



## Is Your Butler® Building Ready for Winter?

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As the winter season is upon us, it is important that we be prepared for the damage that winter storms can wreak on your building. While it is impossible to predict what winter will bring, there are steps you can take to plan for what may be in store, and to prevent damage before it happens. In the newest [Butler® Bulletin](#), the Butler team outlines some great storm management tips that can safeguard your building and reduce downtime due to facility repair.

As with any safety or building maintenance issue, planning can go a long way to producing a positive outcome. Knowing your building is key. As Butler tells us, “most snow related losses occur at stepped elevations where blowing snow is carried from the roof of a higher building onto the roof of a lower building. Such drifting normally occurs where the buildings are attached. However, drift loads can also form on closely adjacent buildings, over ridges, at valley conditions, behind parapets, next to rooftop units, and on below eave canopies or overhangs. Post construction changes to the building site, added higher buildings or significant tree growth can also cause drifting where none was anticipated. Modifications to the structure, loads added after the original design (such as piping, roof units, hanging heaters, etc.) and prior damage to the structure are other areas of particular concern because they may have significantly reduced the capacity of the building to withstand snow loads.” Understanding your building, and where the areas of snow accumulation will end up, can save your structure.

So what are some things you can do to protect your structure from the effects of winter? Butler recommends keeping drains and gutters clear of ice and snow to facilitate melting run-off. Heat tapes in the gutters and downspouts can also assist in preventing ice build-up. Keeping watch over the identified areas of snow drifting and clearing them out during an event can prevent build up that can lead to collapse.

Read more great tips from Butler in the [Butler® Bulletin](#), and as always, let us know how we can help you to maintain your building for maximum efficiency.



**EMERGENCY ACTION**  
 Heavy Snows Plans Grades in Year Organization is Needed January 9, 2017

**Winter Storms and Your Projects**

The winter season is here or fast approaching. While there is no way for Butler® to predict what this winter will bring, this bulletin is intended to assist you in helping your customers deal with severe or heavy snow storms that may occur.

**EMERGENCY SITUATIONS**

There are a number of snow events that can occur, such as heavy snow and ice that may only be a few days or weeks long, or more severe, long-term snow events that can last for weeks or months. Blowing and drifting snow can easily distribute these loads and turn an event into a more severe situation that requires an immediate assessment of snow accumulation and the need to take emergency action to prevent a risk of building damage or even collapse.

**WHAT TO LOOK FOR**

Most snow-related events occur at night or during the hours of the lowest building loads. However, wind can cause snow to drift against buildings, over edges or into valleys, parapets, roof to roof joints, and into other areas of concern. First assessment is changes to the building's added height, height or significant increase in wind direction or other factors that were not anticipated.

Modifications to the structure loads calculation to the original design loads are required. Changes to the structure due to other areas of particular concern because they may have significantly reduced the capacity of the building to withstand snow loads.

**WHAT TO DO**

It is recommended that you make an assessment of the damage which can occur when snow is accumulated in a given area. Much of the public is unaware of the consequences of having snow build up on their roofs. However, many property owners are beginning to provide their tenants with information on what to do in the event of a snow emergency, such as having building workers to remove snow and remove areas to prevent snow drifts and prevent snow accumulation on areas from the roof. Additional snowing that you may help prevent significant damage from occurring.

Building owners should also be advised to keep doors and gutters clear of snow and to have them working well. Ice and snow build up in gutters can cause leaks and water damage. Roof leaks in gutters and downspouts may result in water damage to the building, especially in winter temperatures.

Building owners should also be aware of warning signs inside the building that may indicate excessive snow accumulation, including the deflection of joists, the popping or creaking of floor joists, or sagging.

and structural issues. If any of these situations occur, the building owner should be advised to contact your firm immediately for assistance.

As a preventative measure, when planning an event, always be sure that there is fully advised of any conditions that may potentially cause an accumulation of snow such as steep elevations, drifts against buildings, edges and valleys, parapets, roof to roof joints, before snow comes, and the like.

**In case of a collapse or threatened collapse, contact your Regional Engineering Manager or Area Manager.**

**SUGGESTIONS ON HOW TO DEAL WITH A ROOF SNOW COLLAPSE**

Personal safety is of paramount concern. Including the site of operation and during snow removal. Adequate protection must be in place.

If a roof is in danger of collapsing, the building should be immediately evacuated and the following emergency procedures are recommended:

1. In many situations, the most effective solution is shoring of the parties. In most large cities, commercial shoring services are available. If no shoring is available, the following may be used.
2. In some cases, removing snow build up may be sufficient. See the back of this page for detailed snow removal instructions.
3. Large industrial heaters inside the building may also assist in melting snow and ice from the roof.

**ONSET OF COLLAPSE**

Onset of a roof collapse is a major event and should be the first priority. Damage to contents is a major issue and prompt snow removal is important. Once the snow is removed, the next step is construction of temporary cover to keep the weather controlled clean up to begin.

Documenting the snow loads and resulting damage is also essential. For your reference, the back of this page contains a procedure for snow in these situations. Your customer in performing these instructions would be most helpful.

For further information on emergency situations, our help page, check our website, [www.butler.com](http://www.butler.com). Under these building needs, ready to work with you in these situations.

(Continued on back)



**ON-SITE RESPONSE - Every situation is different and careful planning must be conducted before removal begins.**

1. Always provide proper safety precautions when working on the roof, especially along the edge of the roof. Never send one person out alone to remove snow. Place ladders at the end of the building so falling snow will not dislodge them.
2. Remove drifted areas first, down to the level of the snow on the remaining roof. Then, remove the snow from the middle 1/3 of each bay first, one by one, beginning with the most snow packed bay. Complete snow removal on the remainder of the building. The gabled buildings, remove snow on both sides of the ridge at the same time.
3. Remove snow in a pattern that does not cause an unbalanced loading condition. Avoid large differences in snow depth between adjacent areas of the roof. Remove snow gradually in layers from all over the roof.
4. Remove snow from eaves toward ridge, but be cautious of snow or ice breaking away and falling down the roof. Prior to removing snow from the roof, remove all hanging icicles from eaves and gutters. There can be large ice heavy and cause concern for falling up.
5. Do not pile removed snow in other areas of the roof or in other roofs. Keep dumping snow clear of all persons and property.
6. Always use plastic sheets. Do not use plastic on other flammable roofs.
7. Do not attempt to remove snow by working off with a hose. These hoses are impractical and will rapidly freeze, increasing the loads on the roof and potentially causing failure.
8. Be careful to avoid falling ground snow, icicles, snow guards etc. Can result in injury to workers or damage to equipment, such as pipes, pipes, pipe hangers, roof-top air supports, conduits, etc., since such items are easily damaged.
9. Be aware of daylight traffic hazards. These points are not intended to support roof-top traffic loads.

**DOCUMENTING SNOW LOADS AND RESULTING DAMAGE**

**General**  
 Builders should notify Butler Regional Engineering Manager or Area Manager any time a building sustains any damage or collapse due to excessive snow.

**Procedure**

1. The most important task is to get to the site as quickly as possible to perform a full investigation.
2. Assistance from the Butler is necessary to make arrangements with the customer and accompany the Butler representative to the site. Once the technicians from the Butler arrive, you will be very helpful.

3. Equipment required:
  - a. A good camera - quality 35 mm, digital or 2 1/2 x 2 1/4, SLR or Polaroid.
  - b. Color print film.
  - c. 35 tapes.
  - d. Shovel.
  - e. Handicap with light meter - suitable for photography.
4. A scale and suitable container for weighing snow
5. Obtain pictures of:
  - a. Building general view from as many angles as possible.
  - b. General interior views.
  - c. Detail pictures of individual members which might indicate source of failure.
  - d. Damages to contents or lack of damage.
6. Multiple photographs of the snow both at the building and surrounding areas, any drifts and snow sampling procedures.
7. Make notes based on the above pictures as to description and location of parts. Sketch building plan showing failure areas, collapsed portions, etc.
8. Snow sampling procedures:
  - a. Obtain representative samples of undisturbed snow on the roof. Take samples as close to the collapse area as is safely possible. Samples from other areas of the roof should also be taken. If the roof is inaccessible, take samples on the ground immediately close to the building.
  - b. Use the good stick and carefully measure at 1 ft., 2 ft., and at the snow depth. Push through the snow by using the scale and container (do not forget to subtract the weight of the container). Photograph samples and weighing procedures. Use procedure multiple repeated at several locations on the roof, if possible.
  - c. Make a building plan sketch showing the snow distribution and where the weight samples or samples were taken. Identify snow drift locations and include any relevant roof or wall that would or did cause dumping or drifting conditions.
  - d. Note snow depth on roof of building in the general area and on the ground in the area of the building.



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