



Surface Cracking

This Flooring Technical Note considers the characteristics, causes and implications of surface cracking on concrete industrial floors.

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Introduction

This Flooring Technical Note covers crazing, sometimes referred to as map cracking or fire cracking, which is a pattern of very fine cracks on the surface of the concrete. The hairline cracks are no more than a couple of millimetres deep and form irregular polygonal shapes that are between 10 and 40mm across. Often they are not visible until they have been wet and start to dry.

Commentary

There are numerous reasons published why crazing may occur, including:

- High slump concretes (high water cement ratio)
- High cement contents
- Excessive vibration, segregating the fine aggregates and cement paste to the surface
- Finishing before bleed finishes
- Adding dry shake toppings
- Burnishing or over trowelling
- Poor curing regime
- Premature drying of the surface due to wind or sun.



Summary

Although good concrete practices may be followed on site, crazing may still occur and, as such, crazing should be regarded as a characteristic of modern methods of placing and finishing concrete floors and should not be regarded as a failure of the floor.

Crazing does not affect the structural integrity of the floor and rarely affects the durability or the abrasion resistance of the floor.

Further Reading

The Concrete Society, *Concrete Industrial Ground Floors; A guide to design and construction*, Technical Report 34 (4th Edition, 2013)

The Concrete Society, *Cracking: Power Trowelled Concrete Floor Slabs*, Advice Note No 8 (2003)

American Concrete Institute, *Guide for Concrete Floors and Slab Construction*, ACI 302.1R-04 (2004)

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