

SOLAR GUARD

COATINGS



Extending a roof's life

*A variety of treatments can help prolong
the service life of a sound roof*

By Margaret Doyle, Associate Editor

A roof is a problem before it is a failure. Most building owners have faced roofs that leak or are showing definite signs of aging. However, there are treatments available that can extend the life of a roof before it actually needs a tear off or complete reroofing.

Of course, a roof that is in serious disrepair or is many years past its effective service life should be replaced with a new system by a qualified roofing contractor. But for those roof systems that are still basically sound and maintainable, there are options.

Resaturants

According to Ken Brzozowski, product development manager of roofing and waterproofing systems for the Koppers Company, Pittsburgh, Penn., resaturant coatings have been an important option for nearly 60 years as a means of extending the life of a built-up roof (BUR) system.

A resaturant is composed of unblown asphalt combined with fillers and penetrating oils. Normally the resaturant is spray-applied to a swept gravel roof surface.

The upper-most portion of a roof deteriorates the most rapidly and extensively because it is exposed to the most severe conditions. The application of a resaturant to a BUR's surface can rejuvenate the bitumen and restore many of its original properties, including cold flow, ductility, and flexibility.

Resaturants can also give flexibility and waterproofing properties to exposed dry and brittle felts. Through weathering and erosion, gravel surfacings can be scoured away, leaving a path for water penetration into the roofing system. Resaturants seal these exposed felts and restore their waterproofing properties.

The resaturants also seals over cracks and imperfections in the existing flood coat, giving additional thickness and water resistance to the roof. The natural aging of bitumen leads to the eventual erosion and cracking of the flood coat, the primary line of waterproofing defense for a BUR. Once the flood coat barrier is broken down, moisture can penetrate the ply structure, weakening the BUR assembly through wet/dry and freeze/thaw cycling.

However, resaturants are not unanimously approved by the roofing industry. Many roofing manufacturers do not recommend them as a temporary roofing solution or a maintenance option.

"You may get another year or two out of the roof, but the damage you do can be most costly," said John Busch, marketing manager for Manville Corp., Denver, Colo. "You may have to tear off the roof instead of just recovering due to the damage caused."

But Paul Mitchell Jr., marketing services manager for Tremco, Inc., Cleveland, Ohio, believes that the problems associated with resaturants lie not with the product, but with the contractor's ability to judge when a BUR can be enhanced by a resaturant.

Brzozowski agreed, pointing out that some restaurant manufacturers have been misleading in their marketing approach by making claims that are unsupported. "Some companies tend to be overly aggressive and specify an unneeded product," said Brzozowski.

According to Mitchell, a BUR should not be treated with a resaturant when the roof shows signs of extensive splits and blisters, or when the plies are deteriorated. Also, the roof insulation and substrate must be dry.

"A non-functional roof will not be functional after a resaturant is applied," added Brzozowski.

Besides acting as an effective waterproofing element, Mitchell pointed out other advantages of resaturants.

"A resaturant is economical because it is not labor intensive," said Mitchell. "The application is safe and can be done quickly, allowing non-disruption of the operation of a building."

Mitchell emphasized that a resaturant is just part of a maintenance system. Before the resaturant is applied, projection flashings, frame penetrations and walkways should be reinforced. Also, minor splits or blisters should be repaired with patching materials.

Polyester reinforcements

Another option available to extend the life of a roof is a polyester-reinforced system. Certain building code jurisdictions limit the number of times a roof can be reroofed to one or two. But many of these jurisdictions consider the polyester membrane application a maintenance procedure rather than an addition of another roof.

"Most codes in the U.S. restrict how many roofs you can put on before reroofing," said Richard Fricklas, director of the Roofing Industry Educational Institute, Englewood, Colo. "Polyester systems are popular because they are not considered a roof membrane."

The cold-applied elastomeric coating that can be used in combination with polyester reinforcement offers an elongation capacity unavailable with organic or fiberglass felts.

"Fiberglass has tremendous tensile strength," said O. Keith Kelloway, senior marketing specialist for the industrial products division of DuPont, Wilmington, Del., "but it does not elongate."

Polyester's high elongation capabilities allow it to survive the daily expansion and contraction of a roofing system.

"Also, polyester won't split," said Kelloway.

Because polyester is inherently hydrophobic, it is not affected by water. For this reason, it will retain its physical properties when wet and remain dimensionally stable during humidity changes. Polyester also resists damage from moisture, mildew and solvents.

"When used with various roof coatings you get a very waterproof system," said Kelloway.

According to Kelloway, a polyester-reinforced system is cost-effective because it can be cold-applied and easily installed by a small crew.

Polyester's light weight is a definite advantage when polyester mat is being applied directly to the roof in cold-process or hot systems. The lightweight fabric helps ease the burden of lifting and handling for contractors. According to Kelloway, ten squares of polyester can weigh as little as 14 pounds.

Acrylic roof coatings

An acrylic coating can also be applied over many roof types, including BUR, polyurethane foam, metal, concrete, or modified bitumen. The coating can be used to protect, restore and prolong the life of an aged existing BUR or other conventional roofing systems.

According to William A. Kirn, technical service manager for roof mastics at Rohm and Haas Company, Philadelphia, Penn., acrylic coatings are more than just paints. "They are membranes," said Kirn.

Technically, acrylic roof coatings are fully adhered, elastomeric, functional membranes formed in-situ on the existing roof. Acrylic coatings are extremely lightweight, adding virtually nothing to the load on the roof deck or supporting members.

Acrylic roof coatings maximize the durability of acrylics, and can be designed to be very flexible over a wide temperature range. Elasticity enables the coating to tolerate a roof's movement as it responds to the stresses caused by temperature changes, settling of the foundation, weight loads caused by ice and snow, and seasonal expansion and contraction of the roofing envelope.

Acrylic roof coatings are manufactured as either water- or solvent-based products, although specialized acrylic coatings are available for roofs experiencing ponded water conditions.

Acrylic coatings are advantageous because they can be formulated white, imparting reflectivity to the roof. Not only does this improve aesthetics, but it also provides a cooler roofing surface, lowering the demand for air conditioning.

"Just by changing the color of the roof from black to white you can realize reduced energy costs," said Kirn.

Kirn noted that if aesthetics is an objective, the coating can also be color tinted. This option is especially important for sloped or cap sheet roofs that can be viewed by passersby.

Acrylic roof coatings can be applied by spray, brush or roller. The easy installation process requires few men to perform the job, lowering the overall cost of the application. A quick water clean-up further simplifies the job. The coating can be maintained by the use of acrylic caulk or a touch-up of the coating.

Before considering reroofing, an owner should carefully examine the condition of his roof and investigate the maintenance options available. If a roof is sound and maintainable, it may be worth saving.