

TECHNICAL BULLETIN

Cracks in Cement Plaster (Stucco)

In this bulletin we discuss some common causes of cracks in Cement Plaster (Stucco) as well as recommended measures that can limit the extent of cracking in Cement Plaster (Stucco) wall systems.

Northwest Wall and Ceiling Bureau, a leading resource for plastering information, clearly states: "Cement Plaster (Stucco) is a Portland cement product, and, as with all Portland cement products it is susceptible to the occasional crack no matter how good the installation."

Several conditions can lead to cracking. Thermal expansion and contraction generates stresses in Cement Plaster (Stucco). Proper placement and installation of control joints can help alleviate the effects of these stresses. Other stresses on the stucco wall can result from excessive loading on walls, impact, vibration, building settlement and movement. In wood-framed construction, additional stresses result when framing members twist, warp and bow within the wall assembly while drying. Such stresses exert themselves at locations in the stucco where strength and resistance are insufficient to prevent a break in the stucco.

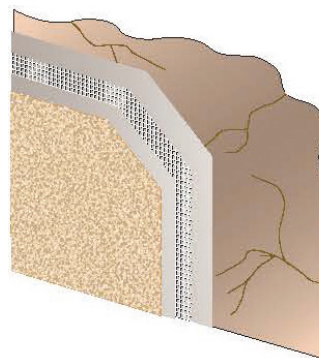
The most common cracks in Cement Plaster (Stucco) form at the corners of doors, windows and other penetrations. According to the Stucco Manufacturers Association, "Minor cracking at the corners of doors and windows and other stress points is reasonable and should be anticipated."

In addition, "shrinkage cracks may develop as the excess water evaporates from the drying cement mix. Shrinkage cracks can occur very early on and cannot be seen after the finish coat is applied. Hairline or egg shell cracking or checking in the finish coat is also the result of rapid drying, most commonly occurring on hot, windy days." It is important to understand that cracks of this kind are not indications of substandard plasterwork or materials, and should not lead to assumptions that the stucco will not perform properly.

Although it is beyond the scope of this Technical Bulletin to cover all potential causes of Cement Plaster (Stucco) cracks, the following are in addition to those provided above and some of the more common:

- Improper location or lack of properly installed expansion/control joints.
- Improper spacing/gapping of wood based sheathings as required by the APA (American Plywood Association).
- Improper loading of the roof and structure prior to the lath installation.
- Installation and/or loading of interior drywall after the Cement Plaster (Stucco) installation.
- Failure to properly moist cure the stucco for the first 48 hrs after application as required.
- Installation of the lath or plaster base outside of required ASTM C1063 or C1787 guidelines.
- Failure of the wall to meet the required deflection criteria; maximum of L/360.
- Improper mix ratios of the Cement Plaster (Stucco) mix; i.e. cement rich or excessive sand in mix.
- Application of the finish coat before the base coat has properly cured.

SikaWall Stucco Resurfacing Systems are designed to help reduce the appliance of hairline cracks in stucco systems. This method of installation involves the application of a fiberglass reinforcing mesh embedded in an acrylic polymer modified cement base coat over the entire, properly cured cement brown coat. For additional information, reference Technical Bulletin "*Procedures for Repairing Stucco.*"



Sika manufactures a variety of high quality, Cement Plaster (Stucco) products which can provide long lasting exterior finish options for a wide variety of applications. It is important to understand that Sika does not warrant against cracking in Cement Plaster (Stucco). Should questions arise regarding the presence of cracks in Cement Plaster (Stucco), Sika recommends engaging a qualified engineering firm for further investigation.

For additional information regarding this or other stucco-related topics, the following resources are recommended:

- Portland Cement Association (www.cement.org)
- Northwest Wall and Ceiling Bureau (www.nwcb.org)
- Stucco Manufacturers Association (www.stuccomfgassoc.com)

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