



COATINGS TECH NOTE

Advantages and Limitations of Acrylic Roof Coatings Considerations for Building Owners

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Acrylic roof coatings refer to a liquid-applied, monolithic (seamless), fully adhered, elastomeric membrane that's formed in situ on the roof. These coatings are applied 5 to 10 times thicker than regular house paint. Typically, the thickness of exterior house paint is 3 mils or 0.003 inches (0.076 mm), compared to acrylic roof coatings, which are applied at 15 mils (0.38 mm) to 30 mils (0.76 mm). For comparison, a standard sheet of paper is approximately 3 mils (0.076 mm) thick. Acrylic coatings are applied as a liquid, and as they dry, they form a tough, seamless monolithic membrane that fully adheres to the substrate.

Acrylic roof coatings have emerged as a popular choice for building owners looking to improve the durability and performance of their roofing systems. They are cost-effective and easy to install. These coatings are advantageous because they help extend the roof's lifespan and enhance the energy efficiency of a commercial building. They are low in volatile organic content (VOC) and clean up easily with soap and water. However, like any material, they come with their own set of cautions that must be followed carefully before application.

Not a paint

An acrylic roof coating looks like paint in a can but is slightly thicker in viscosity, yet has adequate flow properties to still be brushed, sprayed, or rolled like house paint. However, typical paint does not have the same resistance to water, reflectivity, flexibility at low temperatures, ability to expand and contract, or resistance to foot traffic. An acrylic roof coating, on the other hand, requires these properties. Your roof sits on a relatively horizontal (low-slope) surface, tolerating many weather conditions, building stresses, and water contact for an extended time that house paint cannot resist.

Cost-Effective

Acrylic coatings are typically the least expensive roof coating option, providing a budget-friendly solution with good quality. They are durable, helping to reduce your carbon footprint, while also lowering energy consumption and maintenance costs over time.

Ease of Application

Since they are waterborne and single-component, acrylic roof coatings do not require two-component mixing and are easy to apply. They can be applied like house paint using a spray, roller, or brush. Clean-up is straightforward with water. They can be applied quickly, ensuring minimal disruption to daily operations. As expected, the drying time varies with the weather. If the humidity is low, as in Phoenix, AZ, the coating dries in under two hours. If the humidity exceeds 85%, as in Florida, it will take much longer.



UV Protection

Acrylic roof coatings are usually white but are available in other colors. The high reflectivity of white acrylic roof coatings makes them excellent at resisting the harmful effects of the sun's rays. This white color also reflects as much as 85% or more of the heat portion of sunlight, minimizing the impact of the sun on the roof surface and reducing heat transfer into the building. This can lead to substantial cooling cost savings during warmer months and, along with proper maintenance, helps extend the life of the roof system.

Limitations of Acrylic Roof Coatings

There are limitations to these waterborne acrylic roof coatings. They can provide some restoration to an aged roof. However, if the roof is too badly deteriorated, wet internally, or if the deck is rotted or badly corroded, the coating will not perform as intended and should not be applied.

Ponding Water

All roof systems require proper drainage, and for acrylic roof coatings, this is critical. Since they are water-based, ponding water could accelerate their degradation and negatively impact the longevity of the acrylic coating. If you anticipate water ponding as an issue for your roof system, you may want to consider alternative coatings. However, with adequate drainage, there is no issue.

Temperature Sensitivity

These coatings should not be applied when it is extremely cold. Water freezes, so there are limitations on the time of year when you can apply the coating. Your contractor needs to be aware of the overnight temperature. It might be 66°F (19°C) as the expected high for the day, but if the coating is applied in the late afternoon and the temperature is going to drop to 25°F (-4°C), there may be a serious problem with freezing. Once the coatings have properly cured, they will perform well in these colder temperatures.

Environmental Factors

Similar to all materials, acrylic roof coatings degrade over time due to weathering (UV, rain and temperature). This may lead to a loss of thickness over time. Proper maintenance and roof inspection should mitigate the impact of weathering.

In conclusion, acrylic roof coatings present a viable option for building owners seeking a balance between performance and cost. Their reflective properties and ease of application make them an attractive choice for many commercial roofing projects. However, it is imperative to consider the potential drawbacks, such as issues with ponding water and temperature sensitivity, to ensure the longevity and effectiveness of the coating. Consulting with a roofing specialist can provide valuable insights and help determine if acrylic coatings are the right fit for a specific roofing structure.

For more detailed information on the features and cautions of acrylic roof coatings and other coatings, building owners may contact the RCMA or manufacturers of various coatings.

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Roof Coatings Manufacturers Association

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