



STUCCO & MASONRY

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Seasonal Variations in Stucco Application

Weather has a significant effect on the application requirements of stucco in both a macro (seasonal) and micro (daily) basis. Factors contributing to these effects are: temperature, humidity, wind speed, solar exposure.

From the macro viewpoint:

Every plasterer knows that stucco mortar takes longer to set in the winter, cooler months, than it does in the hot, humid summer of Florida. Because this alone can have a detrimental effect on schedules, a few Florida manufacturers tweak their initial set times for their product during the production phase. They speed the mud up a bit in winter and slow it down some for the summer. Most, however, do not; simple

because there is not a significant difference between north and south Florida for extended periods of time (weeks/months) and the manufacturers have no control over the rotation of in-stock products at the distributor level. In theory, retarding set times for summer can help the mortar to keep moisture longer, thereby slowing the shrinkage characteristics of the mud and assisting in preventing shrinkage cracks. In reality, the cost incurred by the manufacturer to change a few minutes either way is prohibitive and aggravates the aforementioned distribution issue.

In Florida, however, the most problematic time of year is late winter to early spring (February through May). These few months generally offer us very low humidity and high winds. The combination of these two factors can be more important than the heat of summer alone.

We have very little rainfall through this period and high, dry winds that virtually suck the moisture out of the cement. This creates two distinct and problematic scenarios for the plasterer.

Stucco cement is hydraulic in nature, meaning that water is the catalyst for the chemical reaction that makes the cement get hard or cure. At the same time, losing the volume of water in the mix too rapidly will exceed the mortars tensile or elastic properties resulting in dry-shrinkage cracking. This is why it is important to keep the fresh plaster moist during its curing process. In fact, the ASTM Standard, C926, "Specification Standard for Application of Portland Cement-Based Plaster" specifically requires dampening successive coats and keeping the completed wall wet for several days following installation. Doing so will also enhance the curing process and render the plaster ready for paint much quicker.

Heat speeds up this chemical reaction which is why stucco sets faster in summer. Though the cement is setting faster, we are also having higher humidity and more precipitation which keep moisture in the cement thereby reducing crack potential and enhancing the cure.

Wind, on the other hand, is a desiccant. It increases the evaporation rate of the moisture in the cement and rapidly reducing the volume of the mix. Therefore, in months with low humidity and precipitation and high winds, we see many more shrinkage and early dry-out problems. These are the worst possible conditions for stucco and require fogging of the plaster coat much more frequently than would be necessary in the summer months. It is common at this time of year to get "soft" stucco. This is the result of the plaster losing its moisture content before it has a chance to hydrate. If the stucco has not yet been painted, you can simply wet the wall down several times a day for a few days and it will most likely finish curing and harden. However, if the stucco has been painted, wetting the wall may be futile depending upon the type of paint.

Exterior coatings have a Perm Rating (permeability). The higher the number, the more permeable the coating. Latex paints are usually high enough to allow sufficient moisture to penetrate so that the soft stucco underneath can finish curing. Acrylics and Elastomerics should be checked for their permeability ratings. If the rating is under 15, the likelihood is that not enough moisture will penetrate the coating to satisfy the stucco. In any case, you may experience alkali burn. For more information on this topic see the In-Spex Tech Bulletin, "Stucco & pH."

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