

## Cracks in Cement Plaster Stucco

TECHNICAL BULLETIN

In this bulletin we discuss some common causes of cracks in cement plaster stucco as well as BASF Wall Systems' position regarding 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, and 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.

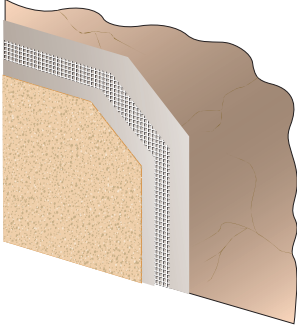
The most common crack in cement plaster stucco is the one that forms at the corners of doors, windows and other penetrations. According to the Stucco Manufacturers Association, "Minor cracking at the corners of doors and windows and other stress points is reasonable and should be anticipated."

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 color coat is applied. Hairline or egg shell cracking or checking in the finish color 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 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.

**A method of application exists that may reduce the occurrence of cracks in a cement plaster stucco system.** 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. This application requires an acrylic-based textured finish coat.



Contact BASF Wall Systems' Technical Department for more complete application information.

BASF Construction Chemicals LLC 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 BASF Construction Chemicals, LLC does not warrant against cracking in cement plaster stucco. Should questions arise regarding the presence of cracks in cement plaster stucco, BASF Construction Chemicals LLC would recommend the involvement of a qualified engineering firm for further investigation.

For additional information regarding this or other stucco-related topics, BASF Wall Systems recommends the following resources: Portland Cement Association ([www.cement.org](http://www.cement.org)), Northwest Wall and Ceiling Bureau ([www.nwcb.org](http://www.nwcb.org)) and the Stucco Manufacturers Association ([www.stuccomfgassoc.com](http://www.stuccomfgassoc.com)).

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#### NOTE

BASF Wall Systems is an operating unit of BASF Construction Chemicals, LLC. (herein after referred to as "BASF Wall Systems").

#### RESIDENTIAL POLICY

Apply wall systems in accordance with local building codes in force at the time of construction. On one and two-family residential framed construction, BASF Wall Systems requires that the wall system selected be one that includes provisions for moisture drainage. Please view the Acrocrete Residential Policy Bulletin on the Acrocrete website for a more detailed discussion of this topic.

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