



UNDERSTANDING THE IMPACT OF HAIL ON YOUR ROOF: A HOMEOWNER'S GUIDE



Although tornadoes and hurricanes tend to dominate news weather coverage, Mother Nature is also known to play hardball, throwing destructive and deadly hailstones down on us every year. According to the National Oceanic and Atmospheric Administration (NOAA), the United States witnessed over [4,000 hail storms in 2018](#). And, when hail hits, it can hit hard.

The largest recorded hailstone in the United States made land in Vivian, South Dakota in 2010. That stone weighed in at nearly two pounds, and was almost eight inches in diameter—just about the size of a bowling ball! While hail of this magnitude is highly unusual, hail of any size can damage lesser roofs. It wasn't long ago that a [hailstorm in Texas](#) destroyed dozens of commercial and residential rooftops, with some hailstones even managing to rip through roofs, landing at the feet of the unsuspecting individuals inside.

So, until some mastermind learns to control the weather, how can we protect ourselves from the sometimes devastating effects of hail? By understanding it—and shielding ourselves from it.



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WHAT IS HAIL AND WHAT CAUSES IT?

Hailstones are clumps of layered ice that form when falling raindrops are carried skyward by thunderstorm updrafts. As they are carried upward, they reach extremely cold areas of the atmosphere (generally -10°C to -25°C) and, in the process, collide with other freezing raindrops. Eventually, a hailstone is formed, and it becomes too heavy for the updraft to sustain its high altitude. Gravity then takes over, and the hailstone falls back to the Earth, potentially damaging whatever lies below.

The size of hailstones, and the destruction they cause, typically depends on the strength and size of the updraft that carries them. Often, hailstones are fairly small. But, during intense thunderstorms, they can become behemoths.

Marble-sized hailstones typically fall to the Earth at around 20 mph, while baseball-sized hailstones can reach speeds of more than 100 mph. The amount of damage they cause can also be determined by their shape; while those that take on a smooth form can be damaging, it's jagged hailstones that are the most destructive.



WHAT STATES ARE MOST AFFECTED BY HAIL AND WHEN DOES IT HAPPEN?

While hailstorms are most commonly associated with “Hail Alley,” the area consisting of Nebraska, Colorado, and Wyoming, hail can happen just about anywhere. In fact, it may surprise you to know that some of the most severe hail damage has happened outside these states. Here’s a look at 2017 hail damage estimates as reported by analytics firm [Verisk](#), which provides data for insurance companies.

RANK	STATE	APPROXIMATE NUMBER OF PROPERTIES AFFECTED
1	TEXAS	1,350,000
2	ILLINOIS	870,000
3	MISSOURI	830,000
4	MINNESOTA	740,000
5	OKLAHOMA	645,000
6	KANSAS	515,000
7	INDIANA	460,000
8	VIRGINIA	400,000
9	NORTH CAROLINA	400,000
10	COLORADO	375,000

While determining where hail may strike can be a bit of a moving target, pinpointing when it may occur is a bit easier. Weather conditions that are ripe for hailstorm activity occur during the late spring, summer, and early fall months. So, May through September is “prime time” for hailstorms.

GROUND-LEVEL SIGNS YOUR ROOF MAY HAVE INCURRED HAIL DAMAGE

Following a hailstorm, there are often some obvious ground-level signs of damage, such as broken or damaged windows, siding, or doors, which may indicate roof damage as well.

Here are 12 other things to look for which could indicate that your roof may have taken a hit.



SIDING, GUTTERS, AND DOWNSPOUTS.

Check for damage such as dents, cracks, paint chips, or holes.



HAIL SPLATTER MARKS.

The impact of hailstones can remove dirt and algae from driveway surfaces, leaving splatter marks of “clean” driveway.



WINDOW AND DOOR SCREENS.

Check metal and fiberglass window screen mesh for tears.



PLANTS OR FLOWERS.

Hail, especially the jagged variety, can tear through the leaves of bushes and shrubs.



OUTDOOR LIGHTS.

Check for cracked or broken light fixtures in the yard or on your home.



FURNITURE AND PLAYSETS.

These outdoor items, left uncovered, can sustain dings and dents.



FENCING AND DECKS.

Vinyl fencing and decking material may have holes or cracks due to hail, while wood fencing and decking may display new scrapes and splintered wood.



GARAGE DOORS AND SHEDS.

Look for dents, dings, paint chips, and scuffs on the siding and doors.



DEBRIS OR BROKEN LIMBS.

Shingles, tree branches, and other debris in your yard or pool means you experienced heavy wind that may have compromised your roof.



WATER STAINS OR MILDEW GROWTH.

Hail-damaged roofs often allow water to seep into homes and garages, causing discoloration on ceilings and potential mold or mildew growth.



BUBBLING PAINT.

Leaks caused by hail damage can cause water to become trapped between drywall and paint during the storm, leading to bubbling paint.



ROOFTOP LEVEL SIGNS YOUR ROOF MAY HAVE INCURRED HAIL DAMAGE

Climbing onto the roof to inspect for hail damage is a dangerous job best left to the experts, but there are some things you can look for from down below with nothing more than your own eyes or a pair of binoculars. Some of the more resourceful homeowners have even flown drones over their rooftops to get a bird's eye view of potential damage in the aftermath of a hail storm!



CRACKED SLATE OR CLAY TILES.

Heavy hail has been known to crack or completely split these types of roofing.



PUNCTURED ROOFING.

On soft roofing materials, such as PVC or weathered roof patch compounds, look for punctures or puncture marks.



DAMAGED SHINGLES.

Missing shingles may seem like a dead giveaway for hail damage, but this could simply indicate heavy winds. There are, however, signs of damage

- ✓ **Missing Granules.** Hail can cause granules to break loose at the site of each impact. If this has happened, you'll see the exposed, black substrate of the shingle. Over time, sunlight deteriorates the substrate which may allow water to enter. You may also notice shingle granule buildup in your gutters or around your downspouts.
- ✓ **Ridge Cap Damage.** The ridge cap is the layer of asphalt or laminate shingles that covers the main bend in the roof. Since it's sometimes flat and often at the highest level of the roof, it's likely to sustain the most damage.
- ✓ **Bruising.** Look for dents on the surface of shingles, which indicate hail impact. Curling. Over time, hail-damaged shingles may curl or display stress cracks (this could also be due to old age; a roofing consultation may be beneficial). Looseness. Look for shingles that are flapping in the wind.
- ✓ **Splits or Dents.** Wood shingles that have been compromised will display indentations, splits, or cracks.



DENTED METAL.

Metal roofing is less likely to sustain damage during a hailstorm, however an extreme hail event may cause dents and dings. This damage is typically cosmetic in nature.

SUSCEPTIBILITY OF DIFFERENT ROOFING MATERIALS TO HAIL DAMAGE

Not all roofing is created equally, and it has long been common knowledge that certain materials withstand wind and hail better than others. However, there was not a defining standard. That all changed in 1996, when the [Underwriters' Laboratory](#) (UL) created a national standard for roof impact resistance by rating roofing materials based on their resistance to impact testing with steel balls simulating 90 mph hailstones of different sizes. This resulted in the Class 1 – 4 scale, with Class 1 being most susceptible to damage and Class 4 being the toughest.

“Every year, thousands of homeowners lose their roofs to hail and wind damage,” Jack Stanton, State Farm Insurance Company’s Loss Mitigation coordinator told the [Insurance Journal](#). **“We now know that Class 4 materials offer some of the best long-term roof protection available to homeowners.”**

In fact, the Class 4 rating gives many property insurance companies so much confidence that they often offer a premium discount on homeowner insurance just for installing a UL Class 4-rated roof! Metal roofing is UL Class 4-rated.



TOP BENEFITS OF METAL ROOFING

Metal roofing offers value, beauty, performance, and a Class 4 rating, meaning it's tough enough to take on hail that could easily compromise lesser roofing material. While extreme hail may cause some cosmetic damage to metal rooftops, most will remain fully functional, keeping hail and water out—and keeping you safe.

Of course, withstanding hail damage isn't the only reason to choose metal roofing. Here are seven more benefits you'll enjoy.



LONG LIFESPAN.

Shingles aren't expected to last more than 20 years, while a metal roof can last [40-50 years](#).



PLEASING AESTHETICS.

Metal roofing offers beauty and brawn. Check out our [visualizer tool](#) to see what a metal roof would look like on your home.



LOWER UTILITY COSTS.

Metal roofing [reflects](#) much of the sun's heat and energy, which results in lower energy bills.



HIGH SUSTAINABILITY.

Metal roofing contains a high percentage of recycled materials. Plus, when its service life ends, it can be recycled again!



FIRE RESISTANCE.

Unlike some roofing materials, metal is non-combustible. Even though it's no more likely to be struck by lightning than other roofing materials, it won't catch fire even if it is.



POTENTIAL DISCOUNTS.

Because metal roofing has Class 4 hail resistance, many insurance providers offer discounts for installing it.

MCELROY METAL TO THE RESCUE

If you're tired of replacing shingles and are ready to fight back against hail, you can count on McElroy Metal. We've been at this for more than 57 years, and we have dozens of superior UL Class 4-rated steel profiles that look as good as they perform.

To ensure your roof is installed properly by a reputable company, we have a national network of distributors and contractors. You can [find one near you on our website](#).

Want to learn more about metal roofing? Be sure to download our [Residential Metal Roofing Guide](#).



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