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Setting the standards in concrete repair

Magnesite: the floor that has proved to be flawed

Once very popular, magnesite has fallen from grace in recent times and for very good reasons worthy of review.

Magnesium oxychloride floor topping—commonly known as magnesite floor and less commonly known as plastic flooring—is a brown (sometimes off-white), good wearing material, with an acceptable finish suitable for most floors for residential and commercial structures.

It was chiefly used in Australia in the 1960s to the late 1970s. Almost all home unit buildings built prior to the early 1980s—even into the early '90s in isolated cases—used the material as a floor topping.

Good reasons

It was used for many reasons, including:

- Its self levelling properties allowed concreters to provide smooth flat finishes to concrete floor surfaces with minimal time and effort
- It offered an inexpensive method to resurface or rejuvenate an old floor
- It was suitable as an underlay material for carpet and vinyl floors
- It provided sound deadening between floors.

Basic flaw

Unfortunately, despite its practical uses, magnesite has one serious flaw in that the various organic and inorganic materials of which it is composed are **bonded together by chloride ions, which are the corrosive component in salt** (sodium chloride).

Under certain conditions, these chloride ions migrate into concrete, causing **corrosion of the reinforcing steel inside the concrete matrix**.

Nearly all units

This is a common problem, with some spalling to be found in virtually every home unit with magnesite floors or balconies built before 1980.

DRASTIC STEPS MAY BE NEEDED

Reo at risk

Wetting magnesite leads to its chloride ions migrating into the slab beneath, reaching the reinforcement, causing it to corrode, ultimately leading to concrete spalling.

The extent of the spalling depends on the frequency of the magnesite's exposure to a wet environment and the amount of chloride ions migrating into the slab from the magnesite.

So, keeping the floor dry would avoid such corrosion problems, perhaps?

Unfortunately, through the life of the floor, this is easier said than done.

This is because of such occurrences as:

- Water penetration at the perimeter of the building
- Leaks in refrigerators, under kitchen sinks and as a result of burst water heaters
- Over-watering of indoor plants
- Steam cleaning of carpets
- Water spillage.

Fix the flaws

Fixing magnesite problems is not a job for amateurs.

First, the problem must be correctly diagnosed and the right remedial solution proposed (both tasks best left to ACRA consultant members) and carried out (the role of ACRA contractor members) using the right materials (from ACRA materials supplier members). ■

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