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CRAZING

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NACBI Professional Growth & Support System Self-Assessment
Program Publication

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WHEN DRIED FRESHLY Poured CONCRETE OFTEN LEAVES A WHITE RESIDUE IN THE FORM OF CRAZING.



WHAT IS CONCRETE CRAZING?

BACKGROUND

Crazing is a pattern of fine random cracks or fissures on the surface of hardened concrete or mortar caused by drying shrinkage (loss of moisture) of the surface and are usually a cosmetic problem only and is primarily a nonstructural defect. They are barely visible during the construction, except when the concrete is drying after the surface has been wet.

These cracks are rarely more than 1/8-inch (3 mm) deep and are more noticeable on steel troweled finished surfaces.

Craze cracks develop during the latter stage of the pour and are apparent the day after the pour or at least by the end of the first week. Often, they are not readily visible until the surface has been dampened and it is beginning to dry. When dried freshly poured concrete often leaves a white residue in the form of crazing. (See photo left).

Crazing cracks are sometimes referred to as shallow map or pattern cracking. Although unsightly they do not affect the structural integrity of concrete and rarely do they affect durability or wear resistance.



WHAT CAUSES CRAZING?

Excessive bleeding, premature troweling, excessive slump, and high-water content in the surface layer of the concrete can result in crazing. Additionally, the sprinkling of dry cement or a mixture of cement and fine sand on the surface of the plastic concrete will cause crazing.

Hard steel-troweled slab surfaces often have craze cracks due to shrinkage of the concentrated dense paste layer at the surface. Concrete surface crazing can also occur because one or more of the rules of “standard concrete practices” were not followed. The most frequent factors when crazing occurs are:

- ❏ Poor or inadequate curing. Environmental conditions conducive to high evaporation rates, such as low humidity, extremes in ambient temperature, direct sunlight, and drying winds on a concrete surface when the concrete is just beginning to gain strength, cause rapid surface drying resulting in craze cracking.
- ❏ Too wet of a mix, excessive floating, the use of a jitterbug or procedures that will depress the coarse aggregate and produce an excessive concentration of cement pasts and fines at the surface.
- ❏ Finishing operations performed while bleed water remains on the surface or the use of a steel trowel in a manner that the smooth surface of the trowel brings up excessive water and cement fines. Use of a bull float or Darby with water on the surface or while the concrete continues to bleed will produce a high water-cement ratio at the surface resulting in a weak surface layer that will be susceptible to crazing, dusting, scaling and other surface defects.
- ❏ Sprinkling cement on the surface to dry up the bleed water is a frequent cause of crazing. This concentrates fines on the surface. Spraying water on the concrete surface during finishing operations will result in a weak surface susceptible to crazing or dusting.



INSPECTION PROCEDURE/REPORTING





RECOMMENDED METHOD: BASIC VISUAL

Recommendations: Typically, craze cracking is not repaired because it does not deteriorate over time. Sealers and surface hardeners can make crazing more obvious. If the client really wants to fix crazing, a thin overlay is about the only choice. Clients are encouraged to consult with professional concrete providers/installers.

Probability of Costs: (2017 Costs)

Iron-Aggregate Concrete Topping

Labor & Material:

-  ½-Inch Thick - \$5.45/ft²
-  ¾-Inch Thick - \$5.75/ft²
-  1-Inch Thick - \$6.00/ft²
-  2-inch Thick - \$7.55/ft²

