

TECHNICAL BULLETIN #2

MOIST CURING OF PORTLAND CEMENT PLASTER

Moist curing refers to the process by which moisture is either retained or added to plaster as a means of controlling drying conditions. Moisture is a key ingredient in the hydration of Portland cement plaster creating strength and durability. The need for adding moisture must be determined on a job by job basis.

The most critical period for moist curing of exterior Portland cement plaster is the 48 hours immediately subsequent to the application of both the scratch coat and the brown coat, a fact noted in building codes. The need for the scratch coat to moist cure and the relatively short period of time between scratch and brown should not alter the fact that the surface of the scratch coat must be sufficiently rigid to properly receive the brown coat.

It is recommended that a fine fog spray of water be applied as frequently as required, generally twice daily in the morning and evening to exterior Portland cement plaster when hot, dry conditions are present during the first 48 hours of the curing stage. Soaking the plaster with water during this period is not necessary and could cause erosion damage. When conditions exist that promote water retention in plaster, application of a fog spray of water to aid in moist curing may not be necessary. According to ASTM C926, Section X1.4.2.4 "...if the relative humidity is relatively high (above 75%) the frequency for rewetting a surface may be reduced. If it is hot, dry and windy, the frequency of rewetting must be increased." Such conditions as low temperature and building/wall orientation that protects plaster from elements that cause rapid drying may also make fog spraying water unnecessary.

The addition of admixtures in the plaster mix design that foster moisture retention can also lessen the need to fog spray additional water during the curing stage. Acrylic-modified Portland cement plaster often requires air curing, *not moist curing*. It is important that for each individual mix design the specific manufacturers' requirements and recommendations be understood and followed so as to produce optimal results.

As the plaster brown coat sets and cures prior to the application of the finish coat, shrinkage cracks will develop. These cracks are the result of volume loss that occurs as moisture in the plaster is reduced through evaporation and absorption. Shrinkage cracks (not to be confused with structural cracks) often are small, short and centralized in the wall or panel and normally are filled with the application of the finish coat.

Fog spraying water onto a Portland cement stucco finish coat can lead to color and appearance irregularities and is rarely recommended except in extremely hot, dry, windy conditions.

Portland cement plaster continues to cure and gain compressive and tensile strength long after the period for moist curing. Products such as paint and sealers applied over plaster can limit the amount of moisture the plaster receives and should only be used after consideration of the long-term nature of the curing process for Portland cement plaster.

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Our industry is of the opinion that Portland cement plaster should have a minimum of 10 – 14 days to adequately cure before application of the stucco finish coat. However code states only a minimum of 7 days elapse before applying the finish coat.

*The words stucco and plaster are used interchangeably in this document

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