



## TIP SHEET

# COLD WEATHER – SNOW LOADING

Accumulations of snow on building and structure roofs may result in structural and/or roof-covering damage, as well as resulting damage to building contents. Damage may result from inadequate structural design, drifting of snow in areas of differing roof elevations, excessive weight of rain following snow, or an unusually heavy, wet snowstorm. Structural changes during renovations, additions and equipment installations have also been responsible for later damage. The following checklist may assist those in areas susceptible to snow.

The following general checklist should be tailored to processes/operations, protection features and potential impact at your facility and can be used in developing your Emergency Response Plan for use during an impending snow and ice weather event.

## Action to take prior to snow season

### Section A – Plant Management/Emergency Organization

- Develop a Snow Loading Emergency Response Team as part of the Plant Emergency Organization.
- Ensure that snow level monitoring, as well as removal procedures, are addressed.
- Pre-qualify and pre-commit repair and service contractors if possible, including both local and national firms.
- Obtain multiple suppliers for critical building components, equipment and stock necessary to resume operations/business.
- Obtain the home telephone numbers of executives of all committed contracting firms, utilities and other services critical to resumption of operations

### Section B – Building and Structures

- Inspect roof supporting structure and framework.
- Check for any rotted wood, rusted metal, evidence of leaking or visible structural weakness, such as bowing or sagging.
- Determine or assess the roof's capacity for snow loading through design plans or an engineering evaluation.
- Look for differing roof elevations that can result in snow drifts and overloading
- Evaluate structural design in areas of renovation, additions, additional roof mounted equipment or

alterations to the roof or its structure.

- Regularly inspect roof drains and repair if needed.
- Remove any obstructions or debris that may prevent water flow
- Check to ensure exterior down spouts are clear of ice and snow at outlets

### Section C – Fire Protection Systems

- Ensure that all yard and private fire hydrants have been winterized as required.
- Assure all water-based fire protection systems in areas without adequate heating have been protected with dry-pipe fire sprinkler protection or, if approved for the locale, anti-freeze systems.
- Assure that all walls, ceilings and roof areas adjacent and exposed to exterior weather are sealed and intact with no unprotected openings that can impact water-based piping.
- Assure that all dry pipe valve rooms or enclosures and low point drain valves are located within a heated enclosure where the minimum temperature can be retained at or above 40 degrees F (4.4 C).
- Test and assure that anti-freeze fire sprinkler protection, where locally approved, retains specific gravity readings that provide freeze protection for piping at a temperature as required per NFPA for the region affected.
- Fire water storage tanks should be inspected to assure auxiliary heating equipment is functioning correctly and fuel supplies for heating equipment is at a level adequate to support long freeze duration.

### Section D – Emergency Equipment

- Prepare roof snow removal equipment.
- Provide maintenance for snow blowers and other snow removal equipment.
- Make sure shovels, scrapers and ice chippers are available and in good condition

## Action to take during and after the storm

### Section A – Plant Management/Emergency Organization

- Verify that all roof drains are clear.
- Remove snow and ice to help facilitate water run-off.
- Clear paths on pitched roofs.
- On pitched roofs without drains, open paths to the eaves to facilitate drainage.
- Monitor for water ponding on flat roofs.
- As snow settles and/or absorbs rain, increased weight on the roof can create depressions, or sagging of the roof deck, which will not drain as designed. If not drained, ponding and the resulting depressions will usually grow worse, resulting in ice or weight build-up and possible collapse or roof covering damage.
- Remove snow and ice carefully.
- When snow blowers are used, be sure that blades are raised high enough to avoid damage to the

roof covering.

- Avoid damaging the roof covering with ice scrapers or shovels.
- Remove snow from roofs in increments:
- A program should be established to evaluate snow loading after each storm. It may also be necessary to remove snow during a large storm.
- Snow accumulations should be removed before they pose a potential for roof collapse.
- Special areas of attention include areas prone to drifting such as differing roof elevations, gables, curved roofs and valleys formed by multiple peaked roofs.
- Use caution and observe all established personnel and procedural safety procedures.
- Ensure that roofs are structurally safe.
- Work from roof edges towards the center to reduce roof loading stresses.

## Additional Information



AIG clients can contact their Risk Engineer or Risk Consultant for additional support.

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