AIG Programs
Loss Control Bulletin

Preventing Roof Collapse from Snow Load

Adverse weather conditions can affect the structural integrity of buildings and can cause a partial or complete collapse. Even an unimpressive snowfall can create a considerable snowdrift that causes a collapse. This report provides effective safeguards to lessen the potential against roof collapses. The following safeguards can help prevent roof collapse:

- Most important, keep the snow off the roof.
- Keep all drains clear and unblocked.
- Keep the roof well maintained and do repairs/replacements as soon as required.
- Keep workers trained and the proper equipment available for snow removal.
- Keep an updated winter emergency response plan in effect, especially for snow removal.

Preparation for Snowfall

Preparation for snowfalls should begin six to ten weeks before the start of winter. The roof's framework should be checked for damage or weakness and its capacity for snow loading should be reassessed. All shovels, snowblowers (if used), and other removal equipment should be examined and put into good working order. Never use any equipment that can damage a roof such as an ice chopper. Finally, inspect all drains for debris (i.e., leaves, dirt, silt) and clean them. The downspouts should also be clear, especially at the outlets.

During a Snowfall

Monitoring roof top conditions during a snowfall is the best way to prevent a roof from collapsing. The snow removal plan should take effect immediately after the snow begins to fall, rather than waiting until the snow begins to mount or the wind creates snow drifts. Additional recommendations during a snow fall are as follows:

- Remove snow from the roof in increments-do not allow unauthorized workers/persons onto roofs.
- Do not create snow drifts by putting snow from one area on another.
- Remove the snow systematically to maintain the balance of the structure.
- On a gable-type roof, do not remove all the snow from one side before removing any from the other side.
- Verify that drains are clear of ice and snow to allow melting and runoff. If the roof is pitched and without drains, open paths to the eaves to ensure drainage and prevent ponding.

Assessing Potential Risk

- Have there been any lower roofs, canopies, or covered walkways added to the structure? If so, have the effects of sliding and drifting snow been considered for these additions?
- Have any roofs been retrofitted with additional insulation in an effort to conserve energy? If so, have the increased snow loads due to reduced melting been considered as well as the additional dead load?
- Have solar panels, mechanical equipment, or other roof projections been added to the building? If so, has the roof been checked to assure that it can withstand the additional sliding and drifting snow loads, as well as the additional dead load?
- Is it possible that the building will be unheated for long periods? If so, is the roof capable of withstanding any additional snow load?
- Do roofs that slope towards internal drains have slopes of at least 1/4 in per ft (6.35 mm per meter)? If not, these roofs must be routinely checked for ponding. Low areas should be repaired and/or additional drains added.
- Are all drains, gutters, and downspouts free from debris? If not, they should be cleared and kept cleared.
- Have additional dead loads, such as air conditioners, heaters, and suspended storage platforms been added to the roof's structural members, thereby decreasing the roof's live load capacity?
- Has a taller building been built, or is there one planned to be built within 20 ft (6.1 m) of the existing building? If so, can the existing building's roof sustain potential snow drifts caused by the taller building?

If problems have been found to exist, the roof should be repaired, strengthened, or replaced, as required.

Contact

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