



Why Re-Coat a Metal Roof?

By Mark Robins, Senior Editor, Posted 02/04/2014

Re-coating saves time, energy, money, disposal, disruption, and extends roof life

A while ago, a company approached Doug Loomis, vice president of Conroe, Texas-based [Energy Coating Systems Inc.](#) with three roof problems he wanted to have fixed: leaks, corrosion and building temperature. Loomis specified the correct re-coating system and all three problems were remedied. "We applied a coating system to approximately 2 million square feet of their roofs," he says. "They became a good customer and recently gave us another 104,000 square feet to re-coat."

Owners of metal roofs must maintain their roofs on a timely basis. Re-coating allows them to do this. It's a cost-effective way to renovate and preserve the protective layer on metal roofs. "Recoating provides a sustainable, easy-to-maintain roofing membrane without the time, cost, disruption or safety concerns of tearing off an existing roof and replacing it," says Dan White, technical product manager at [APOC Roofing & Waterproofing](#), Long Beach, Calif.

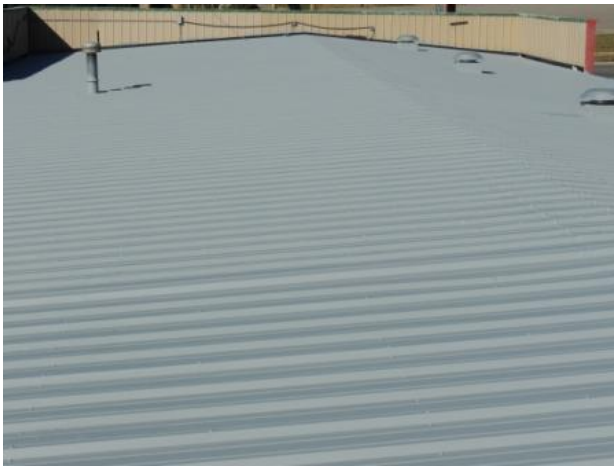




A sacrificial layer

Metal roofs can be re-coated for a variety of reasons. Initially, they have a factory finish coating that may be galvanized, or Galvalume finished steel panels or fluoropolymer-based paint such as Kynar 500. However, as metal panels reach the end of their designed life expectancy, their coating becomes compromised.

"Regardless of the original finish, long-term exposure to the elements will deteriorate the protective finish," says Bob Arnold, vice president and general manager of [Topps Products Inc.](#), Stilwell, Kan. "Rust will begin to form and over time will compromise the structural integrity of the roof, and negatively affect the aesthetics of the building. All metal roofs expand and contract with temperature fluctuations. This allows the seams to open up and lets moisture enter the building envelope. Proper repair compounds and re-coating products will restore a metal roof to like-new condition, using the original substrate as its base."



Joe Marzahl, metal product manager at Anoka, Minn.-based [Firestone Building Products](#) sees re-coating materials as a sacrificial layer protecting the material. "As long as they are maintained, panels will not be exposed to elements that cause rusting, and ultimately, panel deterioration," he says. "Advantages to re-coating a metal roof include long-term life cycle cost savings and a decrease in the volume of construction materials sent to landfills."

When the metal roof coating is chalking, fading or no longer looks appealing, re-coating can enhance the appearance of the building. A metal roof could be re-coated simply because the owner would like to change the color.

Also, "When a metal roof coating is peeling or there is surface rust, re-coating a roof will increase its longevity by increasing its corrosion resistance," says Michael Endredi, project engineer at [The Garland Co.](#), Cleveland. "Re-coating a roof is a less costly option than re-roofing for scenarios where the roof still functions, but lacks the appeal it once had and is in danger of corroding."

In addition to re-coating being an environmentally preferable choice by keeping waste out of landfills, it reduces the amount of energy consumed for tearing off old roofs, installing new roofs, transportation and manufacturing.

"Re-coating systems help extend the life of a metal roof, and that's money in the bank," says Kate Baumann, director of marketing and procurement at [Mule-Hide Products Co. Inc.](http://www.mulehide.com), Beloit, Wis. "Only positives come from restoring a coating on a metal roof and then maintaining that coating by re-coating the roof as necessary. An elastomeric acrylic coating acts like a shield, protecting the metal roofing system from the elements, including ultraviolet (UV) radiation, and ice and hail storms. It encapsulates existing rust, even if the roof is heavily rusted. It helps keep the roof weathertight by repairing leaks, cracks and seams. Re-coating also keeps the roof sound by moderating thermal shock that can elongate screw holes."



Re-coating considerations

Building size, shape and composition do not typically affect metal roof re-coating. "Most metal roofs can be re-coated," says Arnold. "Building size, shape and composition may have some effect on the preparation process; however a coating system conforms to all sizes and shapes of a properly prepared metal substrate."

Depending of the dynamics of the building or location, one of two methods-roller or spray application-will be the preferred re-coating method to yield desired results. Baumann believes

due to the irregular surfaces on metal roofs, airless spray guns are the most effective tool for cleaning their surfaces prior to coating, applying the primer and applying the finish coats. "Re-coating commercial metal roofs typically enhances functionality and restores the panels to offer additional service life," says Marzahl. "Coatings for commercial and industrial roofing are typically a component of a system that provides waterproofing. Metal roofs on residential applications frequently have a fluoropolymer-type coating offered in many colors."

In spite of its many redeeming and rejuvenating qualities, re-coating is not a miracle worker. A metal roof should be replaced if it has not been maintained properly and has deteriorated beyond what a coating renovation can sufficiently remedy. "A coating system would not be beneficial when the roof has deteriorated to the point that it is no longer structurally sound, metal panels have started to rust through- pin holing or worse-and/or multiple roofing panels need to be replaced," Arnold says. "Continuous attempts to repair the roof with improper or inferior products may also result in premature deterioration, requiring replacement over restoration."

How often?

Field-applied coatings are typically re-coated anywhere from five to 12 years after installation. But every roof

is different. A building's size, location and even its use can all have an effect on how long a coating system will last.

"Once coated, we recommend the customer have us re-coat every 10 years if they want to keep the leakproof warranty in effect," says Loomis. "This is optional and the coating will last many more years. The re-coat process-after initial coat-can cost close to half because we are just applying additional material (sustainable) without all the prep and seam sealing."

The quality of the coating, as well as its installation, could affect the life expectancy of the application. High-quality coatings with superior physical properties, such as high elongation, high-tensile strength, and low permeability, weather extremely well when correctly applied.

"Coating systems can be designed with varying lengths of service life so there is no one fixed time to re-coat," says George Daisey, research scientist at [Dow Construction Chemicals](#), Collegeville, Pa.

"Environmental conditions can affect re-coat time. Aggressive environments like coastal areas or warm/humid climates can wear on a coating quicker than a more mild environment, necessitating an earlier re-coat."

Energy savings and taxes

Re-coating a metal roof helps keep the building weathertight, which lowers energy consumption and costs. White roof coatings are highly reflective and can reflect up to 87 percent of the sun's damaging rays, helping to keep the building cooler. This "cool roof" lessens the building's environmental impact, decreases the urban heat island effect and enhances the comfort of building occupants. It also reduces the constant thermal movement of the roof that eventually leads to leaks in the roofing system. Typically, re-coating can reduce the surface temperature of a metal roof by 35 to 40 percent.



Baumann contends a white elastomeric acrylic coating can reduce the temperature on a metal roof by as much as 50 F and lower indoor temperatures by as much as 15 F, reducing energy consumption by 10 to 20 percent. "Energy is the single biggest expense for commercial building owners today, accounting for nearly one-third of operating costs, so the savings can be considerable," she says. For additional savings, metal roof re-coating, when used as part of an on-going maintenance program, may bring tax advantages to building owners. "One of the key advantages of a restoration system over a new roof system is in how it is classified by the IRS," says White. "Restoration is classified as maintenance and in most cases it can be expensed in the accounting period in which it is incurred. On the other hand, a new roof system is a capital asset that must be amortized over a 39-year life."

Understanding re-coating

To fully optimize re-coating, it is important to understand its systems, existing metal roof conditions, functionality requirements, re-coating's desired outcome and even its terminology. "When roof coatings initially entered the roof industry, it was common to see coatings referred to as just that: 'metal roof coatings,'" says Marzahl. "It is becoming more common to see metal roof restoration referred to as 'fluid applied metal roofing systems.' It is important to understand the difference. If panel protection or color change is the desired outcome, a re-coat is suitable. If the metal roof requires additional functionality because of high foot traffic, leak protection or rust, a fluid-applied metal roof system would be better suited." When trying to understand re-coating and ensure its success, Loomis suggests three actions are taken:

- Make sure the re-coating contractor is credible and reputable.
- Make sure the coating system manufacturer is also credible and reputable.
- If considering more than one contractor and/or coating system, don't automatically select the lowest price. A quality application with a quality product is always worth a little more.

Re-coating a metal roof could void any existing warranty on it. Always verify with your metal roofing manufacturer or roofing contractor for existing warranty coverage.

By following these tips and gaining a better understanding of re-coating, you'll improve your chance of maintaining your metal roof for years to come, and save time and tens of thousands of dollars in repair costs and downtime.

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Advantages of re-coating Expense:

Re-coatings save money over roof replacement
 Speed: Less work than a roof replacement
 Safety: Re-coating minimizes accidents, disruptions and downtime
 Dryness: Coating restoration doesn't expose building contents to leaks during roof replacement
 Cleanliness: Less dust and debris produced than a roof replacement, critical in plants and processing facilities
 Savings: Re-coating allows for an immediate tax benefit over roof replacement. *Information provided by [APOC Roofing & Waterproofing](#), Long Beach, Calif.*

Disadvantages of re-coating Preparation:

Re-coating requires time-consuming surface preparation
 Application: Improperly applied re-coating can decrease metal roof life
 Quality: Some inferior coatings get brittle with age, turn chalky or get hard
 Function: Re-coating cannot save a badly deteriorated metal roof

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Concerns about re-coating It is best to consider re-coating a metal roof only when the existing roof is sound and performing exceptionally well in other aspects such as weathertightness, corrosion of base metal and wind resistance. Some items that should raise concern with re-coating a roof are:

- Average or poor trim and flashing details
- Weathertightness that relies on exposed fasteners, neoprene gaskets, or exposed sealants
- Signs of corrosion of the base metal
- History of leaks and continual maintenance

For an existing roof that is experiencing one or more of these other issues, the life cycle value of a new, high-performance coating system may be drastically reduced by the impending failure or excessive maintenance costs of other aspects of the system.

Frank Resso, PE, director of R&D, [IMETCO](#), Norcross, Ga.