Cedar Shake & Shingle Bureau

Certi-label™ Cedar Roofing:

A Claim Adjuster's Guide to Handling Hail-Related Claims

Knowledgeable technical assistance
Professional advice
Satisfied policy holders

AN OVERVIEW OF FACTS YOU NEED TO KNOW

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Cedar Shake & Shingle Bureau

The recognized authority since 1915

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FACTS ABOUT CEDAR ROOFS AND HAIL

A typical scenario

An outbreak of hailstorms has just struck the Midwest. Some of the hailstones were over 2 inches in diameter. You've been called out to assess damage and look at homes to gauge claim amounts. Thousands of houses are affected and every single one is a family's special home.

Every family wants immediate claim assessment and roof replacement.

The local area is bombarded with media hype reporting gigantic hailstones that have literally wiped out the community. Contractors and insurance adjusters are converging on the area. Some overly aggressive stormchaser businesses are distributing misleading flyers and generally confusing homeowners. The resulting uncertainty hurts the ethical Approved Installer contractors who are trying to do a good job. You need to make quick and accurate assessments of the hail damage.

This is reality.

This guide will help.

Why did the Cedar Shake and Shingle Bureau ("CSSB") get involved?

Insurance adjusters have contacted the CSSB with more and more questions over the past few years. It is believed that millions of dollars have been spent over the past decade on total roof replacements that really only needed simple repairs. Claims increase the cost of insurance for everyone. Over the long term, unnecessary roof replacements raise the cost of premiums for all policy holders. Keeping in mind that each situation requires an individual review, there is no doubt that roof repairs rather than total replacement are usually a much less expensive option for both the insurer and the policy holder.

The CSSB supports quality workmanship and accurate storm damage assessment. Certainly after a big storm many types of roofing products will incur damage and some will likely need total replacement. However, it is unlikely that every single home in the entire storm area will sustain irreparable damage. Equitable solutions exist, and are based on accurate "repair versus replace" claim methodology.

Facts you'll see inside:

- Basic product types and wood grain
- Correct and incorrect installation examples
- Normal weathering of cedar products
- Key inspection and hail concepts
- Repair procedures and costing formula
- Real hailstorm versus non-hailstorm caused damage
- Certi-label™ cedar products' test results
- References/contacts for more detailed assistance

Your time is valuable… You want to answer policy holder questions with facts and provide knowledge-based assistance… this guide will help.

WHAT IS A SHAKE SHINGLE?

This is a common question... but there is No Such Thing as a 'shake shingle'.

3 main product types (in total there are over 100 different products)

Certi-Split® Shake
(Handsplit and Resawn): Split on one face, sawn on the back, used for a more rustic look.
(Top quality grade = Premium Grade)

Certi-Sawn® Shake
(Tapersawn): Sawn on both sides, giving a tailored appearance with a heavier shadowline than a shingle.
(Top quality grade = Premium Grade)

Certigrade® Shingle:
Sawn on both sides, used for a tailored appearance.
(Top quality grade = Number 1 Grade)

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2 main types of wood grain

Vertical Grain (also known as Edge Grain): annual growth rings form 45-90 degree angle with product surface.

Flat Grain: annual growth rings form less than 45 degree angle with product surface. Up to 20% flat grain is permitted in each Number 1 Grade shake bundle.

No flat grain is allowed in Premium Grade shakes or Number 1 Grade shingles.

Grading rules and other detailed brochures are available from the CSSB.

CEDAR SHAKE AND SHINGLE BUREAU OVERVIEW

The CSSB was founded in 1915. Its membership includes over 80% of the active manufacturers of cedar shakes and shingles and some 250 distributors, wholesalers, brokers, Approved Installers, associates, and accessory product and service providers. Representing the exclusive Certi-label™ brand of cedar shakes and shingles, members manufacture, sell, and install these products to only the highest quality standards.

Quality Control

Cedar Shake and Shingle Bureau ("CSSB") manufacturing members, those who make Certi-label™ cedar shakes and shingles, are subject to stringent quality control regulations and inspections. The CSSB created and still writes the grading rules for the industry and these rules are incorporated into national building codes as the standard reference guide for commercial and residential projects. In order to ensure top quality products, the CSSB has spent significant time and money developing and managing an effective quality control program. The CSSB's unique quality control program is currently comprised of two parts:

1) Random, unannounced and frequent inspections of each manufacturer on the membership roster. These inspections are not set up in advance and are performed by trained professionals. These inspections ensure that grading rules are applied equally to all members to ensure product consistency.

2) The CSSB's own Cedar Quality Auditor. Employed by and directly answerable to the CSSB, this person travels on a different schedule from the inspectors, also performs unannounced mill visits, and provides a second set of eyes on the quality control procedures at member manufacturers. This process is unique to CSSB member manufacturers and the Certi-label™ brand. The Cedar Quality Auditor also provides in-field education for members and promotes the use and proper installation of top quality CSSB products. The CSSB stands firm on the belief that a stringent quality control program with unannounced inspections is the best way to ensure consistent quality and offer policy holders the products they require for a long lasting, upscale roof.

Contact the CSSB regarding:

- Technical assistance and literature
- Product type and installation demonstrations
- Education for insurance teams, homeowner associations and builders
- American Institute of Architects continuing education unit seminars
- Florida State Course Provider classes

Cedar Shake & Shingle Bureau

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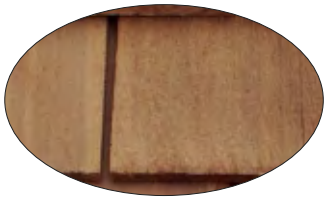
CONTINUING EDUCATION AIA

INSTALLATION: QUICK FACTS

These photos demonstrate correct installation of cedar shingles:

Some practices to note:

Proper keyway width



Concealed fasteners

Offset joints

Quality product

These photos demonstrate incorrect installation of cedar shingles:

Some practices to avoid:

Knots

Exposed fastener

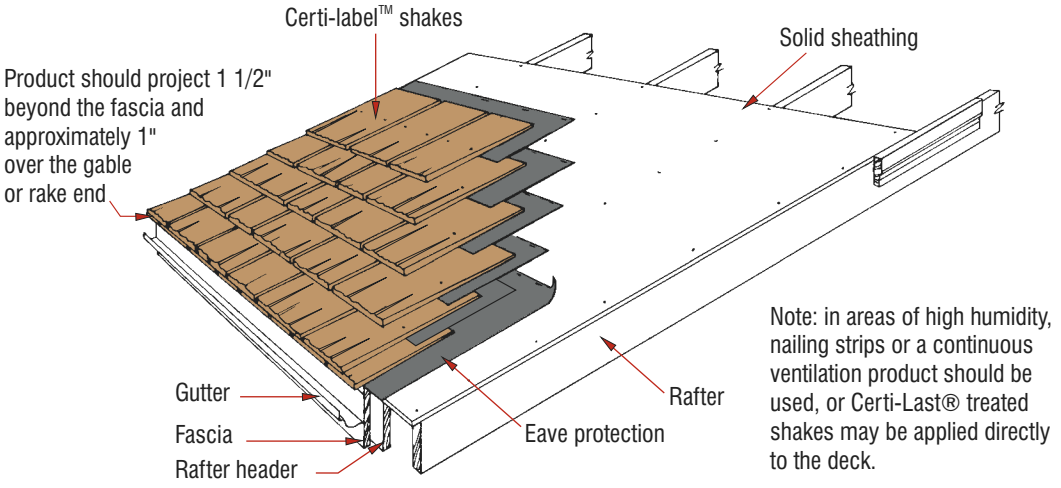
Narrow keyways

Uneven courses
(on non-staggered butt roof)

Wide keyways

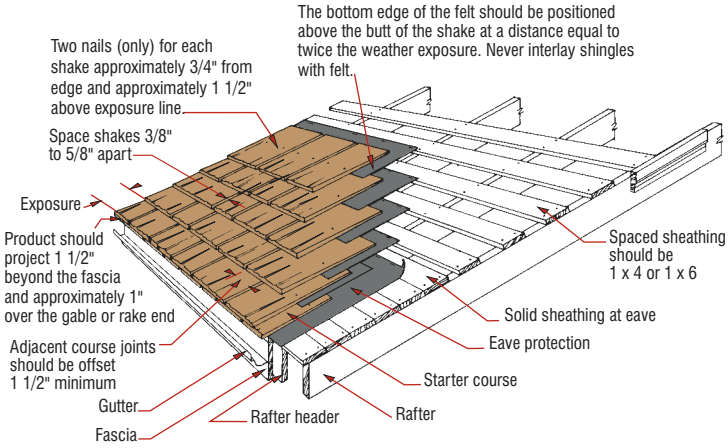
Exposed interlaid felt

ROOF APPLICATION REMINDERS

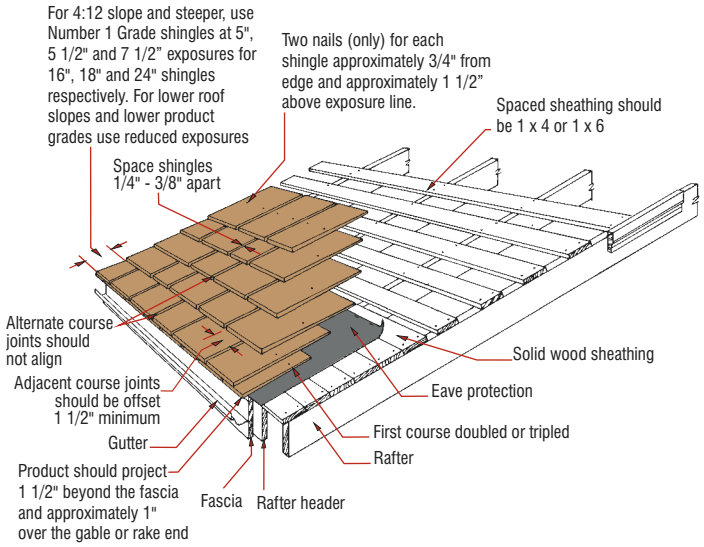


Certi-label™ Shake Application: Solid Sheathing

IMPORTANT NOTE:
Although spaced sheathing is acceptable in some areas, the only solid sheet sheathing tested with Certi-label™ cedar shakes and shingles is plywood. It is the CSSB's understanding that the insurance industry prefers solid sheathing on roofs due to its contribution to improved redistribution of loads induced by wind or seismic events. Contact the CSSB for more details on this issue.



Certi-label™ Shake Application

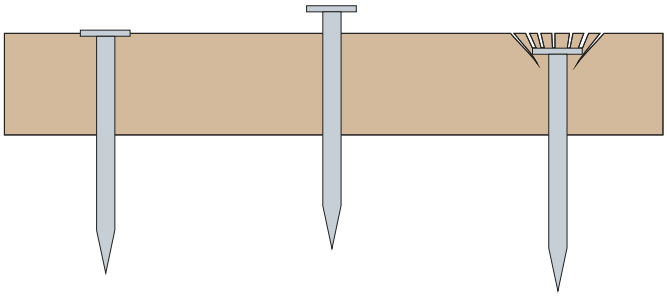


Certi-label™ Shingle Application

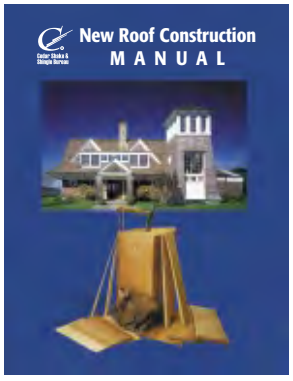
ROOF APPLICATION REMINDERS

- Be sure that interlay felt on shakes does not extend below a line that is twice the exposure above the butt (i.e. on a 24" shake at 10", exposure would have felt applied 20" above the butt)
- Never interlay shingles with felt
- Keyways must not be aligned and must be a minimum 1 1/2" offset from the course above
- There is no flat grain allowed in Number 1 grade shingles. (Up to 20% flat grain is allowed in each Number 1 grade shake bundle). It is important to note this distinction.

Fastener Overview



- Incorrectly placed fasteners are often to blame for unusual product cupping or curling
- DO NOT drive nail heads or staple crowns below wood surface
- Overdriving or underdriving the fasteners can seriously damage the integrity of your roofing system
- Only use stainless steel (type 304 or 316), hot-dipped zinc coated, or aluminum nails or other fastener as accepted by your local building official
- Ring shank nails are preferable as they provide superior uplift resistance (see test results on page 16)



For more details visit www.cedarbureau.org for the online version of the CSSB's New Roof Construction Manual which shows installation of Certi-label™ cedar roofs. You may also order a free printed copy from the CSSB office.

NORMAL WEATHERING

The average shake or shingle will weather to a gray color within 6 - 9 months. A certain amount of splitting and curling is normal for cedar shake and shingle products as they age. Some examples are shown below:

Photo courtesy of Haag Engineering Co.

Natural weathering split (note no new cedar color between cracks). Splits are a natural occurrence and no cause for alarm unless felt or the roof deck is exposed. Cedar shake roof systems are 3-ply systems with 2 layers of shakes and 1 layer of interlaid felt. Cedar shingle roofs are 3-ply systems with 3 layers of shingles.

Naturally weathered cedar roofs: gray color

Some curling and cupping may be seen

Quick Facts about Hail Itself

(Source: Haag Engineering Co.)

- Hail is not always perfectly round
- Hail falls in a random pattern with a distribution of hailstone sizes. Some hailstones may damage a shake or shingle, some may only leave a dent that will weather away over time, while others leave no mark at all.
- Large hailstones fall farther apart, and come with more impact energy, than smaller hailstones
- The National Weather Service definition of severe hail is one which produces 3/4" inch diameter hail or larger. *(Source: www.crh.noaa.gov/lmk/spotter/slide76.html)* Hailstones of this size, and sometimes even larger, often do not damage cedar shakes and shingles.

In 2003, the National Weather Service reported a hailstone measuring 7 inches in diameter located in Aurora, Nebraska.
(Source:http://news.nationalgeographic.com/news/2003/08/0804_030804_largesthailstone.html)

Various descriptions of hailstone sizes have evolved over the years, and the cedar roofing industry uses the following:

- Pea size 1/4"
- Marble size 1/2-3/4"

Cedar Roofs and Hail

- 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
- Cedar roofs do not always need to be completely replaced after a hailstorm
- As with any roofing product, cedar roofs do need to be applied with care and skill. An Approved Installer member of the Cedar Shake and Shingle Bureau is a wise choice. Check www.cedarbureau.org for a list of current members in the local area. These contractors are required to carry all appropriate licenses and liability insurance, offer a workmanship guarantee, have an established business, and provide proper cedar roofing experience, thus giving peace of mind to you and your clients.
- Sometimes it is better to repair a roof rather than completely replace it (use appropriate analysis, information in this brochure, and insurance industry worksheet tools to make your determination).

Each storm is unique and provides endless learning opportunities for scientific research!

Ice Cube 1" Pea Size 1/4" Marble Size 3/4" Golf Ball Size 1 3/4" Baseball Size 2 3/4"

Performing an inspection on a hail impacted roof

There are some basic tools and knowledge one needs when inspecting a roof:

- Safety: use proper precautions to ensure your safety. Shoes, ladders, harnesses, and training should all work together. Roof damage cannot be accurately determined from the ground, with binoculars, or from the top of a ladder.

- Worksheet: you will need to accurately mark down, among other items, the roof area, age, decking, flashing type, installation and product quality, slope, size, number of splits, environment, overhanging vegetation, and storm pattern. Ask your company for a sheet that allows you to record the site accurately and efficiently.

- Education: learn what is damage and what is not. Don't be fooled by fraudulent claims. Check if the policy language provides for cosmetic repair and/or replacement. Contact an expert if in doubt. Experts can be independent and licensed roofing contractors or consultants who can provide a second opinion for challenging situations. Contact the CSSB for referrals.

Is this all the information available?

The CSSB can provide/source more details on many different topics. This brochure is only intended to offer a brief overview of cedar roofing materials. More details regarding cedar roofs and installation, storm resistance, care and maintenance, and testing results are available.

What is the best way to get more information?

Additional, free information is available from the CSSB:

- www.cedarbureau.org
- info@cedarbureau.com
- tel: 604-820-7700
- fax: 604-820-0266

Does the CSSB offer other educational services?

Yes. CSSB staff offer free educational seminars, traveling across the country, speaking to a variety of audiences. Scheduling is arranged through the CSSB office.

REPAIR VERSUS REPLACEMENT COSTING

Claim Adjusters can rely upon the scientific merits of the Repair Cost Formula as explained in "Protocol for Assessment of Hail-Damaged Roofing", written by Timothy P. Marshall and Richard F. Herzog of Haag Engineering Co. ("Marshall and Herzog"), and published in the Proceedings of the North American Conference on Roofing Technology in 1999.

The repair cost formula listed by Marshall and Herzog is as follows [CSSB editorial comments in square brackets]:

RC=D x U x R x A

RC=the cost to repair the entire slope (in dollars)

D=the number of damaged shingles or shakes per roofing square

U=the unit cost to repair a shingle or shake (in dollars)

[Check in local area for current cost factor here]

R=the repair difficulty factor

[R= 1, 1.5 or 2.

1=good condition,

1.5=fair condition,

2=poor condition]

A=the actual area of the slope (in roofing squares)

[One square is equivalent to 100 square feet of roofing area]

Sample Calculation #1:

D=15

U=10

R=1

A=20

RC=15 x 10 x 1 x 20

RC=$3,000

As shown, the cost to repair 20 squares of lightly damaged product is a much more acceptable cost than the cost of tearing off the entire roof.

Sample Calculation #2:

D=45

U=10

R=2

A=20

RC=45 x 10 x 2 x 20

RC=$18,000

This is an example showing how a cost benefit analysis of repair versus replacement is needed.

Keep in mind that different regions of the country as well as size of catastrophe, are factors contributing to labor and hence repair unit cost factors.

One should consider replacement of the damaged roof/roof segment when repairs will cost 80% or more of the replacement cost. Be sure to factor in any relevant replacement product costs of hip and ridge, valleys, re-decking, tear off, and other more complicated area work. **It is important to note that alternative products may require full re-decking or substrate reinforcement for load bearing capacity, which will increase costs.** As discussed in Marshall and Herzog, correct assessment protocol will ensure that the repair versus replacement decision is made accurately.

FREQUENTLY ASKED QUESTIONS

The Cedar Shake and Shingle Bureau ("CSSB") is the industry's not for profit trade association that was founded in 1915. Representing a wide range of member products and services, the CSSB can source the answers you need. Here are answers to some frequently asked questions:

1) Are all cedar roofing materials impact resistant?

Certi-label™ cedar roofing products have successfully undergone UL 2218 impact resistance testing, obtaining Class 3 and Class 4 ratings, depending upon product type. UL 2218 testing is conducted by dropping a series of steel balls from certain 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. A list of currently approved products is available from the CSSB.

2) How many storms can a cedar roof experience before the product is damaged?

This question is, unfortunately, impossible to answer accurately as storms range in intensity, hailstone size and duration, among other things. Each storm is unique and roofs should be assessed on an individual basis to determine the ultimate effect of the storm, regardless of roofing product type. Certi-label™ cedar products have met the highest impact resistance standards required by the insurance industry, and these standards are applied equally to all products, including the alternative product types.

3) How many years are cedar roofs guaranteed?

The CSSB currently administers a limited product warranty for 20 or 25 years, depending upon product type. Some CSSB members offer their own independent limited product warranty ranging from 30 to 50 years, depending upon product type.

4) How many suppliers of this roofing material are there in the United States?

The CSSB currently has over 350 members ranging from manufacturers, brokers, distributors, wholesalers, retailers, Approved Installers, associates and more. For the most up to date member list, please visit the CSSB's informative website at www.cedarbureau.org

5) What is the average cost of a cedar roof?

As a matter of long-established policy, the CSSB does not supply pricing information.

6) How do I identify a Certi-label™ cedar shake or shingle in the field?

CSSB member products are the only ones labeled with the distinctive Certi-label™ brand.

There are several methods to identify Certi-label™ brand products in the field. Here are some examples:

- Roofing contractors sometimes staple bundle labels to the rafters inside the attic
- The city may require a copy of the product label to be on file with the housing permit
- A copy of the label may be attached to the roofing contractor invoice or specification sheet
- The CSSB could have a warranty on file for this job (call or email the CSSB to inquire)
- Some areas require the individual stamping of products on the side face down to the weather i.e. the side touching the roof deck. This is especially the case for products that have been tested for impact resistance and are UL 2218 rated.

7) How are UL-2218 test decks constructed?

These decks are made from 15/32" plywood. Plywood is the substrate used in the testing environment to equalize testing protocols across a variety of product types. Although spaced sheathing is acceptable in some areas, the only solid sheet sheathing tested with Certi-label™ cedar shakes and shingles is plywood. It is the CSSB's understanding that the insurance industry prefers solid sheathing on roofs due to its contribution to improved redistribution of loads induced by wind or seismic events. Contact the CSSB for more details on this issue.

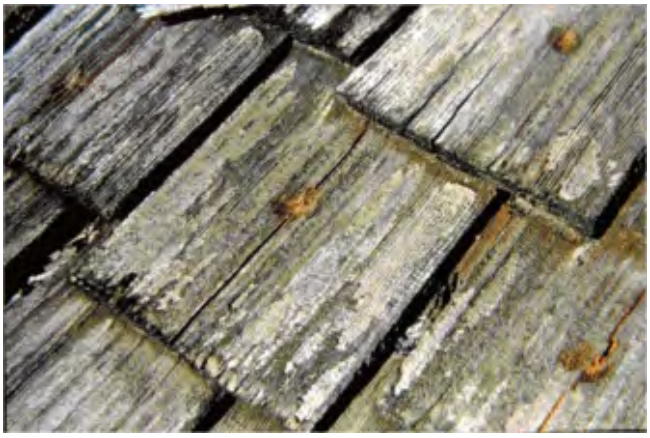
PICTURES OF ACTUAL HAIL DAMAGE

a) Hail impact split

b) Weathering split and small hail impact marks

c) Many small hail impact marks, but no splits in shingle

Photos courtesy of Haag Engineering Co.



d) Intentional ballpeen hammer damage
(*note regular pattern)*

e) Footfall split damage
(note no denting and new cedar color)

f) Actual pressure washing damage
(... yes, it really is!)

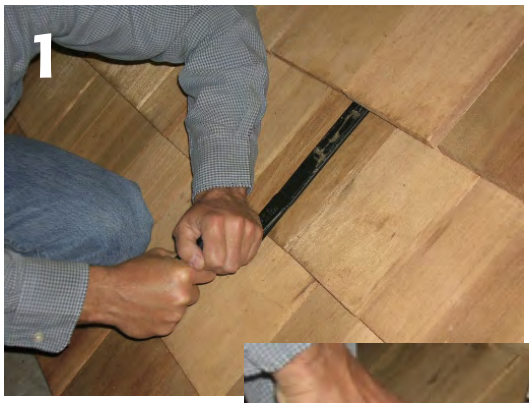
Note the power of the pressure washing machine. This type of damage is typically caused by inexperienced personnel. Contact the CSSB for its care and maintenance brochure to obtain more guidance in this area.

Photos d) and e) courtesy of Haag Engineering Co.

Repair Methods: This is one of the correct methods of replacing a cedar shake. For other approved methods, please contact the CSSB.

Example: Replacing

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



Slide ripper tool up under damaged shake and hook nail.

Push ripper tool down and cut nail (repeat on second fastener).

Pull out shake.

Install new shake so that the butt is approximately 1/2" to 3/4" below other shakes in same course. Insert nails at 45° angle adjacent to covering course above.

Tap butt of shake up using piece of wood to protect butt.

Repair is completed.

Matching new cedar to old cedar

New cedar shakes and shingles will typically weather to an attractive gray color within 6 - 9 months. This fact is dependent upon local environmental conditions.

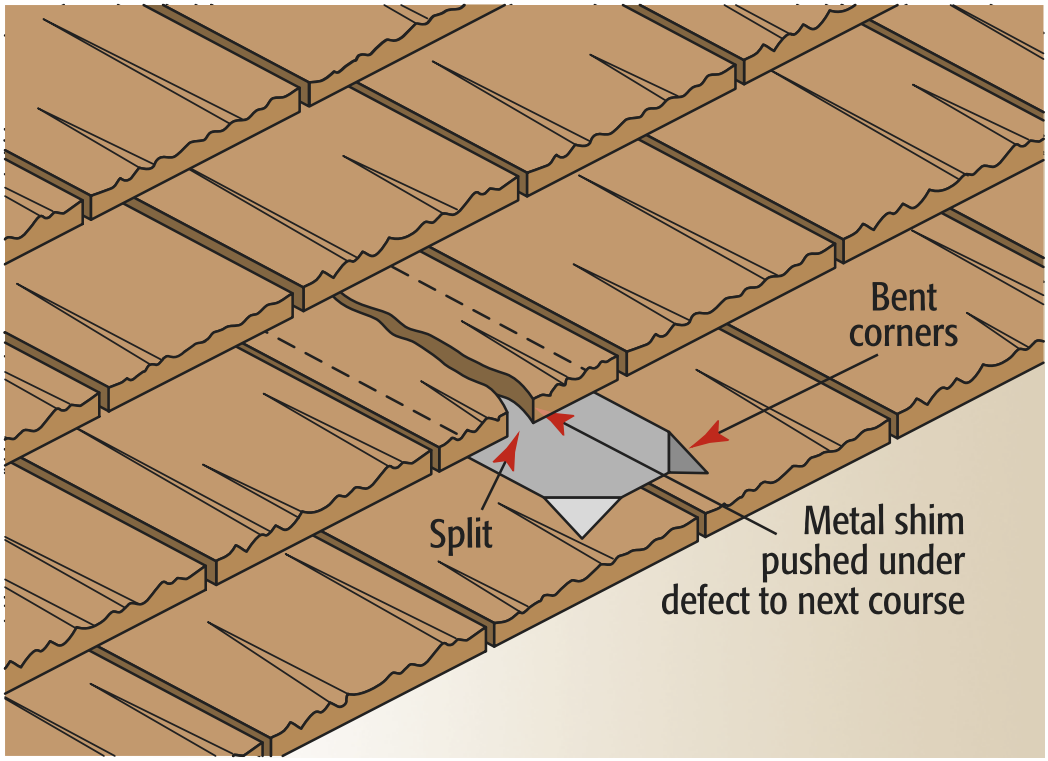
Repair is possible and practical

Let's face it, re-roofing a home is a large job that should be undertaken only if necessary. Unnecessary re-roofing projects hurt the insurance industry and policy holders with higher costs, and increase waste disposal or recycling needs (remember that cedar is biodegradable and will not linger in landfills as long as many alternative products will). Unnecessary re-roofing projects also harm the cedar shake and shingle industry by implying that products' lifecycles are shorter than they really are. Facts are important, and the photos in this brochure show how repairs are possible.

Unlike alternative synthetic roofing materials, one never has to worry about matching color lots or factory profile designs: cedar will weather to an attractive gray color and product styles manufactured 100 years ago are still made today. For help in sourcing specific items, the CSSB offers free technical assistance. CSSB Approved Installers perform repair work; visit www.cedarbureau.org for the current member list.

Example: Shimming

Shimming can be used to repair the odd shake or shingle, filling in a split piece from below. This method is effective, however, no more than 20% of a roof area should be shimmed, for both roofing system integrity and cosmetic appearance purposes. If this 20% limit is reached, one should consider repairing the area with new shakes or shingles OR a complete re-roof job, depending upon the circumstance and level of damage.



In general, no more than 25 hail impact splits per 100 square foot section should exist, if repairs are being contemplated.

CERTI-LABEL™ CEDAR RESISTS THE ELEMENTS

Wind

Certi-label™ cedar shakes and shingles have undergone the UL-1897 (fourth edition) "Uplift Test for Roof Covering Systems" with exemplary results of 90 PSF (173 MPH) for Certigrade® shingles and 180 PSF (245MPH) for Certi-Split® shakes.

A subsequent report to the UL-1897 fourth edition "Uplift Test for Roof Covering Systems" by a Florida Registered Professional Engineer converted results, using no safety factors. Extrapolation calculations were performed for a specific house in the Dade County area of Florida using the analytical method for wind design of roof cladding set forth in Section 6 of ASCE-7-98 (American Society of Civil Engineers). For a full engineer's report contact the CSSB.

Hail

In order to qualify for UL-2218 Class 3 & 4 impact resistance ratings, Certi-label™ cedar shakes and shingles undergo the same testing procedures as any other roofing product in the marketplace. Certi-label™ products have been tested to meet Class 3 and 4 impact resistance ratings. Unlike many competitive products with replacement color lot issues, the beauty of cedar is that sections can be repaired rather than having to tear off the entire roof. This saves time and money.

Environment

Trees are a renewable resource and an environmentally sound choice. Most wood substitutes deplete non-renewable natural resources from Mother Nature such as petro-chemicals and ores. Wood is non-toxic, energy efficient to produce and eminently recyclable and bio-degradable, unlike substitute products. Certi-label™ shakes and shingles are Envirosmart®, made from responsibly managed timber stands.

Fire

In order to obtain a Class A, B or C fire retardant rating, Certi-label™ cedar shakes and shingles undergo the same testing procedures as any other roofing product in the marketplace. Cedar products are often the subjects of rumors and misunderstanding. It is important for the CSSB to emphasize that a Class A rating is a Class A rating, just as a Class 4 rating is a Class 4 rating: the tests conducted are the same, regardless of product. Certi-Guard® pressure-impregnated fire retardant treated cedar shakes and shingles have been tested to meet Class A, B and C standards for use in fire hazard areas.

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Thank you.

The Cedar Shake & Shingle Bureau offers its sincere thanks to the numerous professionals from the insurance, roofing, building envelope and construction industries/associations/groups who gave so generously of their time and expertise.

This project has been a true team effort.

Production assistance provided by: Forestry Innovation Investment

Cedar Shake & Shingle Bureau

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