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Evaluating the Condition of Your Metal Roof

There are basically two types of metal roof systems, those that are connected directly to the roof structure where the metal panels also serve as the deck and those that are installed over a roof deck. If a single metal panel system is used, where the metal panels form the deck, any failure of the metal roof will immediately open up the interior of the home to wind and wind driven rain. Fortunately, most residential metal roofs are installed over separate roof decks and the vast majority of the roof decks are plywood or OSB sheathing.



Metal roof without deck. When the metal lifts off, the interior of the building is exposed

(click image for larger version)

Metal roof products designed for installation over a separate roof deck include:

- Standing seam metal roofs, where the edges of the panels and straps attached to the roof deck are rolled and pinched together using a seaming tool.
- Long panels that snap together along one edge and have anchor points for screws or nails on the other edge that are hidden by the snap on portion of next panel or an edge cap.
- Long panels that overlap and are anchored using screws that are driven through the overlapped portion of the metal deck.
- Panel systems where the panels are designed to look like tile or a variety of other products and are mechanically attached to the roof deck.



Standing metal seam roof
(click image for larger version)



5-V crimp metal roof with external fasteners - makes it easy to see how well the metal is anchored to the roof deck
(click image for larger version)



Metal roof made to look like tile
(click image for larger version)

Generally, all of these systems are installed over a simple underlayment system similar to that used for shingles. Consequently, if the panels are lifted off, the underlayment is easily damaged. Based on observations that metal roofs seemed to perform better in the hurricanes of 2004 and 2005, there has been a significant increase in metal roofs in many of the affected areas. Unfortunately, our experience with metal roofs is somewhat limited and it is difficult to accurately predict how these products will hold up in the long term. Consequently, we recommend that you consider installing an improved underlayment under a metal roof to give you backup protection from leaks if part of the roof is damaged.

The strength of **standing seam metal roofs** begins with the straps, their anchorage to the deck, and the spacing of the straps. The strength of the system can also be compromised if the middles of the panels begin to lift (the metal is thin and the flat part is frequently a foot or so wide). As the middle of the panel begins to lift, it will begin to open up the seams as shown in the photo of the laboratory test. It is not uncommon to find one or more panels that has lifted off a standing seam metal roof as shown in the photo below.



Standing-seam metal roof panels bowed up under about 30 pounds per square foot pressure applied to the bottom of the panels.

(click image for larger version)



Standing-seam metal roof with missing panels. Note shiny clips that are curled into the seam between the metal panels

(click image for larger version)

The 5-V Crimp and metal tiles are typically screwed directly to the roof. Typical damage of a metal tile roof is shown in the figure below and is frequently limited to the metal on the ridges.



Typical hurricane damage to metal tile roof

(click image for larger version)



Metal roofs can be slippery, particularly if they are wet. You can also damage the roof surface by walking on it with the wrong kind of shoes. If it is made to look like tile, slate, or some other type of dimensional roof cover, you may also dent the metal by walking on it.

As you read through the information on roofs, some of the terms used may not be familiar to you. You can click on [Roofing Concepts and Terms](#) to access a list of definitions that may be helpful.

Inspect the metal roof: Print out and use the [Checklist for Metal Roof Evaluation](#).

From the ladder at the edge of your roof: Look for damage to the metal surface including any gouges or holes, rusting of the metal or loss of paint or granules on the surface. Check the ridge and edge covers to make sure

that they are well anchored. Like tile roofs, damage usually starts along the ridges and edges.

From inside your attic: Go up to your attic and use a flashlight to inspect for stains caused by leaks. Look at the roof sheathing, rafters or trusses, and drywall. Look especially carefully around chimneys (including the area above the chimney where triangular diverters - crickets - are mounted above the chimney to divert water away from the chimney), and wherever the roof changes shape or slope. Also look for evidence of water on the walls and in the insulation around gable end vents. These signs that water probably entered during a thunderstorm is a good hint that water will enter during a hurricane.

Inside your house: Look for cracked paint, discolored gypsum board, and peeling wallpaper as signs of damaged roof areas. However, be aware that another cause of stains on a ceiling can come from air conditioning ducts that sweat, i.e. drops of water from condensation that forms on the ducts in a hot humid attic.

Also check the anchorage of Ridge Vents, Off-Ridge Vents and Turbines:

From the top of the roof: Check off-ridge vents to see if they are loose, check for fasteners anchoring turbines to the round duct that sticks up through the roof. Check to make sure that the round duct is secure. Check around all pipes that stick up through the roof. The flashing around the pipe should be sealed to the pipe with no gaps or cracks. Make sure that flashing around chimneys is not loose and is well sealed.

From inside your attic: Determine the spacing and size (length - do they go all the way through the roof deck?) of nails or screws used to hold down ridge vents, off-ridge attic vents, turbines, and any kitchen or bathroom vents that protrude through the roof. If longer nails were used and they stick far enough through the roof deck, you can improve the anchorage by clinching (bending over) the nails from inside your attic.

Get an Expert Opinion: If you are not able to make the inspection yourself, get a reputable roofer or home inspector to evaluate your roof. (Check with neighbors and friends for referrals and check with the Better Business Bureau).

Checklist for Metal Roof Evaluation

[What can I do about my metal roof?](#)

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