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We encourage you to share these presentations with plant managers, operations managers, and supervisors.



Roof Maintenance – Snow and Ice Build-up

The following provides information regarding weather related impacts on postal facility roofs to help prevent roof failures.

Winter storms may cause snow, water, and ice accumulations that exceed load limits of roof structures resulting in roof failures or collapses. Significant snow fall that happens as a single event, repeated snow falls that do not have time to melt, and heavy snowfall followed by rain have the potential to surpass a roof's load limit. It is important to take preventive measures, know your roof load limits, monitor roof accumulation in snow zones, be aware of warning signs and have a plan to address this situation should it occur.

The following is helpful information and guidelines:

Prevention

To reduce the chance of a roof collapse the following should be considered:

1. Know the load limit for your facility's roof. Keep in mind that, over time, weight can be added to the roof in the form of additional HVAC equipment or internal equipment hung from roof supports. Knowing the load limit will allow you to determine when snow removal should be scheduled in order to prevent an over-accumulation.
2. Inspect and clean roof drains, gutters, and downspouts on a semi-annual basis. In the fall after trees have shed their leaves is a good time to clean these items. Leaves and debris from trees can block drains and downspouts preventing melting snow or rain from adequately draining from the roof.

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3. Keep the bottom of downspouts clear of snow and ice so the water has a place to drain.
4. Ensure that snow is not plowed or shoveled against downspouts, which can prevent proper drainage.
5. Remove snow as necessary to prevent exceeding the roof's load limit.
6. Make arrangements with roofing contractors at the beginning of the winter season to ensure they will be available to assist with snow removal.

Detection

Prior to a roof collapse, buildings usually exhibit some sign that the roof is stressed and action should be taken to prevent a collapse. The following are some common symptoms of potential roof failure:

1. Visual deformities such as sagging roof supports.
2. Cracked or split wooden roof supports.
3. Sprinkler head deflections resulting in sprinkler heads being pushed down below ceiling tiles.
4. Doors that pop open.
5. Doors and/or windows that are difficult to open.
6. Conduit that is attached at the ceiling appearing bowed.
7. Creaking, cracking, or popping sounds.

If any of the above warning signs are observed, take immediate action to evacuate employees and prevent a roof collapse. Sites should arrange for snow removal by a contractor. If it is determined to be unsafe to proceed with snow removal, contact your Area Office and/or Facility Service Office for further direction. More information on Facility Service Offices can be found on Slide 6.

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Removal

NOTE: It is highly recommended that snow removal activities be contracted out in order to prevent placing USPS employees in a hazardous environment. If you are planning to use postal employees to perform this work, a Job Safety Analysis (JSA) must be created and employees trained on all procedures necessary to complete the activities. Training must cover appropriate safety requirements including required personal protective equipment (PPE), fall protection, and working safely on roofs. Training and JSA must be documented and on file. See the references below.

The removal of accumulated snow will take the weight off of the roof and aid in preventing a roof failure or collapse. It is important for those facilities within geographical areas that experience annual snowfalls or ice storms to plan in advance for potential snow removal activities.

Some common practices and precautions when removing snow include:

1. Take care while removing snow and ice accumulations to prevent damage to the roof. If the building has a roof membrane, it is recommended to leave two inches of snow or ice on the surface of the membrane to prevent damage.
2. Remove drifted snow first. Drifted snow can occur around rooftop mechanical vents, skylights, parapet walls and penthouse walls.
3. Remove snow evenly from both sides of the roof.
4. When removing snow from one section of a roof, avoid traveling over and compacting snow on adjacent roof sections.

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5. When equipment is to be used in snow removal activities, the loading effects of the equipment including the workers must be used in determining if it is safe to perform snow removal. Follow snow blower safety requirements.

Calculating the weight of snow and ice

The table below can be used as a guideline in determining the snow load. However, to accurately determine snow loads on roofs you must measure the weight of the ice and snow. It is not just the depth of snow but the moisture content that is the critical factor. Very dry snow contains about 3% water and very heavy wet snow contains about 20% water.

Snow Depth on Roof (ft)	Dry Snow (lbs/ft ²)	In Between Snow (lbs/ft ²)	Wet Snow (lbs/ft ²)
1	3	12	21
2	6.5	24	42
3	9.5	36	62
4	12.5	48	83
5	15.5	60	104



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Additional information regarding Snow Accumulation on Postal Facility Roofs can be found in [MMO-026-83](#).

Information regarding Fall Protection is available on the Safety Resource Page at: <http://safetytoolkit.usps.gov/Resources/Resources.aspx?filePath=/ResourceFiles/632955487152732177Fall%20Prevention%20and%20Protection%20Program%20Guide.html> .

Information regarding Working Safely on Roofs is available at: <http://blue.usps.gov/cpim/ftp/policy/hr/060901.pdf>.

-Robert Albert
MTSC



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Facilities Single Source Provider (FSSP)

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The Facilities Department also manages the "Facilities Single Source Provider (FSSP)" program (a.k.a. 'Response Line'), a 24 hour a day, seven day a week phone line for any building-related items to be called in for facilities support. The realm of calls includes matters that can not be handled locally. Facilities Real Estate and Design and Construction staff, will work with installation heads, maintenance, and local safety and/or environmental personnel to help resolve issues at leased or owned facilities.

A list of FSSP/Response Line phone numbers is included below:

Northeast FSO: (866)298-8910

Eastern FSO: (866)350-3801

Southeast FSO: (888)557-3376 aka (888)55SEFSO

Great Lakes FSO: (866)334-5376 aka (866)33GLFSO

Western FSO: (866)764-4589

Southwestern FSO: (866)622-2393

Pacific FSO: (866)722-3762 aka (866)PACFSO2

The phone numbers listed above are current as of the date this article is issued. In the future, should a phone number change you can use the following link to access the Facilities Department web site which provides links to each Facilities Service Office (FSO), <http://hqfso.usps.gov/index.cfm?menu508=1&id=4664>.

-Penny Welch
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