



Concrete Protector & Restorer

Concrete Sample—Scaling

The Problem

Scaling can be caused by freeze/thaw cycling in the presence of water or deicing salts, using non-air entrained concrete, deicing chemicals, premature or over finish or insufficient or no curing. (see separate Sample Data sheet).

Many of the above causes all lead to the same weak surface layer that leaves concrete surfaces susceptible to scaling.

Scaling is surface erosion that results in surface flaking or peeling.

Scaling begins with slight surface flaking which becomes deeper with continuing exposure. Initially only the surface texture and small amounts of the cement paste are eroded, but coarse aggregate is not exposed.

Moderate scaling exposes coarse aggregate and may involve loss of up to 1/8 to 3/8 inch of the surface mortar and the area that is scaled may be interconnected and larger.

Severe scaling exposes more surface area and the coarse aggregate stands out. In some cases of very severe erosion of the paste, some coarse aggregate may even pop out, leaving a void space.

3M Concrete Protector & Restorer (CP&R) Solution

A slurry mixture of CP&R and 30 mesh silica sand can be squeegee or trowel applied to scaled areas to fill in the rough texture caused by scaling.

For lightly scaled areas, CP&R is typically applied to the surface. The very low viscosity allows CP&R to penetrate the soft top layer of concrete and consolidate the soft surface layer and helps give added strength and resistance to scaling which, thereby, extends the concrete life.

CP&R can help improve durability, freeze/thaw resistance and water and chloride repellency.

Most of the time, using CP&R to repair scaled surfaces can eliminate the need for a full bonded concrete or modified concrete overlay, thereby saving money. If an overlay is needed or desired, CP&R can be used in or on the overlay to help protect it from deterioration and extend the life of the overlay and slab.

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