

Hail Action Plan

Disaster Preparedness from Liberty Mutual Insurance



Like other severe weather phenomena, hail causes millions of dollars of property damage each year. Because hail can occur with any strong thunderstorm, it is a threat nearly everywhere. While hail storms cannot be prevented, there are certain steps you can take to help protect your facility and equipment from hail damage.

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Who Is Affected?

Given the right conditions, hailstones can form at any time of the year in any location. In most parts of the country, hail season begins in March and typically extends into the summer months. Data compiled by the National Severe Storms Laboratory highlights the areas that are particularly prone to hail greater than $\frac{3}{4}$ inch diameter. This size is generally considered the minimum threshold for causing property damage. Hail up to two inches in diameter is not uncommon. Hailstones one inch in diameter can reach velocities approaching 100 miles per hour.

Highlights:

- Hail causes millions of dollars of property damage each year.
- Roofs and roof equipment, such as air conditioners, are extremely vulnerable to damage.
- The type of roof covering influences the amount of hail damage that can be expected.
- Steps you can take to help prevent damage to your facility

Protect Your Roof

Hail is well-known for devastating crops but can also cause severe damage to buildings, especially roof coverings and roof-mounted equipment such as air conditioners, vents, cooling towers, skylights, and heating units. Exterior Insulating and Finish System (EIFS) wall coverings can also be damaged if hail has any significant horizontal force.

The type of roof covering influences the amount of hail damage that can be expected.

- **Smooth roof coverings:** Smooth coverings, including single-ply and built-up coverings, are more susceptible to hail damage than those with gravel, stone, or paving block ballast. Single-ply coverings, such as PVC, are used on more than 55% of the roofs on commercial buildings. Built-up coverings consist of multiple layers of roof felts laminated together with bitumen (tar or asphalt).
- **Light metal roofs:** These roofs can be dented or even penetrated by large hail-stones. The lighter the gauge of metal used, the greater the susceptibility to damage.
- **Blistered roof coverings:** Blistered coverings are more susceptible to damage. Blisters are raised bubbles of trapped air in the roof covering. They are more likely to form in warm weather when the sun warms the trapped air and it expands faster than it can escape. Blisters will often grow larger over time, leaving the covering above the blister unattached to the roof. Damage results from hail breaking the blister, which allows water to penetrate the roof covering, resulting in leaks that can cause electrical damage, mold, etc.
- **Roofs with ballasts or uneven ballast distribution:** This can leave the roof subject to scouring from high winds, leaving thin or bare spots over the underlying covering. Some cities regulate the use of ballasts in roof construction because they are often lifted off the roof by high winds, causing damage to nearby buildings.

Hail Activity in the United States
Average Number of Hail Reports per 100 Square Miles
2003 - 2012 Reports of Hail 1" or Larger

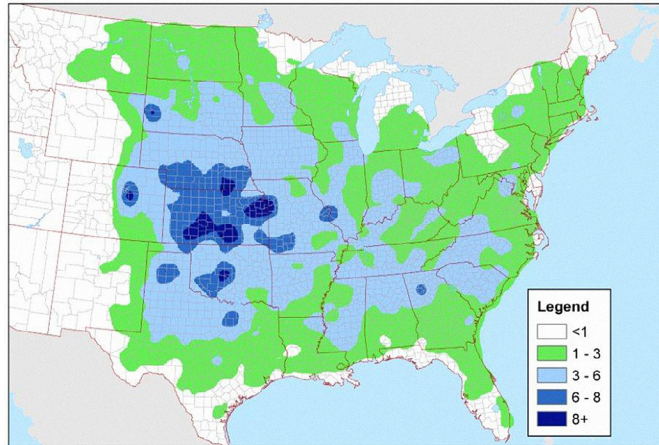


Image courtesy of IBHS (Insurance Institute for Business & Home Safety) disastersafety.org

Recommendations

There are several steps you can take to help protect your facility from hail. For all types of roof coverings, regularly inspect your roof to keep it free of defects and in good condition.

- Install protective shields for rooftop equipment, such as HVAC units. Look for devices that include hood-type projections or screens that shield the fragile condenser coils. Be sure to consult the manufacturer prior to installing such devices to ensure that operating efficiencies or equipment warranties will not be affected.
- Install protective screens over skylights.
- Minimize and/or repair blisters in roof coverings and uneven ballast distribution. As the roof covering ages, the importance of this increases.
- Specify an impact-resistant roof covering or opt for a design using gravel, stone, or paving block ballast for new construction or when reroofing. Roof coverings are tested for impact resistance using Underwriters Laboratories test standard 2218, *Impact Resistance of Prepared Roof Covering Material*, and assigned a class from 1 to 4, with Class 4 having the most impact resistance. Class 3 or 4 products are recommended in hail-prone areas.
- If EIFS wall coverings will be used in new construction or renovations, specify systems with a high-impact resistance.
- If you are building a new facility or considering reroofing, consider a ballasted membrane or specify impact-resistant roof coverings.

References

UL 2218, *Impact Resistance of Prepared Roof Covering Material*.

National Severe Storms Laboratory

<http://www.nssl.noaa.gov>