

NEWS RELEASE



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The Perfect Storm

A Concrete Industry Statement on Exterior Residential Concrete Scaling

Omaha, NE (6-9-10) — There have been a number of recent reported instances of residential driveway concrete scaling. Scaling is defined as disintegration and flaking of a hardened concrete surface, frequently due to repeated freeze-thaw cycles and application of deicing chemicals. The following comments are intended to address, educate and improve upon the placement of residential concrete in our area.

The winter of 2009-2010 was long and harsh for our region. We experienced an unpredictable large number of freeze/thaw cycles. The extreme weather combined with deicing chemicals and inconsistent guidelines on concrete placement caused the perfect storm. These conditions created an unusual amount of scaling on new concrete surfaces, predominately on residential concrete driveways.

Over the past few months, participating Metropolitan Omaha Builders Association members (MOBA), as well as local Nebraska Concrete & Aggregates Association members (NC&AA) have met to discuss potential causes and remedies of scaling. The group reviewed current codes and standards as applied in Omaha. Generally speaking, building codes are developed by well intentioned people involved in the construction industry. The purpose of building codes is to provide standards for the protection of life, limb, **property**, environment, and for the safety and welfare of the consumer. Home builders in Omaha must comply with the International Residential Building Code 2006 (IRC 2006), regarding exterior concrete, this code requires a minimum 28-day compressive strength of 3500 psi and 6% (+/-1%) air content for exterior concrete in severe conditions, such as our Nebraska winters. With the “perfect storm”, these

two requirements may not be enough to minimize the scaling potential of exterior concrete in extreme freeze thaw environments like we just had last winter.

The National Ready Mix Concrete Association (NRMCA), Portland Cement Association (PCA), and the American Concrete Institute (ACI) have established guidelines for exterior concrete to minimize scaling potential. These guidelines suggest other considerations to minimize scaling potential, such as maximum water to cement ratio, proper placing & finishing operations, hot & cold weather concreting, proper curing techniques, and care & maintenance. The IRC 2006 falls short to provide requirements to the trades in several critical areas including:

- failure to emphasize the importance of curing,
- failure to define proper curing, and
- failure to emphasize the importance of water to cement ratio (which all dictate surface porosity)

There are also causes that are outside the industry's control, such as deicers. Home Builders, Concrete Contractors, and Concrete Producers cannot control the type and/or amount of deicers used on exterior residential concrete once the property is turned over to the homeowner. Even if a homeowner does not use deicers, cars carry deicers from the streets onto their driveways. Be aware that many deicing products labeled "safe for concrete" may not be so. Any substance that will lower the freezing point of water can potentially damage concrete by creating excessive, artificial freeze-thaw cycles at the concrete surface. There is not actually a chemical attack by the deicing product, but a mechanical or physical one.

Homeowners need to be aware of the potential for these conditions. If deicers must be used, they should be used sparingly, apply with a spreader to avoid large clumps or over-application by throwing on by hand or shovel. Very similar to fertilizing your lawns, where over-application will burn or kill the grass. Home owners need to also be aware that they may "seal" the concrete. Just as we waterproof decks and fences, we can seal exterior concrete to minimize the infiltration of moisture and salts. A list of Omaha based distributors for sealing products has been posted at, www.nebrconcagg.com. Not only do these distributors carry sealing type products, they may provide the technical assistance that comes with a quality sealer. These sealers also work well if you are experiencing light scaling on your driveways. They can still minimize any moisture/deicers penetration.

Where do we go from here? Local builders, contractors, and producers are currently working towards defining better guidelines that go beyond the current requirements set forth in the IRC 2006. Once these standards are agreed upon, it is our responsibility to communicate these standards to local building officials with the hope of amending the current requirements for exterior residential concrete construction. Even though the NRMCA, PCA, and ACI have developed specifications and guidelines, they are seldom read or enforced. Residential concrete is one of concrete's largest markets. Keeping and expanding this market depends on specifying, producing, and installing durable concrete. The goal is communicating economical and effective practices that can be enforced to define responsibility and accountability by all parties, including but not limited to owners, builders, concrete contractors, concrete producers, and local officials.