A Dynamic Duo: Coatings on Metal Roofs

By Steve Hurdak and Joe Raver

Current estimates of existing metal roof surfaces are as high as 45 billion square feet, which offers a significant market opportunity.

The use of metal roofs for garages and grain bins dates to the early 1900s. But it was not until the war years that construction of light-gauge steel buildings began to thrive. The Quonset hut, a corrugated metal shelter first developed by the military, was the predecessor to modern metal building systems.

Postwar sales of metal building systems were estimated to be $25 million in 1947. The figure escalated to $250 million in 1966 and reached $2 billion in 1996, according to the Metal Building Manufacturers Association. These figures imply that there are immeasurable amounts of inventory, machinery, computers, other office equipment, and personnel being sheltered by metal roofs.

Through daily exposure to the elements, older metal roofs that predate improved coating technologies used today may, over time, experience corrosion and leak problems requiring maintenance. This can be especially true of directly-attached roofs, which cannot expand and contract like standing seam roofs that are now more often used.

Like any roof surface, metal roofs should be inspected twice each year as part of a preventive maintenance regimen. Such inspections will identify problems, and, more importantly, potential problems, enabling contractors to develop a course of corrective action.

One effective, relatively inexpensive way to solve metal roofing problems is through the use of reflective roof coatings. When used with primer coats, patching cements, tapes and fabrics, these reflective coatings form a complete coating system. They can correct a variety of problems that may be an issue in maintaining metal roofs, such as:

- Heat transfer. Walls and roof so metal buildings may become hot and conduct heat to the interior. Reflective coatings are capable of reflecting 55% to 85% of solar energy. Roofs will remain cooler, since less heat is transferred into the buildings. A quality reflective coating can pay for itself in energy savings.
- Fasteners. Exposed fasteners can become loose because of the constant movement of the metal panels as a result of expansion and contraction. The effects of constant changes in temperature will be reduced by using reflective coatings. The subsequent reduction in temperature differential means less panel movement and less damage.
- Leaks. Many reflective coatings made today are good waterproofing materials. However, seams, fasteners and areas around protrusions such as vents, stacks, and HVAC equipment require special attention. Some coating manufacturers recommend using polyester cloth with their coatings and patching cements. Patching cements or mastics reinforced with a fabric mesh will seal all seams and probable leak areas. However, some contractors prefer self-adhesive tape systems top coated with patching cements for sealing a metal roof. They justify the more expensive tape systems with labor savings on installation of mastics and reinforcing fabrics, which is an acceptable alternative.
- Corrosion. Reflective roof coatings can be an excellent way to reduce and control corrosion. With existing rust, complete removal is recommended. A rust-inhibitive primer or asphalt coating may slow or stop the spread of rust.
- Noise. Another benefit is noise reduction. The sound-deadening qualities of a coating on metal effectively reduce noise from wind, rain, and nearby traffic.

Systems used in coating metal roofs are asphalt-based aluminum coatings and elastomeric coatings. Asphalt-based aluminum coatings have been the product of choice for years on metal roofs. However, with advances in acrylic technology during the past decade, elastomeric products have been steadily on the rise. Urethane coatings are now also used on metal roofs.

It is readily apparent from the above listing that there are numerous individual benefits to using reflective roof coatings on metal buildings. Viewed collectively, there is that most important benefit—increasing the life span of the metal roof. In other words, a quality reflective roof coating system is an excellent way to protect a metal building investment.

Steve Hurdak, *Kool Seal, Twinsburg, OH, and* **Joe Raver**, *SPM Therma-Shield, Custer, SD, are members of the Roof Coatings Manufacturers Association (RCMA), from whom this article was reprinted, with permission. For more information on the RCMA, phone 301-230-2501.*