



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

Newsletter

March 2010

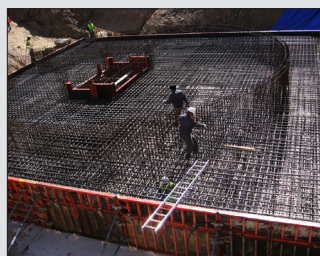
The River Bridge “5 de Junio”

The River Bridge “5 de Junio,” located in the heart of Guayaquil City, Ecuador became victim to chloride and carbonation attack, which had deteriorated the concrete and corroded the structural steel. The municipality needed an environmentally safe product to extend the life of the structure, protect the reinforcing steel, and allow the concrete to breathe. In June 1996, the bridge underwent several repairs. After sandblasting, VpCI®- 365 was brush applied to the structural steel beams of the bridge. MCI®-2020 was then spray applied onto the concrete. In 2008, the Guayaquil Municipality sent engineers to check the conditions of the bridge, finding that thirteen years later the bridge is in perfect condition.



The Barcelona Airport

In 2009, a new control tower platform at the Barcelona Airport was being built and protection of the corrugated reinforcing steel was needed. The platform is the base to the 146 ft tall control tower facilities and services, and is composed of over 670 cubic yards of concrete. Cortec's MCI® Coating for Rebar NT was the selected corrosion protection product, which was applied directly to the reinforcing steel. The product was chosen for its ease of use in areas with limited access and was sold through Quimilock, s.a.u. The concrete for the tower was poured days after the application of MCI® Coating for Rebar NT.



World of Concrete/Precast Shows

Once again, Cortec® Corporation was well represented at the World of Concrete trade show, held February 1st - 5th, 2010 at the Las Vegas Convention Center. With over 55,000 registered professionals and 1,354 exhibiting companies in more than 600,000 net square feet of action-packed exhibit space, the show proved to be fairly steady. On Wednesday, Jessi Meyer and Angel Green hosted a Distributor and Sales Representative luncheon discussing Cortec's newest products and projects. MCI® Wall Defense was presented, as Angel answered all technical questions.

Cortec® also hosted a tradeshow booth at the February 2010 Precast Show held in Phoenix, AZ. Over 2200 people were present during the two day tradeshow.

Reykjavik City Tunnel Protected by MCI® Anti Graffiti Coating

Reykjavik City, Iceland spends millions of Krona in graffiti removal each year. They wanted a durable, anti-graffiti coating for use on a pedestrian tunnel near the Reykjavik airport.

E.M. ehf, Cortec's distributor, worked with VSO council to specify MCI® Anti Graffiti Coating on the tunnel. A total of 383 yd² (320 m²) of concrete was coated with 9.5 gallons (36 L) of MCI® Anti Graffiti Coating in January 2010. The coating was applied to the structure by rolling with a special roller that put the right coating thickness on the concrete.

The customer was very pleased with the ease of application and look of the coating on the concrete. Since the application, no graffiti has been applied to the tunnel.

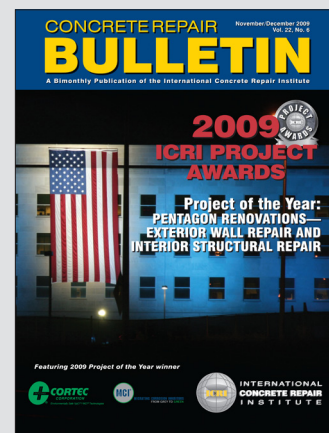


ICRI 2009 Project of the Year – Pentagon Renovations: Exterior Wall Repair and Interior Structural Repair

In the fall of 2009, the International Concrete Repair Institute awarded the Project of the Year Award for renovations performed on the Pentagon that started in April 2003. The repair design parameters included a minimum 20 year design life, a complete mitigation of water absorption into the walls, a severe reduction in corrosion, and that the appearance of the walls be changed as little as possible.

The corrosion of embedded reinforcing steel, caused by carbonation of the concrete was starting to crack and spall the exterior concrete. A repair system was put into place which provides a twenty year warranty for the entire project. To achieve this, the interior walls of the light wells were renovated with over 1,000,000 ft² (0.3048 m²) of hand-patch repairs, a topically applied corrosion inhibitor (Cortec's MCI®-2020 V/O), and a penetrating sealer.

Currently, the repairs are being done in the fifth, and final, wedge of the Pentagon. Corrosion rate readings are taken every six months to ensure the protection of the reinforcing steel throughout the structure. For more information, the entire ICRI article can be found at www.icri.org/PUBLICATIONS/2009/novdec09.asp.



Upcoming tradeshow

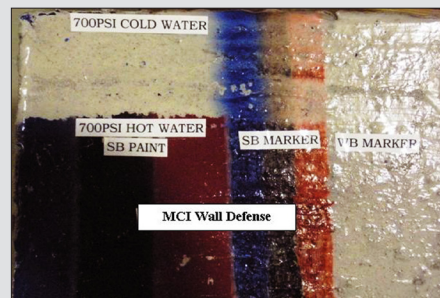
ACI Spring Convention	March 22-25, 2010 in Chicago, IL
ICRI Spring Convention	April 14-17, 2010 in Myrtle Beach, SC
PTI Conference	May 2-4, 2010 in Fort Worth, TX
ASBI Annual Convention	October 11-12, 2010 in Vancouver, BC
ICRI Fall Convention	October 20-22, 2010 in Pittsburgh, PA
ACI Fall Convention	October 24-28, 2010 in Pittsburgh, PA

MCI® Wall Defense

New Breathable Anti Graffiti Coating

Cortec® is pleased to introduce a new anti graffiti coating into our MCI® line of products. MCI® Wall Defense is a clear, silicone elastomer, anti-graffiti coating that can be applied to exterior concrete, masonry and metal surfaces by brush, roller, and professional spray equipment. MCI® Wall Defense is a breathable coating with an 18 perm rating.

MCI® Wall Defense is a permanent coating that does not need to be re-coated after graffiti removal like alternative sacrificial systems. It is fully resistant to graffiti tagging 24 hours after application. Graffiti is removed with a cold water pressure cleaning of ~1,200 psi – no special cleaning agents are needed. Another advantage is that MCI® Wall Defense can be recoated with itself at any time.



ASTM D 7089 Graffiti Removal Testing

Graffiti	Rating	% Removal
Black solvent based spray paint	Cleanability 1	100%
Blue solvent based spray paint	Cleanability 1	100%
Red solvent based spray paint	Cleanability 1	100%
*Black solvent based marker	Cleanability 1	75%
*Blue solvent based marker	Cleanability 1	50%
*Red solvent based marker	Cleanability 1	75%
Black water based marker	Cleanability 1	100%
Blue water based marker	Cleanability 1	100%
Red water based marker	Cleanability 1	100%
*Black solvent based marker	Cleanability 2	100%
*Blue solvent based marker	Cleanability 2	80%
*Red solvent based marker	Cleanability 2	100%

**The solvent based marker contains a dye that is not UV stable and will disappear in the presence of UV light.*

Typical Uses

- DOT
- Schools & Universities
- Port & Transit Authorities
- Transportation – railcars
- Parking Decks
- Urban commercial properties

ACI Middle East Conference

Jessi Meyer attended ACI's 2nd International Conference on Advances in Concrete Technology in the Middle East. She presented a paper co-authored with Usama Jacir and Alla Furman on the use of MCI's in Self Consolidating Concrete (SCC). United Corrosion Technologies also had a booth at this conference.



Usama Jacir of United Corrosion Technologies.



Jessi Meyer of Cortec® Corporation, presenting at ACI.

Severn Bridge

Severn Bridge is a cable stay bridge maintained by the UK Highways Agency. The suspension cables on this type of bridge are known to corrode over a long period of time. Dehumidification is used to reduce the level of moisture around the cables to help prevent corrosion, but consulting engineers from Mott MacDonald wanted to find a way to add a Vapor phase Corrosion Inhibitor (VpCI®) into the system for added protection.

Mott MacDonald worked with Cortec® and Cortec's distributor, Lake Chemicals to design a new product that would be suitable for this type of application. The big issue was to find a way to get the corrosion inhibitors into the airflow to ensure they would be distributed around the cables. This led to the development of PTC Emitters.

PTC Emitters are Tyvek® pouches, filled with VpCI® powder, that emit corrosion inhibitor into air. Testing has shown no material incompatibilities with the dehumidification system or any detrimental effects on the materials that the suspension cables are wrapped with.


A simple hatch and crate system was developed as part of the main dehumidification pipework to allow for placement of the PTC emitters, in a minimum amount of time, without having to turn off the air flow while the emitters are changed.

A dosage rate of 5 PTC emitters per unit was determined by Mott Macdonald / Lake Chemicals. The PTC emitters were placed within a basket inside the crate and no special spacing or separation of the individual emitters was required.

The system has now been running for 6 months and testing will be carried out shortly using a newly developed VpCI® sensor solution to determine the presence of the corrosion inhibitors in and around the cable.

Corrosion rate monitoring and relative humidity testing is being carried out and as a supplementary precaution long term samples will be held in the VpCI® airstream and tested at predetermined intervals over the operational life of the system. Control samples will be held in one of the existing plant rooms.



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