, or unusual signs on walls, ceilings, floors, doors and other building structures should be investigated immediately. A professional engineer should be consulted if there are any doubts at all about the causes or severity.

You should not assume that because a structure met the applicable building code at the time of construction that it is safe and has no potential to collapse.

The first line of prevention and defence is a well planned and executed procedure for snow/ice removal. A proactive approach should be adopted rather than waiting until problems with the structure become evident.

Faced with the responsibility to control snow and ice hazards, the property manager has the option of using his/her own personnel or engaging contractors.

A. IN-HOUSE RESPONSE

Your first consideration should be the safety of your staff. Personnel delegated to this activity must be physically capable, properly trained and must have the proper equipment including clothing to perform the necessary tasks without endangering themselves, other people as well the facility.

When heavy snow falls and bad weather have been predicted, your maintenance staff should be prepared to inspect roof areas that are particularly vulnerable to drifting, sliding, ponding and ice buildup.

Snow or ice should be removed from over-loaded areas, but only after it has been established that the roof can safely sustain the additional weight of any snow removal equipment and/or workers.

Keep all drains, eave troughs and roof edges clear of snow and ice to allow melting and runoff.

Remove ice accumulation from skylights and around large heating, ventilation and air conditioning units.

Continue removing snow accumulations after each new storm, being careful not to damage roof coverings in the process. Avoid using ice-picking materials. Do not attempt to remove all the snow or ice down to the roof covering. This will help avoid damaging the roof membrane.

Use only approved ice melting treatments and allow for sufficient time for the treatments to take proper effect.

Consider type of treatment for given conditions. Calcium chloride is more effective than salt in extreme cold. It is also less damaging to plants and soil.

Temperature can fluctuate widely between night and day thus allowing a re-freeze to occur.

Relocate down spouts if they discharge water onto walking surfaces.

Excessive salt and sand used in the treatment can be tracked indoors resulting in possible damage to the carpets and floor surfaces and can even cause a potential slip and fall hazard.

Clear or provide warnings of "hidden" hazards that could be struck by cars or pedestrians if covered by snow (curbs, grates, debris in walkway, etc.). Clear all snow from around fire hydrants so they are accessible & visible.

High piles of snow can also reduce visibility around corners. Melting of snow from piles adjacent to a walkway can result in re-freezing of water on the walkway.

B. USE OF CONTRACTORS

Select contractors on the basis of experience, capabilities, response times and diligence.

Verify that the contractor has a liability insurance to cover his operations. Ideally your company should be a named insured. Verify the contractor has workers' compensation coverage for his employees.

It is important to obtain copies of the Certificates of Insurance to verify that the contractor does, in fact, carry all the stipulated insurance coverages and has appropriate limits and that the coverage is current.



Proper maintenance and removal of snow can prevent serious injuries to employees and the public

Production Equipment and Building Systems

Provide adequate and safe additional emergency heating equipment in areas prone to freezing, set to activate automatically when temperatures fall below 4 de-rees C (40 degrees F).

Where temperatures within a building can reach 0-4 degrees C (32-40 degrees F), drain equipment subject to freezing such as sprinkler systems, process piping, plumb-ing, heat exchangers, compressors, condensate piping, boilers, and hydraulically operated devices and air conditioning systems.

Avoid open flames. In the event that you need a torch or open flame device for thawing, use extreme caution; provide fire watches during and after completion of the work and have an adequate number of portable extinguishers of the correct type and rating in the immediate area.

For vacant or periodically vacant buildings and buildings that have minimal occupancy, consideration should be given to installing low temperature alarms. These systems should be connected to a monitoring company and periodically tested to verify functionality.

Computer Equipment

Planning and preparation for power interruptions and related electrical effects such as voltages sags, spikes and surges should include provision of a UPS - "Uninterruptable Power Supply".

These devices are designed to provide sufficient power for the user to implement a controlled shutdown of the equipment to avoid losing any data being worked on and to isolate sensitive computer equipment from damaging electrical phenomena.


Perform regular inspections and tests to make sure that the "UPS" is in good working condition at all times.

Further information on protection of electronic equipment and UPS devices can be provided by Zurich Risk Services.

Make regular back-ups and store them in a secure off-site location so they are not subject to the same loss potential as the original data files.

For failure of heating systems serving computer rooms, ensure that sensitive electronic equipment, which has been subjected to low temperatures, is protected against condensation through such measures as desiccants and wrapping with absorbent blankets to prevent accumulation of moisture.

Once the utility power is re-established, raise the computer room temperature approximately 10 degrees C (18 degrees F) every 24 hours, before restarting any electronic equipment.



Provide adequate and safe emergency heating in areas prone to freezing

Fire Protection Equipment

When you cannot maintain adequate heat in buildings it will be necessary to shut off and drain wet pipe sprinkler systems, standpipes and possibly fire or booster pump systems.

A. IMPAIRMENT OF WATER BASED PROTECTION SYSTEMS

- The property manager should designate a coordinator or operator who will be responsible for the control of extinguishing systems. Only the coordinator should be authorized to shut off sprinkler and other protection systems.
- Notices indicating that a system, or a part of the system, is to be taken out of use must be posted at every fire department connection and control valve on every impaired system.

The coordinator has the responsibility to ensure that the following procedures are implemented:

- The duration and the extent of the "out of service" condition have been determined.
- Unprotected zones have been inspected and occupancy and process hazards identified.
- The applicable recommendations for mitigating these hazards have been submitted to the property manager and or occupant managers.
- The fire department has been in-formed.
- The insurer (or broker), the alarm company, the property manager, the building and other authorities as required, has been informed.
- Supervisors of unprotected zones have been informed.
- Notices have been posted in the appropriate areas.
- All tools and necessary equipment to repair and re-commission the system, when required, are available on site.
- Portable fire extinguishers, fire hoses, and other fire protection devices have been provided in unprotected zones.

B. CLOSURE OF SYSTEMS

- Qualified personnel, preferably a specialized sprinkler contractor, should be engaged to de-commission systems, shut control valves and drain systems completely, including all low points such as drops to pendant sprinklers.
- Verify that water gongs and fire department connections are self-draining.
- Insulate the water pipe entrance section against freezing.
- Where engines are provided for fire pumps or emergency power supplies, check levels and protection against freezing for all coolants, fuel supplies, batteries.
- Discontinue all hazardous activities (painting, welding, cutting, handling of liquids/flammable gases, cooking, etc.).
- Conduct a constant (or at least regular) surveillance of unprotected zones.
- Check for cracked pipes/fittings and monitor the building for leaks.

C. PUTTING SYSTEMS BACK IN SER-VICE

The coordinator should ensure that the following procedures have been implemented:

- All tests necessary to ensure system integrity have been completed.
- Supervisors have been informed that the protection is re-established.
- Fire department has been informed that the protection is re-established.
- The insurer (or broker), the alarm company, the landlord of the building and the authorities have been in-formed that the protection is re-established.
- "Out of service" notices have been removed.

Burglary Protection Equipment

During prolonged electrical power and telecommunication system failures, the vulnerability to burglary is greatly in-creased.

There are some actions that will help minimize your vulnerability to burglary.

- Inform the alarm monitoring station (if any) and/or the local police department that burglary protection is impaired.
- Remove any valuable merchandise displayed in windows or other exposed areas.
- If the building contents are particularly attractive to burglars, constant attendance should be considered. During power failures, cellular phones are necessary.
- Visit the premises regularly, both day and night.

Once the electrical power and telecommunication systems have been restored, the police department and/or burglary Alarm Company should be informed that the protection has been re-established. The alarm systems should be tested.

Further Help In Planning For Emergencies

It is important that effective and prompt response to an emergency be carried out in a manner that it will protect lives and allow for continued business operations and preservation of property.

Zurich Canada Risk Services Representatives are available to assist businesses and organizations in developing

Emergency Response Plans and Contingency Planning.

In support of Zurich's "Solutions beyond Insurance", a proprietary hazard analysis methodology, Zurich Hazard Analysis Process (ZHA) is also available to our customers. Zurich team leaders guide a team of your key personnel in the use of this unique tool for risk management, with a systematic analysis of hazards to your organization. Threats to your organization are prioritized and, based on these results; risk management techniques can be applied.

Risk Topics P-5 Contingency Planning and P-43 Emergency Response Plan address these subjects in more detail.

References

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Zurich Risk Services

400 University, Toronto, ON M5G 1S7

Telephone: (416) 586-2740

www.zurichcanada.com

Fax: (416) 586-6755

Email: riskservices@zurich.com



Quality-Assured Service Unit



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