

Roofing & Risk

July 2015

Five Signs of Intentional Roof Damage

The overwhelming majority of roofing systems examined by our firm have been damaged by a specific weather event, are succumbing to incorrect installations, have undergone natural wear and tear, or a combination thereof. Assignments involving intentional roof damage are rare, but blatantly obvious to our inspectors. Storm damage, caused by the forces of nature, has certain common characteristics. Intentional damage, perpetrated by man, tends to be uniform, repetitive, and a product of severe, discriminating physical forces.

Below are the top five signs of intentional roof damage. Alone these indicators do not always point to intentional damage, but viewed in conjunction, intentional damage becomes the most likely cause.

1) Shingles remain on the roof surface

Wind that is strong enough to defeat the tensile strength of the fiberglass core of an asphalt shingle is also strong enough to carry that ripped shingle off the roof. Wind cannot violently tear a shingle and then place it a few feet from its original location. A roof covered in detached shingles is heavily indicative of intentional damage.



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2) Damage is non-random, large-scope

Storm forces most often exploit shingles whose adhesive tar strips that seal them to the course below have failed. These failures, occurring seldom and randomly, result in wind damage that is also random and small in scope. Damage that is non-random (occurring in a discernable pattern) or over large patches of roofing should be considered suspect.

Non-random damage can present itself as:

- Damage that occurs along a straight line up or across a roof section
- Damage that occurs to every other course without a corresponding fastening issue
- Damage that occurs to easy-to-access (but not steep roof) sections



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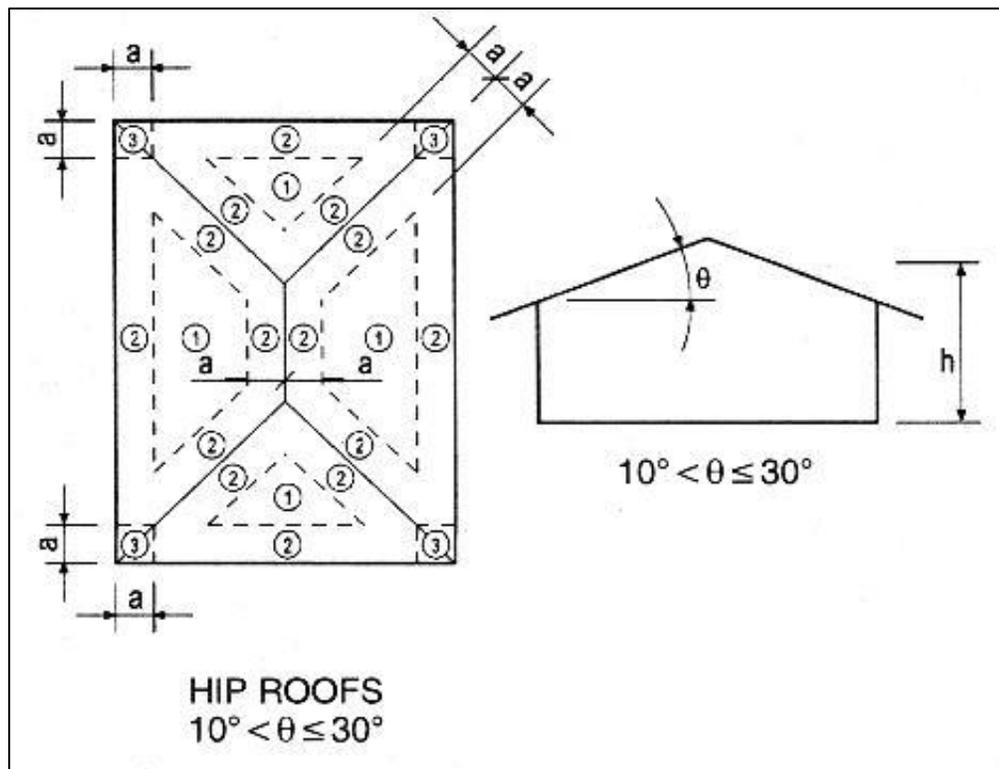
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3) All roof sections affected to same degree

Wind, due to its nature as a vector (having a direction and a magnitude), will damage sections of structures and roofing that are most exposed to the wind. This includes the windward sides of a structure on the date the wind occurred, as well as the perimeter of the roof (rakes, ridges, eaves, hips, etc.). Interior portions of roofing, such as valleys and the field of the roof, and leeward sides of roofing, are least susceptible to wind damage. Building codes adopted by states often include diagrams of roofing that show which sections are most and least susceptible to wind damage. A storm with sufficient winds to damage roof systems will normally only affect one or two windward sides of a structure.

A roof system that is damaged on all sides, or is only damaged heavily in its field without any perimeter damage, may be suspect.



An excerpt from the New York State Residential Code, [R301.2\(7\)](#), *Component and Cladding Pressure Zones*. Zone 3 (corners of roof) is most likely to sustain wind damage, while Zone 1 (field of roof) is least likely to sustain wind damage.

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4) Excessive use of tarps for small losses

Contractors that opt to spend more time and money installing a large amount of tarps or temporary repairs instead of doing permanent repairs should be carefully reviewed.

Temporary repairs and the installation of tarps often increase the scope of damage when nails used to secure the repairs/tarps create new holes in the roof system. Large tarps that only cover a few missing shingles should be a red flag, as this may be used to inflate the perceived scope of damage.



5) Lack of strong winds before damage

Wind damage is rare to well-fastened newer shingles, especially at times other than extreme weather events. Most wind damage occurs to poorly-fastened shingles or older three-tab shingles during violent storms with winds above 50 mph. Properly installed architectural shingles are warranted by their respective manufacturers to resist winds of up to 65 mph in accordance with ASTM D-3161. When the same shingles are installed with 6 nails instead of 4, the warranty includes winds up to 110 mph. Very few storms exceed these thresholds. Even three-tab shingles carry a wind warranty of 65 mph.

A lack of a weather event with winds above 50 mph during the time surrounding the claimed date of damage and the presence of extensive shingle damage generally indicates intentional damage.

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6) General Inconsistencies

a. Lack of creased shingles

Horizontal creases in shingles are the hallmark of wind damage. An extensively damaged roofing system without the presence of any creases in the shingles should be considered suspect.



Horizontal creases in wind-damaged shingles.

b. Pulled nails

Removing roofing nails from solid wood sheathing requires a great, specific force. Partially or totally removed nails in conjunction with undamaged shingles is indicative of nails removed with a tool. Legitimately wind-damaged shingles will tear/fail around the nails used to secure them to the roof, leaving the nails in place in the sheathing.



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c. Tar adhesive strips still sealed to roof

Shingles that have been ripped at their strongest point (fiberglass core), yet are still intact at their weakest point (tar adhesive strip) indicate that a specific mechanical force was applied to the shingles, often with a roofing tool such as a shovel or flat bar. Wind will exploit the weakest part of the shingle.



Tar adhesive strip is intact and adhered on left side while fiberglass core of shingle is torn. This indicates intentional damage.