RCMA ROOF COATINGS MANUFACTURERS ASSOCIATION

COATINGS TECH NOTE

USE OF PRIMERS PRIOR TO ROOF COATING

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Primers are designed to prepare the roof surface to accept a coating and improve the overall adhesion of the coating to the roof substrate. Typically, they exhibit low viscosity and are formulated to quickly wet the substrate in a thin layer and, when cured, to leave behind a thin film acceptable for receiving a coating. Primers are available in a variety of binder and solvent combinations, and the type of primer used in a particular application will be based upon the substrate, weather conditions, and the type of coating being applied. A decision to use a primer should not be made without consulting the manufacturer's requirements for the specific coating and substrate.

A primer is never a substitute for proper roof surface preparation. The substrate should be clean and dry prior to coating. Dust, chalking film, bitumen exudate, greases or oils and other loose debris may interfere with the primer's ability to bond to the substrate and should be cleaned off the roof prior to the application of coatings. Any required roof or flashing repairs should be completed and allowed to be adequately cured.

Substrates which generally require a primer to prepare the surface to receive a coating include:

- metal flashings,
- gravel stops, and other metal edging.
- concrete and masonry roof decks,
- masonry walls and floors,
- gypsum and other porous surfaces.

In addition, certain roofing substrates may require priming to not only promote coating adhesion, but to prevent the substrate from negatively impacting the performance of the coating. Common examples include:

- rust inhibitive primers are often used to prevent flashing rusting from blooming through the surface of a water-base coating and,
- "bleed" blocking primers used to prevent the lighter fractions of some bitumen roofs from staining white elastomeric coatings.

Although water-based asphalt primers can be applied to damp (not wet) surfaces, primers are generally applied to clean dry surfaces. Application of the surface coating should occur soon after the primer has been applied and cured, to ensure the desired results.

The following are some general guidelines regarding the application of primer to specific substrates which are useful to consider:

Asphalt Roofs

Asphalt roofs, such as smooth-surfaced built-up or modified bitumen membranes, and granulated cap sheet contain light oils, called exudate that can diffuse out of a membrane soon after its application. This process, called “tobacco juicing” is normal and the exudate will generally wash off the roof after rainstorms. Any exudate on a roof should be thoroughly cleaned prior to coating application according to manufacturer’s recommendation. Special primers designed to inhibit the exudate from bleeding through to the fresh coating may be required prior to the application of light-colored elastomeric coatings.

Glaze-coated built-up roofing can also release exudate. In addition, the glaze coat, if not reinforced, will crack or “alligator.” One method to reduce this effect on new roofs, or to cover existing cracks in the glaze-coat of older roofs is to prepare the roof with a layer of fiber-reinforced asphalt emulsion coating prior to the application of a reflective or protective coating. On old, weathered asphalt roofs, many coating manufacturers recommend the use of an asphalt primer after cleaning the membrane to prepare the surface for coating.

Note: As with any substrate, if in doubt perform a test patch to ensure proper adhesion of the primer. Ensure your primer is compatible with both the substrate and coating.

Metal Roofs

Today, several different types of factory-finished, metal roofing panels are available in the marketplace. These include galvanized, fluoropolymer-based (PVDF) and siliconized polyester-based prefinished aluminum and steel and even granule surfaced metal shingles. Depending on the factory-finish of the metal panel, the coating to be used, and the weathered condition of the panel, a primer may or may not be required, prior to coating application.

Primers are generally recommended before applying a surface coating to a galvanized metal roof, regardless of whether the roof is new or old. Special primers are made for both asphaltic and elastomeric coating applications over galvanized metal roofing. Certain rust-inhibitive primers, such as zinc-chromate-based primers may be incompatible with some coatings. Therefore, guidance from the coating manufacturer should be sought. As

mentioned previously, applying a primer does not replace the necessary surface preparation steps such as eliminating rust and scale on weathered metal roofing.

Coal Tar Roofs

In general, coal tar roof coatings are considered self-priming, and do not require primer application prior to using a coal tar coating or resaturant. With the advent of modified tar roofing membranes and systems, there may be a requirement to apply a reflective surface coating. In these instances, priming may be necessary to achieve the desired results. It is important to consult the manufacturer to obtain specific recommendations and guidance in these circumstances.

Previously Coated Roofs

The application of a field-applied coating offers a significant advantage in the recoating of existing surfaces, thereby directly contributing to the reduction of life cycle costs associated with roofing assemblies. Because coatings have a finite service life, recoating will be necessary after the existing coating has weathered and is no longer providing useful protection to the surface. Depending on the type of existing coating and the extent of weathering, it may be necessary to prime the surface prior to applying a fresh application of roof coating. Below are some suggested guidelines to consider for various weathered roof coatings. As previously noted, none of these recommendations precludes proper surface preparation.

Asphalt Coatings

Refer to Asphalt Roofs above for guidance.

Asphalt Aluminum Coatings

When coating an existing aluminum coated roof with a water-based coating, including acrylics, priming may be necessary, because the chemical treatment used on the aluminum pigment can interfere with adhesion. Contact the coating manufacturer for instructions.

Acrylic Coatings

On roofs with an existing layer of acrylic coating, primer may be required prior to application of new coating. The use of primer, as well as the type of primer selected, will be largely dictated by the age and condition of the existing acrylic coating.

Silicone Coatings

In general, only silicone-based primers and coatings should be used over existing silicone coatings, since adhesion to silicone is difficult. Whether or not a primer is

required prior to recoating will depend upon the condition of the existing silicone-based coating.

Contact the coating manufacturer for instructions.

Sprayed Polyurethane Foam (SPF) Roofs

SPF roofing is coated immediately after installation to protect the SPF from ultraviolet degradation. Therefore, primers are not generally required in this application. When recoating an SPF roof, determine the type of coating that has been used previously and refer to the section above on **Previously Coated Roofs**.

Single Ply Roofs

A variety of elastomer based, single ply roof membranes have been used in the industry, including PVC, CSPE, CPE, TPO and EPDM. Because each of these types of elastomer membranes exhibit unique coating challenges, specific primers and/or primer/washes may be required prior to coating. If coating is an option, contact both the membrane manufacturer and coating manufacturer for advice and guidance.

Concrete

Prior to coating a concrete surface, the concrete must be clean and dry. Loose concrete should be removed or repaired before coating. A primer is used on concrete to seal the pores of the concrete and aid in the adhesion of the coating. The coating manufacturer should be contacted for a recommended primer. If a release agent or curing compound has been used on the concrete surface, inform the coating manufacturer, as these may inhibit the adhesion of the primer and coating.

In conclusion, choosing the right primer for the specific roof substrate is crucial to achieving optimal adhesion and performance of roof coatings. Proper surface preparation, including cleaning and repairing the substrate, is essential before applying any primer or coating. Always consult the coating manufacturer for specific recommendations and instructions to ensure compatibility and the best results for your roofing project.