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Felt Tips

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EFFLORESCENCE IN MASONRY CONSTRUCTION

"Technical Tile Notes on Brick and Tile Construction" No. 23 "Efflorescence-Causes" and No. 23A "Efflorescence Prevention and Control" present a thorough and detailed explanation of these conditions.

Efflorescence may be defined as water soluble salts migrating to the surface of the masonry unit and being deposited by evaporation. The salts most commonly found in masonry construction are sulfate and carbonate compounds of sodium, potassium, calcium, magnesium, and aluminum.

Salts contributing to efflorescence may be found in the facing unit, the back-up materials, mortar or chlorides in admixtures for mortar.

The presence of salts in brick may be detected by the "Wick Test" described in ASTM C67 "Standard Methods of Sampling and Testing Brick."

In protecting from efflorescence, the presence of .01 percent free alkali in cement appears to be the desirable limit. Since ASTM C91 "Standard Specifications for Masonry Cement" allows water soluble alkali to be present in amounts not greater than .03 percent and ASTM C150 "Standard Specification for Portland Cement" gives various percentages of chemicals allowable, it is apparent that some manufactured cements can meet ASTM Specifications and still contain excessive quantities of free salts.

Moisture, the vehicle of efflorescence, can be controlled by careful attention to detail such as: flashing under copings, spandrel flashing, weep holes and back parging.

Masonry units and mortar materials should be stored in a manner to prevent contact with the ground and covered for protection from rain and snow.

Walls under construction should be covered to prevent moisture saturation.

Efflorescence can only be prevented by thorough attention to all details ranging from selection of materials, methods of design and care in installation. Lack of attention to any one of these conditions may develop the weak link causing a problem that is virtually impossible to eliminate after its appearance.