



MAKING PRODUCTS LAST: A REVIEW OF METAL PANEL WARRANTIES

Presented by MBCI



Credit: 1 AIA LU/HSW; 1 RCI CEH; 0.1 IACET CEU

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~~Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.~~

LEARNING OBJECTIVES

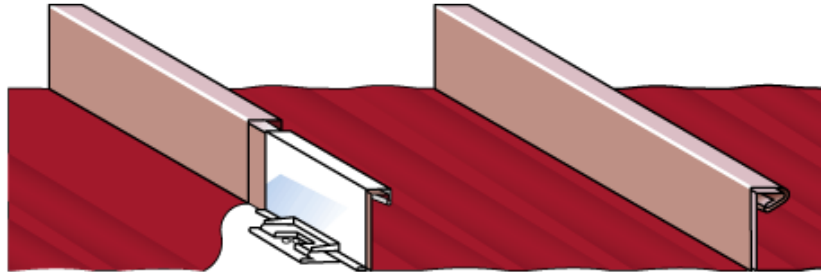
After this course, you should be able to:

1. Develop an understanding of Galvalume metal panels and paint warranties, and the variances within the industry.
2. Understand the differences in industry weathertightness warranties.
3. Recognize roles of accountability in order to endorse weathertightness warranties.
4. Discern the best weathertightness warranty for a specific project.



THREE TYPES OF WARRANTIES

- Galvalume substrate
- Paint
- Weathertightness





WHAT IS GALVALUME?

- Composition by weight
 - 55% aluminum
 - 43.4% zinc
 - 1.6% silicon
- Specified per ASTM A 792
- Typical coating weights
 - AZ 50 for painted panels
 - AZ 55 for bare panels
- Appearance
 - Uniform spangle of unpainted Galvalume cannot be guaranteed. When uniform appearance is critical, use prepainted Galvalume.



GALVALUME

Galvalume is generally superior to galvanized in most applications, with the exception of animal confinement.





GALVALUME PLUS

Galvalume Plus offers the following advantages:

- Can be roll formed dry
- Resists fingerprints and smudging
- Resists storage stain and transit abrasion
- Provides a bright appearance

Minimum 20-year warranty

PAINT WARRANTIES



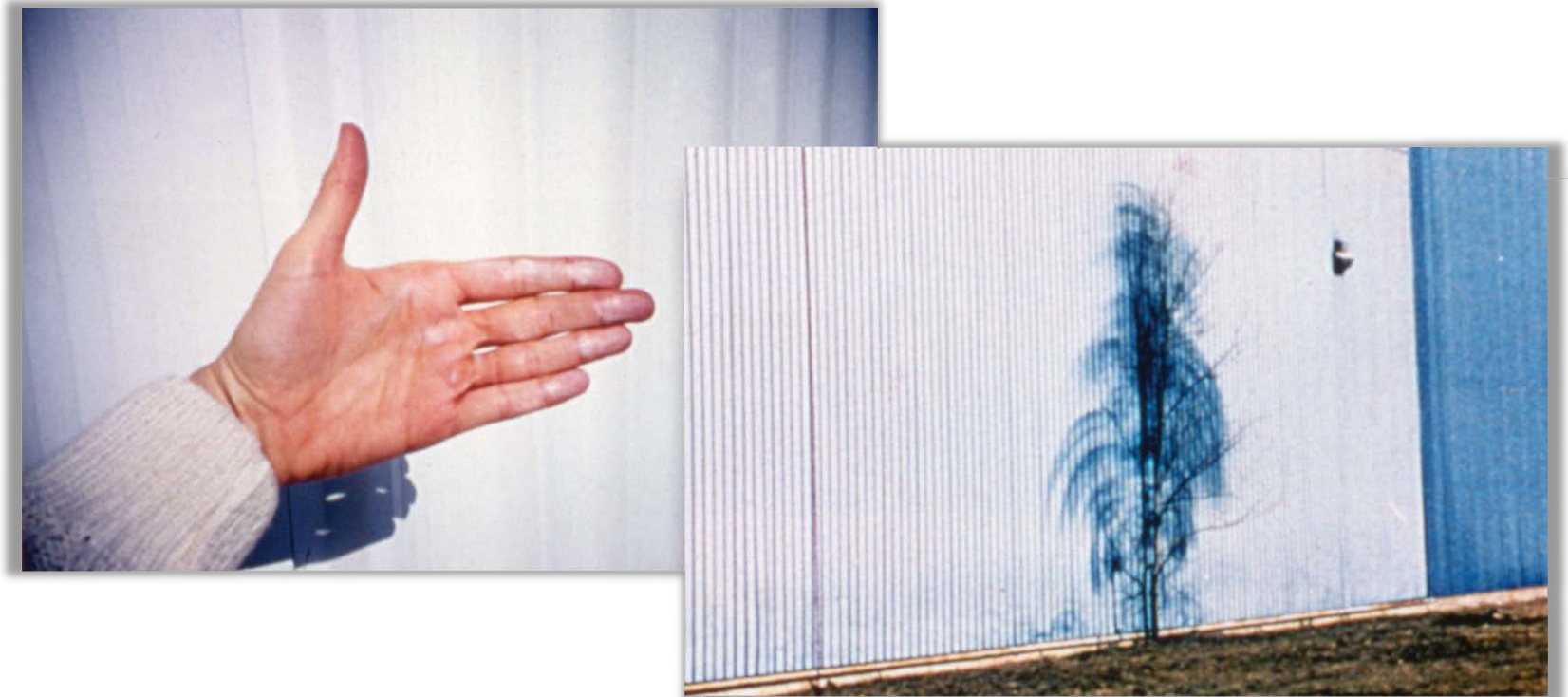
PAINT WARRANTIES

The two most common types of paints used in metal roof and wall applications are:

- Silicone Modified Polyester (SMP)
- Fluoropolymers (PVDF)

FUNDAMENTALS OF A PAINT WARRANTY-CHALK

Failure in the resin system causes chalking



FUNDAMENTALS OF PAINT WARRANTY-FADE

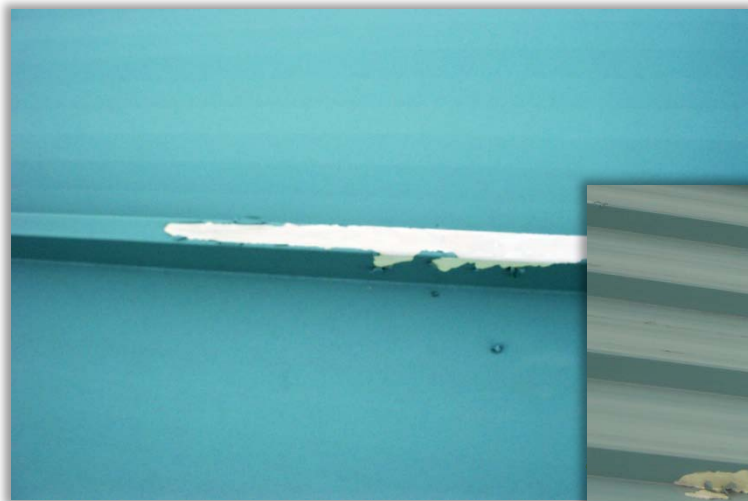
Failure in the pigment system causes fading





FUNDAMENTALS OF A PAINT WARRANTY – FILM INTEGRITY

Film integrity failure is rare



PAINT WARRANTY SUMMARY

How long should the term of a paint warranty be?



PAIN T AND GALVALUM E WARRANTY PROVISIONS

PAINT AND GALVALUME WARRANTIES REQUIRE

- Normal atmospheric conditions
- Proper handling and storage of the product after shipment
- Free drainage with a minimum ¼:12 roof pitch
- An approved seamer for panels that require field seaming
- Long-life fasteners



PAIN AND GALVALUME WARRANTIES EXCLUDE

Damage caused by:

- Long-term contract with
 - Damp insulation
 - Vegetation/Soil
- Salt water
- Condensation of harmful fumes
- Improper cutting of metal panels
- Dissimilar materials



CORROSION FROM DISSIMILAR MATERIALS

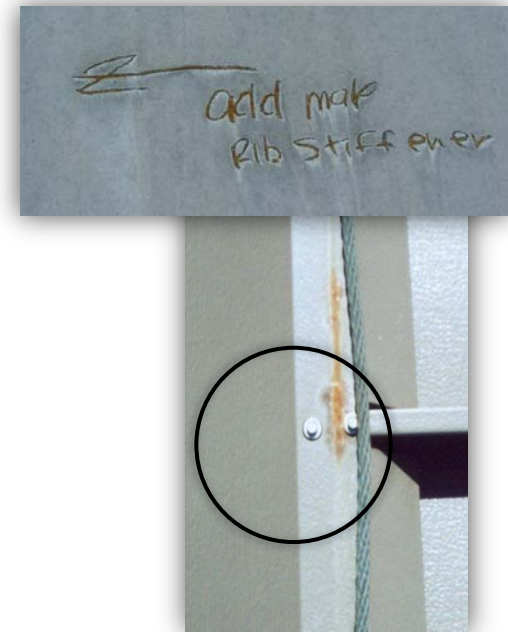
Treated wood



Condensate from rooftop A/C Units

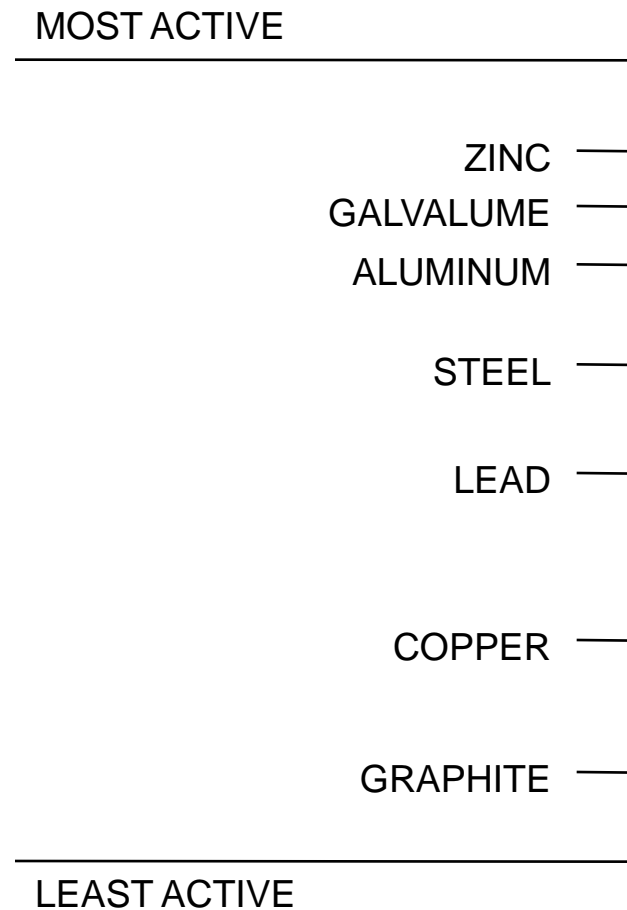


Less noble metals
(copper, lead, graphite, etc.)





GALVANIC TABLE



WEATHERTIGHTNESS WARRANTIES

WEATHERTIGHTNESS WARRANTIES

There are two basic types of weathertightness warranties:

- Standard
- Day One





ROOFING PHILOSOPHY

If a roof leaks, someone has not
done their job.

A weathertightness warranty should be viewed as an insurance policy, NOT as a remedy for poor work.

HISTORY

- Early 90s – metal roofing used in architectural applications
- Architects began requiring weathertightness warranties
- Simple roof designs



HISTORY

- Roofs become more complicated
- More roof systems become available
- Installer knowledge lags
- Leaks become more prevalent
- A more comprehensive warranty is required



HISTORY

- Day one warranties created
- Details created for architectural features
- Installer training courses developed
- Inspections required



WEATHERTIGHTNESS

WARRANTY

COMPARISON

STANDARD VS. *DAY ONE*

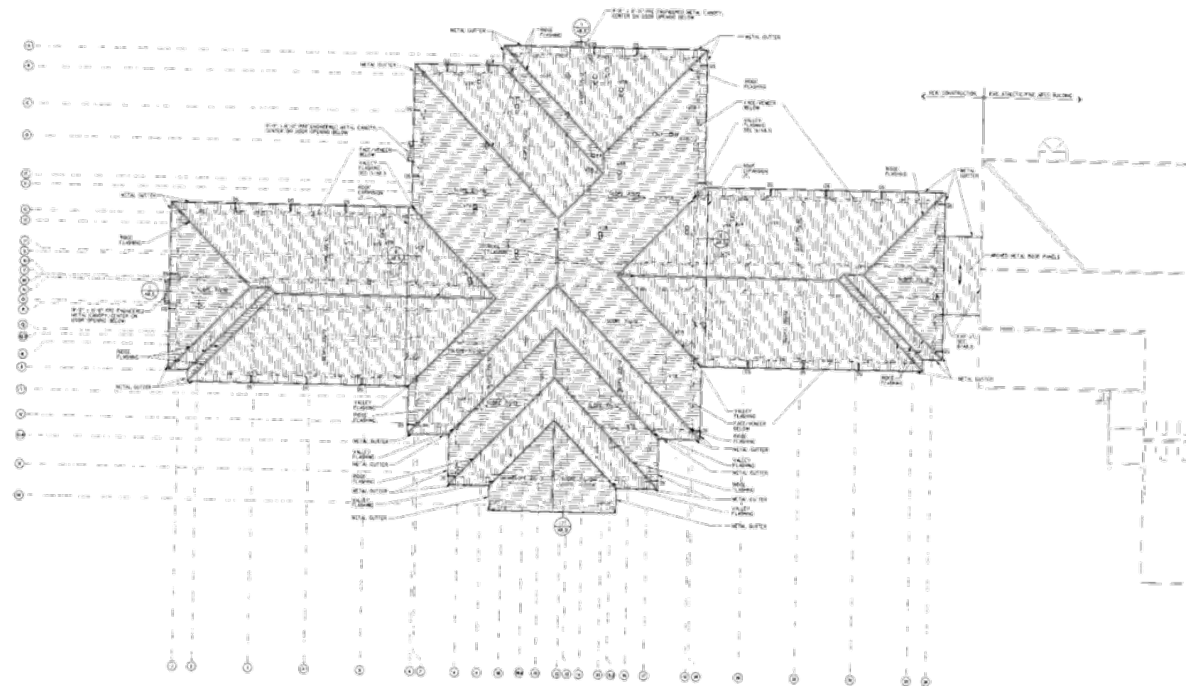
MANUFACTURER STANDARD WEATHERTIGHTNESS WARRANTY

Included:

- Project roof geometry and details are reviewed

Not Included:

- Roof inspections





STANDARD WEATHERTIGHTNESS WARRANTY STIPULATIONS

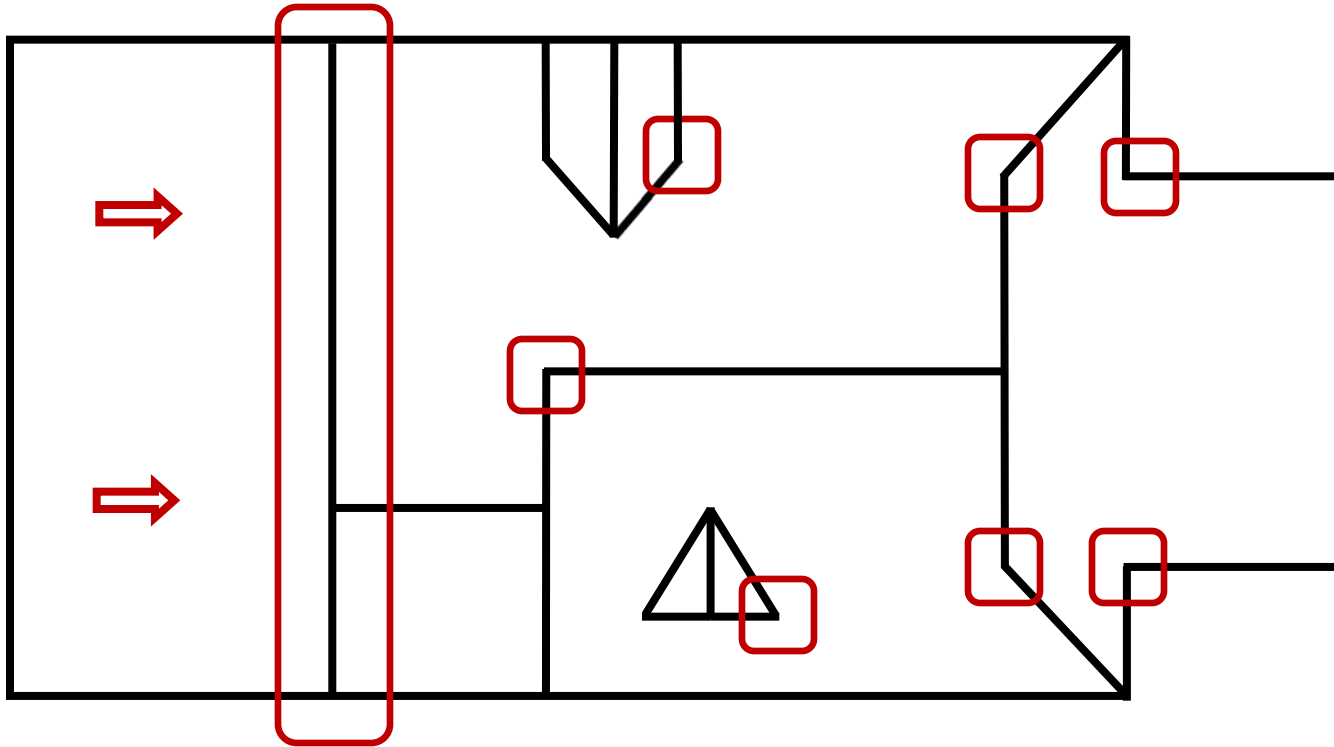
The roofing contractor is responsible for:

- 24 consecutive-month leak free period
- Proper installation

The roofing manufacturer is responsible for:

- Review of roof geometry and shop drawings

STANDARD WARRANTY PLAN REVIEW

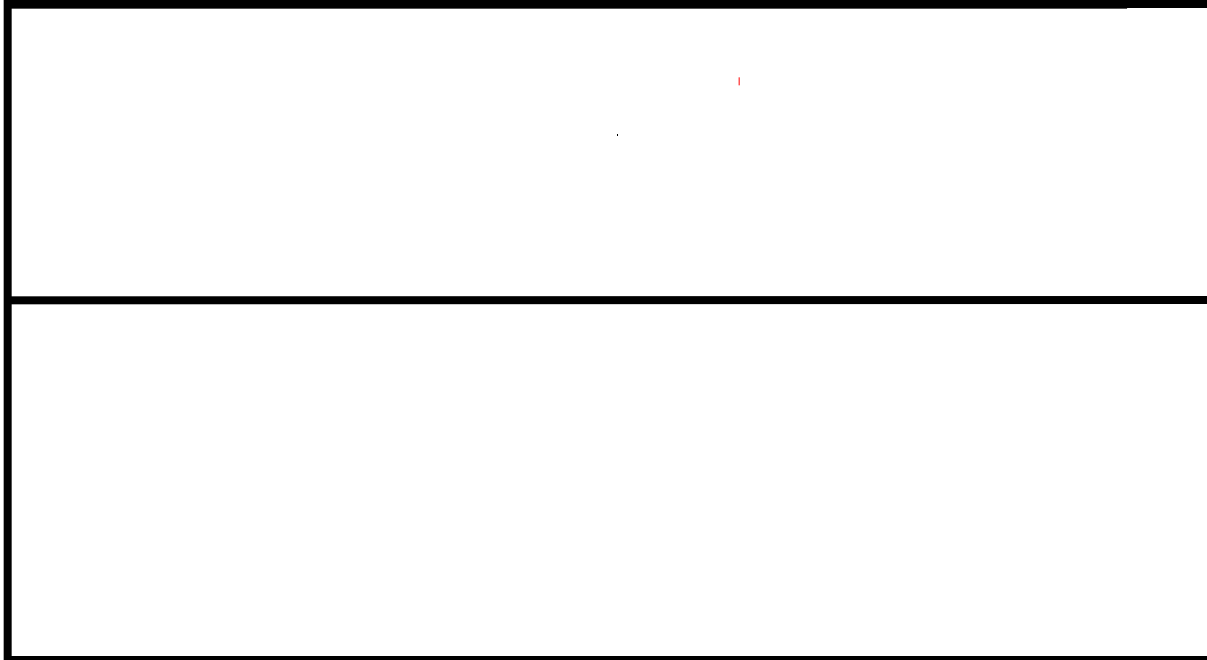


□ Indicates conditions that may be excluded from the warranty.



STANDARD WARRANTY PLAN REVIEW

The appearance of the building after exclusions have been applied.



STANDARD WARRANTY PROVISIONS

- Most warranties include trim
- Most warranties exclude curb and pipe penetrations
- May or may not require a certified installer



QUESTIONS REGARDING STANDARD WARRANTIES

What happens if the roofing contractor goes out of business before the 24-month service period has expired?

- Usually a lot of finger pointing, including the design professional, the owner and the contractor. The parties then look to the manufacturer for relief.
- The manufacturer has no legal obligation to repair the roof until the 24-consecutive months of leak-free service has expired. At this point, litigation is a possibility.

QUESTIONS REGARDING STANDARD WARRANTIES

What happens if the roof system leaks during the term of the warranty, but after it has performed for 24 consecutive months without leaks?

- If after an inspection by the manufacturer, it is determined the roof was properly installed, then the manufacturer may be responsible to repair the roof.
- If the inspection determines that the roofing contractor did not follow the approved shop drawings, the manufacturer has no obligation to the building owner.



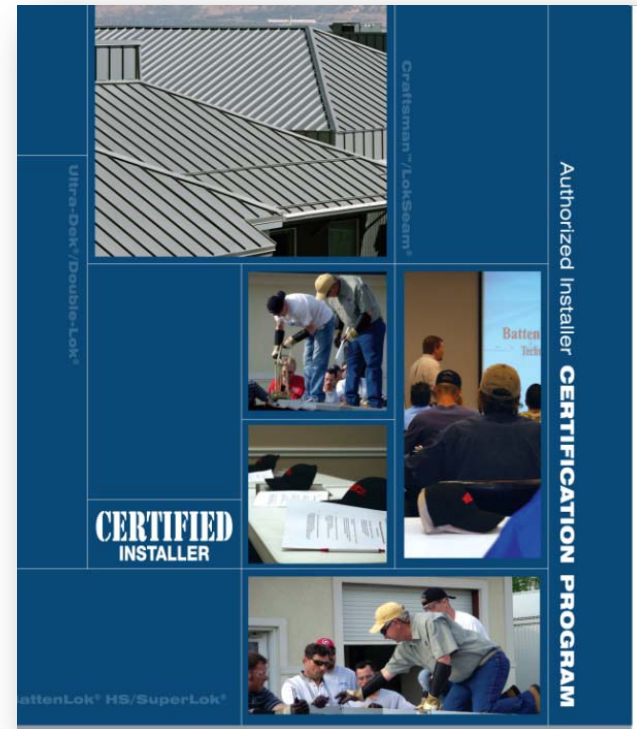
QUESTIONS REGARDING STANDARD WARRANTIES

Why specify a standard weathertightness warranty?

- If it's a simple single slope or double slope building
- If you have a trusting relationship with the contractor

DAY ONE WARRANTY

- The roofing contractor must have an employee complete the certified installer course
- The certified installer must be present on the job site during the roof installation





DAY ONE WARRANTY

- Manufacturer reviews geometry of roof
- Manufacturer ensures shop drawings are compatible with roof geometry
- Depending on the size and complexity the manufacturer may inspect the roof up to three times





DAY ONE WARRANTY

- Inspector performs thorough inspections
- Inspection reports filed with the roofing contractor
- Deficiencies not corrected will be brought to the design professional's attention



DAY ONE WARRANTY

- Final inspection performed on completed roof
- Manufacturer is responsible to the building owner for leaks from the date of substantial completion
- Roof system may not be modified after installation without the manufacturer's approval

DAY ONE WARRANTY

Owner's responsibilities:

- Notify manufacturer of leak
- Roof maintenance

ROOF OWNER'S MAINTENANCE MANUAL

PERSONAL SAFETY

WALKING ON ANY ROOF IS DANGEROUS. SAFETY MUST ALWAYS BE TOP PRIORITY WHEN PERFORMING MAINTENANCE ON YOUR ROOF SYSTEM. ALWAYS USE ALL FALL PROTECTION AND PERSONAL SAFETY EQUIPMENT REQUIRED BY OSHA AND OTHER REGULATORY AGENCIES. FAILURE TO FOLLOW THESE REGULATIONS CAN RESULT IN SERIOUS INJURY OR DEATH. YOU MAY ALSO BE SUBJECT TO SUBSTANTIAL FINES FOR NONCOMPLIANCE.

Always use extreme caution when walking on roofs with steep slopes, near roof edges, or on roofs that are wet or covered with ice or snow. Ensure that all maintenance personnel are adequately trained in safety procedures and that all safety equipment is in proper working condition.

When performing roof maintenance, always take the following precautions:

- Use fall protection and other safety equipment as required.
- Do not walk on roof flashings such as gutter, rake, hip or ridge flash.
- Do not walk on Light Transmitting Panels (LTPs). They will not support a person's weight.
- Guard all LTPs and roof openings.

a supporting roof structural protection with very little maintenance. However, no to keep your roof performing as it should, a

ANCE

following conditions occur:

roof area.
winds, hail or abnormally heavy rains or ice and on nearby trees, loose flashing or other roof component fasteners. After a hail storm, check roof for puncture heavy rains, check roof and gutters for ponding special firm conditions to insure that water is not g pipes for damage from moving ice. Check for fasteners by removing existing fastener. Apply er into hole.

Inspect the roof for damage caused by workers Galvalume coating, excessive foot traffic and punctures is removed from the roof immediately. Avoid areas where this is not possible, the roof must ch as drill shavings, wire, metal scrap and other metal, such as those left by a nibbler, can stick in a pf.

Roof panels in areas where there is a possibility of ctad. In the event that the panels do have a rd the panels instead. Should any solvent or oroughly rinse the affected area. Panels should be

membranes, plastic roof cement, etc. to the roof ice applied caulks and compounds will eventually between the repair material and the roof panel, lld be repaired by disassembling the metal joint and ed by roof punctures must be evaluated on an e replaced.

PROTECT YOUR ROOF INVESTMENT

Always consult the roof manufacturer before initiating repair work. The manufacturer can give you helpful information as to how to make the repair and can give you a list of "Certified Installers" in your area that you can contact about performing the repair work.

Foot Traffic

Keep foot traffic to a minimum. Heavy foot traffic can cause ponding on low pitched roofs. This is particularly true just upslope from the eave and at endlaps. Always walk in the flat of the panel near a supporting roof structural. Do not walk on trim or in gutters. On bare Galvalume roofs, excessive foot traffic may cause black burnish marks. If regular foot traffic is planned for a roof, provisions should be made for a properly designed and installed roof walkway system.

In order to limit access to the roof, roof hatches or access ladders should be locked at all times. A sign should be posted at the point of access, stating that only authorized personnel are allowed onto the roof. In addition, a log book should be kept of all visits to the roof and the reason for such visits.

Drainage

In order for your roof to perform as intended, water must properly drain from the roof. Following are things to avoid:

- Do not allow anything to be installed on your roof that will cause water to pond.
- Keep roof free of debris and keep debris out of gutter to allow water to quickly drain from roof.
- Do not use wood blocking to hold equipment off of panel seams. This blocks the flow of water and holds moisture. Also, if the wood is treated, it may contain salts or copper sulfate which will deteriorate the roof, and void warranty coverage.
- Do not allow water to cascade onto the roof from an adjacent roof.
- Do not allow rooftop AC units or evaporative coolers to drain onto the roof. The condensate from AC units contains dissolved copper ions which will cause galvanic corrosion. The water from evaporative coolers contains high salt concentrations which will cause severe corrosion. Use PVC pipe to carry the condensate to the gutter.
- Anything that traps or holds moisture on a roof, will cause premature corrosion.

Ice and Snow Removal

Excessive ice and snow should be removed from roof immediately to prevent damage to roof and possible collapse. Do not use metal tools to remove the ice or snow as this can damage the paint and/or Galvalume coatings. Also, be careful around plumbing pipes and flashings.

Be extremely careful if your roof has Light Transmitting Panels. THESE PANELS WILL NOT SUPPORT A PERSON'S WEIGHT AND WILL BE DIFFICULT OR IMPOSSIBLE TO SEE IF THEY ARE COVERED WITH ICE AND SNOW.

Additions to Roof

All additions to the roof, including but not limited to, roof curbs, pipe penetrations and HVAC units must be approved in writing by MBCI before work commences. All work must be performed by a MBCI "Certified Installer".

Dissimilar Metals

Never allow your roof to come in contact with, or water runoff from, any dissimilar metal including but not limited to: copper, lead or graphite. Failure to adhere to this requirement will cause your roof to rapidly deteriorate due to galvanic corrosion and will void all warranties. Common abuses of this requirement include: lead hats for plumbing vents, copper lightning rods and/or cable, copper trim, existing copper gutter that drains water onto your new roof, and condensate from rooftop AC units draining onto roof.

Paint and Coating Information

Remove smudge marks from bare Galvalume. Formula 409 has proven to be somewhat effective. Lightly rub with a clean cloth and rinse with water. Do not rub more than required to remove smudge. No product will remove all smudge marks.

Remove rust stains. Soft Scrub has proven to be somewhat effective. Lightly rub with a soft cloth and rinse with water. Do not rub more than required to remove stain. No product will completely remove rust stains.

To touch-up scratches in paint (not to bare metal), clean area to be painted with mineral spirits. Rinse thoroughly and dry. Using a small artist's brush, lightly apply the absolute minimum amount of touch-up paint required to fill the scratch. Use only touch-up paint supplied by manufacturer.

ADVANTAGES OF A *DAY ONE* WARRANTY

TEAMWORK

- All parties work toward the common goal of a roof with no leaks by providing:
 - Good roof geometry
 - Quality roof system
 - Useful details
 - A certified installer (manufacturer educated)
 - Installer accountability

THE DESIGNER'S RESPONSIBILITIES

- Determine and specify proper roof system for the roof geometry
- Avoid designs that prevent proper drainage
- Work with roofing manufacturer to obtain the best possible design
- Write good specs and police for accuracy
- Hold installer accountable through inspection reports and pay schedule

THE MANUFACTURER'S RESPONSIBILITIES

- Provide quality products that have been fully tested
- Work with designer to ensure that his/her objectives are met
- Suggest solutions where problems are identified or anticipated
- Provide acceptable details for all roof conditions
- Provide proper training to the roofing contractor in the installation of the roof system

THE ROOFING CONTRACTOR'S RESPONSIBILITIES

- Become certified in the manufacturer's product being installed
- Install roof exactly as shown on manufacturer approved shop drawings
- Fully comply with project specifications
- Immediately bring discrepancies to architect's and manufacturer's attention

SUMMARY

With a day one warranty, the manufacturer:

- Collaborates with both the designer and the roofing contractor to make their jobs easier
- Provides product knowledge accumulated through years of testing, research and roofing application
- Supplies technical support
- Provides accountability through roof inspections

THANK YOU FOR YOUR TIME.

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ARCHITECTS CONTINUING EDUCATION SYSTEMS
COURSE.

QUESTIONS?



OTHER AIA PRESENTATIONS BY MBCI

MBCI.COM/METAL-INSTITUTE

- Standing Seam Metal Roofing Seminar - 1 Hr
- Standing Seam Roof Design Details & Weathertightness – 3Hr
- Insulated Metal Panels – 1 Hr
- Retrofit Roof Systems– 1 Hr
- Retrofit Metal Roof Systems – Ensuring a Successful Project – 3 Hr
- The Devil Is In the Details – 1 Hr

