Rapid Thaw

March 2022

MSI is aware of snow loads on school buildings starting to show strains of such things as beams cracking, potential leakage from the melt etc. We are advising all Divisions to ensure that roofs are cleared of snow to help mitigate potential issues such as collapse or water infiltration before the melting season begins.

Loss Control Tips – Heavy Snow:

The weight of 1 foot of fresh snow ranges from 3 pounds per square foot for light dry snow to 21 pounds per square foot for wet heavy snow. One inch of ice weighs approximately 5 pounds per square foot and 1 foot of ice weighs approximately 57 pounds per square foot.

Warning signs of structural over loading:

- Sagging ceiling tiles, ceiling boards falling out of the grid, and/or sagging sprinkler lines and sprinkler heads
- Popping, cracking and creaking noises
- Sagging roof members, including metal decking or plywood sheathing
- Bowing truss bottom chords or web members
- Doors and/or windows that can no longer be opened or closed
- Cracked or split wood
- Cracks in walls or masonry
- Severe roof leaks
- If there is any concern that snow loads may cause the collapse of a roof structure, cease all removal activity and evacuate the building

Loss prevention recommendations include:

- Removing snow completely from a roof surface can result in serious damage to the roof covering and possibly lead to leaks and additional damage
- Do not use mechanical snow removal equipment. The risk of damaging the roof membrane or other rooftop items outweighs the advantage of speed
- Do not use sharp tools, such as picks, to remove ice. Use plastic rather than metal shovels
- Do not stockpile snow on the roof
- Dispose of removed snow in designated areas on the ground
- Keep removed snow away from entrances, exits, drain downspouts, ventilation openings and equipment
- Always have somebody below the roof to keep foot traffic away from locations where falling snow or ice could cause injuries
- Ensure that the area below removal site is free of equipment that can be damaged by falling snow or ice
- Properly mark hazards, e.g. buried sky lights, prior to snow events
- Ensure roof drains are regularly inspected and keep them open and free of ice

Structural failure due to roof snow loads include but are not limited to the following factors:

- Roof design, e.g. flat roofs vs. pitched roofs
- Improper and/or inadequate drainage system
- Insufficient maintenance and inspection
- Actual snow load significantly exceeds design snow load
- Drifting and sliding snow conditions
- In older buildings insufficient design is often related to inadequate snow load design criteria in the building code in effect when the building was designed/ constructed
- A building's exposure to wind influences the snow load on a roof. A building situated in an open area is less likely to retain snow on the roof than a building in a sheltered area

Roof collapse doesn't happen suddenly. Ensuring that building structure and the roof are in good repair prior to the snow season will prevent possible problems and potentially save repair and cleanup costs. During the winter, monitor the amount of snow on the roof and clear it before accumulations reach unsafe levels.

MANITOBA School Boards ASSOCIATION

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Rapid Thaw

The battle has begun between winter and spring! In Manitoba we have “weather whiplash”, with snow and cold one day and rain and milder temperatures the next. Rising temperatures coupled with the existing volume of snow and ice could result in further damage to property. These conditions may cause an influx of water that may exceed the capacity of drains, particularly if blocked by ice. High volumes of water/melted snow and ice may find its way into buildings through windows, window wells, roof vents, doors etc.

This insurance does not cover loss or damage caused directly or indirectly by water below the surface of the ground including that which exerts pressure on or flows, seeps or leaks through sidewalks, driveways, foundations, walls, basement or other floors, or through doors, windows or other openings in such sidewalks, driveways, foundations, walls or floors.

The circumstances require loss prevention measures at the school level. These may include the following:

- Where possible and safe to do so remove excess snow from the roofs of buildings
- Inspect and establish that roof drains, down-spouts, gutters and scuppers are clear of debris and ice that might prevent efficient water runoff from the roof
- Inspect and establish that other drains are free of debris and snow and ice
- If practical use a chemical de-icer product to clear ice from drains
- Examine roof edges for evidence of ice and snow build up. Ice builds up along the edge of the roof creating dams that prevent water from draining properly form the roof. As a result water can build up and seep through walls and ceilings
- Designate a “weather watcher” to monitor conditions and implement procedures
- Ideally periodic inspections of properties should be conducted over the weekend to ensure that there is no water entering the building
- Be cognizant of signs that water may be seeping into the building through ceilings and walls such as water stains or rings, water droplets, blistering
- Be aware of signs of structural damage such as cracks on indoor walls, interior doors that start to stick, rub or do not close properly, ceiling warping, unusual structural creaking
- Gather appropriate equipment i.e. wet vacs and ensure that all equipment is operational
- Have readily available the contact information of emergency restoration services and contractors

Despite your best efforts, damage can still occur, so it is important that facilities staff have the contact information of emergency restoration services, contractors, and our MSI property adjuster readily available.

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