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SOUTH AFRICAN BUILDER®

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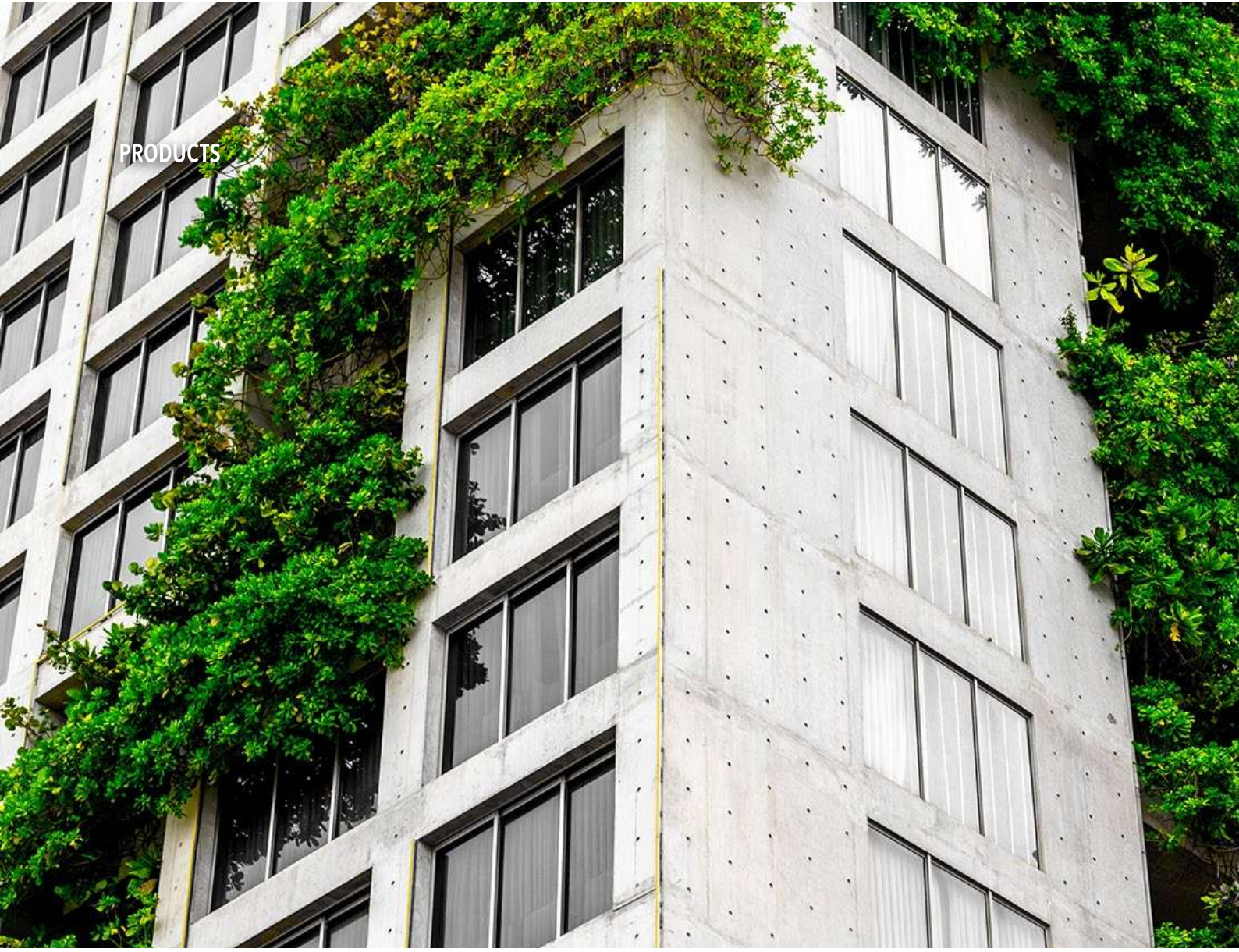
CELEBRATING 101 years

RESISTING RISING VANDALISM: SAFETY FOR CRITICAL INFRASTRUCTURE

MASTER BUILDERS SOUTH AFRICA



CORROSION CHALLENGES IN GREEN CONCRETE

As society rushes to cut carbon emissions wherever possible, Cortec® is addressing an important question on the mind of many concrete industry professionals. Is “green” concrete truly sustainable if durability is lacking?

More importantly, what can be done about it? Migrating Corrosion Inhibitor™ (MCI®) technology offers an important key to the solution by addressing concerns on the corrosion side of the equation.

IS LOW-CARBON CONCRETE SUSTAINABLE?

In the quest to reduce the 8% of global carbon emissions

commonly attributed to cement production, contractors, engineers and ready-mixers are turning to concrete which has higher limestone, fly-ash and water content or which intentionally absorbs carbon. Mixes with Type 1 Portland Limestone Cement or carbonated concrete are now facing challenges such as slower concrete strength gain and higher carbonation, leading to increased corrosion risks due to failures encountered with these "greener" concrete designs.

After attending a concrete conference where issues like these were a major focus of conversation, MCI® technical sales and product manager Ashraf Hasania summarised his concerns about true sustainability, asking: "If I'm having zero-carbon concrete today, but the structure needs to be replaced after five or 10 years, then what am I doing?" From this viewpoint, allowing higher carbon emissions upfront to build a structure which lasts 100 or 200 years could be more sustainable than cutting carbon emissions now, but having to replace concrete within the next decade.

CONCRETE DURABILITY THROUGH CORROSION PROTECTION

Fortunately, MCI® technology offers a tool for enhanced durability in both high- and low-carbon emission situations. Available as concrete admixtures or surface treatments, migrating corrosion inhibitors adsorb on metal surfaces, forming a protective molecular layer that delays time to corrosion initiation and reduces corrosion rates, once started.

By extending concrete service life, corrosion protection counters the higher carbon output of frequent repairs and premature reconstruction, which demand more high-emission cement production. Interestingly, contractors using MCI® admixtures such as MCI®-2005 NS commonly express positive feedback regarding workability and finishing characteristics, unlike many experiences with low-carbon mixes. MCI® surface-applied corrosion inhibitors can be used for enhanced durability on structures that already exist.

BUILDING FOR LONG-TERM SUSTAINABILITY

As industry professionals continue to debate the true sustainability of "green" concrete, MCI® stands as an important ingredient to address corrosion concerns in both low-carbon and traditional concrete. By focusing on corrosion control for a longer service life, MCI® promotes greater sustainability towards the goal of reducing long-term carbon output and resource waste. For those evaluating durability strategies for low-carbon concrete projects, additional research and technical guidance are available through Cortec® MCI® representatives at: cortecmci.com. ■

"BY EXTENDING CONCRETE SERVICE LIFE, CORROSION PROTECTION COUNTERS THE HIGHER CARBON OUTPUT OF FREQUENT REPAIRS AND PREMATURE RECONSTRUCTION, WHICH DEMAND MORE HIGH-EMISSION CEMENT PRODUCTION."