Associated Plastering & Lathing Contractors of San Diego

TECHNICAL BULLETIN #1

CRACKING IN PORTLAND CEMENT PLASTER

Stucco, make up of sand Portland cement, and water is a protective coating but is not of itself a waterproofing product. The lathing paper which is applied behind the plaster acts as a water barrier allowing any water which penetrates the plaster skin to run down the paper and out through the weep screed at the bottom of the stucco.

Portland cement plaster is applied in the form of wet mud which then slowly dries to a hard protective coating. This coating will develop cracks if it is subject to stress greater than the strain capacity of the plaster material. In the process of hydration and the subsequent loss of free moisture of mix, stress is generated through the shrinkage of the plaster material. This stress can lead to cracking of the plaster skin.

In addition to shrinkage stress, stress may be generated from other causes such as:

A. Stress transfers from the structure
B. Thermal shock
C. Wind, seismic, vibration or impact stresses
D. Warping and twisting of underlying wood framing or sheathing
E. A blow from an external source

It is not possible to control stress and thereby eliminate cracking in Portland cement plaster. Indeed, hairline cracks are the rule rather than the exception and will frequently be found radiating out from corners of doors, windows, and other openings in the plastered surface. These hairline cracks in no way compromise the integrity of the plaster coat nor shorten the useful life of the product. Patching of hairline cracks is not recommended as it will detract from the natural beauty of the stucco and will serve no useful purpose.

Drying time is a factor in the development of cracks. While the UBC allows the application of the finish coat seven days after the brown has been applied, the ideal curing time is a minimum of fourteen days to allow the normal hydration cracks to develop and break through the finish coat.

The type of finish selected affects the visibility of hairline cracks. Cracks are most noticeable in smooth finishes and sand finishes. The more textured finishes such as Spanish lace, frieze, or Arizona tend to camouflage cracks so they are rarely noticeable.

To repair excessive stucco cracking on existing walls, the APLC recommends the application of a base and mesh system also known as a lamina system. This system is designed to mitigate surface cracking in the new and existing plaster systems by integrating woven fiberglass mesh into a polymer modified base coat prior to applying the finish. When properly applied the mesh reinforces the stucco and helps reduce the appearance of cracking. Follow the manufacturer's recommendations.

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