

Baby Concrete for the First Year

CONCRETE SURFACES.SCALING Commentary

This will be very timely because in about 6 weeks some of you will be looking at concrete slabs placed in October and November and wondering why the finished surface is gone.

Scaling is defined as the loss of a finished concrete surface. Light scaling does not expose coarse aggregate; moderate scaling exposes aggregates with loss up to 1/8 to 3/8 inches. In severe scaling most of the surface is lost and aggregates are clearly exposed and stand up.

Concrete scales for many reasons but the primary causes are:

- ◆ The use of low or non-air entrained concrete in exterior conditions
- ◆ Application of deicing salts
- ◆ Finishing the concrete surface while bleed water is present
- ◆ Sealing the surface before the entrapped air and bleed water can escape or dissipate
- ◆ Insufficient or no initial curing of the concrete

Fall concrete placements are especially susceptible because there is little time for the concrete to properly cure and gain enough strength to withstand repeated wet / dry and freeze / thaw conditions during our winters.

This potential is doubled if the concrete is placed in service and the new owner spreads deicers during one or all the many ice or snow storms that are sure to come.

Properly designed air-entrained concrete can withstand many years of exposure in extreme conditions. But first the concrete must be placed, finished and cured correctly to enable it to function appropriately.

Consideration should be given to the type of exposure and use when the selecting the mix design. Cementitious content for exposed concrete is important, a minimum of 5.5 to 6.0 bags per yard is recommended. Low water/cement ratios and medium range slumps at placement are important. Any concrete exposed to the weather must be air-entrained with a minimum of 5 to 7 percent. Provide proper curing for a minimum of 3 days and preferably 7days if the temperature is 60 F or below at placement.

No concrete should be exposed to deicing salts for at least one winter season. This is the ideal and usually cannot always be adhered to; however, efforts should be made to minimize deicer use for relatively new concrete. NEVER USE AMMONIUM SULFATE OR AMMONIUM NITRATE AS A DEICER. These substances are chemically aggressive and destroy concrete surfaces. If deicers are used they should be washed off as soon as possible.

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