

THE Weather:

How Application Conditions Affect Latex Paint Performance

If it isn't already on your pre-job checklist, add this item: Check weather forecast. Why? Because the weather conditions under which you apply exterior latex paint can have a dramatic impact on performance...initial and long term.

You need, of course, to plan around predicted rain for obvious reasons. And most painters are familiar with the guidelines about painting after rain; namely, the capability of latex paints to be applied before the surface has dried 100%, and the need to apply oil-based and alkyd coatings only after the surface has thoroughly dried.

There are, however, a number of other weather-related factors that also must be taken into account, including temperature and drying time.

TEMPERATURE

As described in the article on page 8, the binder in latex paint consists of microscopic particles of polymer that need to fuse together when the paint dries to form a tough, continuous film. Improper weather conditions can interfere with this process.

For example, if the paint is applied at too low of a temperature, the binder particles may become too hard to fuse into a continuous, durable film. This is because binder particles are thermoplastic, meaning they tend to get harder at lower temperatures, and vice versa.

This is the main reason why paint manufacturers specify a minimum application temperature (typically 50°F) for latex products, and why it is essential that you only apply the paint at or above the minimum for that product. Ideally, you should not apply the paint unless the temperature is predicted to stay above that minimum for the next 36 hours.

Remember, too, that the minimum recommended temperature refers not just to the air temperature, but also the temperature of the surface being painted. This is particularly important for the north side of a home or building, which gets less sun than other sides. The surfaces there may be colder than the air temperature, particularly early in the day.

Failure to follow these guidelines can cut years off the life of a paint job. Incomplete film formation, for example, can result in a paint film that fails by cracking or flaking in just a few years or less. ■



| THE "PERFECT" DAY TO APPLY EXTERIOR LATEX PAINT | | | |
|---|---------------------|-------------------|-----------------------------------|
| Temperature | Relative Humidity | Wind | Sky |
| Between 60°F and 85°F | Between 20% and 80% | Little or no wind | Slightly overcast (no direct sun) |

DRYING TIME

Film formation and durability can also be affected if latex paint dries too quickly. That's because fusion or coalescence of the latex binder takes some time to occur properly. Very quick drying can reduce the mobility of the particles before the film is adequately formed. Conditions that make latex paints dry too quickly can thus compromise film formation, even though the paint may look fine.

SURFACTANT LEACHING

Another situation influenced by the weather conditions under which a latex paint is applied and dries is a phenomenon known as surfactant leaching.

Also called streak staining, water-spotting, and weeping, surfactant leaching refers to a concentration of waterborne ingredients on the surface of a latex paint that creates a blotchy appearance, often with a tan or brownish cast.

While surfactant leaching usually has no adverse effect on the long-term durability of paint, it can temporarily affect the appearance of a job before it naturally weathers off in a month or two. Because it can impact a job, you should understand its causes to help avoid its occurrence.

All exterior latex paints contain some waterborne ingredients, such as glycols, surfactants and thickeners. All of these eventually come out of the paint film as it weathers, usually over the first several weeks of exposure.

However, if the paint is applied in cool, humid conditions that retard drying, a large proportion of these ingredients can migrate to the surface of the paint as it dries, or shortly thereafter. There they typically appear as shiny streaks or blotches.

To minimize the possibility of surfactant leaching, avoid painting late in the day, especially in the spring and fall when cool, damp conditions are expected in the evening or overnight. Also, avoid painting just before it rains.

Remove Carefully

While surfactant leaching will normally weather off, you may find that immediate attention is required. If so, keep in mind that for the first few days, the resistance properties of the paint will not yet be fully developed. As a result, any immediate cleaning must be done carefully and with plain water. Careful hand cleaning with a sponge is sometimes effective.

Power washing in the early days of the job may remove the paint and should not be used. Power washing (use plain water) can be considered after a week's dry, but even then, proceed carefully and test inconspicuous areas first to be sure the integrity of the paint isn't affected. Immediate repainting is an uncertain solution, since any remaining surfactant leaching may interfere with adhesion of the new paint.

Conditions that contribute to overly fast drying of exterior latex paint include:

- Painting when the temperature is too high. Avoid painting in temperatures over 95°F.
- Painting in direct sunshine. Even on a moderate day, it is best to avoid painting in direct sunshine because surface temperatures can be 10 to 20 degrees higher than the air temperature. And the paint itself can be heated by direct sunshine, especially if it is a dark color. To avoid this, work your way around the house or building so that you are always painting in the shade, especially in the warmer afternoon hours. As a bonus, you'll be more comfortable working this way. Where this can't be done, try to paint these areas in the early hours of the day.

• Painting in dry and/or windy weather. Even light wind can cause latex paint to dry very quickly, contributing to inadequate film formation. This effect is compounded when the relative humidity is low, below 20%.

• Painting a very porous surface that absorbs the water from the coating. If painting porous masonry, apply a sealer first. Or, if using a 100% acrylic paint, dampen the masonry just prior to painting. This will retard the drying process.

If possible, avoid painting when more than one of these conditions that could excessively speed drying is present. Only in that way will your customer benefit from the full protective capability of the paint.