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How to Compensate for Common Concrete Application Errors with MCI®

Humans are imperfect, which can be a serious problem when pouring concrete. Concrete contractors have one chance to make the slab or structure turn out right in order to avoid expensive repairs and the possibility of tearing it all up and doing it over again. Fortunately, several concrete application errors can be solved or at least mitigated using Cortec® [Migrating Corrosion Inhibitor™](#) (MCI®) Technology. Some common application errors and their MCI® solutions are outlined here.



Forgot to Add Corrosion Inhibitor

One of the easiest application errors to fix is the failure to add a corrosion inhibiting admixture to the ready-mix. Although it is ideal to include an [MCI® admixture](#) in a concrete structure from the start, MCI® can also

be added as a surface applied corrosion inhibitor (SACI) to concrete that has already hardened. Two great versions of MCI[®] SACI to start with are [MCI[®]-2020](#) and [MCI[®]-2018](#). MCI[®]-2020 contains a high concentration of Migrating Corrosion Inhibitors that penetrate through the concrete pore structure to form a protective molecular layer on the rebar surface. This protective layer delays time to corrosion and reduces the rate of corrosion once started. Wherever high humidity environments or other conditions call for water repellency, MCI[®]-2018 can introduce Migrating Corrosion Inhibitors along with a 100% silane water repellent. More options exist for different budgets and circumstances.

Insufficient Concrete Cover

Another common worker error is to not apply enough concrete cover and only realize later that it is too thin (e.g., 1 inch [2.54 cm] instead of 2 inches [5.08 cm] as specified). When this issue occurs, it is difficult or impossible to change without destroying the structure. However, a great alternative to protect against the higher risk of early corrosion is to apply an MCI[®] SACI on top. This type of scenario took place at a desalination plant, where MCI[®]-2020 was consequently applied to desalinated water reservoirs to help compensate for a concrete cover that was too thin.

Honeycombing

A third problem is honeycombing, a situation where the ready-mix has not been able to thoroughly work its way through the rebar network and fill the concrete forms as one consolidated substance. This leaves behind small air pockets and is known as honeycombing. Usually, MCI[®]-2020 or MCI[®]-2018 can be applied to account for the higher risk of corrosion. However, honeycombing is sometimes so bad that it leaves behind exposed rebar and voids large enough to threaten structural integrity. In these cases, [CorrVerte[®] MCI[®] Rust Primer](#) should be applied directly to the rebar to passivate and protect the metal from further rusting before completing the repair. From there, a product such as [MCI[®]-2044](#) Self-Consolidating Concrete Mix is a great way to fill void spaces while adding Migrating Corrosion Inhibitors to actively protect against chlorides or other corrosives that may have entered the concrete. Another option is to add an MCI[®] admixture or [MCI[®] Grenades](#) to the ready-mix or repair mortar. For smaller repairs, Cortec[®] also offers two MCI[®] enhanced high performance repair mortars: [MCI[®]-2039](#) for horizontal repairs and [MCI[®]-2040](#) for vertical and overhead repairs.





Rebar Shifting

Rebar shifting also causes problems. This happens when rebar chairs fall over before or during the concrete pour, causing rebar to sink down in one area and forcing it up toward the surface in another. Sometimes, the error is so bad that the rebar actually protrudes out of the concrete surface. In less drastic cases, the only concern may be a thinner concrete cover, which raises the risk of early

corrosion and can, again, be addressed by the application of MCI[®]-2020, MCI[®]-2018, or other MCI[®] SACIs.

If All Else Fails

It is a fact of life that mistakes happen. When it comes to construction projects, the best that can be done is to prevent problems whenever possible, follow up with proper inspection, and correct application errors that do occur. The last step can be much easier thanks to the versatile forms of MCI[®] that allow Migrating Corrosion Inhibitors to be applied to the structure even after it is completed. Contact Cortec[®] for further help correcting application errors with MCI[®]: <https://www.cortecmci.com/contact-us/>

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