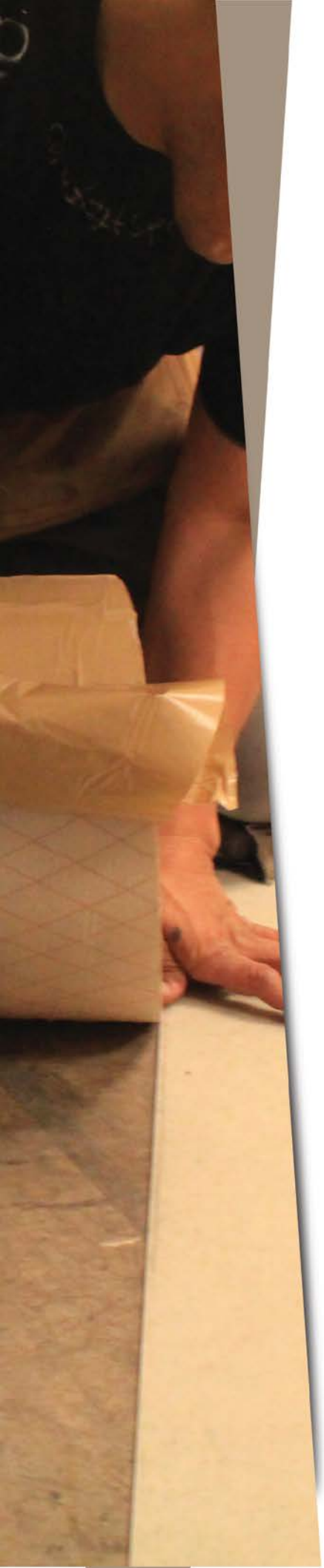

EnviroSTIX
APPLIED POLY-ACRYLIC ADHESIVE SYSTEM

Mitigating Floor Slab Efflorescence

A common concern with concrete floor slabs is the appearance of efflorescence or soluble mineral salts. Efflorescence is usually a white colored crystalline salt deposit (carbonates, sulphates and chlorides) that form on or near the slab surface. The condition is predominantly resulting from calcium carbonate (lime bloom). Efflorescence occurs when soluble salts are dissolved by moisture moving within the slab and deposited at the surface through evaporation of the salt solution.

Primary Efflorescence – Happens during the initial cure of a cementitious product involving the concrete bleed water.
Secondary Efflorescence – Occurs after the cementitious product has initially cured, often weeks or months later.

In order for efflorescence to occur, there needs to be significant moisture vapor drive and excess soluble salts within the slab. The best way to mitigate efflorescence is during the design and construction phases through utilizing established industry best practices which include:

1. Well graded and rinsed aggregate
2. Low Water-to-Cement Ratio (0.45 or less)
3. Use of Type F Fly Ash or other non-reactive pozzolan as a partial cement replacement
4. Reduction or elimination of all extra water of convenience.
5. Protecting the slab from topical or sub-grade moisture intrusion and other sources of moisture exposure after placement.
6. Reduction or elimination of additives with soluble minerals like calcium chloride.

What can be done if the slab is already in place? Begin with a thorough assessment looking for signs of efflorescence. This should include both interior and exterior observations of efflorescence on horizontal and vertical concrete and masonry. If the slab already has a finish installed, look for any bumps telegraphing through the flooring or signs of efflorescence in unfinished areas.

For projects where efflorescence is a concern, patch manufacturers recommend placement of a minimum 1/8 inch thick layer of floor patch directly to the properly prepared slab surface. The 1/8 inch or greater patch layer effectively mitigates the potential for efflorescence occurring.