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Insurance
Property Risk
Engineering
GAPS

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Winter Weather Preparation: What should you do?

The weather service is predicting another winter storm with snow and ice accumulations. What should you do to get ready? Protecting the property assets of your business is paramount for continued operations. Preparing ahead of time will drastically reduce the potential for frozen pipes, loss of power, or the catastrophe of a collapsed roof due to weight. Our property risk engineers can assist you with the identification of these hazards.

Snow Loading: A Concern for ALL

Prevent Roof Collapse

Different parts of the world have varied concerns for snow accumulations. Buffalo, New York and Oslo, Norway are fairly astute at dealing with snow, but Atlanta, Georgia and Athens, Greece do not have that local knowledge. However, everyone has the same concern for extra weight on top of a building. We encourage clients to predetermine a snow depth on the roof that prompts site personnel to investigate and begin the process of removing the snow.

Some items to consider for roof snow loading/removal:

- **Plan ahead.** In the fall, the roofs should be checked to identify any potential areas of concern that should receive extra attention during roof inspections. This could include sheltered areas where snow can pile up created by the installation of new HVAC units or other large equipment. Look for low areas with evidence of ponding as these can be areas of ice build-up. Make sure all roof drains are in good condition.
- **Personnel safety** is critical when inspecting a roof. Site safety programs for proximity to building/roof edge must be adhered to at all times. Only trained personnel should go on the roof .
- **Sticking (utilizing a measuring stick)** the depth of snow on a roof is a common method. A predetermined amount should be used to trigger removal. This should be based on design of the roof. If unknown, 6-8 inch (15-20 cm) accumulation is a common amount to trigger removal in southern states. Northern states typically have roofs designed to handle more loading.
- **Site personnel need to be aware of heat loss** from the building through the roof as this will form ice that is MUCH heavier than snow as it accumulates. Sticking the depth alone is not good enough. Particular worries for ice build-up are located over heat treat, ovens, boilers, penetrations through the roof for stacks, vents, etc.
- **Remove ice carefully.** Chemically melting the ice should be reviewed by site environmental personnel. In addition, ice can also be formed early or late in the season when warm afternoon temperatures can lead to partial melting and then refreezing at night when the temperatures drop. The snow can appear to be melting away, but it is in fact just compressing into a big chunk of ice.

- **Site personnel should also be aware of potential exposure issues from adjacent facilities or equipment.** For example, snow blow-off from taller buildings next door onto lower buildings can create a problem.
- **Remove snow cautiously.** Use hand shovels (plastic preferred) to prevent damaging/penetrating the roof exterior or removing loose stone from the roof ballast.
- **Throw snow to the ground cautiously,** being aware of where it lands and the potential for ice chunks to hit windows, cars, power lines, gas meters, transformers, etc.
- **If necessary, use snow blowers/brooms** on the roof but do not store gasoline on the roof. If using a snow blower, determine the depth needed, so that the roof is not damaged. All equipment, including shovels, tarps, etc., should be removed from the roof after use.
- **Different roof heights** with a sloping collection of snow should be cleared even if the rest of the roof is free of accumulation.
- **When removing the snow,** do not create piles on the roof as this concentrates weight. Evenly remove as much as possible.
- **Make sure drains and scuppers** are kept free-flowing.
- **Personnel should be able to recognize a deflecting roof.** Symptoms of deflecting roof include:
 - Lights hanging lower than normal and often getting hit by inside permanent mounted cranes
 - Lights flickering on/off due to wires being stretched



- Water infiltration where roof connects to walls
- Creaking noises
- Peeling/falling paint from underside of a new deck
- Other utilities having minor interruptions – copper water lines that are attached at roof breaking/ leaking inside
- Broken bolts/screws that normally hold the roof together found on the floor
- Roof drains becoming raised above the deck

General Winterizing Tips:

- Make sure all heating systems are thoroughly checked before the start of heating season. This includes boilers and their associated steam lines, infrared heaters, heat tracing, etc.
- Check for bad steam traps. Steam traps have led to freezing problems for many customers. Louvers that did not shut as they were supposed to when an HVAC unit shut down resulted in cold air backing up into the duct and freezing a sprinkler line running alongside the duct.
- Make sure the site knows how to arrange for a trailer mounted boiler if needed.
- Make sure all fire protection systems are prepared for winter: (i.e. drain water from dry systems, test antifreeze to insure proper protection, confirm heater and low temperature alarm are working on the fire pump suction tank.)
- Put thermometers in all buildings for temperature readings. If guards are making rounds of small remote buildings, it's important that they use the thermometer in the building to take a reading. A North Dakota location had their fire pump house freeze despite the fact that the guard made recorded rounds through the area every hour at night. The night was extremely cold (around -15 °F) so even though the pump house was just below freezing to the guard, it still felt warm in there.
- Carefully examine any areas that were remodeled in the last year to insure no "dead spaces" were created that could lead to freezing issues. A site in South Dakota had put up insulation and dry wall on an outside wall in the warehouse to help keep the shipping desk warmer, but what they didn't think about was the sprinkler system test connection piping that they trapped between the drywall and the outside wall. This could have led to a freeze up of that pipe and resulting water damage.
- Make sure any mobile yard equipment is properly winterized especially if they are critical to operations (ie mine equipment, large fork trucks, track mobiles).
- Mark the location of all fire hydrants on site and make sure the yard crew is aware of where they are and do not plow them in. All hydrants should be cleared following any significant snowfall. The minutes lost due to the fire department having to dig out the hydrant can be the difference between a small loss and a large one.

- Clear snow from around utility equipment in the yard. Every year we get a warning from the local power company about making sure snow or ice does not build up on our gas line regulators. You also want to be sure you maintain access to the shut off valves for your gas supply if they are on the outside of the building.

Unusual Freezing Weather

Understanding how your facility may react to a major change in temperature will dramatically reduce loss. A normally non-heated steel warehouse has different concerns than a facility that makes medicine.

Each has their own concerns, but facility personnel's understanding of the issues for their building is critical. Frequently, building management reduces heat for energy conservation as part of normal operations, but during an unusual freeze, this reduction may not be able to keep up with current conditions.

Access additional winter loss prevention checklists at xlcatlin.com/gaps
See GAP Guidelines section:

- GAP Guidelines 15.5 – Freezing
- GAP Guidelines 15.5.1 – Arctic freeze
- Overview forms - Arctic freeze checklist with cold weather precautions

Be Prepared All Year

Preparing for winter should be a year-round proposition. Maintaining windows and doors in proper working order is important. A window that fails and manages to open during freezing temperatures can spell disaster.

Heating systems should be clearly inspected before the onset of winter. Boiler inspections should be scheduled during warm seasons, not when they might be needed most. The minimum temperature for buildings with wet sprinkler systems is 40°F (4.5°C) and any closets with the risers for dry/preaction sprinkler systems should also be maintained at that temperature. Pump houses should be at the same temperature or even warmer for combustion engines. Block heaters should be verified weekly for proper working order and more frequently during frigid conditions.

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Talk to us. We Can Help.

Our Property Engineering team can assist you with your property conservation any time of the year. Whether it is freezing conditions or recognizing occupancy loss hazards, we can help with your risk management.

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