



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN



We were happy to have (left to right) Jerry Lombardo, EIT (IA) from Kimley-Horn; Jessi Meyer, Cortec® VP of Technical and Product Sales; Pat Carlson, P.E. from Kimley-Horn; and Mary Vancura, Ph.D., P.E. from AET as part of our foursome fundraising for the John Amundson Scholarship at the Terry Babcock Memorial Golf Outing.

Taking Advantage of Local ICRI Chapter Events

Attending local ICRI (International Concrete Repair Institute) chapter events throughout North America is a great way to meet with partners and industry clients in your area while enjoying some recreation. This spring and summer, our MCI® Team has been able to take advantage of the renewed burst of post-pandemic-lockdown activities by making the rounds to a variety of ICRI events! Here's a glimpse of what they've been able to attend:

- ICRI member roundtable and luncheon for ICRI Pittsburgh Chapter, March 22nd
- TopGolf networking event with Delaware Valley ICRI, March 30th
- ICRI Spring Annual Convention, April 4th-6th
- First Michigan Chapter ICRI Demo Day since 2019, April 22nd
- Annual symposium on "The Crucial Roles Fasteners Play in Restoration" with ICRI Metro NY Chapter, April 28th
- Night at the Ballpark (and technical sessions) with ICRI Carolinas Chapter, May 5th-6th
- Quarterly dinner meeting, bowling, and guest speaker Dr. Mehdi Shokouhian (structural/material researcher) with Baltimore/Washington DC ICRI, May 12th
- Clay shooting networking event with ICRI Delaware Valley Chapter, June 10th
- ICRI social event to discuss industry trends with Michigan Chapter (Ash Hasania nominated to be chapter delegate), July 14th
- Terry Babcock Memorial Golf Outing with Minnesota ICRI Chapter, July 19th

See a full schedule of chapter events here (and plan to come see as at one of the gatherings listed in our "UP-COMING EVENTS" section!): https://www.icri.org/events/event_list.asp?show=&group=&start=3%2F8%2F2022&end=&view=&cid=15383



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Out and About



Ash at first ICRI Michigan Demo Day since the pandemic.



With colleagues at Dubai Innovation Conference.



With engineers, manufacturers, and distributors at ICRI MI July social event.

Making Concrete Connections at Dubai Innovation Conference

The first ACI (American Concrete Institute) event held in Dubai since the start of the pandemic found Ash Hasania (MCI® Technical Sales & Product Manager) heading back to the area to reconnect with many old industry contacts from his time working at Cortec® Middle East (CME). During the March 9th-10th Concrete Conference on Innovation (hosted by ACI in conjunction with the ACI UAE chapter), Ash rubbed shoulders with a crowd of engineers, ready-mix and precast companies, academics, and authorities from the Dubai Municipality and Dubai Central Lab. He also enjoyed attending technical sessions and learned about a variety of intriguing topics, including

- 3D printed concrete innovations
- Construction in outer space (e.g., Mars and the moon)

Since travel has been limited during the pandemic, it was especially good to finally catch up in person with Usama Jacir to discuss regional MCI® strategy and challenges and negotiate face to face with potential and existing CME customers on projects requiring corrosion inhibitors.

Catching Up After Lost Time at ACI Spring Convention

Jessi Meyer (VP of Technical and Product Sales) and Lisa Marston (Regional Technical Service Engineer) visited Orlando, Florida, March 27th-31st for the first face-to-face ACI (American Concrete Institute) event since the pandemic started!

Jessi, who has worked in the industry for over two decades, said it was nice to be back in person. She especially enjoyed the keynote speaker, Dr. Anirban Basu, an economist who talked about economic impacts from the last two years and offered industry forecasts for the current year.

Lisa, who is relatively new to the industry, found it a great opportunity to attend ACI for the first time, learn about new concrete technology advances, and become more familiar with the work of technical committees as she grows in her ability to contribute to this field.

Between the two of them, Jessi and Lisa were able to attend a Women in ACI reception; network with a variety of people from academia, engineering, forensics, and manufacturing; and attend committee meetings on climate change and



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Out and About

ACI Spring Convention, cont.

sustainability, corrosion of metals in concrete, chemical admixtures, durability, and service life. Jessi is part of the 212 Chemical Admixtures Committee and contributed directly to that meeting herself.

Another highlight of the ACI convention was the giving of 50-year member awards, one of which went to our distributor Joe Solomon from Specialty Construction Products in Winnipeg, Manitoba. It was also interesting to hear about the launch of NEU, an ACI Center of Excellence for Carbon Neutral Concrete. All in all, the ACI Spring Convention was a great time to be back together, learn, grow, and push forward to new MCI® and concrete achievements for the future!

Looking Forward to the Next Canadian Concrete Expo!

The Canadian Concrete Expo May 18th-19th was yet another “first” in over two years since a forced pandemic break. Ash Hasania (MCI® Technical Sales & Market Manager) found it to be a good event with many relevant audiences for networking.

Among these, Ash was able to connect with two Canadian MCI® distributors—Ontario-based Form and Build (who was also exhibiting) and Atlantic-based Arrow. He also got a chance to discuss corrosion inhibiting admixtures and the overall concrete market with two different ready-mix companies. Another company Ash encountered was Giatec, which supplies some of our corrosion testing devices (see Scarlett Place Condo restoration in case history section below). Capping off the event, Ash attended a technical session on carbon cure, which encouraged reducing carbon footprint by adding recycled CO₂ to fresh concrete. After a good time had, Ash is already looking forward to the next CCE in February!

MCI® Focus at Cortec® World Sales Meeting

It was great to be able to see some of you at the Cortec® World Sales Meeting, June 15th-17th in Saint Paul, MN!

Those who attended with a focus on concrete had the special surprise of being able to hear from Matt Sherman



Jessi (left) and Lisa (right) attended the first face-to-face ACI convention since the pandemic.



Panel discussion with Lucas Kerly, Dr. Behzad Bavarian, and Matt Sherman.

Out and About



Learning about the corrosion vulnerabilities of brutalist structures.

MCI® at WSM, cont.

(PE, Principal at Simpson, Gumpertz, and Heger, Inc.) as one of three guest speakers and subject matter experts (along with Dr. Behzad Bavarian from California State University, Northridge, and Lucas Kerly, Technical Advisor at Shell) during our Thursday afternoon panel discussion. The education continued Friday with a full day of MCI® sessions ranging from topics such as MCI® FAQs to the benefits of using MCI® on brutalist architectural structures. Special thanks to those of you who took time out of what is for some the busiest time of the construction season to join us!

Product News

Make Use of MCI® DOT Approvals in Your State!

With seven new DOT approvals for MCI® Technology in North America, we have recently updated our DOT approved product list. These approvals provide a great opportunity for engineers to specify MCI® in DOT construction projects while also building credibility with engineers working on non-DOT projects. The ultimate goal is to improve quality of construction by qualifying good-performing products through rigorous review according to industry standards. Please take note of the most recent DOT approvals to date!

State/Province DOT	Approved Products
California	MCI®-2005 NS
Colorado	MCI®-2005 NS
Idaho	MCI®-2000, MCI®-2005, MCI®-2020
Iowa	MCI®-2005 NS
Kentucky	MCI®-2000, MCI®-2005, MCI®-2005 NS
Maine	MCI®-2005 NS
Massachusetts	MCI®-2005 NS
Minnesota	MCI®-2005 AL, MCI®-2005 NS
Ohio	MCI®-2005, MCI®-2005 NS
Pennsylvania	MCI®-2005 NS
South Carolina	MCI®-2000, MCI®-2005, MCI®-2005 NS, MCI®-2006 NS
Oklahoma	MCI®-2005 NS (New approval!)
Montana	MCI®-2005 NS (New approval!)
Louisiana	MCI®-2005 NS (New approval!)
Mississippi	MCI®-2005 NS (New approval!)
Tennessee	MCI®-2005 NS (New approval!)

Kansas	MCI®-2005 NS (New approval!)
British Columbia	MCI®-2005, MCI®-2006
Ontario	MCI®-2000, MCI®-2005 AL, MCI®-2005 NS
Quebec	MCI®-2000, MCI®-2018 (New approval!)





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Product News

CorrVerter® MCI® Rust Primer Wins *Concrete Contractor* 2022 Top Product Award

We were honored to receive one of *Concrete Contractor's* 2022 Top Products Awards this spring! The award recognized CorrVerter® MCI® Rust Primer as one of 29 innovative industry products that had captured the attention of construction professionals reading their magazine or website. CorrVerter® MCI® Rust Primer makes life easier for contractors performing concrete repairs by providing an alternative to grinding and abrasive blasting of rusty rebar. Be sure to read about a unique use of CorrVerter® MCI® Rust Primer in our case history section below!

Fight the Ring Anode Effect with MCI®-2039 Repair Mortar

In June we launched our new improved MCI®-2039 High Performance Horizontal Concrete Repair Mortar! In a world where concrete repairs are inevitable, it is important to do concrete repairs in a way that will extend structural service life as much as possible. MCI®-2039 is designed to do so as a single-component, fast-setting, high-strength, cement-based repair mortar enhanced with Migrating Corrosion Inhibitors (MCI®). These Migrating Corrosion Inhibitors are intended to travel to adjacent concrete to even out the corrosion potential and help the repair last longer by protecting against the insidious ring anode effect. Learn more about our MCI® enhanced repair mortar here: <https://www.cortecmci.com/product/mci-2039/>



Join Us in Welcoming Colin Gardner to the Team!



Colin performing ASTM G180 testing.

Colin Gardner joined Cortec® Laboratories March 7th as our new Product Development Chemist. Colin will be supporting us in the maintenance of current chemistry formulations and the development of new technologies, particularly in our line of Migrating Corrosion Inhibitors (MCI®) for concrete.

Colin hopes to be instrumental in driving the industry to create a new generation of sustainable corrosion inhibitors to minimize the deterioration of materials and the impact of corrosion on society. He understands that ultimately, corrosion translates into major costs economically and socially as it degrades roadways, bridges, and other structures. His words underscore the bottom line of corrosion protection: "By reducing corrosion in reinforced concrete we reduce environmental impact, make more efficient use of scarce resources, and save money for our clients."

Mitigating Carbonation Corrosion on Barcelona Edifice

Carbonation corrosion usually does not set in until a reinforced concrete structure has been standing for many years. This is due to the gradual process in which calcium hydroxide in concrete reacts with carbon dioxide in the air to form calcium carbonate and reduce the concrete's pH, eventually leaving steel reinforcement outside the passive zone. This progression takes place at an average rate of 0.039 inches per year (just under 1 mm), which means there is a greater likelihood of facing carbonation corrosion when repurposing old concrete buildings for new uses. This was the case in the 2020 rehabilitation of a Barcelona edifice.

This particular 15-story structure in Spain was being rehabilitated for use as rental apartments with a parking garage. Due to its age, carbonation had set in, and there was a need to mitigate carbonation corrosion inside existing concrete. MCI®-2021 was chosen as a combined water repelling surface applied corrosion inhibitor (SACI). After the necessary paint and plaster had been removed, MCI®-2021 was applied to clean concrete on the walls, pillars, capital slabs, and waffle slab ribs. A UV tracer was used to ensure total coverage on the nearly 150,000 ft² (13,852.9 m²) treatment area. MCI®-2021 served as a key component in the structure's rehabilitation as a way to extend service life by reducing the rate of reinforcement corrosion once started. To read the full case history, please visit: https://www.corteccasehistories.com/?s2member_file_download=access-s2member-level1/ch767.pdf

Zagreb Cathedral – South Bell Tower Renovation

We are pleased to present a recently updated version of our 2012-2013 case history on the Zagreb Cathedral tower restoration. The revisited case history offers a fresh look at important work done using CorrVerter® MCI® Rust Primer on a landmark of special importance to the region. This monumental example of sacral Gothic architecture is the focus of ongoing repair work to this day.

During the reconstruction work of 2012, damage was found on the steel joints surrounding the south tower at every 1.1 yds (3 m) between the first and 25th rows. The joints were 4 inches (10 cm) beneath the surface, and many were only partially exposed. However, they were covered with a layer of rust and in some areas had rusted all the way through the cross-section.

The Faculty of Mechanical Engineering and Naval Architecture, Department of Welded Structures, Department of Materials Protection team was called on for recommendations. CorrVerter® MCI® Rust Primer was chosen as an important part of the solution. Two coats were applied to the joints after removing loose rust. Joints were reinforced with steel fishplates (also protected with CorrVerter® MCI® Rust Primer) before replacing the surface layer of stones. The project was considered a success and was completed with minimal cost and intrusion thanks in part to using CorrVerter® MCI® Rust Primer to passivate rust.

Updated Zagreb CH: https://www.corteccasehistories.com/?s2member_file_download=access-s2member-level1/ch449.pdf



Corroded joint on tower.



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Case Histories

Preventative Maintenance on Scarlett Place Condos

A large preventative maintenance project is underway in Baltimore at the Scarlett Place Condos parking garage. This structure was built 35 years ago near Baltimore's Inner Harbor and is exposed to deicing salts in the winter. The garage consists of eight split levels that serve as parking for a luxury condominium. This summer, preventative maintenance was needed due to a few areas showing signs of corrosion. These areas were repaired and patched with new rebar and concrete as needed. The project owner also wanted to do preventative maintenance to enhance corrosion protection on the rest of the structure. A water-repellent material and corrosion inhibitors were both desired, so the project owner decided to use MCI®-2018 as a two-in-one product that provides both aspects of protection. MCI®-2018, a 100% silane water repellent with corrosion inhibitors, will be applied to every level, for a total of approximately 85,900 ft² (7980 m²) treated.

During the repair work, Lisa Marston (Regional Tech Service Engineer) and Kevin Quan (MCI® Regional Sales Manager) went onsite to perform corrosion testing. The first step was for Lisa to use GPR (ground penetrating radar) to locate rebar and find the best sites for corrosion readings. Once these were determined, Lisa used an iCOR device made by Giatec to measure corrosion rate and resistivity without having to chip out concrete to make a direct electrical connection to the rebars as required with other devices. This technology used "connection-less electrical pulse response" to provide important data on the condition of the concrete and the rebar inside. These baseline readings will be important for future comparisons to evaluate structural condition and product performance.



Scarlett Place luxury condos.



Lisa using GPR near sections undergoing repair in the Scarlett Place parking garage.



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UPCOMING EVENTS

Please join us for the following events where we plan to have one or more members of our MCI® Team present!

ICRI Baltimore-Washington Chapter 3rd Quarter Dinner Meeting

September 8th

Maggiano's Tysons Corner

McLean, VA

<https://www.icribwchapter.org/dinner-meeting-2/>

ICRI Delaware Valley Chapter 2nd Annual Cornhole Tournament

Friday, September 9th

Location TBD

<https://www.icridelawarevalley.org/>

ICRI Virginia Chapter Fall Symposium

September 15th

Colonial Heritage Golf Club

Williamsburg, VA

<https://www.icri.org/events/EventDetails.aspx?id=1663231&group=>

ICRI Carolinas Chapter Fall Conference

October 5th-6th

Embassy Suites Golf Resort & Conference Center

Greenville, SC

<https://www.icri.org/events/EventDetails.aspx?id=1663215&group=>

Fall ACI Concrete Convention

October 23rd-27th

Hyatt Regency Dallas

Dallas, TX

<https://www.concrete.org/events/eventscalendar.aspx?m=CalendarSearchDetails&CurrentID=195940>

ICRI Baltimore/Washington DC Annual Members Meeting & Awards Banquet

November 3rd

Location TBD

<https://www.icribwchapter.org/>

2022 ICRI Fall Convention

November 7th-9th

InterContinental Buckhead Atlanta

Atlanta, Georgia

<https://www.icri.org/event/2022-fall-convention-std>

World of Concrete 2023

January 17th- 19th, 2023

Las Vegas Convention Center

Las Vegas, NV

Booth # S10856

www.worldofconcrete.com

Canadian Concrete Expo

February 16th-17th, 2023

The International Centre

Mississauga, ON

<https://canadianconcreteexpo.com/attend/>

Spring ACI Concrete Convention

April 2nd-6th

Hilton San Francisco Union Square

San Francisco, CA

<https://www.concrete.org/events/eventscalendar.aspx?m=Calendar>

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