

# RECOGNITION



# AND

# REPAIR



## OF HAIL-RELATED DAMAGE ON CEDAR SHAKES AND SHINGLES

(This article was compiled, with permission, from information provided in the Cedar Shake & Shingle Bureau's brochure, *Certi-Label Cedar Roofing: A Claim Adjuster's Guide to Handling Hail-Related Claims*, published in 2005.)

A severe hailstorm has just hit the city. Owners are calling consultants and insurance companies for claim assessments and roof repairs or replacements. Contractors and insurance adjusters are converging. Some overly aggressive storm chasers have distributed misleading flyers, confusing some building owners. Quick and accurate assessments and action must be taken. Where is one to start?

There is no doubt that roof repair is less expensive than total replacement for both the insurer and the policyholder. The Cedar Shake and Shingle Bureau (CSSB), founded in 1915, can help determine the right course of action. CSSB's membership includes over 80 percent of the active manufacturers of cedar shakes and shingles and some 250 distributors, wholesalers, brokers, Approved Installers, associates, and accessory product and service providers.

### Facts about hail!

- Hail is not always perfectly round.
- Hail falls in a random pattern and comes in various sizes. Some hailstones may damage a shake or shingle, some may only leave a dent that will weather away over time, and others may leave no mark at all.

- Large hailstones fall farther apart and come with more impact energy than smaller hailstones.
- The National Weather Service's definition of "severe" hail is with a 3/4-inch diameter or larger.<sup>2</sup> Hailstones of this size—and sometimes even larger—often do not damage cedar shakes and shingles.

The largest hailstone ever confirmed by the National Weather Service measured 7 inches in diameter and 18.75 inches in circumference and fell in Aurora, Nebraska, in 2003<sup>3</sup> (see *Photos 1A and 1B*).

Various descriptions of hailstone sizes have evolved over the years, and the cedar-

roofing industry uses the following:

- Pea size – 1/4 inch
- Marble size – 1/2 to 3/4 inch
- Golf ball size – 1-3/4 inch
- Baseball size – 2-3/4 inch

Cedar roofs can rebound from minor cosmetic hail impact, leaving virtually no trace of the storm after normal weathering is allowed to take its course. Certi-label™ cedar roofing products (those manufactured by CSSB members) have successfully undergone UL 2218 impact-resistance testing, obtaining either Class 3 or Class 4 ratings, depending upon product type.

UL 2218 testing is conducted by dropping a series of steel balls from certain



*Photos 1A and 1B – Pictures of the record-breaking Aurora, Nebraska, hailstone. Since the hailstone struck a house roof in its descent and partially broke, an accurate weight of the hailstone was not possible. Property damage from the storm was estimated at \$500,000, with \$1 million in crop damage across Hamilton County, Nebraska (NCDC 2003). Large hail left craters in the ground up to 14.0 inches (35.56 cm) in diameter and 3.0 inches (7.62 cm) deep. National Weather Service photo.*



Photo 2A – Hail impact split.

heights onto a roofing deck. Class 3 steel balls used are 1.75 inches in diameter, and Class 4 steel balls used are 2 inches in diameter.

The CSSB currently administers a limited product warranty for 20 or 25 years, while some CSSB members offer their own independent limited product warranties, ranging from 30 to 50 years.

**Inspection of a hail-impacted roof**

Always take proper precautions to ensure safety before examining a roof. Roof damage cannot be accurately determined from the ground, with binoculars, or from the top of a ladder.

Prepare a worksheet to accurately mark down the roof area, age, decking, flashing type, installation and product quality, slope, size, number of splits, environment, overhanging vegetation, and storm pattern.

Learn what is damage and what is not. Don't be fooled by fraudulent claims. Photos 2A, 2B, and 2C show



Photo 2B – Weathering split and small hail impact marks.

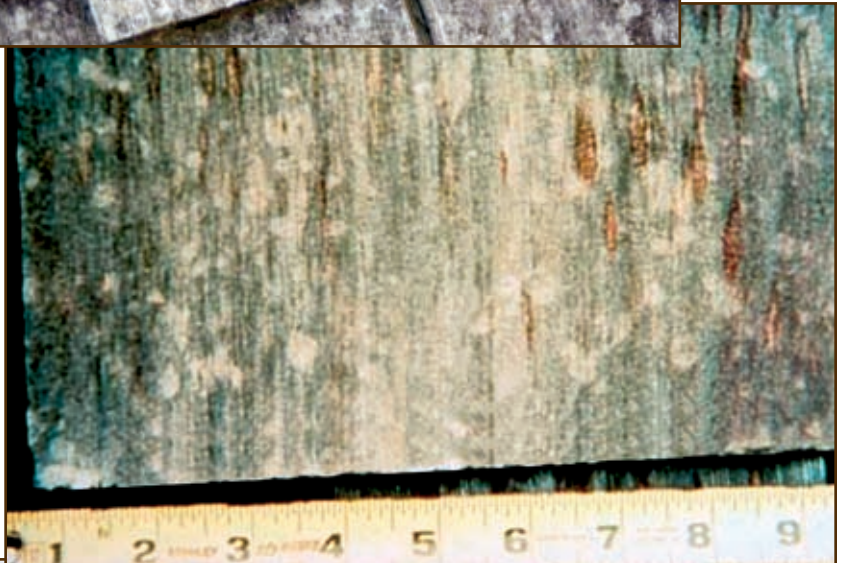


Photo 2C – Many small hail impact marks, but no splits in shingle.

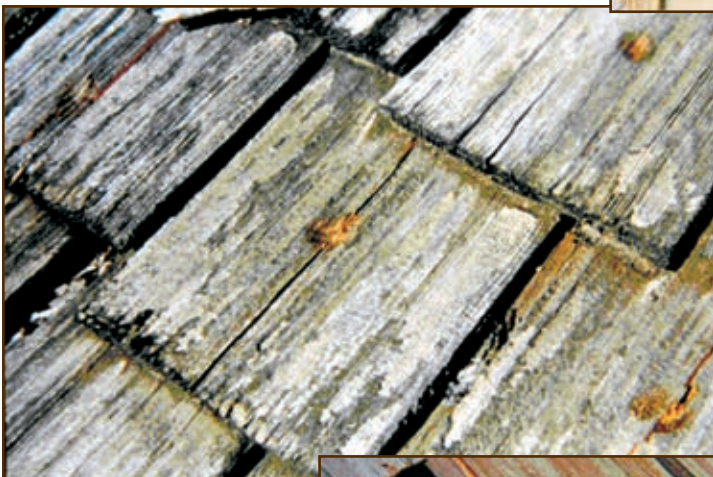


Photo 3A – Intentional ballpeen hammer damage (note regular pattern).



Photo 3C – Actual pressure-washing damage. This type of damage is typically caused by inexperienced equipment users. Contact CSSB for care and maintenance of cedar shingles and shakes.



Photo 3B – Footfall split damage (note no denting and new cedar color).

## **RC = D x U x R x A**

Where RC = cost (in dollars) to repair the entire slope  
D = number of damaged shakes or shingles/roofing square  
U = unit cost (in dollars) to repair a shake or shingle  
(Check in local area for current cost factor.)  
R = repair difficulty factor (1 = good; 1.5 = fair; 2 = poor)  
A = actual area (in roofing squares) of the slope

### **Sample calculation #1:**

$$D = 15; U = 10; R = 1; A = 20$$
$$RC = 15 \times 10 \times 1 \times 20 = \$3,000$$

### **Sample calculation #2:**

$$D = 45; U = 10; R = 2; A = 20$$
$$RC = 45 \times 10 \times 2 \times 20 = \$18,000$$

#### *Formula 1*

actual hail damage. *Photos 3A, 3B, and 3C* show damage on shakes and shingles that was not caused by hail.

#### **Repair versus replacement costing**

In 1999, employees of Haag Engineering Co. published a formula to analyze the cost difference between repairing and replacing hail-damaged roofing.<sup>4</sup> Their formula is shown above.

One should consider replacement of the damaged roof/roof segment when repairs will cost 80 percent or more of the replacement cost. Be sure to factor in any relevant replacement product costs of hip and ridge, valleys, redecking, tear-off, and other more complicated area work. It is important to note that alternative products may require full redecking or substrate reinforcement for load-bearing capacity, solutions that will



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Photo 4A

increase costs. Correct assessment protocol will ensure that the repair versus replacement decision is made accurately.

**Shake replacement**

The CSSB advocates informed reroofing and repair assessment. Repairing a cedar roof is possible; here are some simple steps to follow:

- Slide a ripper tool up under damaged shake and hook nail (Photo 4A).
- Push the ripper tool down and cut nail. Repeat on second fastener (Photo 4B).



Photo 4B



Photo 4C



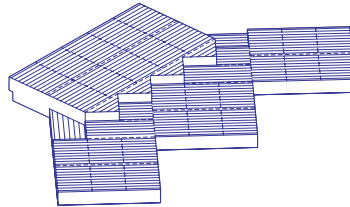
Photo 4D



Photo 4E



- Pull out shake (Photo 4C).
- Install new shake so that the butt is approximately 1/2 inch to 3/4 inch below other shakes in same course. Insert nails at a 45° angle adjacent to covering course above (Photo 4D).
- Tap butt of shake up, using a piece of wood to protect butt (Photo 4E).
- Repair is completed (Photo 4F).



The CSSB has a list of Approved Installers skilled in repair of cedar shakes and shingles. Check [www.cedarbureau.org](http://www.cedarbureau.org) for a list of current members in a given area.

New cedar shakes and shingles will typically weather to an attractive gray color within six to nine months. This fact is dependent upon local environmental conditions.

### Repair


Reroofing a building is a large job that should be undertaken only if necessary. Unnecessary reroofing projects hurt the insurance industry and policyholders with higher costs and increase waste disposal or recycling needs. Unnecessary reroofing projects also harm the cedar shake and shingle industry by implying that products' lifecycles are shorter than they really are.

Unlike alternative synthetic roofing materials, with cedar shakes and shingles, one never has to worry about matching color lots or factory profile designs: cedar will weather to an attractive gray color. Product styles manufactured 100 years ago are still made today. For help in sourcing specific items, the CSSB offers free technical assistance.

Shimming can be used to repair the odd shake or shingle, filling in a split piece from below. however, for purposes of both roofing system integrity and cosmetic appearance, no more than 20 percent of a roof area



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should be shimmed (Figure 5). If this 20-percent limit is reached, one should consider repairing the area with new shakes or shingles or a complete reroof job, depending upon the circumstances and level of damage. 

#### References

1. Provided by Haag Engineering Co.
2. [www.crh.noaa.gov/lmk/spotter/slide76.html](http://www.crh.noaa.gov/lmk/spotter/slide76.html).
3. Jared L. Guyer and Rich Ewald, "Record Hail Event, Examination of the Aurora, Nebraska, Supercell of 22 June 2003," National Oceanic and Atmospheric Administration, [www.spc.noaa.gov/publications/guyer/aurora.pdf](http://www.spc.noaa.gov/publications/guyer/aurora.pdf).
4. Timothy P. Marshall and Richard F. Herzog, "Protocol for Assessment of Hail-Damaged Roofing," *Proceedings of the North American Conference on Roofing Technology*, 1999.

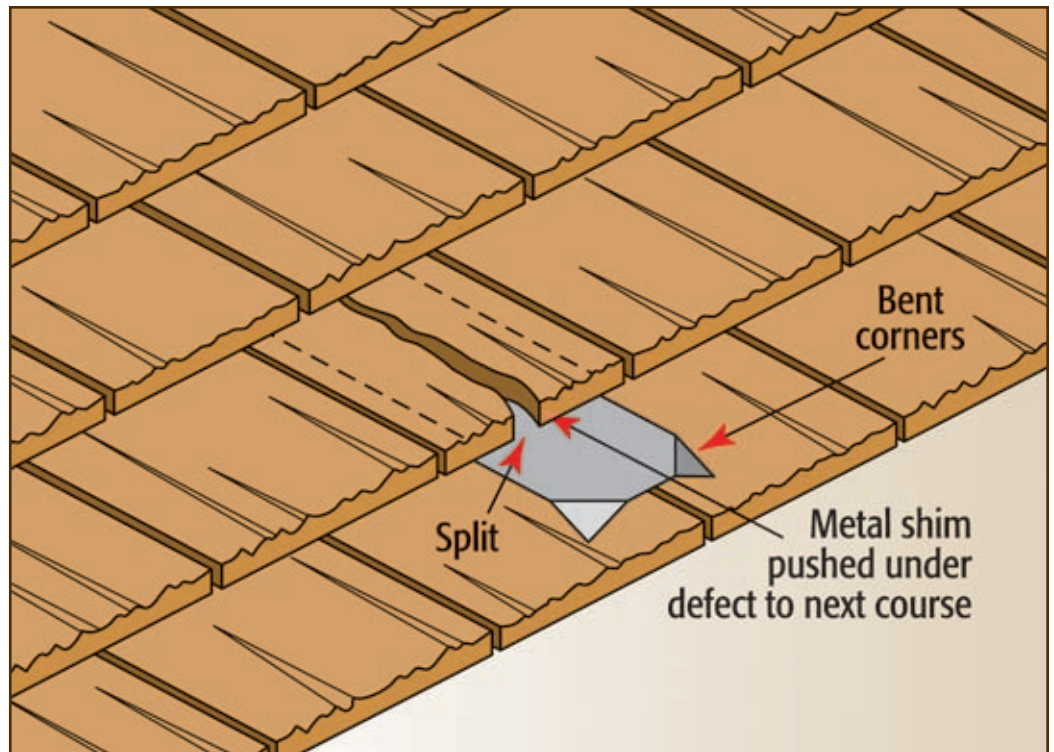


Figure 5 – In general, no more than 25 hail impact splits per 100 square feet should exist if shimming is to be used. Otherwise, consider using new shakes or shingles or replace the entire roof.