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November/December 2023
Vol. 36, No. 6



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ISSN: 1055-2936

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FEATURE ARTICLES

14 2023 ICRI Project of the Year Award Winner

Parking Structures—O'Hare International Airport Elevated Parking Structure Repairs

19 2023 ICRI Project of the Year Award Finalists

19 *Historic Category*—The Omni Homestead Resort Renovation

23 *Water Structures Category*—Structural Strengthening of the Sunset Reservoir—Managing a Repair Project with Challenging Access

27 2023 ICRI Awards of Excellence

27 *Masonry Category*—Factory 52 Clocktower

30 *Parking Structures Category*—Pier 40

33 *Special Projects Category*—McKinney Silos Repair and Restoration

36 *Water Structures Category*—The Montebello Water Filtration Plant

39 2023 ICRI Awards of Merit

39 *Historic Category*—Roebeling Bridge Restoration Project

40 *Longevity Category*—Galvanic Cathodic Protection Extends Service Life of Ohio DOT Bridge Substructures

41 *Longevity Category*—Preservation of Tiger Stadium: A 10-Year Update After Repairs

42 *Masonry Category*—Bon Secours St. Francis Downtown Envelope Renovation

43 *Masonry Category*—McGill Strathcona Music Building Masonry Strengthening

44 *Parking Structures Category*—A 30-Year Study in Sustainability

45 *Parking Structures Category*—Structural Rehabilitation of Historic OSF Ministry Headquarters Parking Structure/Parking Pavilion

46 *Special Projects Category*—Bell Media

47 ICRI Safety Awards

48 ICRI Sustainability Award

DEPARTMENTS

- 2 President's Message
- 4 Technical Director Message
- 6 TAC Talk
- 8 ICRI Supporting Members
- 12 Certification Update
- 49 Concrete Repair Calendar
- 49 Association News

- 51 People on the Move
- 52 Product Innovation
- 56 Chapter News
- 61 Chapter Committee Chair's Letter
- 62 New ICRI Members
- 64 Index of Advertisers



ON THE COVER: 2023 Project of the Year Award winner "O'Hare International Airport Elevated Parking Structure Repairs" on page 14.

The International Concrete Repair Institute is the leading resource for education and information to improve the quality of repair, restoration, and protection of concrete.
Visit www.icri.org.

PRESIDENT'S MESSAGE



PIERRE HÉBERT

As you read this, I'm pleased to share that the Fall Convention in St. Pete's Beach, where we celebrated ICRI's 35th anniversary, exceeded our expectations, both in terms of attendance and financial support!! This is due to the tremendous efforts by ICRI's staff, our membership, and of course our many sponsors and exhibitors. Kudos go to everyone involved!

When I look over 2023, this has been a year of important change for ICRI focused on charting a course for the next phase of our growth and success. As I've written in past columns, we are investing in new database and website technology to better support our members and power our growth. We've also hired a great new Technical Director, Matthew Carter (see his message on page 4), and we've made some important strategic planning decisions to focus our efforts and increase our impact.

From my discussions with committee members, I understand that there are sometimes frustrations about projects reaching fruition. ICRI staff and the entire leadership understands this frustration.

What's the answer?

Let's face it folks, we're pretty darn good in delivering conventions, networking activities, and guidelines. But over the years, we've become more than that. Simply put, we also put together tools and programs that we eventually sell and because we do, we need to take a more businesslike approach. So far, our capacity to undertake new initiatives hasn't caught up to all the opportunities. A two-year global pandemic didn't help, but three approaches we're taking are designed to change that.

First, the Executive Committee and Board undertook the major investment in new technology, noted above. Every organization these days is first and foremost a technology organization. Getting that right is critical to our future success. Second, we are working to clarify and refocus where ICRI can add the most value to our members and the industry. Third, we're working closer with committees to create a shared understanding of our longer-term goals.

In a recent discussion with the newly formed Professional Development committee, I shared that we need a methodical approach beginning with a business plan and a risk assessment template followed by a stage gate and milestone process—all of which I will present to my Executive Committee colleagues and eventually to the Board of Directors. I've committed to keep it simple and efficient. It should be reviewed by the relevant parties.

Once the development of a tool or a program is approved, its progression will be scrutinized by TAC. At each milestone it

will either move forward to the next step of its development, be realigned with the business plan, be tabled due to a lack of financial resources or a significant reason, or otherwise closed altogether. We will have highlights and some low lights—that's all part of doing business.

On October 11, we met with the Coordination Committee. As a kind reminder, this committee is chaired by the President-Elect (Brian MacNeil) and is made up of the TAC Secretary, ICRI Technical Director, all ICRI Administrative and Technical Committee Chairs, and members of the Technical Activities Committee. ICRI Executive Director Eric Hauth and I thought it would be a good idea to hold such meetings before every convention so that our Committee Chairs (administrative and technical) are better prepared to answer questions to their committee members.

To facilitate the continuity of ICRI's improvements and growth, I've invited President-Elect Brian MacNeil to join me on all relevant meetings since September so that he also gets involved in the day-to-day affairs of ICRI. I've also tasked him to lead a very interesting initiative with ACI regarding the development of a Center of Excellence for Preservation and Service Life Extension of Concrete and Masonry Construction. Lastly, Brian will also foster the strategic objectives we and the Executive Committee have set for ourselves to implement.

I'm also looking forward to the new software platforms that are under development with our 3rd party partners, which will positively impact your user experience and the support we need as we grow our membership in the years to come.

As you read this message, I'm only a few weeks away from the end of my term as your 2023 President and as I look back, I would like to extend my heartfelt gratitude for those of you who have helped us shape our organization and I extend my special appreciation to our supporting members for their commitment to ICRI.

Wishing you and your family a happy and healthy holiday season!

Respectfully,

Pierre Hébert

Pierre (Pete) Hébert
2023 ICRI President



On behalf of the ICRI Executive Committee:

- Brian MacNeil, President-Elect
- Gerad Moulzolf, Vice-President
- David Karins, Treasurer
- Dan Wald, Secretary
- John McDougall, Immediate Past-President
- Matthew Sherman, Technical Activities Chair (TAC)
- Eric Hauth, Executive Director

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TECHNICALDIRMESSAGE

ICRI Welcomes New Technical Director Matthew Carter



MATTHEW CARTER

I am proud and excited to be chosen as the new Technical Director for ICRI! As I start this new chapter of my career, I must acknowledge the depth of my appreciation for this organization, along with the colleagues and friends I have made through ICRI who have helped my professional growth.

My unofficial relationship with ICRI began in 2014 when the Fall Convention was held in my home city of Kansas City. After delivering materials to my company's exhibitor booth, I took advantage of the opportunity to walk through the booths and attend several of the technical presentations for that day. I was hooked immediately.

In 2015 I found the local ICRI Great Plains Chapter and signed up for a technical session on *Post Tension Construction: History, Materials, Methods, Inspections, & Repair*. At the conclusion of the meeting, I made the fateful decision to check the survey box to participate more in the chapter. My involvement in the Great Plains Chapter was foundational to my experience with industry organizations, and the connections I made in that chapter have turned into friendships that carry through the industry. In 2016 I stepped into the role of technical chair for the chapter, a position I held for several years before serving as secretary, vice-president, and president of the chapter. My first official ICRI convention was the 2015 Fall Convention in Fort Worth. Over the years I have regularly attended ICRI conventions, was awarded ICRI's 40 under 40, participated in a variety of committees, and started 2023 as the Region 5 representative.

My experience in the construction industry has included contracting, distribution, and manufacturing, and I bring the broad perspective of involvement across these areas with me to the Technical Director role. I began my tenure in the construction field working with a site work contractor in North Carolina which included installations of precast pipe, flat work, and foundations on projects ranging from commercial to multi-family and municipal projects. This experience was followed by contractor distribution at Carolina Form and Scaffold, working with multiple forming systems, rebar manufacturing, scaffold, shoring, chemical products, and accessories. In 2012

I relocated from North Carolina to Kansas City where I began working for the Dayton Superior Corporation, a manufacturing company that has precast, forming, shoring, splicing, tilt, accessory, and chemical product lines. I left that company as the Technical Services Manager for the chemical division which covered powder, epoxy, and liquid products.

In addition to ICRI, I have been fortunate to participate in multiple trade associations at both local and national levels, including American Concrete Institute (ACI), ASTM International, and the Concrete Promotional Group (CPG) of Kansas City. I

have served as the ACI Kansas Chapter vice-president and then president after several years as a director while also attending national conferences. I am also a voting member of the ASTM C09 committee with a focus on bagged products (C928, C1107, and self-levelers), products applied to fresh concrete (C309 and C1315), and organic bonding products (C881 and C882).

ICRI's mission of providing education, certification, networking, and leadership is key to its success. My own participation in ICRI has expanded and shaped my understanding of the industry by exposing me to innovative technology,

ideas, and case studies through technical presentations, industry standards for the repair industry, and trade-specific training. Participation in ICRI's seminars and social networking opportunities has allowed me and many others to meet industry leaders and colleagues from across the country and to develop mentorship relationships that enrich the field as a whole.

Previous ICRI Technical Directors Ken Lozen and Dave Fuller have left indelible marks upon ICRI through their leadership in guiding development of technical documents, training programs, and webinars that feature world-class industry experts. I look forward to building upon their successes while working to continually grow ICRI's influence in the concrete industry. Please do not hesitate to reach out with any questions or opportunities that we can explore as we navigate the implementation of new training opportunities and transition to a new, more capable, and user-friendly online platform.

*Please join us in welcoming **Matthew Carter** as ICRI's new Technical Director. Contact Matthew at matthewwc@icri.org.*

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TACTALK



MATTHEW SHERMAN

I would like to start by welcoming Matthew Carter on board as ICRI's new Technical Director. On behalf of TAC and all the technical committees, we look forward to working with him and all the staff at ICRI to continue to serve our industry in the best way possible.

To build on the idea of serving our industry, I recently had the pleasure of participating in the last ICRI Board of Directors meeting. There, I brought some of what we had worked on at the Executive Committee retreat and challenged them to try to look at our technical offerings from the point of view of our "key clients." Straight away, that challenges us to define our "clients," as they are as diverse as our members. Our contractor, engineer, owner, and supplier members all "sell" to, and rely on, everyone else within ICRI.

To recognize the needs of all our different "clients," I challenged the board members to go out and talk to all our members to hear what they need and what would help to advance our common industry. We need this information to help combat "tunnel vision" and to get outside our own perceptions of what we think is best for the industry.

To be sure, we want to remain as the trusted source of vetted information and guidance, but we want to do so in

a way that is helpful to our membership and that is also sustainable, engaging, and rewarding for our Technical Committee members.

The TAC leadership team has worked hard to streamline our operations, to serve more as "coaches" for our committees than as "referees," and to expand our offering types. By the time you read this, we will have spent time with our Technical Committee chairs in St. Pete Beach at the Fall Convention where we tried to do some introspective asking about the industry needs that our committees can address to make the day-to-day lives of our members easier and to make the product to our industry better.

By focusing on our members' needs we can continue to make membership and participation in ICRI a rewarding differentiator for our members and to elevate the industry as a whole.

As always, I invite you to participate in our Technical Committees, either through joining one and offering your knowledge or by simply telling us what you need. We look forward to hearing from you.

Matthew Sherman is chair of the ICRI Technical Activities Committee (TAC).



Exhibits: January 23-25, 2024
Education: January 22-25, 2024
Las Vegas Convention Center

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**Online registrations only. Some restrictions may apply.*



SAVE THE DATE

2024 ICRI Kick-Off Party

at

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Las Vegas Speakeasy

Mandalay Bay, Las Vegas
(in conjunction with World of Concrete)

Monday, January 22, 2024
Sponsorships available!

COMMITTEE 160: LIFE CYCLE AND SUSTAINABILITY

MISSION STATEMENT

Increasing the longevity, resiliency, durability, and sustainability of concrete structures by providing tools to repurpose, protect, upgrade, extend the life, and maintain concrete structures.

BENEFITS OF COMMITTEE MEMBERSHIP:

Have a positive influence on the longevity, resiliency, durability, and sustainability of concrete structures by promoting the best and most adapted preservation/maintenance program.

WHAT WE DO:

- Promote the best practice in sustainability by bringing the spotlight to the best projects at the annual awards program.
- Promote the best practice to extend the service life and preserve existing structures.



GOALS/DELIVERABLES

1. Provide tools and prediction models to the industry to extend structure service life economically.
2. Promote the concept of sustainability through extending the structure service life by concrete repair.



www.icri.org/page/committees



matthewc@icri.org



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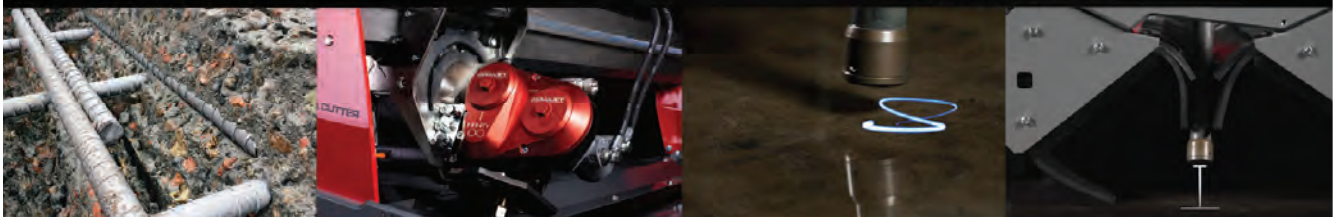
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CERTIFICATION UPDATE

CSMT PROGRAM EVENTS

ICRI hosted two live Concrete Slab Moisture Testing (CSMT) programs in September 2023.

ICRI partner organization the Floor Covering Installation Contractors Association (FCICA) hosted its annual convention and trade show in cooperation with the Certified Flooring Installers (CFI) in Orlando, Florida, September 21-23, 2023. ICRI held its CSMT program a day ahead of the show and welcomed 11 new certified concrete slab moisture testing technicians along with 2 individuals who completed their second Re-certification (after 10 years).

Hot on the heels of Orlando, we found ourselves in the Dallas, Texas, area where we certified 21 new concrete slab moisture testing technicians for Starnet. Starnet Worldwide is a commercial flooring partnership. They brought in contractors and technicians from several flooring companies and organizations from around the country. We were hosted by our friends at the Ardex facility in Mansfield, Texas.

As usual, ICRI turns the drilling of the hole for the Relative Humidity test for ASTM F2170 into a contest. Rules are that the driller must reach a minimum of 2 inches, but the winner is the closest. For example, our top drillers in Orlando reached 2.002, 2.005, and 2.009 inches.



Top three drillers at the FCICA program in Orlando are pictured here (left to right). 1st place went to Don Yarbrough, 2nd place to Brian Clune, and 3rd place to Parker Shields



Top three drillers in Texas at the Starnet program were (left to right) Seth Bugne in 1st place, Charles Billings in 2nd place, and John Wheaton in 3rd

If your company or your Chapter wishes to schedule a CSMT Program, please contact Dale Regnier (daler@icri.org) and provide him with contact information for the point person who will be in charge of coordinating the event, the proposed exam location, and potential date(s).

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Questions? Contact ICRI Program Director Dale Regnier at daler@icri.org



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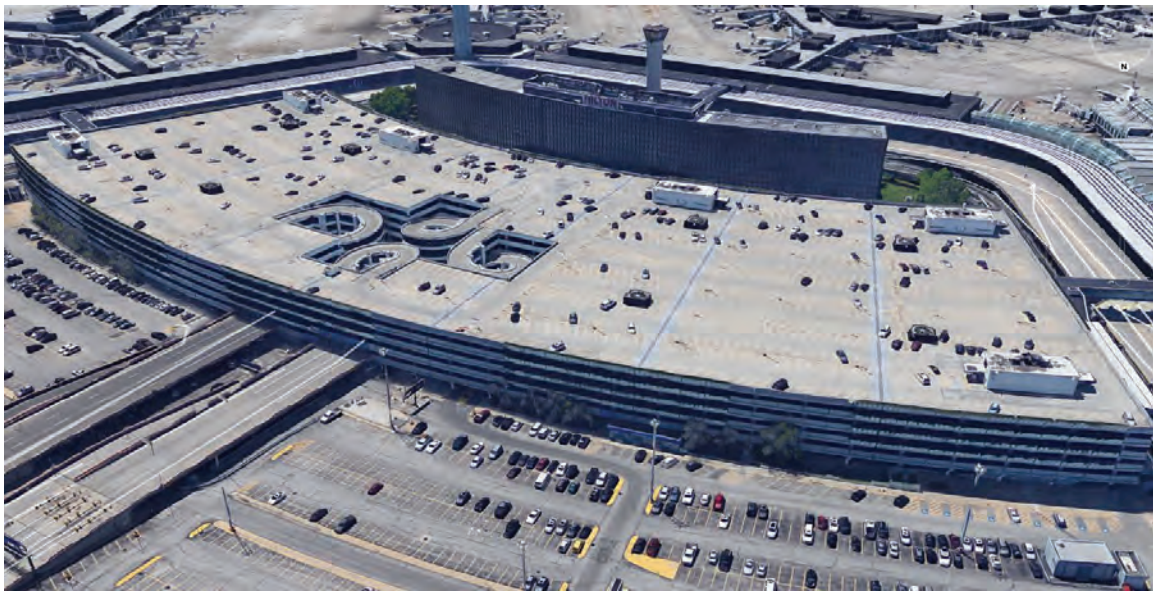
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2023 PROJECT OF THE YEAR
PARKING STRUCTURES CATEGORY

O'Hare International Airport Elevated Parking Structure Repairs

CHICAGO, ILLINOIS

SUBMITTED BY WISS, JANNEY, ELSTNER ASSOCIATES, INC.



O'Hare International Airport Elevated Parking Structure

DESCRIPTION OF STRUCTURE

The elevated parking structure at O'Hare International Airport is a six-story structure (Fig. 1) that was designed by C.F. Murphy Associates of Chicago, Illinois in 1968 and opened for use in 1973. The structure is located on the north side of the airport terminals and extends between the stations for the automated transit system (ATS) at Terminal 1 on the west and at Terminal 3 on the east. In plain view, the parking structure is shaped like an arch between these two terminals for a length of approximately 1,070 feet along the southernmost column line and 1,425 feet along the northernmost column line. Along the north-south column lines, the structure is 460 feet wide. Four pairs of spiral ramps are located in the center of the garage that allow vehicular access to all levels.

The structural floor system for the elevated garage levels is constructed of cast-in-place lightweight aggregate structural concrete. The columns typically measure 26"x32" inches. The beams along the north-south column lines and the girders along the east-west column lines are 7' wide

with unbonded post-tensioned tendons. In between the typical column lines, there are two 1' wide post-tensioned concrete joists aligned in a north-south direction and three 1' wide conventionally reinforced concrete joists parallel to the arching east-west column lines. In the bays where the expansion joints are located, north-south post-tensioned beams, one on each side of the joint, are used in lieu of the north-south joists. The concrete floor slab located between the joists, beams and girders is approximately 4½" thick and is reinforced in two directions with deformed welded wire fabric reinforcing. The beams, joists, and girders extend 18" below the bottom of the slab.

PARKING DECK REPAIRS

The supported floor systems had experienced delamination and spalling of the slab, beam, joist, and column surfaces at many locations throughout the structure due to exposure to deicing salts and water ingress. Additionally, all expansion joint seals in the garage had failed and numerous cracks were allowing moisture and deicing

salts to enter the concrete. The moisture and deicing salts reached the level of the reinforcing steel, leading to corrosion of the embedded reinforcement and resulting in concrete delaminations.

Repairs were implemented to address the concrete deterioration. The repair contractor removed the full depth of the 4½-inch-thick structural slab at areas of deterioration and performed partial-depth removal at beams and vertical surfaces. Over 100,000 square feet of top surface/full-depth repairs and 4,500 square feet of vertical and overhead repairs were performed. ACI and ICRI recommendations for best practices were followed for designing and implementing the repairs, including concrete removal around the full circumference of exposed reinforcing bars, coating of the exposed steel surfaces with a corrosion-inhibiting coating, providing new supplemental epoxy-coated reinforcement, and using replacement concrete designed to be more resistant to extreme weather exposure. Supplemental reinforcement was installed to address section loss of the existing reinforcement. An overview of one area of concrete repairs ready for concrete placement is shown in Figure 2.

Maintaining the schedule was critical due to operations disruption and lost income from areas removed from use. Further complicating the work, the site was very sensitive to dust, and the owner required strict dust mitigation. Enclosures were erected around work areas to provide weather protection to help maintain an aggressive construction schedule as well as for security and dust control. Wet sandblasting was utilized to further reduce dust while cleaning the concrete and exposed steel surfaces. Some of the full-depth slab repair areas exceed several square feet in area, creating a potential fall hazard to the floor below. Providing fall arrest protection would have slowed progress of the work.

POST-TENSIONING REPAIRS

As the contractor performed concrete repairs throughout the garage, the engineer evaluated exposed tendons primarily in girders at repair openings, identifying tendons with various levels of corrosion-related wire loss (Fig. 3). Structural analysis of the as-built configuration of the structure, including actual concrete strengths from material testing and the actual number of wires and tendons present, was used to quantify remaining structural capacity. As a result, the threshold for requiring tendon repair was refined, reducing the repair costs, and expediting the repair schedule. Where tendon repairs were necessary, custom anchor plates were fabricated to allow restoration of the button-head system in-kind, reducing the amount of concrete removal required and avoiding the need for supplemental external PT systems. Replacement wire material exceeded the original specified strength, allowing for fewer wires needed. Four tendons were repaired with 170 linear feet of post-tensioning wire replaced. Sheathing restoration replaced the paper-wrapped sheathing with

new waterproof sheathing materials to extend the life of the repaired tendons. Over 750 linear feet of sheathing repair was performed. After installation of the new tendons, the wires were stressed (Fig. 4) and the surrounding concrete restored.



Fig. 1: Overall view of the south elevation of the elevated parking structure

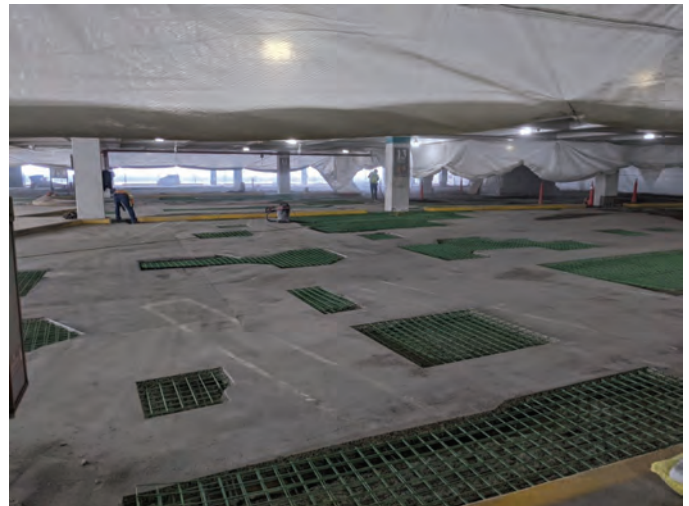


Fig. 2: Full-depth concrete repair openings in the work enclosure



Fig. 3: Fractured and heavily corroded girder tendon exposed in a concrete repair opening

EXPANSION JOINTS

At the ends of expansion joints, a 2 feet deep concrete infill block was used to allow access to stress the exterior girder post-tensioning during the original construction. The joint seal transitioned from a winged seal to a precompressed seal at this location, as the joint split in two directions around the infill block. A number of these concrete infill blocks were displacing downwards (Fig. 5) and required immediate shoring until repairs could be performed. To repair the dropping infill blocks, reduce the length of joint seal required, and to eliminate a transition in joint seal type, the infill block was removed, and the joint opening reconfigured for a uniform-width joint seal (Fig. 6). At other areas, jogs in the winged expansion joint from original construction had discontinuous joint seals that perpetually leaked. These jogs were reconfigured to allow for installation of a continuous joint seal.

Additionally, the existing expansion joint seals had large areas of nosing failure with edge angles protruding up from the joint opening. All the expansion joint seals in the garage were replaced with new, more durable winged expansion joint seals. Approximately 15,000 linear feet of expansion joint seals were replaced throughout the garage.



Fig. 4: Girder PT restressing



Fig. 6: Dropped infill block replaced with monolithic concrete (original position of infill block outlined)

HELICAL RAMPS

Each pair of spiral ramps is essentially an independent structure, isolated from the garage (Fig. 7). The ramps are constructed by cantilevering four levels of sloped floor slabs from six central columns. A bonded overlay was installed over the structural ramp slab during a previous repair project. The ramps receive heavy applications of deicing salts, and no traffic coating was present. Untreated cracks and debonded overlay allowed chloride and moisture exposure to the embedded reinforcement, leading to concrete deterioration, especially at the joint between the ramps and the parking deck (Fig. 8). The deterioration at the joints required shoring of the slab during reconstruction of the joint where the bearing plate was cleaned and coated with corrosion-inhibiting coating and reinforcement with complete section loss was replaced with new epoxy-coated reinforcement. Over 3,700 square feet of concrete repairs on the top surface of the ramp slabs was performed with an additional 3,100 square feet of concrete repair on the underside of the ramps.

POST-TENSIONED COLUMN STRENGTHENING REPAIR

The 60-foot-tall central columns are cantilevered from their foundations and are reinforced with three internal vertical button-head tendons, each consisting of 42



Fig. 5: Dropped, rotated, and spalling concrete at infill blocks



Fig. 7: Helical ramp structure

wires. The tendons resist the significant moment imposed on the column by the cantilevered ramp floors. During the initial condition assessment, 10 broken wires were observed protruding from the top of one column (Fig. 9). Failure was caused by water intrusion at the stressing anchorage on the exposed top of the column. Considering the severe exposure conditions and high potential for further deterioration, the design team recommended that the column be strengthened to alleviate reliance on the original compromised post-tensioning for strength. This approach would prevent unexpected loss of use of a critical component of a heavily trafficked structure.

The strengthening concept consisted of installing new vertical, draped, external post-tensioning (EPT) tendons on the subject column. The innovative detailing and implementation of the EPT alleviated the need to shore all the supported floors of the ramp and avoided detensioning the existing tendons, thereby significantly reducing the schedule and cost, and utilized modern post-tensioning systems to elegantly provide a more resilient and robust structure.

The EPT design and installation for the cantilevered column provided a unique engineering and construction challenge. The design intent was to replace the original post-tensioning design force, almost 1,000,000 pounds in the 6'x3.5' feet column, using new vertical EPT. The work had to be completed without access to the interior tendons or column foundation, and while accommodating limitations of the existing structure. EPT would replace the remaining existing post-tensioning system, which was inaccessible inside the column section, prohibiting further evaluation, repair, protection, or other direct intervention.



Fig. 8: Repair of deterioration of the underside of the ramp slab at the joint between the ramp and the parking deck

New vertical EPT tendons, each consisting of 13-0.6 inch diameter 7-wire strands, were mounted one per side to the long sides of the cantilevered column (Fig. 10). The tendons were draped along the strong axis of the column to follow the drape of the original tendons. Each strand was stressed to 38,000 pounds. New anchor blocks transfer all the force from the new external tendons at the top (Figs. 11 and 14) and bottom (Fig. 12) of the column. Each bar was stressed to 112,000 pounds. The bars were anchored on each side of the column. The final position of the post-tensioned bars was determined in the field



Fig. 9: Failed post-tensioning wires erupted from top of a helical ramp column

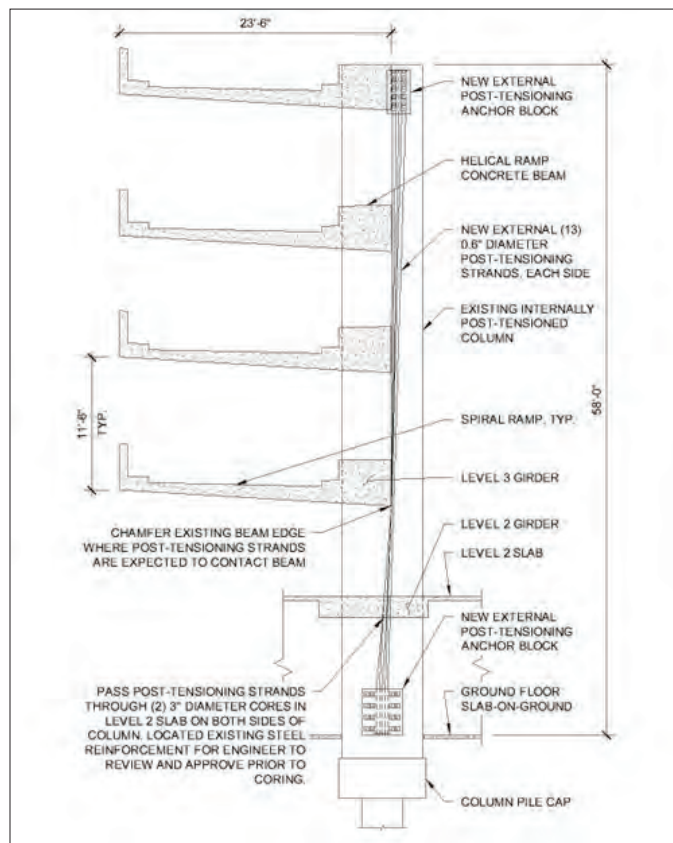


Fig. 10: Elevation of the vertical external post-tensioning strengthening of a cantilever column



Fig. 11: One new anchor block for the vertical external post-tensioning system at the top of the column



Fig. 12: One new anchor block for the vertical external post-tensioning system at the base of the column



Fig. 14: Finished EPT column repair with stainless steel cover protection against UV degradation

after GPR scanning of the columns' faces was complete. The new bars had to avoid the original column tendons and conventional reinforcement, while the new EPT tendons had to avoid the girder tendons and conventional reinforcement where it passes through Level 2.

Working at the top of the column to install and stress the vertical EPT and top anchor blocks presented an access challenge during construction. Instead of constructing an expensive work platform, the contractor constructed a barrier and established fall arrest anchorages at the top of the column. They were then able to efficiently perform the required operations by using an aerial lift and working from the top column surface (Fig. 13). After stressing the new EPT tendons, the broken wires at the top of the column were removed, the openings sealed, and the top of the column protected with the application of a coating system. The exposed tendons were protected with stainless steel sheet metal covers against UV degradation. The finished EPT column repair is shown in Figure 14.



Fig. 13: Stressing of the vertical external post-tensioning tendons strengthening the cantilevered column

O'Hare International Airport Elevated Parking Structure Repairs

SUBMITTED BY

Wiss, Janney, Elstner Associates, Inc.
Northbrook, IL

OWNER

Chicago Department of Aviation (CDA)
Chicago, IL

PROJECT ENGINEER/DESIGNER

Wiss, Janney, Elstner Associates, Inc.
Northbrook, IL

REPAIR CONTRACTOR

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MATERIALS SUPPLIER/MANUFACTURER

Precision Surveillance Corporation
East Chicago, IN

FINALIST—2023 PROJECT OF THE YEAR

HISTORIC CATEGORY

The Omni Homestead Resort Renovation

HOT SPRINGS, VIRGINIA

SUBMITTED BY WALTER P MOORE



The Omni Homestead Resort

RESORT HISTORY

The Omni Homestead Resort, located in Hot Springs, Virginia, has a rich history that spans over two and a half centuries. The resort dates to 1766, when a settler established a lodge around the natural hot springs in the rural Allegheny Mountains. Throughout the 19th century, the property underwent various expansions under various owners, including legendary financier J.P. Morgan. The property acquired its name “The Homestead” while gaining a reputation as a luxury destination drawn by the therapeutic mineral-rich springs.

The resort became a popular year-round destination, attracting guests from around the world and over 20 U.S. presidents including Thomas Jefferson. The Homestead was designated as a National Historic Landmark by the U.S. Department of the Interior due to its architectural and historical significance. The iconic resort was acquired by Omni Hotels & Resorts in 1993. Under new ownership, significant upgrades, additions, and repairs were undertaken to enhance the resort's facilities—culminating with the recent large-scale \$150+ million renovation project.

PROPERTY DESCRIPTION

The resort consists of a series of interconnected buildings, detached buildings, and amenities on approximately 2,000 acres of forested terrain. The main resort complex is anchored by the Great Hall with the East Wing, West Wing, Tower, Garden Wing, Spa, and Ballrooms branching outward. Typical façades are constructed of multi-wythe brick walls with architectural features characterized by symmetry, and decorative details including ornamental copper and Corinthian columns.

BUILDING DETERIORATION

In general, deterioration of historic structures occurs due to age, weathering, environmental conditions, water leakage, settlement, and insufficient maintenance. The Homestead experienced all these issues in addition to damaged structure from previous modifications, original construction issues and infrastructure deficiencies including leaking steam lines within the buildings.

The aging buildings experienced widespread deterioration of the masonry façades, roofs, and waterproofing—resulting in damaged interiors and reduced structural capacity with conditions digressing over the decades. Masonry exterior walls were cracking and bulging with corroded structural steel members from prolonged exposure to exterior and interior water intrusion.

INVESTIGATION, DESIGN, AND REPAIRS

The investigation and design phases were a multi-step process given the magnitude and varying scope with lack of building drawings. Without plans, the team had to determine the original historic finishes on areas that had been replaced but did not adhere to the original design. Before the assessment could start in earnest, a set of working building drawings would need to be generated. This effort involved lidar scanning all interior spaces

and exteriors to prepare a set of floor plans, elevations, and overall 3-D model. A few iterations of scanning were needed, as the initial results indicated “missing” square footage due to the network of discrete tunnels, passageways, stairs, and openings—a hotel design feature that allowed resort staff to move throughout the complex with limited visibility to guests.

RENOVATION OVERVIEW

The owner planned for a comprehensive renovation of the entire resort to include exterior façade restoration, roof restoration program, strengthening structural components during the overall interior renovation of guest rooms, restaurants, and common spaces, upgrading life safety, upgrading infrastructure, abatement of hazardous materials, and constructing a detached wedding pavilion and staff housing center.

The entire design, including all exterior and interior detailing, required strict compliance with the state historic



Main kitchen wall failure after removing the existing copper cornices. The entire length of the wall would require replacement



Tower construction circa 1913 (photo courtesy of Omni)

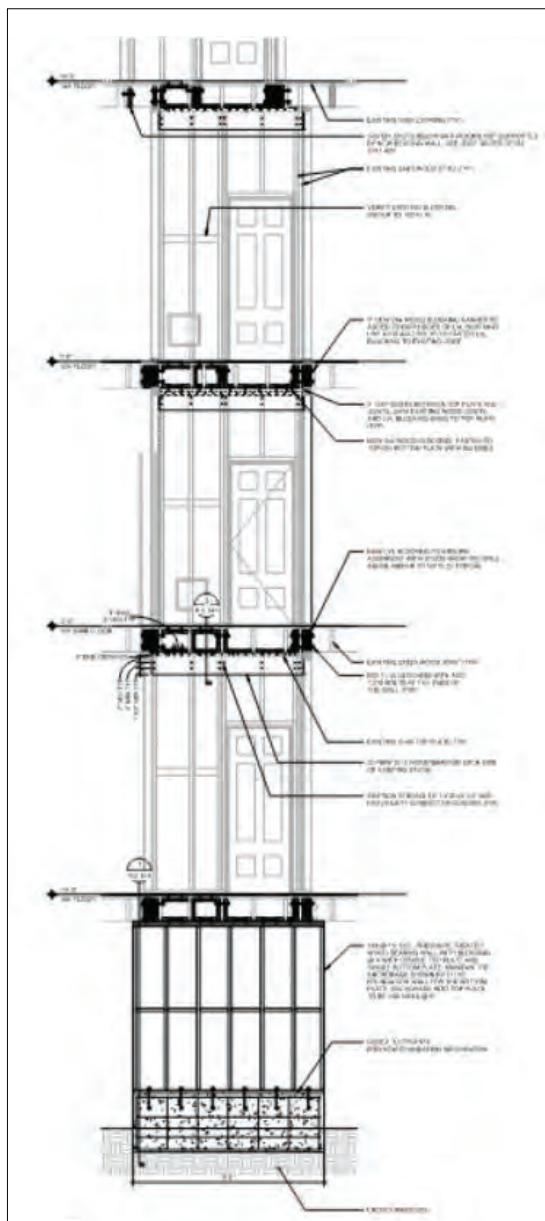


Restoration of the existing portico wood columns with FRP wrap and painting in progress

preservation governing body. The design team consisted of two architects, structural engineer, MEP consultant, interior designer, and IT consultant. The renovation was divided into three main work packages, each with their own general contractor as follows: exterior envelope restoration, interior renovations, and new construction.

WEST & EAST WINGS

An in-depth destructive investigation was performed at these older guest wings which had experienced severely deflected floor, balcony, and roof systems, and overall masonry façade deterioration. Exploratory openings in the West Wing ceilings and the crawl space survey revealed severely notched 2x12 wood floor joists at the bathroom and adjacent closets at all 22 guest room stacks; in many cases, over 75% of the joists were damaged.



Section detail from the structural repair drawings: conversion of existing partition walls into load bearing walls with new footings in the crawl space below

Samples of the bathroom flooring revealed layers of added cementitious materials over the flooring as previous attempts to address floor deflections, creating additional dead loads and compounding floor deflections. Laser leveling survey indicated guest room floor and stair deflections up to 3' within short spans. The wood framing at the balconies was rotting and brick arches stressed. Degradation of structural wood framing members on the East Wing suites allowed the units to sag and become structurally unsound.

The design concept to address the West Wing floor conditions included converting the existing partition walls at the bathrooms into load-bearing stud walls at each floor level supported on new concrete footings in the crawl space, thereby carrying the loads down to grade.

An investigation into the bowed roof framing at the central roof segment revealed two main distressed roof trusses spanning the bearing walls were inadequate to support the roof loads. These wood trusses would be replaced from within the attic with added columns concealed within the corridor walls to transfer the loads down to the stone foundation below.

TOWER

An exploratory investigation was performed at the large terraces and balcony structures at the upper levels of the tower. The copper-clad terrace parapets and balustrades were deteriorated and laterally displaced. Localized openings at the enclosures around the steel columns and beams supporting the balconies indicated corrosion with section loss; however, the full extent would not be known until construction. Leakage was occurring through the brick paver covered terrace decks into the guest rooms



Scaffolding system at the main tower with copper roof restoration and façade repairs in progress

below and would need waterproofing and copper roof restored and coated.

During the construction phase, the brick parapets were exposed and observed cracked and separating from the building, with one corner having copper cladding securing masonry to the building. Therefore, the distressed masonry parapets were completely removed, and a new steel framing system, associated flashings and epoxy anchorages were installed to secure the framing to the decks. Connections between the balcony guardrails to structural steel were mostly severed.

PROJECT CHALLENGES

Location: The resort is in the rural Allegheny mountains, a long drive from the closest city and 45 minutes from the next small town. There were challenges coordinating out-of-town rotating crews from various regions, materials procurement on large scale and site deliveries of large equipment and materials on narrow windy roads. Due to lack of lodging in the region, the hotel graciously housed crews at the resort during construction.

Historic Compliance: The program would need to comply with Virginia Department of Historic Resources (VDHR) in all aspects of interior and exterior detailing and materials requiring adherence. Decorative elements were salvaged where possible and replicated in-kind if fully deteriorated, such as custom copper fabrications.

Operating Hotel: The work was performed in a fully operating hotel with guest rooms, restaurants, main lobby, and ballrooms rotated in and out of commission. Large fluctuations of out-of-service guest rooms depended on captured wings, hotel business, and housed crew. The hotel was only shut down once, for a two-week period in January 2023, for key infrastructure installations.

Façade Access: The exterior restoration team had difficulties accessing various façade areas with sloping grounds, and various set-back roofs. The crews utilized multiple rigging types for access, including reach craft climbers, swing stages, boom lifts, scaffolding, and a 200-ton crane with a 200' reach.

Unforeseen Conditions: One condition discovered during construction became a subproject within the overall program. Removal of the existing copper cornices at the 4th floor main kitchen façade exposed a failed load-bearing multi-wythe brick wall and deteriorated ends of wood roof beams bearing above. Wall replacement was needed. The largest obstacle being shoring the roof system without damaging large kitchen equipment with three additional levels of key back-of-house operations below.

CONCLUSION

These extensive renovations were undertaken to restore and enhance the resort's grandeur while preserving its

historical charm. The exterior restoration component was approximately \$19M and took 16 months to complete, using a crew of 40 trained historic restoration technicians. The project was a coordinated team effort with guidance and vision from ownership, property cooperation, a well-defined and detailed design process, effective project management, strategic decision-making, and contractor execution. These key elements ultimately led to the successful completion of the project, providing longevity of The Homestead.



Tower terraces after structural repairs were completed and parapets reconstructed with restored balustrades. Installation of new balcony guard railings in progress

The Omni Homestead Resort Renovation

SUBMITTED BY
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Charlotte, NC

OWNER
Omni Hotels & Resorts
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PROJECT ENGINEER/DESIGNER
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REPAIR CONTRACTOR
Complete Property Services
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MATERIALS SUPPLIER/MANUFACTURER
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FINALIST—2023 PROJECT OF THE YEAR

WATER STRUCTURES CATEGORY

Structural Strengthening of the Sunset Reservoir—Managing a Repair Project with Challenging Access

EL PASO, TEXAS

SUBMITTED BY SIKA CORPORATION USA



Sunset Reservoir—completed project

RESERVOIR HISTORY

The Sunset Heights Pump Station and Reservoir in El Paso, Texas, is a vital infrastructure facility that has been distributing drinking water to the city since the 1920s. Owned and maintained by El Paso Water (EPWater), this historic site comprises two 4-million-gallon concrete water tanks and a pumping station. The aging structures were in the process of being inspected for repair when an earthquake in 2020 struck 200 miles east of El Paso, causing significant damage to one of the reservoirs, resulting in leaks. The first tank was repaired and strengthened in 2021 and the second tank was repaired and strengthened in 2023. While both projects were similar in nature, the repair and strengthening procedure, and the unique considerations involved in managing the

site mobilization shown here, are from the tank project completed in 2023.

EXISTING CONDITIONS OF THE RESERVOIR: CRACKS, SPALLING, AND CORROSION

The structural repair project was prompted by the deteriorating condition of the existing reinforced concrete elements within the tank. Underwater inspection via submarine cameras showed spalling had occurred on multiple columns and beams, exposing corroded rebar. There were also significant cracks on the tank lid (i.e. roof), which is only 3in thick with minimal steel mesh reinforcement. After rain, the lid was described to look like a leaking sieve. A major crack was observed on the south wall of the tank, which may have occurred after the

2020 earthquake. To mitigate these problems, EPWater accelerated its plans for structural repairs. The final decision on the extent of the repairs, however, had to be determined after the tank was emptied, making collaboration between the owner, EOR, and contractor critical. The repairs included:

- sealing cracks,
- patching spalls,
- replacing joint material,
- strengthening the interior of the tank with a carbon fiber reinforced system, and
- applying a UV-resistant coating on top of the tank lid.

CONSIDERATIONS FOR PROJECT MOBILIZATION

One of the most challenging aspects of this project was the limited access to the tank. With a single entry point into the tank and a strict weight restriction of <800 lb on the roof, the contractor team had to think outside the box to come up with a solution to bring equipment and store the repair product onsite.

The EOR specified a maximum 7'x7' roof opening to bring in the necessary equipment. To move heavy machinery, such as scissor lifts and forklifts, as well as product pallets, the contractor utilized a crane throughout the duration of the project. A custom-built “bucket” was utilized to efficiently transport items in and out of the installation site.

A UNIQUE APPROACH TO THE REPAIR PROCESS

With such a large and open area once inside the tank, a decision on the layout of the job was critical for timely project completion. The repair work was done in sections. A rolling scaffold and scissor lifts were used in each section to provide access to the structure during the concrete repair portion of the job. A high-performance, polymer-modified mortar with corrosion inhibitors was used to patch concrete beams and columns. The large crack on the



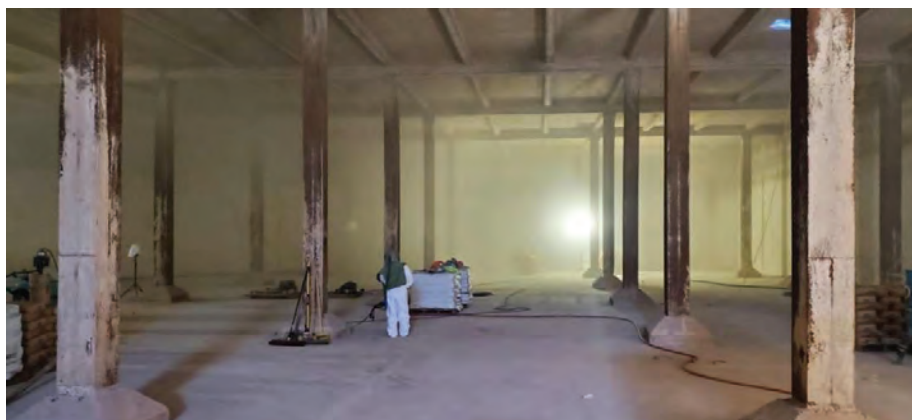
Existing water tank conditions after it was emptied



The visible spalled concrete beams exhibit significant rebar corrosion



Water-ponding on the tank roof after rainfall



Sandblasting of the tank by a worker wearing a ventilation hood

south wall of the tank was injected with an expansive polyurethane chemical grout to stop the active water leak. All other horizontal and vertical cracks on the concrete were repaired by epoxy injection.

The tank roof/lid was the most challenging part of the repair process due to the presence of over 1,300 lf of visible cracks. With the original concrete being poorly consolidated and the soffit being only 3" thick, the contractor came up with a creative solution to route and seal the cracks from the bottom of the tank roof and flooding the top with a low viscosity epoxy to seal all the cracks. This innovative approach not only resolved the

issues but also resulted in considerable cost savings for El Paso Water.

Finally, all edges and joints inside the tank were sealed with a waterproofing tape which allows movement in more than one direction, while maintaining the seal.

OVERCOMING LOW TEMPS AND LIMITED VENTILATION INSIDE THE TANK DURING CFRP INSTALLATION

Rehabilitation of the water tank included structurally strengthening the interior surfaces of the tanks with a potable water certified (NSF/ANSI61) carbon fiber reinforced polymer (CFRP) system. The CFRP not only strengthens the structure, but provides intrinsic moisture protection.

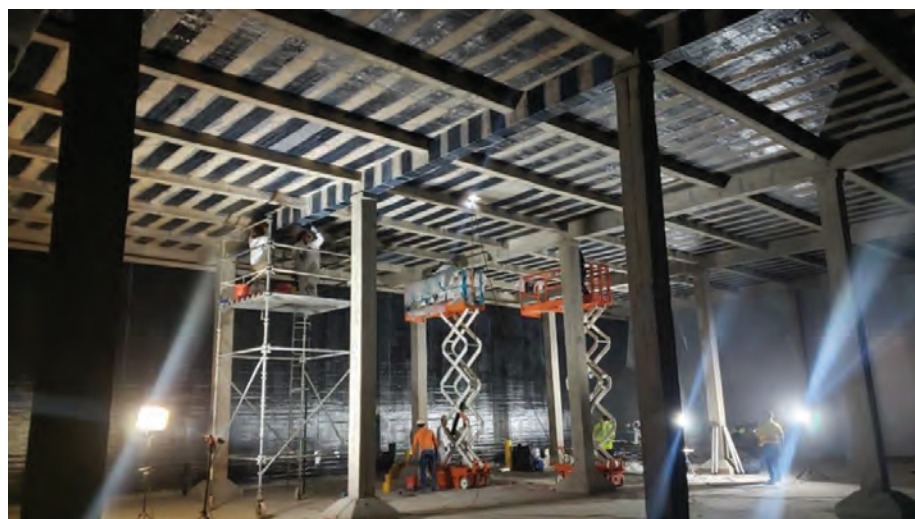
The first and most critical step for CFRP installation is surface preparation. The required surface profile is ICRI CSP3, which is achieved via light sandblasting. With more than 90,000 sf of surface area to be prepared and limited ventilation, this was not an easy task. The EOR allowed for additional four 2'x2' holes to be opened in the roof to facilitate ventilation. The surface preparation was done with only one worker at a time, required to wear a ventilation hood due to the high amount of dust inside the tank. To reduce the dust, washing was practiced inside the tank.

After surface preparation was completed, CFRP installation began during winter. Lower than usual temperatures in El Paso in the early months of 2023 posed an unforeseen obstacle in the project, because CFRP must be installed when temperatures are >40F and rising. Heating such a large tank was not possible, so Visqueen walls were used to partition sections of the tank to heat them properly. Large diesel-powered heaters were deployed round the clock to combat the cold temperatures. A unidirectional CFRP material was installed on the tank walls, floors, columns, beams, and the bottom of the tank slab.

A bi-directional CFRP system was utilized to strengthen the top of the tank roof. Sand was broadcasted



Sectioned areas of the tank heated while FRP is being installed



CFRP installation on the slabs and beams

onto the wet epoxy of CFRP to add traction for the final UV protection coat. In total 93,969 sf of CFRP material was installed.

The last few items to complete the project included:

- cleaning and coating the bearing plates with epoxy;
- coating the stairway;
- replacing the handrail, ensuring safety and functionality;
- disinfecting the entire surface of the tank with bleach to ensure the water's cleanliness;

CONCLUSION

The repair and structural strengthening of Sunset Reservoir in El Paso, Texas, successfully restored the integrity and functionality of the aging water tanks. Work involved repairing concrete spalls, routing, and sealing over 1,300 lf of cracks, replacing joint material, and strengthening the inside of the tank with 93,969 sf of CFRP system. This was a unique project that posed many challenges for the contractor—including limited access to the inside of the tank and large open surface area. Overcoming the challenges required outside-the-box solutions and close collaboration among the stakeholders. From start to finish, the work was done in six months, as originally planned, ensuring the continued distribution of safe drinking water to the residents of El Paso for years to come.

Structural Strengthening of the Sunset Reservoir—Managing a Repair Project with Challenging Access

SUBMITTED BY
Sika Corporation
Lyndhurst, NJ

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El Paso Water
El Paso, TX

PROJECT ENGINEER/DESIGNER
Conсор
El Paso, TX

REPAIR CONTRACTOR
Truesdell Corporation
Tempe, AZ

MATERIALS SUPPLIER/MANUFACTURER
Sika Corporation
Lyndhurst, NJ

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Visit www.icri.org for details and to nominate an individual.

AWARD OF EXCELLENCE

MASONRY CATEGORY

Factory 52 Clocktower

CINCINNATI, OHIO

SUBMITTED BY BUCKEYE CONSTRUCTION AND RESTORATION



Fig. 1: Early photo of the historic United States Playing Card Company world headquarters built in 1891

HISTORY

The United States Playing Card Company has led the world in the manufacturing of playing cards since 1867. The company, founded in Cincinnati, Ohio, relocated to Norwood, Ohio, in 1891. At its peak, the 20-plus-acre facility in Norwood employed thousands of people. The beautiful facility was designed by Samuel Hannaford and Sons, notable architects who also designed Cincinnati City Hall and Cincinnati Music Hall. The iconic clock tower was the centerpiece of the facility and the surrounding community (Fig. 1).

The aging facility sat vacant for as many possible uses were explored by developers and the municipality. During this period, several developers were considered for the property, with most plans involving a complete demolition of the facility. The grounds and buildings were even used in a Hollywood action movie. That was until a forward-thinking developer

had the vision to redevelop the site, bringing new life to the area while celebrating its industrial heritage.

The new mixed-use development proposed by the developer was envisioned to transform the facility into an entertainment destination, not only for the neighborhood but the entire city. The proposed first phase of the project was a \$100 million investment that included condos, apartments, a food hall, restaurants, and even a brewery. To weave the history of the area into the development, several of the most prominent historic structures on-site were incorporated into the development, including the Clock Tower, Factory Building, Employee Dining Hall, and Power Plant Smokestack. The developers named the development Factory 52 to celebrate its ties to the playing card industry. Phase 1 construction started in 2021 and was completed in June 2023.

CLOCKTOWER RESTORATION

The focal point of the development is the 130' tall historic clock tower. Aligned directly with the tree-lined Park Avenue that leads into the area, the clock tower keeps watch over the entire surrounding area. As part of the project, the existing building around the tower was demolished, leaving the clock tower as a standalone structure. To preserve the structure, a complete restoration/stabilization of the tower was performed, including new steel bracing/foundations to stabilize, repairs to portions of the wing walls to remain,



Fig. 2: Clock tower glass/mechanicals prior to restoration



Fig. 3: Four-sided mast climber on tower

installation of new lighting/power, restoration of the glass clock face/clock mechanics (Fig. 2), and installation of access stairs.

PROJECT CHALLENGES

The project presented many challenges given the tight site, fast schedule, logistics on the site, and the typical restoration challenges of unforeseen conditions. Of the many challenges, two of the most interesting were the access issues and shelf angle repairs.

In vertical restoration work, access is typically one of the largest considerations that affect the success of a project. On this project, many factors needed to be considered. The footprint for access was limited due to grading of the site and construction operations for other parts of the development abutting the tower. The height of the structure and surrounding logistics limited the options to a fixed installation to remain efficient. In the end, it was decided to use lift access on the wing walls and mast climbers on the clock tower. The wing walls created a challenge with utilizing a four-sided mast climber configuration.

The solution was to install a single-mast configuration on both the front and rear of the clock tower (Fig. 3). Bridges were constructed between the deck of each mast climber to create the 3rd and 4th sides of the square around the tower (Fig. 4). When the assembly was brought to the ground, the rear mast climber and bridges stayed at the top of the wing wall level while the front mast climber continued to the ground. This allowed the contractor to utilize the benefits of the mast climbers while maintaining a tight footprint.

The largest unknown in the original scope was the existing construction at the shelf angle repairs (Fig. 5). A bulge in the masonry was noted below the stone sill of the lookout. The bulge varied from minor to extreme depending on the location. It was assumed the bulge was due to deterioration of an angle mounted to the side of the concrete framing. This typical repair would involve removing the angle and installing a new angle with proper flashing to prevent the condition from recurring. Once the wall was disassembled, it was



Fig. 4: Bridge pick to allow mast climber to reach ground on at least one side



Fig. 5: Brick/stone removed to access "shelf angle repairs"



Fig. 6: Steel beams exposed below tower lookout

found the angle did not exist and the existing condition was a deteriorated steel beam spanning the width of the clock tower (Fig. 6). The final product was a solution that should last another 100 years.

CONCLUSION

The Factory 52 development looks to be a great success for the Cincinnati/Norwood area. The entertainment district is a destination for the entire area. To accomplish this development while preserving such a great piece of local history is even more impressive. This development will continue to be a cornerstone for the community for years to come (Fig. 7).

The restoration of the Clock Tower was also a huge success. Preserving an incredible historic piece of architecture in a state of disrepair is always challenging. Thanks to the teamwork and vision of a great engineer, contractor, architect, and owner, another piece of the urban fabric of the community was saved (Fig. 8).



Fig. 7: Completed Factory 52 development



Fig. 8: Completed clock tower restoration

Factory 52 Clocktower

SUBMITTED BY
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PLK Communities
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PROJECT ENGINEER/DESIGNER
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REPAIR CONTRACTOR
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MATERIALS SUPPLIERS/MANUFACTURERS
Cathedral Stone **Prosoco**
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AWARD OF EXCELLENCE
PARKING STRUCTURES CATEGORY
Pier 40
NEW YORK, NEW YORK
SUBMITTED BY STRUCTURAL



Pier 40—completed project

BACKGROUND

Built in 1962 for the Holland America Cruise Line, Pier 40 is the largest pier in Manhattan and serves multiple functions within Hudson River Park. For five years, however, the south section of Pier 40 had to be closed due to deteriorating conditions observed at the structure. This section of the pier encompasses approximately 180,000 square feet, including parking, spread over two levels. Closing this area prioritized the safety of visitors, but ultimately hurt the bottom line. Repairs were needed to allow the Park to resume earning its full potential of revenue again.

PROJECT PREPARATION & CONDITION

The existing topping layers on the roof level were removed first, exposing the structural precast concrete planks. This allowed the project team to assess whether the planks required repair or complete replacement. Once repairs were completed, the topping slab and finishes could

be reinstalled. But before work could begin, the owner brought up two significant concerns that impacted the planning and execution of the project.

The first concern was related to potential disruption of the office spaces located below the work area on the first level of Pier 40. The second concern pertained to the limited load capacity of the deteriorated slab sections. A meticulous plan was created that would allow personnel and equipment to carry out the necessary demolition, replacement, and repair work on the existing concrete planks. To ensure safety and efficiency, a comprehensive shoring plan was implemented around the parking decks.

SCOPE OF WORK

Roofing Assemblies Demolition: With the shoring installed and layout of the driving lanes determined, three excavators were employed simultaneously during the

demolition process. Their coordinated efforts involved removing both the asphalt and the concrete toppings. In any sections where access was limited, manual demolition was carried out by hand. To facilitate transportation of debris, a chute was installed on the west side of the pier.

Structural Plank Replacement: To perform the structural plank repairs, the first step involved demolishing the long sides of the precast concrete planks. Once the plank section was secured with chains supported by the excavator, the project team proceeded to complete the demolition on both ends, freeing the plank from the structure so it could be safely lifted out of place and disposed of.

The new precast planks were brought in when demolition was completed. Due to the pedestrian congestion and running path along the east side of the pier, all deliveries of these planks had to occur during the night. Over a span of 13 weeks, more than 600 new precast concrete planks were delivered to the site. On average, a team of three specialists installed around 20 planks per day.

Structural Plank Repairs: In addition to planks that required complete replacement, there were also instances

where the remaining planks required rib and span repairs. The first step involved saw cutting the perimeter of the damaged area, which allowed for the subsequent shoring to take place. Once the shoring was in position, the concrete demolition could proceed, surface preparation, form work installation, and finally patching or pumping, depending on the specific repair requirements.

Pitching Slab & Wearing Slab: The pitching slabs and wearing slabs were replaced after the structural repairs were completed. Approximately 700 cubic yards of concrete were utilized for the reinforced pitching slab, with an additional 500 cubic yards of lightweight concrete used for the wearing slab. Every yard of concrete was efficiently pumped from the first level apron to the roof level, ensuring smooth and streamlined delivery of the materials.

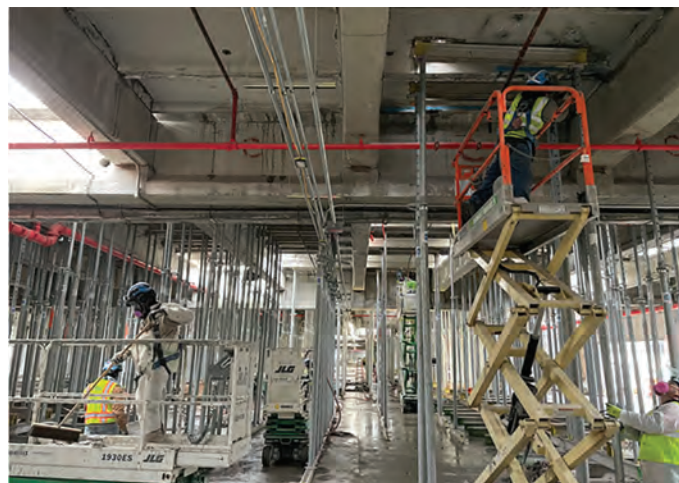
Waterproofing: After the pitching slab was installed, waterproofing began. To ensure proper application temperatures as well as minimize the impact on the public at Pier 40, the waterproofing application was carried out during the night. A reinforced system spanning more than 90,000 square feet was carefully applied. Performing the



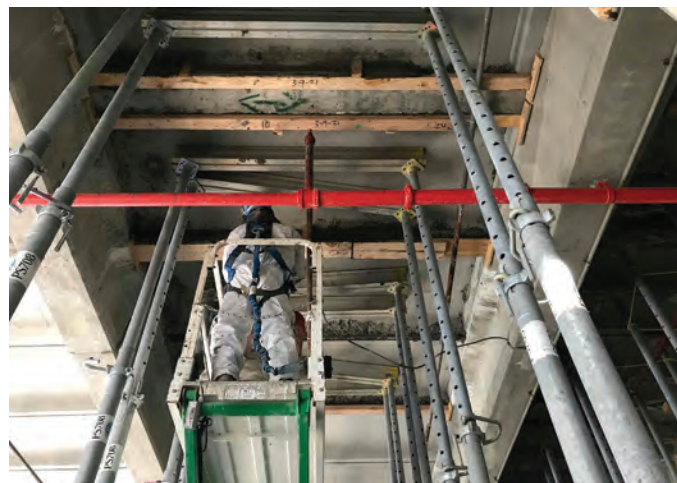
Demolition of concrete slab



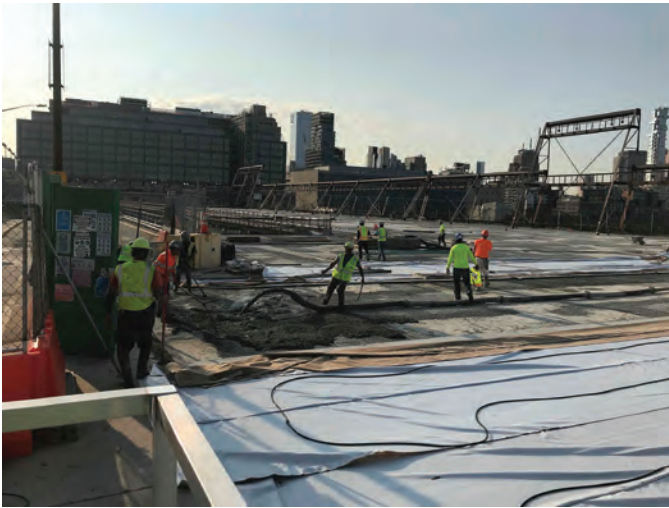
Installation of new precast plank



Shoring under roof slab



Concrete rib repairs



Concrete placement of pitching slab



Installation of new waterproofing system

installation at night not only mitigated quality concerns due to the temperature, but also prevented the public from being exposed to the odor associated with the waterproofing material.

CHALLENGES

The project took place during the height of the COVID-19 pandemic, so one of the primary operational concerns of the project was ensuring the safety of the project staff, particularly those on site. Strict adherence to constantly updated safety protocols was essential to maintain project progress while safeguarding the health and wellbeing of the team.

Maintaining a positive and cooperative relationship with the owner and engineer's team was also crucial to the project success, as the scope of work expanded significantly. Furthermore, as the pier remained active throughout the construction process, advanced notices were crucial for coordinating deliveries effectively and minimizing disruptions to ongoing activities.

RESULTS

After a total of 75,000 man-hours, the project was successfully completed on schedule, with costs coming in within the budgeted amount. Importantly, the team achieved an exemplary safety record with no OSHA

recordable incidents, highlighting the value that the project team placed on safety.

The owner not only appreciated the safety measures implemented, but also recognized the high quality and efficiency of the work completed. The collaborative efforts from all team members involved helped drive the success of this large and complex repair project.

Pier 40

SUBMITTED BY
STRUCTURAL
Long Island City, NY

OWNER
Hudson River Park Trust
New York, NY

PROJECT ENGINEER/DESIGNER
EDG Architecture and Engineering
New York, NY

REPAIR CONTRACTOR
STRUCTURAL
Long Island City, NY

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AWARD OF EXCELLENCE

SPECIAL PROJECTS CATEGORY

McKinney Silos Repair and Restoration

MCKINNEY, TEXAS

SUBMITTED BY JQ ENGINEERING, LLP



McKinney Silos—the completed renovation and mural

INTRODUCTION

The historic silos located in McKinney, Texas, consist of eight interconnected silos constructed circa 1927 as part of the Collin County Mill & Elevator Company. The Mill closed in the 1970s and the silos sat vacant for decades. The structures were contributing elements to the Mill, which was placed on the National Register of Historic Places in 1987. The project included a structural assessment, production of repair documents, and provision of engineering services during bidding and construction to restore the eight historic concrete silos. The structures now serve as the “canvas” of a large-scale mural that reflects and celebrates the culture of the McKinney community.

CONDITION ASSESSMENT

Each silo is approximately 20' in diameter and 80' high, with 7" thick exterior walls. Numerous cracks, delaminations, and spalls were observed in the exterior walls of the silos. Most of the delaminated and spalled

areas of concrete were associated with horizontal steel straps placed with insufficient concrete cover. The steel straps at these locations were observed to have minor to moderate degrees of corrosion—not significant enough to jeopardize the structural integrity of the straps.

TESTING AND INVESTIGATION

The development of the testing and inspection program was based upon ICRI Technical Guideline 210-4R, *Guide for Non-Destructive Evaluation (NDE) Methods for Condition Assessment, Repair, and Performance Monitoring of Concrete Structures*.

In addition to a full visual assessment of the accessible exterior and interior areas of the silos, the exterior surface area of the silos was acoustically sounded using hammers and a delamination detection wheel. Very few of the cracked areas of concrete were found to be hollow

sounding, which would have indicated a delamination in the concrete wall.

CAUSES OF DETERIORATION

Preventing moisture intrusion into reinforced concrete structures is a key component in prolonging the life of such structures. The concrete silos had been exposed to the elements for almost 100 years without any protective coatings on the exterior walls. In addition, the roofing system—which was well past its expected service life—allowed moisture to penetrate the top of the silos, especially around the perimeter of the structure.

Inadequate concrete cover over reinforcing steel inevitably resulted in cracks, corrosion of the steel, delamination, and eventually spalling of the concrete. Lack of attention to periodic maintenance exacerbated the deterioration process, leading to more costly repairs.

REPAIRS/RESTORATION

Based on the observations and testing performed and the

intended future use of the silos by the City of McKinney, the following repairs were performed:

Crack Repairs: To mitigate moisture intrusion into the concrete, cracks in the exterior concrete walls greater than 1/32" wide, where the concrete was not delaminated were routed and sealed using a flexible polyurethane sealant. Approximately 100' of crack repairs were implemented.

Concrete Delamination: Spalled and delaminated areas of concrete on the exterior concrete walls were removed, exposed steel straps were cleaned and coated with a zinc-rich, epoxy-based corrosion inhibitor. Close attention was paid, ensuring conformance with ICRI Guidelines regarding surface preparation and repair geometry. The silo walls were repaired using pre-packaged polymer-modified cementitious repair mortar with integral corrosion inhibitor.

Roof Slab: The roof slab roofing membrane was found to contain asbestos and areas along the outer edges had to be abated to expose the concrete roof slabs for



Silos before construction



The doghouse deterioration was so extensive that it had to be removed



Deterioration at the silo overhangs



Doghouse interior; note deteriorated concrete, added steel framing, and equipment that required removal



Miscellaneous repairs, West Elevation; note formwork at roof slab overhang



Tagging of repairs and demolition of doghouse in progress

full assessment. Deteriorated areas of concrete slab forming the overhang were removed along with areas of deteriorated concrete on the silo walls immediately below the roof slab. Supplemental reinforcing steel was placed, anchored into the remaining roof slab with adhesive, and coated with a zinc-rich, epoxy-based corrosion inhibitor. The overhang and areas of wall repair were then formed and repaired with pump and placed concrete. The remaining sections of the asbestos-containing roof membrane were encapsulated with a liquid-applied, two-component epoxy primer/sealer.

Cleaning: When repairs were completed, the walls were power washed to remove dirt and biological material and PVC downspouts were installed so the artist could start work on the mural at the north and west elevations.

SPECIAL FEATURES/CHALLENGES

The City of McKinney had already contracted with an artist to install the mural on the silos before the start of the structural assessment as the artist was booked for years in advance. This set a fixed end date for the implementation of any structural repairs to the silos, as they would serve as the “canvas” for the mural.

Supply issues and the unforeseen difficulties encountered during the demolition of the doghouse structure compressed the construction schedule. The main objective was to complete the north and west elevations first so as not to delay the artist from starting. Once the north and west face of the silos were completed, work continued on the roof and the rest of the silos while the artist was installing the mural.

OUTCOME AND IMPACT

Once structurally repaired and restored, internationally acclaimed Australian artist Guido van Helten used the concrete canvases to continue his U.S. silo series, “Monuments”, in which he has painted murals across the country—including other public art installations in Minnesota, Iowa, Kansas, and Arkansas. In McKinney, he pulled inspiration from the community itself through conversations with local small business owners in the area, gatherings with neighbors, and stories from the past. It is exactly what the City of McKinney wanted the project to deliver, a salute to the past and a backdrop for the development of the new municipal complex ahead.

McKinney Silos Repair and Restoration

SUBMITTED BY
JQ Engineering, LLP
Dallas, TX

OWNER
City of McKinney
McKinney, TX

PROJECT ENGINEER/DESIGNER
JQ Engineering, LLP
Dallas, TX

REPAIR CONTRACTOR
Western Specialty Contractors of America
Garland, TX

MATERIALS SUPPLIER/MANUFACTURER
Master Builders Solutions
Shakopee, MN

AWARD OF EXCELLENCE
WATER STRUCTURES CATEGORY

The Montebello Water Filtration Plant

BALTIMORE, MARYLAND

SUBMITTED BY SIKA CORPORATION



Montebello Water Filtration Plant—completed project

HISTORY

The Montebello Water Filtration Plant gave the Baltimore region national acclaim when it was completed in 1915. Many experts combined their knowledge to design Baltimore's first water filtration facility, and the facility is still in use today, more than 100 years later. This is yet another living testament that if constructed and maintained properly, concrete can be a sustainable and durable building material with a long service life.

The Montebello Water Filtration Plant I in Baltimore is notable in several ways. Locally, as Baltimore's first water filtration plant, it was a significant accomplishment toward improving living conditions, and it was a cornerstone of Baltimore's modern water supply.

URBAN PROGRESSIVES AND CITY CONDITIONS

Several factors contributed to the nationwide movement of municipal water filtration plant construction and the

innovative designs of the Montebello Filtration Plant: the Urban Progressive Movement, the acceptance of Germ Theory, and The City Beautiful Movement. Each of these independently notable topics occurred toward the end of the 19th century.

With the Industrial Revolution came massive immigration to American cities, resulting in a population increase that was neither planned nor anticipated. Baltimore was no exception. Between 1870 and 1900 the population of Baltimore increased from a quarter-million to a half-million people.

WATER SYSTEM DETAILS

The City of Baltimore operates three water filtration plants to meet current and future demands of the metropolitan area's 1.8 million consumers. Montebello Filtration Plants I and II are normally supplied by the Gunpowder Falls Reservoirs. Water from the Loch Raven Reservoir flows

by gravity to the Montebello plants through a 12' diameter tunnel. Combined, the Montebello Filtration Plants can treat up to 240 MGD. The City's water supply system must not only meet everyday water demands but also the maximum projected needs of consumers. The combined safe treatment capacity of the city's three plants is over 400 MGD.

DETAILS OF STRUCTURES WITHIN PLANT 1

Each of the 4 sedimentation basins at Plant 1 have an 8" thick concrete slab-on-ground with expansion and contraction joints on a 26' x 26' grid, making up approximately 100 slab panels per basin. A 2" thick concrete topping slab is bonded with an epoxy bonding agent to the slab-on-ground below. The reinforced concrete walls around the perimeter of the basins are approximately 15' tall

and enclose the flocculator bays as well as the main sedimentation area. The sedimentation area contains a revolving sweeper arm (260 feet in diameter) with paddles attached to the bottom that move the sediment along the sloped floor to a center discharge piping into the nearby Montebello Lake.

CONCRETE REPAIR IN BASINS

In Basin 3, the delaminations were so vast the design team elected to fully remove the topping slab; this was conducted efficiently. The slab-on-ground surface below was mostly CSP-3 with a red epoxy bonding agent. Having just experienced long-term bond failure, the design team instructed to have complete removal of the old bonding agent and to achieve a CSP-6 or greater.



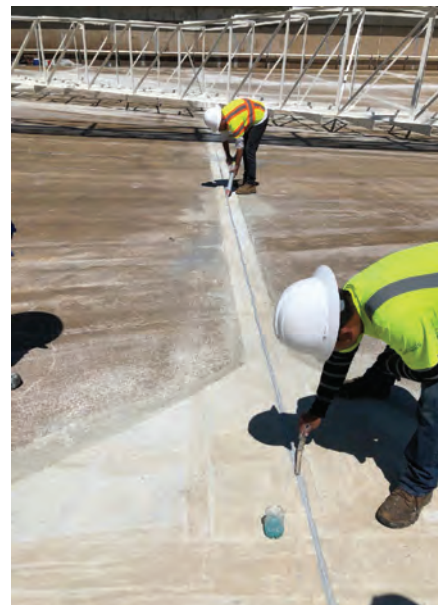
Concrete overlay being poured in strips



Moisture tests being performed



Saw cutting of the edges for concrete repair



Joints being sealed



Application of the waterproofing coating



Completed project

The construction team employed and evaluated several means to obtain the required level of surface preparation. Large grinders did not reach into the valleys to remove the old epoxy. Multi-head scabblers were used effectively to achieve the profile and subsequent ultra-high-pressure water was productive to remove the remaining bonding agent for the approximately 65,000 sf of base slab. A testing program was implemented to ensure success of the surface preparation, bonding agent, and overlay.

REPAIRS TO BASINS 1, 2, AND 4

The approach for the other 3 sedimentation basins (Basins 1, 2, and 4) was to repair and preserve the existing concrete topping slabs since the majority of the topping slab concrete was observed to be sound and with good bond to the slab-on-ground below. These basins did not require total topping slab replacement and instead were rehabilitated using typical concrete repair methods to preserve the service life of the topping slabs.

LOOKING AHEAD: “CONCRETE PROTECTION”

Now that the topping slab was restored sustaining as much of the original as possible, the next step was to protect it and to conserve as much water as possible from leaking out of the basin. A fluid-applied waterproofing membrane system was selected consisting of an epoxy primer, 120 mils of bitumen-modified polyurethane to elastically bridge all cracks and joints, plus a light-colored epoxy topcoat seeded and back-rolled with slip-resistant aggregate.

COATING APPLICATION

All the concrete columns were eroded exposing large aggregate, and some had substantial spalling. These were repaired and rendered with a high-strength gel mortar by trowel-applied method. The perimeter basin walls only

experienced minor wear and did not require resurfacing.

The general contractor had to coordinate mechanical, electrical, and concrete subcontractors in addition to coordinating with the City of Baltimore to meet processed water demand. Another top challenge was to keep water from in-service basins from leaking into the basin under construction. This was mostly overcome by chemical grouting and taking adjacent basins offline.

The Montebello Water Filtration Plant

SUBMITTED BY
Sika Corporation
Lyndhurst, NJ

OWNER
City of Baltimore
Baltimore, MD

PROJECT ENGINEER/DESIGNER
Whitman, Requardt & Associates, LLP
Baltimore, MD

REPAIR CONTRACTOR
The Whiting-Turner Contracting Company
Baltimore, MD

MATERIALS SUPPLIER/MANUFACTURER
Sika Corporation
Lyndhurst, NJ



ICRI Mission: ICRI provides education, certification, networking, and leadership to improve the quality of repair, restoration, and protection/preservation of concrete and other material systems.

Our Vision: ICRI will be the center for repair leadership supporting a profession built on science and craftsmanship, making the built world safer and longer lasting.

AWARD OF MERIT HISTORIC CATEGORY

Roebling Bridge Restoration Project

FRANKFORT, KENTUCKY
SUBMITTED BY LRT RESTORATION TECHNOLOGIES

Spanning the Ohio River, the John A. Roebling Suspension Bridge is an iconic piece of Cincinnati's architectural history and one of the formative engineering feats of 19th century America. At the time of completion in 1867, the Roebling Bridge was the longest suspension bridge in the world. After 155 years, the sandstone on the bridge was in desperate need of repairs. The restoration became a high priority when stone pieces started falling off the towers due to years of weathering and water infiltration. In response, the bridge had to have an emergency protective net installed while the repair plan was developed by the Kentucky Transportation Cabinet.

The restoration contractor performed an extensive restoration of the top 25 feet of the north and south towers, and Anchorages 1 and 2, that ran the full duration of the project. In addition to the masonry, concrete repairs, coating installations, and below-grade waterproofing were completed to preserve the structures. Areas of restoration beyond the towers included the Cincinnati side approach. This included shoring the roadway, removing the pavement, and excavating the subgrade down to the top of



the arch to gain access. After the stone arch was exposed and cleaned, the restoration contractor installed anchors, installed rebar, and poured a new concrete cap on top of the arch allowing for waterproofing.

Numerous challenges existed before construction could even commence. The first was acquiring new stone that matched the existing stone. The original quarry was shut down and another quarry in Scioto County, Ohio was found to be mining the same sandstone material that the original quarry was mining in the 1800s. The Roebling Bridge Restoration contributed to not just a historic structure, but also a historic landmark to the city of Cincinnati and Northern Kentucky.



Roebling Bridge Restoration Project

SUBMITTED BY

LRT Restoration Technologies
Monroe, OH

OWNER

Kentucky Transportation Cabinet
Frankfort, KY

PROJECT ENGINEER/DESIGNER

AECOM
Dallas, TX

REPAIR CONTRACTOR

LRT Restoration Technologies
Monroes, OH

MATERIALS SUPPLIER/MANUFACTURER

U.S. Heritage Group, Inc.
Chicago, IL

Galvanic Cathodic Protection Extends Service Life of Ohio DOT Bridge Substructures

SIDNEY, OHIO

SUBMITTED BY VECTOR CORROSION TECHNOLOGIES, INC.



Ohio DOT District 7, located in Sidney, Ohio, is responsible for the roads and bridges of the greater Dayton, Ohio, metropolitan area along with Auglaize, Champaign, Clarke, Darke, Logan, Mercer, Miami, Montgomery, and Shelby Counties. The District is responsible for maintaining over 4,600 lane miles of interstate, federal, and state highways and 1,408 bridges. Most of these bridges are small 2 or 3 span – General bridges that were built in the 1950s through the 1970s. Maintaining this inventory

of older bridges is a constant process involving assessing, planning, prioritizing, budgeting, and conducting repairs or preventative maintenance.

Prior to 2005, the District's Bridge Maintenance process could be described as a 5- to 7-year repair cycle, where the areas adjacent to prior repairs failed in a somewhat predictable pattern. In 2005, the District Bridge Engineer conducted an experiment to try to get ahead of the constant repair cycle, using an abutment over-build or refacing strategy with galvanic cathodic protection. These repairs are still performing well after 18 years of service. This demonstration included the installation of a corrosion monitoring station to allow the collection of corrosion potential and galvanic current data.

The data from the I-75 Kirkwood Road project is presented to demonstrate the strategy has effectively extended the service life of the abutment by a factor of at least 3 times and is expected to continue to mitigate corrosion for years to come.

Galvanic Cathodic Protection Extends Service Life of Ohio DOT Bridge Substructures

SUBMITTED BY
Vector Corrosion Technologies, Inc.
Lexington, KY

OWNER
State of Ohio Department of Transportation
Sidney, OH

PROJECT ENGINEER/DESIGNER
State of Ohio Department of Transportation
Sidney, OH

REPAIR CONTRACTOR
Complete General Construction Company
Columbus, OH

MATERIALS SUPPLIER/MANUFACTURER
Vector Corrosion Technologies, Inc.
Lexington, KY



AWARD OF MERIT

LONGEVITY OF REPAIRS CATEGORY

Preservation of Tiger Stadium: A 10-Year Update After Repairs

BATON ROUGE, LOUISIANA
SUBMITTED BY SIKA CORPORATION USA

The ability to maintain the iconic original look and restore the structure for many more years to come is a testimony to the efforts and coordination of the project team. With the help of today's construction materials and software technologies that support these projects, success is almost a certainty if implemented with a desire to succeed. College football in the United States dates back to 1869. Louisiana State University's Tiger Stadium is one of these iconic American landmarks which were built in the 1920s. At the time, the stadium had the capacity to hold 24,000 people. It can now hold as many as 102,321 people on game day!

The north end zone of Tiger Stadium was built in 1936. This structure has undergone minor repairs at different times, but a complete renovation and preservation project was not taken up until recently. The North End preservation project is an example of a repair project that makes the repair industry proud. The selection of the project team, use of technology and techniques in identifying the repair problems, coordination of tasks, EHS impact, event scheduling conflicts, quality assurance program, and the desire to exceed expectations were the hallmark of this project.

Preservation of Tiger Stadium: A 10-Year Update After Repairs

SUBMITTED BY
Sika Corporation
Lyndhurst, NJ

OWNER
Louisiana State University
Baton Rouge, LA

PROJECT ENGINEER/DESIGNER
Engensus, LLC
Baton Rouge, LA

REPAIR CONTRACTOR
Python Corporation
Lacombe, LA

MATERIALS SUPPLIER/MANUFACTURER
Sika Corporation
Lyndhurst, NJ



Ten years after the initial repairs, the project looks just as good as in 2012, when the original restoration was completed. According to the Engineer of Record for LSU, all the repairs remain intact with very minor discoloration in some areas with high UV exposure.



Bon Secours St. Francis Downtown Envelope Renovation

GREENVILLE, SOUTH CAROLINA

SUBMITTED BY WESTERN SPECIALTY CONTRACTORS



project had more than 15 subcontractors involved in the work with the masonry restoration contractor having the majority of the scope onsite. Schedule was feared to be the largest obstacle for the project team during the front end of the project—but many other hurdles were discovered along the way. One being the 11-story scaffolding that would reside on the 2-story addition roof along the north elevation of the structure and the post shores that would reside within the hospital to support the scaffolding above. Other obstacles included long lead times on materials or unavailability of materials, sequencing of the work items between subcontractors to meet schedule, maintaining dry conditions in the hospital while demoing 11 stories of brick façade, backwall, and interiors.

After a piece of masonry dislodged from the parapet of the façade and fell to the ground below, Bon Secours St. Francis (BSSF) Downtown Hospital ownership knew they had to address the delayed maintenance at the exterior of their façade. In the midst of COVID-19, the BSSF Downtown Envelope Restoration project began in January 2021. Composed of a 2-year schedule with 10 phases at an 8-week duration for each phase to renovate interior patient rooms and restore the exterior façade, there was a steep learning curve for all involved with little room for error.

There was no float in the 2-year project schedule and there were many unforeseen issues that caused temporary delays. The

Through close communication and collaboration between the project team and ownership, no phases were late on their committed turnover to ownership and no DEHEC inspections failed through the 2-year project. The project was completed on time with safety and quality, providing ownership with a watertight façade and newly renovated patient rooms.

Bon Secours St. Francis Downtown Envelope Renovation

SUBMITTED BY
Western Specialty Contractors
Charlotte, NC

OWNER
Bon Secours St. Francis Downtown Hospital
Greenville, SC

PROJECT ENGINEER/DESIGNER
Wiss, Janney, Elstner Associates, Inc.
Northbrook, IL

REPAIR CONTRACTORS
Western Specialty Contractors
Charlotte, NC

MATERIALS SUPPLIER/MANUFACTURER
Guaranteed Supply Company
Charlotte, NC



AWARD OF MERIT MASONRY CATEGORY

McGill Strathcona Music Building Building Masonry Strengthening

MONTREAL, QUEBEC, CANADA

SUBMITTED BY MAPEI, INC.

The McGill University's Strathcona Music Building, located in Montreal, Quebec, was constructed in 1896 and the upper levels had suffered internally over the generations from winds and seismic forces. The Strathcona's interior walls were composed of terra-cotta bricks dating from the 19th century—and badly needed extra strengthening. The engineers were looking for a Fiber-reinforced polymer (FRP) solution to restore the structural integrity of the masonry wall. Due to its historical significance and the behavior of old-aged masonry, FRP wasn't an option. The FRP system has a modulus of elasticity that is suitable for reinforced concrete but isn't compatible with the low-modulus and high-porosity mortar of masonry walls.

The engineer and architect found a solution in a fiber-reinforced cementitious matrix (FRCM) option designed for masonry. This system is commonly used in Europe, where old buildings often require adaptation to resist a seismic event. It has a wider mesh of a low modulus mesh and breathable mortar. To maintain the aesthetic appearance of the outside masonry wall, a mechanical anchor was also added throughout the wall to ensure proper load



transfer. This meant that only the interior needed to be covered and no changes were made to the exterior portion of the wall.

The results ensure the continuous performance of the building which had been standing in downtown Montreal for 125 years already. This is a great example of how European technology can be used in North America to extend the service life of our historical buildings.

McGill Strathcona Music Building Masonry Strengthening

SUBMITTED BY

Mapei, Inc.

Laval, Quebec, Canada

OWNER

McGill University

Montreal, Quebec, Canada

PROJECT ENGINEER/DESIGNER

WSP

Montreal, Quebec, Canada

REPAIR CONTRACTOR

Atwill-Morin

Montreal, Quebec, Canada

MATERIALS SUPPLIERS/MANUFACTURERS

Mapei, Inc.

Laval, Quebec, Canada



A 30-Year Study in Sustainability

CHEVY CHASE, MARYLAND

SUBMITTED BY SIKA CORPORATION



The cracks were routed and sealed with urethane sealant, and the spalls were repaired with polymer-modified mortar according with ICRI standards. A 1/4" thick double broadcast system of low-modulus epoxy was applied to the entire deck for protection. The interior deck received no attention. After 20 more years, the epoxy broadcast system showed little wear. It did crack over the sealant in about 25 percent of the treated cracks. Some of these cracks leaked water and allowed chloride ingress. Localized repairs were necessary at the leaking locations. The unprotected deck required complete replacement as the lower mat of reinforcement corroded from chlorides and carbonation, spalling and delaminating most of the underside concrete.

Two structural parking decks were constructed in 1989. Both were 8" thick cast-in-place with the same concrete mix design reinforced with top mat of epoxy-coated rebar and bottom mat of uncoated rebar. One deck was fully exposed to the weather, treatments of deicing chemicals, and heavy traffic as it was used as a loading dock, dumpster area, and for parking. The other deck was below in an interior environment exposed to the water and chlorides carried in from the cars along with elevated humidity due to inadequate ventilation. Both decks had a fair amount of original shrinkage cracking.

After 10 years, the exposed deck was leaking water through cracks and chloride-induced corrosion had caused several spalls on the top surface where there was less concrete cover.



The comparison of the decks validates the application and maintenance of protective, sustainable coatings to prevent deterioration, plus aesthetically enhance the environments. Not only would the high cost of repairs be avoided, but also the disruption to the tenants, liability to the owner, and lost revenue of the facility. Concrete protection is undeniably a financially prudent and environmentally responsible decision!

A 30-Year Study in Sustainability

SUBMITTED BY
Sika Corporation
Chevy Chase, MD

OWNER
Five Star Senior Living
Baltimore, MD

PROJECT ENGINEER/DESIGNER
AECOM
Portland, ME

REPAIR CONTRACTOR
Restoration East, LLC
Rosedale, MD

MATERIALS SUPPLIER/MANUFACTURER
Sika Corporation
Lyndhurst, NJ

AWARD OF MERIT

PARKING STRUCTURES CATEGORY

Structural Rehabilitation of Historic OSF Ministry Headquarters Parking Structure/Parking Pavilion

PEORIA, ILLINOIS

SUBMITTED BY GOLF CONSTRUCTION

The 4-level, 145,000 sf Parking Structure was originally constructed in 1950 and is part of a nationally registered historic district. Over the past 70 years, the structure has undergone repairs; however, the structure was severely deteriorated and in a state of disrepair. Due to safety concerns, the structure had been closed for many years. The design team performed a condition assessment that included visual observation, sounding, Ultrasonic Shear Wave Tomography testing, a GPR survey of existing reinforcement, and exploratory demolition. The assessment found the structure to be in poor condition with over 90% of the roof level beams exhibiting severe freeze-thaw deterioration, an estimated 50% of lower-level beams exhibiting areas of corrosion related distress, and over 50% of the total elevated floor slab areas exhibiting corrosion-related distress.

Several solutions were presented to the owner, includes complete demolition, partial demolition, and full restoration. The owner selected a full restoration program that included full replacement of the floor slabs, full beam replacement at roof level beams exhibiting freeze-thaw, partial depth repairs



to address corrosion-related distress within lower-level beams, girders, and columns, complete replacement of all MEP systems, and installation of a new fire protection system. All designs were reviewed and approved by the State Preservation Office and National Park Services. Due to grant funding, construction had to be substantially completed within 12 months. Construction was started in January 2022 using temporary heating. Due to the extensive pre-construction testing and planning, construction went generally smoothly with minimal surprises. Final concrete placement occurred in December 2022. Traffic bearing membranes and MEP work was finished in the spring of 2023. The structure re-opened in July 2023.

Structural Rehabilitation of Historic OSF Ministry Headquarters Parking Structure

SUBMITTED BY
Golf Construction
Hammond, IN

OWNER
OSF Healthcare
Peoria, IL

PROJECT ENGINEER/DESIGNER
Walker Consultants
Hoffman Estates, IL

REPAIR CONTRACTOR
Golf Construction
Hammond, IN

MATERIALS SUPPLIER/MANUFACTURER
Chicago Contractor Supply
Naperville, IL



Bell Media

MONTREAL, QUEBEC, CANADA

SUBMITTED BY SOCONEX



The constraints in carrying out the work at night on a continuous basis, even in winter, on three floors and in four stages per floor, while maintaining media operations in the building, meant that the original design had to be adapted. Good collaboration and creativity on the part of all stakeholders made it possible. During the design review, modifications were made to make the project easier and quicker to complete as well as more esthetically pleasing. The principal modifications were changes in the geometry of the abacuses from circular to trapezoidal and from regular concrete from a concrete mixer to self-consolidating micro concrete. Modular steel forms were designed and prefabricated to accommodate six different configurations on the 95 columns. The steel forms could easily be cleaned, adapted, and reused, and provided a smooth finish.

Collaboration between the specialized contractor and the designer led to an optimized choice of materials, surface preparation, and concreting methods to consolidate and restore the building's existing structure and bring it into compliance with standards, its new use both structurally and esthetically and give it new life. The combined use of bagged self-consolidating micro concrete, modular steel formwork and CFRP reinforcements not only made the project possible; it also optimized the operations with a high level of technical, structural, and esthetic performance.

The owner wished to develop an existing building built in 1988 in anticipation of the opening of a new television network (NOOVO) in the Montreal metropolitan area. The assessment of the building's structural condition revealed that the structural capacity was inadequate, and the structure lacked reinforcing steel. To make the building compliant with current codes, the structural engineer combined the use of carbon fiber reinforced polymer (CFRP) and the addition of reinforced concrete abacuses around the columns.



Bell Media

SUBMITTED BY

Soconex

Montreal, Quebec, Canada

OWNER

Bell Media - BGSi

Montreal, Quebec, Canada

PROJECT ENGINEER/DESIGNER

Boulva, Verganelakis & Associates

Montreal, Quebec, Canada

REPAIR CONTRACTOR

Soconex

Montreal, Quebec, Canada

MATERIALS SUPPLIER/MANUFACTURER

Sika Canada

Montreal, Quebec, Canada



ICRI SAFETY AWARDS

In 2020, the ICRI Safety Committee created a new Safety Award at ICRI. Its purpose is to support a culture of Safety in the concrete repair industry with the belief that all incidents and injuries can be avoided. This award recognizes industry best safety practices, celebrate leaders in our industry and share those best practices so that others may learn and put them into practice.

This year, the committee received four submittals from four contractors. The submittal process requires answers to several questions pertaining to specific safety programs and an overall safety philosophy. Submitters are also asked to upload backup information to testify to the safety standards they present with several of the questions. There are a total of 15 questions with 7 requiring backup attachments. The information requested covers a wide range of jobsite safety considerations.

After the submittal process was complete, the committee gathered a panel of judges for the review process. All the candidates provided a complete package of information, and all clearly demonstrated an outstanding safety environment in their respective companies. The judges were impressed with the level of commitment to safety from every submittal.

Thank you to everyone who submitted for the 2023 Safety Awards. ICRI thanks the judging panel for their work, the ICRI Awards Committee for their support of this program and the ICRI 120 Environmental Health and Safety Committee for creating this outstanding award for ICRI. We look forward to this award as it continues to celebrate industry best practices and improve jobsite and worker safety every year.



2023 ICRI SUSTAINABILITY AWARDS

In an effort to promote sustainability in concrete repair, ICRI announces that the new **2023 ICRI Sustainability Award** has been awarded to a project that exemplifies the concept and demonstrates a commitment to the profession. Historically, this award category has not received much attention—likely due to uncertainty with regards to the criteria. Thus, a new methodology was proposed by Committee 160, Life Cycle and Sustainability, that the Awards Committee found acceptable—the award would be granted to one of the projects already submitted for general consideration.

To determine the winner of the Sustainability Award, a task group within Committee 160 volunteered to review every project that was submitted for consideration in the 2023 ICRI Project Awards program. After reviewing these projects, each task group member compiled a short list of candidate projects most aligned with the sustainability theme. Using rank-choice voting, a finalist was chosen from the many commendable and noteworthy candidates. Given the success of the process, it is anticipated that the Sustainability Award will be awarded using a similar procedure in future years.

Congratulations to the inaugural winners of the ICRI Sustainability Award.

2023 SUSTAINABILITY AWARD OF EXCELLENCE

A 30-Year Study in Sustainability

Submitted in the
Parking Structures Category

by
Sika Corporation
Lyndhurst, New Jersey



2023 SUSTAINABILITY AWARD OF MERIT

Galvanic Cathodic Protection Extends Service Life of Ohio DOT Bridge Substructures

Submitted in the
Longevity Category

by
Vector Corrosion Technologies, Inc.
Lexington, Kentucky



CONCRETE REPAIR CALENDAR

NOVEMBER 15, 2023

The Concrete Durability Webinar Series #2
Don't Patch it, Repair it!
Website: www.icri.org

DECEMBER 13, 2023

The Concrete Durability Webinar Series #3
ICCP and Electrochemical Treatments
Website: www.icri.org

JANUARY 17, 2024

The Concrete Durability Webinar Series #4
Galvanic Encasements & Joint Systems
Website: www.icri.org

JANUARY 22, 2024

2024 ICRI Kick-Off Party
Las Vegas, Nevada
Website: www.icri.org

JANUARY 22–25, 2024

World of Concrete
Las Vegas, Nevada
Website: www.worldofconcrete.com

FEBRUARY 21, 2024

The Concrete Durability Webinar Series #5
Extending Bridge Life Using Targeted Cathodic Protection
Website: www.icri.org

MARCH 20, 2024

The Concrete Durability Webinar Series #6
Surface Applied Cathodic Protection
Website: www.icri.org

MARCH 24–28, 2024

ACI Concrete Convention
New Orleans, Louisiana
Website: www.concrete.org

INTERESTED IN SEEING YOUR CONCRETE INDUSTRY EVENT LISTED HERE?

Events can be emailed to editor@icri.org. Content for the January/February 2024 issue is due by December 1, 2023, and content for the March/April 2024 issue is due by February 1, 2024.

ASSOCIATION NEWS

AMERICAN CONCRETE INSTITUTE'S NEW MID-ATLANTIC RESOURCE CENTER OPENS IN COLUMBIA, MARYLAND

The American Concrete Institute (ACI) opened a third Resource Center on September 5, 2023, located in Columbia, MD, to serve Mid-Atlantic based communities in the concrete industry. This new ACI Resource Center will help meet the increased demand for ACI knowledge through hands-on training, educational offerings, and on-demand access to ACI Certification Programs.

ACI Resource Centers offer a diverse array of custom training programs designed to communicate required skills and demonstrate test methods in order to achieve certification. In addition to custom training programs, the new Mid-Atlantic Resource Center offers education programs on popular industry topics such as design, fundamentals, repair, slabs, and more.

Visit www.concrete.org for more information and updates on future events at the Mid-Atlantic Resource Center.

CONCRETE INDUSTRY MANAGEMENT PROGRAM SEEKS DONATIONS FOR 2024 AUCTION AT WORLD OF CONCRETE

The Concrete Industry Management (CIM) program is seeking donations for their 2024 CIM Auction to be held at World of Concrete. The auction is scheduled for Wednesday, Jan. 24, 2024, at the Las Vegas Convention Center. The silent auction will be held from

11 a.m. to 1 p.m. and the live auction begins at 1 p.m.

Proceeds from the 2024 CIM Auction will benefit the CIM National Steering Committee (NSC) and support the current CIM programs at Middle Tennessee State University, New Jersey Institute of Technology, Texas State University, California State University – Chico, South Dakota State University, and the Executive MBA program, as well as help fund scholarships.

The 2023 auction raised more than \$2.1 million in gross revenue with items including two concrete mixer trucks, a truck-mounted concrete pump, a laser screed, and much more.

If interested in donating, contact CIM Auction Committee Chairman Ben Robuck at ben.robuck@cemex.com.

STAFF CHANGES ANNOUNCED AT POST-TENSIONING INSTITUTE

The Post-Tensioning Institute (PTI) is pleased to announce key staff changes that went into effect recently, reinforcing our commitment to excellence and growth within the organization.



CHRISTLE

Following his previous technical leadership role with PTI, as director of Technical, Education & Promotion Programs, Tim Christle, PE, will be stepping into a new role as executive vice president.

In this capacity, he will lead the strategic growth of the institute's technical, certification, education, and promotion programs.

He will represent PTI with an external focus on advancing the post-tensioning industry and reinforcing PTI as the leading post-tensioning resource.



ZUNIGA

Joining PTI in 2021 as a certification engineer, Miguel Zuniga will be transitioning into the position of certification program manager. In this new role, he will manage and lead the PTI plant certification and field personnel

certification programs with a focus on improving existing program elements and strategically expanding each program in response to post-tensioning industry needs.

For more information visit www.post-tensioning.org.

ACI FOUNDATION HOSTS TECHNOLOGY FORUM IN PORTLAND

The ACI Foundation's Concrete Innovation Council (CIC) gathered in Portland, OR, on August 29-31, 2023, for the 2023 Technology Forum—an innovation-focused educational and networking event for concrete professionals.

Attendees had the opportunity to connect with representatives from material suppliers, architecture & engineering firms, contractors, academics, top-level executives, and regulatory agencies. The event included fifteen presentations that highlighted new technologies, advances in research, and new test standards.

New technologies were discussed for determining concrete strength and how such

methodologies can find a path to be used in acceptance criteria for concrete, including accommodating in-place measurements evaluated using machine learning algorithms. Participants discussed a few currently available new technologies for in-place strength testing. The panelists debated on how the industry could develop more rapid and reliable acceptance criteria based on those methods.

To learn more and for information on the 2024 Technology Forum, May 14-16, 2024, Santa Fe, NM, visit <https://www.acifoundation.org/technology/forums.aspx>.

CONCRETE INDUSTRY MANAGEMENT PROGRAM'S NATIONAL STEERING COMMITTEE ANNOUNCES NEW BOARD

The National Steering Committee (NSC) for the Concrete Industry Management (CIM) program recently announced the appointments of seven new members to its board of directors:

- Steven Bishop, President/COO, Maschmeyer Concrete Company of Florida
- Heather Brown, Vice President of QC/QA, Irving Materials, Inc.
- Paula Dunn, Director, Learning and Development, Sika Corporation
- Brian Gallagher, Vice President, Corporate Development, Graycor
- John McDougall, Director of Business Development, Baker Restoration & Waterproofing
- Andrew Pinkerton, Executive Director, Cement Council of Texas
- Ben Robuck, Vice President - Infrastructure and Direct Work, CEMEX

For the complete list of current officers and board members, visit www.concretedegree.com.

CENTER OF EXCELLENCE FOR ADVANCING PRODUCTIVITY WELCOMES FIRST MEMBERS

PRO: An ACI Center of Excellence for Advancing Productivity is pleased to announce its first members: Ceko Concrete Construction, LLC, and The Conco Companies. Both organizations have joined PRO as Silver members.

Ceko is a nationwide leader in cast-in-place concrete construction. Originating in 1912 in Omaha, NE, Ceko is now headquartered in Kansas City, MO, with 19 locations across the country. The Conco Companies began in

1959 and are headquartered in the Bay Area in California, serving a wide range of areas on the West Coast, while also performing shotcrete and rebar installations. Ceko's and Conco's innovative reputations will be upheld through their membership with PRO.

PRO and its members aim to advance new technologies and processes that improve concrete construction productivity beyond historic levels. To learn more about PRO and to get involved, visit www.concreteproductivity.org.

IDEAS FLOW AT NEU'S CARBON NEUTRAL CONCRETE SUMMIT

Representatives from the EPA, Department of Energy (DOE), Federal Highway Administration (FHWA) and the National Institute of Standards and Technology (NIST) were among the attendees at NEU's first Summit on Accelerating Carbon Neutral Concrete Materials and Technologies. Federal agency representatives, NEU members, and allied industry association representatives discussed industry needs, current initiatives, and how all parties can work together to reach carbon neutrality throughout the cement-concrete value chain by 2050.

Education is key: Education on carbon emissions is considered a leading concern, which prompted the formation of a committee to tackle education goals. The objective of the committee is to work with NEU to determine the best paths to provide education to many different sectors, which includes college students, architects, owners, and contractors.

Federal initiatives: NEU members learned about the possibility of support from the government through the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA). With the opportunity to speak to federal agency representatives one-on-one, members were able to understand what the agencies are doing now and how their initiatives can help them.

For more information visit info@neuconcrete.org.

AMERICAN CONCRETE INSTITUTE HONORS OUTSTANDING CONTRIBUTIONS TO THE INDUSTRY

The American Concrete Institute (ACI) is pleased to recognize the following medals and awards for exemplary achievement, groundbreaking research, and service to ACI and the concrete industry:

- ARTHUR R. ANDERSON MEDAL – Lawrence Sutter
- ROGER H. CORBETTA CONCRETE CONSTRUCTOR AWARD – Peter J. Ruttura
- CLYDE E. KESLER EDUCATION AWARD – Benoit Fournier
- ROBERT F. MAST AWARD – Stephen J. Seguirant
- HENRY C. TURNER MEDAL – Keith Kesner
- CHARLES S. WHITNEY MEDAL – Andrzej S. Nowak
- ACI CONCRETE SUSTAINABILITY AWARD – Moncef L. Nehdi
- ACI EDUCATION AWARD – Josh Edwards, Kirk McDonald
- WASON MEDAL FOR MOST MERITORIOUS PAPER – Benjamin Worsfold, Jack P. Moehle, John F. Silva
- ACI CONCRETE INTERNATIONAL AWARD – James E. Klinger, Oscar R. Antommattei, Aron Csont, Trevor Prater, Michael Damme, Bruce A. Suprenant
- ACI SYMPOSIUM VOLUMES AWARD – Amir Gheitasi, Christopher R. Gentz, Andrew Foden, Biniam Aregawi
- METE A. SOZEN AWARD FOR EXCELLENCE IN STRUCTURAL RESEARCH – Víctor Aguilar Vidal, Robert W. Barnes, Andrzej S. Nowak
- WASON MEDAL FOR MATERIALS RESEARCH – Hai Zhu, Dhanushika Gunatilake Mapa, Catherine Lucero, Kyle A. Riding, Abba Zayed

Learn more about each of the awards listed above at concrete.org

INTERESTED IN SEEING YOUR NEWS LISTED HERE?

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PEOPLE ON THE MOVE

PROSOCO NAMES NEW PRESIDENT; OTHER PROMOTIONS AND NEW HIRES

David Boyer who is stepping down from the role of President, but will continue serving as Chief Executive Officer, announced that Kevin Sigourney is taking over as president of PROSOCO, a Lawrence, KS-based manufacturer of specialty construction products and approaching its 85th year.



SIGOURNEY

After working as PROSOCO's Customer Care Manager (2000-2011), Sigourney was promoted to lead the company's Consolidateck line of concrete flooring chemicals, stains and cleaners as Product Manager. In 2017, he was promoted again to Vice President of Brand Integrity, overseeing all aspects of the company's sales and brand strategy operations.



LAUDERDALE

Nicole Lauderdale has been promoted to Vice President of Marketing. She began her career at PROSOCO in 2015 as Sales & Marketing Specialist, where she worked directly with sales teams and leaders of PROSOCO's business units to identify marketing opportunities and priorities. In 2018, she was named Director of Brand Strategies to lead marketing operations and brand initiatives for the rapidly growing organization.



DANIEL

Bill Daniel, previously with North Georgia Brick Company, brings 26 years of experience in the brick business to his role as PROSOCO's Regional Sales Manager supporting projects in the Southeastern U.S. Daniel will cover a territory that includes Georgia, Alabama, Mississippi, Tennessee, and the Florida panhandle.

CTLGROUP ANNOUNCES THAT HAEJIN KIM, PHD, PE, HAS JOINED THE ORGANIZATION AS SENIOR ENGINEER

With over 18 years' experience in researching concrete technology and managing projects, Dr. Kim will work within the company's laboratories and ensure proper quality assurance on all projects.

Dr. Kim is a distinguished professional engineer and concrete researcher known for his significant contributions to the field of con-



HAEJIN KIM

crete technology. His career has been marked by pioneering projects, from innovative aggregate systems to sustainable concrete methodologies, often in collaboration with organizations like the Federal Highway Administration (FHWA) and State DOTs. Dr. Kim served as

the Director of the National Ready Mixed Concrete Association's Research Laboratory (NRMCA), where he engaged in practical research projects funded by the Ready Mixed Concrete Research & Education Foundation

the Director of the National Ready Mixed Concrete Association's Research Laboratory (NRMCA), where he engaged in practical research projects funded by the Ready Mixed Concrete Research & Education Foundation



EXTEND YOUR WORK SEASON

with Rapid Set® cements,
concretes, mortars, and grouts

When repairing a New Jersey pier in December, contractor Persistent Construction remediated height differences in precast concrete replacement panels with Rapid Set® Mortar Mix Plus (MMP). Rapid Set achieves structural strength in hours, not days, increasing productivity even in cold temperatures.



CTScement.com ■ 800-929-3030

PRODUCT INNOVATION

FASTER ONE-STOP CONCRETE WASHOUTS

For ready-mixed concrete plants, any delay in washouts—whether due to truck operators driving long distances or the complexity of the process itself—can reduce productivity and profitability. The challenge is that traditional washout techniques can be time-consuming and labor-intensive, often involving multiple steps.

As a solution, Jadair International has created a Redi-Wash Washout System that dramatically streamlines the washout process, which saves considerable time, labor, and money. The system can recover sand, stone, and cement for re-sale or re-use using recycled water in a closed-loop system.



Rather than have concrete truck operators waste time driving to remote locations for washout, the machine is conveniently located at the plant. Concrete truck operators simply drive up, dump, and drive away. The advanced units allow a driver to complete a washout in minutes at a single onsite location without a washout pit, settling pond or presses of any sort. This keeps concrete trucks on the road making money, instead of wasting time on slow washouts.

“Altogether we are saving hundreds of thousands of dollars a year in driver’s time, truck time, and trucking material using a modern washout system,” says Frank Gelewski, Director of Operations at Fair Lawn, NJ based Tanis Concrete, Inc.

For more information, call 800-669-3411 or visit www.jadair.com.

INDIA’S AND THE WORLD’S FIRST 3D PRINTED POST OFFICE MADE BY L&T CONSTRUCTION

L&T Construction unveiled the country’s first 3D printed post office, a groundbreaking project completed in just 43 days. Powered by COBOD’s BOD2 3D construc-

tion printer, this achievement underscores the immense potential of 3-D printing technology in revolutionizing the construction landscape.

India’s Prime Minister, Narendra Modi, shared the achievement on his social media. This recognition from the nation’s highest authority emphasizes the project’s significance in advancing India’s technological expertise.

The post office was inaugurated August 2023 by Minister Ashwini Vaishnaw, underlining the Indian government’s commitment to embracing cutting-edge technologies for national development.



The post office spans a floor area of 1,021 square feet (94.9 m²), and according to L&T is estimated to have cost 2,6 mill. rupees (USD \$31,200), about 40% lower than what the cost would have been if conventional construction had been used. In addition, L&T, who also 3D printed the first two-story building in India, executed the project in record time.

SIMS DEBUTS WORLD’S FIRST BATTERY POWERED CRAWLER CRANE IN U.S.

Sims Crane & Equipment Co., the largest private crane rental and rigging service company in Florida, showcased the world’s first battery powered crawler crane Monday morning, September 11, 2023, at its corporate headquarters in Tampa.

Sims Crane hosted the crawler crane’s U.S. debut event in conjunction with the crawler crane’s designer, multi-national equipment manufacturer Liebherr.

Sims Crane & Equipment and Liebherr held a joint presentation, explaining the history of both companies and the features of the newly manufactured LR 1250.1 Unplugged electric crane.

The crawler crane’s battery powered engine cuts local carbon emissions completely, and is capable of operating for eight hours unplugged, or for an unlimited amount of time when connected to a power source. Liebherr and Sims say there is no compromise in performance between

the electric version of the crawler crane and its diesel-powered counterpart.



The crawler crane is also significantly quieter than its diesel counterpart, making it ideal for construction jobs in residential areas, at hospitals and in other locations where noise pollution may be a concern.

The battery powered crawler crane joins Sims’ rental fleet, which is the largest fleet in Florida. For more information visit sims-crane.com.

CONINSPECT IS THE FIRST PROFESSIONAL INSPECTION TOOL FOR CONCRETE RESTORATION

ConInspect is an inspection tool that was created in accordance with the workflow and standards for concrete restoration inspections. It can speed up your inspections and reduce the amount of time you spend generating reports. The main tool for setting up projects and inspection parameters, reviewing and changing data, and generating reports is the ConInspect web app. A digital inspection tool for quick and simple field data collection is the ConInspect mobile app.



With ConInspect, you can:

- Collect inspection data with your phone or tablet.
- Mark problems in the field notes on your phone or tablet.
- Take an unlimited number of photos.
- Synchronise inspection data with just one click.
- Automatically generate reports after inspections.

PRODUCT INNOVATION

- Access inspection data anytime, anywhere.
- Collaborate with team members and stakeholders on a centralized platform.

ConInspect can help you automate report generation after inspections and speed up the inspection process without sacrificing accuracy or quality. Visit coninspect.com to learn more.

SIMS GROUP OF COMPANIES ADDS THE LIEBHERR LTM 1090-4.2 MOBILE CRANE TO ITS FLEET

Sims Crane and affiliates, the largest private crane rental and rigging service company in Florida took delivery of the Liebherr LTM 1090-4.2 while visiting Liebherr's factory in Ehingen, Germany Monday morning.

The LTM 1090-4.2 mobile crane will be positioned at the Companies' Atlanta Branch.

The LTM 1090-4.2 is a four axle, 110 US ton-class crane with a 197-foot telescopic boom and a maximum hoist height of 249 feet. It features the VarioBallast, an adjustable ballast system which delivers greater flexibility in action, and the VarioBase system, which enhances the crane's performance, flexibility and safety.

The VarioBase ensures safe operation in constricted working conditions. The maximum lifting capacities are calculated individually and precisely for every situation. This ensures safe working practice with any chosen support base. ECOdrive and ECOmode reduce fuel consumption and noise emissions, better for drivers and the environment. Outstanding mobility, power and economy make the LTM 1090-4.2 an important addition to the Sims Fleet.

For more information visit simscrane.com.

MCCANN INDUSTRIES NOW CARRIES BOMAG EQUIPMENT

McCann Industries, Inc. is pleased to announce that the company now carries

the complete line of BOMAG equipment. BOMAG is a leading engineer and manufacturer of asphalt rollers, pavers and feeders, asphalt milling, and recyclers, plus single drum soil rollers, embankment soil compactors, and soil stabilizers. Landfill refuse compactors are also part of BOMAG's wide range of compaction offerings. For smaller compaction jobs, there's a complete range of handheld compaction equipment produced by BOMAG. McCann will represent the entire line of BOMAG equipment for new sales, used sales, rental, and product support.

For more information on BOMAG, visit their website at www.bomag.com/us-en.

For more information on McCann, visit their website at www.McCannOnline.com.

INNOVATIVE ONSITE COMMERCIAL MECHANICAL REPAIR COMPANY RAPIDLY EXPANDING IN SOUTHWEST FLORIDA

An onsite mechanical repair company owned and operated by a local Marine

ConInspect

Concrete Restoration Digital Inspection Tool

Powerful web app and a user-friendly mobile app that can help you **speed up your inspections and save you time on writing reports**

TRY FREE FOR 14 DAYS

Find out more at coninspect.com

PRODUCT INNOVATION

Corps veteran, Luis Ferrer is rapidly expanding its operational footprint.

Mobile Techs, which is headquartered in Coral Springs and offers 24/7 mobile mechanical servicing for heavy duty commercial vehicles and industrial equipment, will open a new location at 11118 S. Cleveland St. in Fort Myers in the coming weeks.

Due to a boom in demand for its services by major industrial companies in the Sunshine State, the company is already eyeing a third location in a prominent city in south-west Florida.

Mobile Techs mainly services heavy duty trucks, trailers, cranes and booms, conveyors, truck mounted forklifts, material handling equipment and other hydraulic equipment.

The company services equipment at its clients' job sites, or dispatches directly to immobile vehicles should they break down offsite, saving its clients time and money by getting their equipment up and running without having to wait days or weeks for an appointment.

Mobile Techs already has 18 employees and will soon be hiring more. It will also be adding to its 13-truck fleet. The company does repairs for clients that would sometimes require multiple different mechanics to complete.

GEOSTABILIZATION INTERNATIONAL BOOSTS PRODUCTIVITY, EFFICIENCY AND SAFETY IN RAILWAY REPAIR

GeoStabilization International is increasing efficiencies and sustainability in track repair with the launch of the newest RailJET® Subgrade Stabilization System.

The RailJET makes it possible to effectively complete stabilization and repair work on remote and difficult-to-access railways. Explicitly intended for railroad soft-subgrade soil stabilization, the proprietary RailJET system uses a modified jet grouting process to improve subgrade integrity below the mainline track, super-elevated curves, bridge approaches, rail yards and specialty track work. A hydrodynamic mix-in-place system allows grout to be delivered on demand with no waste or spoiled mess to clean up during or after treatment.

The Hi-Rail mounted system is self-contained and provides a stable platform for railroad loading, increasing infrastructure longevity, reducing long-term maintenance costs, and providing protection from the potential dangers and damage of soft subgrade geohazards.



A new two-truck system allows trucks to be driven directly onto the rail system, eliminating the need for a trailer, and increasing maneuverability ease in limited-access sites. A capacity increase of 50 percent provides the ability to hold cement and water for up to 6 hours before re-filling, decreasing equipment and crew downtime. An upgraded RailJET mast can now pivot in and out for easier alignment with rail positions especially in switch and diamond locations.

The RailJET meets and exceeds all railway compliance requirements improving crew safety and newly engineered equipment spacing provides easier equipment clean-out.

Learn more at www.geostabilization.com/markets/railway/.

IDAHO ADDS ANOTHER MCI® ADMIXTURE TO ITS QPL! MCI®-2005 NS

Cortec® is pleased to announce that the Idaho Transportation Department (ITD) has added another MCI® admixture to its Qualified Products List (QPL)! MCI®-2005 NS was approved for the ITD QPL on July 13. It falls under category "709 Concrete Curing Materials and Admixtures," subcategory "Type S—Corrosion Inhibitor for Concrete."

Department of transportation (DOT) approval is important for three reasons:

- It allows engineers to easily specify MCI® in DOT construction projects for these states/provinces.
- It lends credibility to engineers desiring to use MCI® Technologies in non-DOT projects.

- It ultimately can improve the quality of construction by qualifying good-performing products through review according to industry standards.

MCI®-2005 NS is a concrete admixture that delays time to corrosion and reduces corrosion rates once started. Unlike calcium nitrite (CNI) admixtures, which accelerate set time and can cause workability problems, MCI®-2005 NS does not affect set time and has received outstanding feedback from contractors all too familiar with the early set problems of CNI in hot weather. It is an excellent addition to the three MCI® products already approved in Idaho, a state where concrete corrosion inhibitors are strongly needed to combat deicing salt corrosion!

Visit www.cortecvci.com to learn more about our MCI® DOT approvals.

A LITTLE PREVENTATIVE MAINTENANCE GOES A LONG WAY: MINING AND READY-MIX TRUCKS

Heavy equipment faces two major upkeep challenges: harsh environments lead to corrosion and shortened service life and; spilled cement and asphalt are difficult to remove once hardened. Cortec® helps crews with three preventative maintenance coatings.



Annual Preventative Maintenance: VpCI®-391 is a water-based coating that can be sprayed directly over bare or painted metal. It leaves behind an inconspicuous non-tacky coating that inhibits corrosion extending the service life of the equipment. Because VpCI®-391 is technically a removable coating that can wear off over time, it should be reapplied once a year during annual preventative maintenance activities.

Visit www.icri.org

PRODUCT INNOVATION

Long-Term Preventative Maintenance: To get more time out of your “paint job,” EcoShield® VpCI®-386 serves as an outstanding permanent water-based corrosion inhibitor coating. It can be applied as a very thin clear coat over bare metal and painted surfaces, or, if desired, tinted to match the truck’s color theme. It can slow down the corrosion process for multiple years without reapplication.

Corrosion Protection + Easier Cleaning: MCI® Creteskin® is great for ready-mix or asphalt trucks that are incredibly difficult to clean after concrete or asphalt residues dry on the surface. Spraying a coating of MCI® Creteskin® on the equipment before it is used leaves behind a coating that cures to a slightly waxy finish and prevents adhesion of cementitious materials.

Visit www.cortecvci.com to learn more.

INTERESTED IN SEEING YOUR NEWS AND NEW PRODUCTS LISTED HERE?

Email your 150-200 word news to editor@icri.org. Content for the January/February 2024 issue is due by December 1, 2023, and content for the March/April 2024 issue is due by February 1, 2024. One (1) high resolution product photo may be included. ICRI reserves the right to edit all submissions.

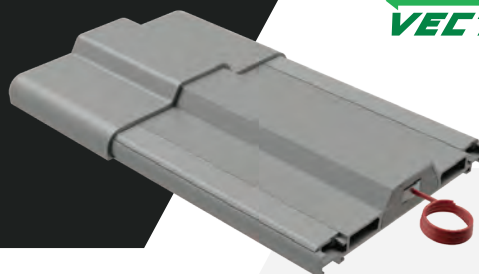


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Celebrating 35 Years!
INTERNATIONAL CONCRETE REPAIR INSTITUTE

Galvashield® SM-DAS

Our Proven Galvashield® DAS Technology Now Surface Mounted



For over 20 years, our embedded Galvashield® DAS distributed anode systems have been used to protect concrete structures from corrosion. Now, this technology can be mounted onto surfaces providing owners another option to cost effectively extend the life of their structures.

Versatile

Protect high corrosion risk areas or entire structures.

Effective

Typical life expectancy of 20–40 years.

Efficient

1-person install without specialized equipment.

Facing a unique corrosion protection challenge on your next concrete project?



Ask us about
Galvashield® SM-DAS solutions.

Vector-Corrosion.com

We Save Structures™

ICRI CHAPTER NEWS

CHAPTER CALENDAR

Be sure to check with individual chapters by visiting their chapter pages to determine if they have made any plans after this publication went to print. You can also contact a chapter leader from any chapter about added events.

BALTIMORE-WASHINGTON

November 9, 2023

MEMBERSHIP MEETING
OUTSTANDING REPAIR PROJECT BANQUET
Baltimore, MD

December 7, 2023

FALL TECHNICAL SEMINAR
CP&R's Main Office
Baltimore, MD

CENTRAL FLORIDA

November 9, 2023

TECHNICAL MEETING
Topic: Evaluation of Unbonded Post-Tensioning
Location: TBD

CHICAGO

November 9, 2023

TECHNICAL SEMINAR
Topic: Do's and Don'ts of Ready-Mix Concrete
Westwood Tavern
Schaumburg, IL

CINCINNATI

November 15, 2023

TECHNICAL/CASE STUDY
TPC at Rivers Bend
Maineville, OH

December 20, 2023

WINTER SOCIAL/AWARDS CEREMONY
TPC at Rivers Bend
Maineville, OH

DELAWARE VALLEY

November 28, 2023

FALL SYMPOSIUM
Philadelphia Marriott Downtown
Philadelphia, PA

FLORIDA FIRST COAST

November 6, 2023

SPORTING CLAY TOURNAMENT
Jacksonville Clay Target Sports
Jacksonville, FL

FLORIDA WEST COAST

December 7, 2023

HAPPY HOLIDAY HOUR NETWORKING EVENT
Birchwood Canopy
St. Petersburg, FL

METRO NEW YORK

September 21, 2023

20TH ANNUAL FALL GOLF CLASSIC
Cedar Hills Golf & Country Club
Livingston, NJ

MICHIGAN

November 9, 2023

DINNER MEETING
Uptown Grill
Commerce, MI

MINNESOTA

February 2, 2024

ANNUAL MEGADEMO
Topic: New Construction Technology
Cement Masons Training Center
New Brighton, MN

NEW ENGLAND

November 14, 2023

TECHNICAL SEMINAR
Topic: Curing and Sealing Concrete
Granite Links Golf Club
Quincy, MA

NEW ENGLAND

December 12, 2023

HOLIDAY SOCIAL/CASINO NIGHT
Granite Links Golf Club
Quincy, MA

NORTH TEXAS

November 9, 2023

MEMBERSHIP MEETING
Terracon Offices
Dallas, TX

NORTHERN OHIO

December 12, 2023

BREAKFAST MEETING
Holiday Inn Cleveland South
Independence, OH

PITTSBURGH

November 14, 2023

TECHNICAL LUNCH PRESENTATION
Location: TBD
Pittsburgh, PA

ROCKY MOUNTAIN

November 9, 2023

COCKTAILS AND CONNECTIONS NETWORKING
Original Brooklyn's Upstairs
Denver, CO

VIRGINIA

November 9, 2023

FALL DEMO DAY
Richmond Primoid Warehouse
Henrico, VA

ICRI CHAPTER NEWS

CHAPTER ACTIVITIES



ICRI has 39 chapters, including two student chapters, in metropolitan areas around the world. Chapters hold technical presentations, educational meetings, symposia, and local conventions on repair-related topics.

Chapters also provide an outstanding opportunity to meet and build relationships with repair specialists in your area. In addition to the technical meetings, chapters also host golf outings, social evenings, dinner cruises, and other networking events.

MICHIGAN HOSTS SUMMER OUTING

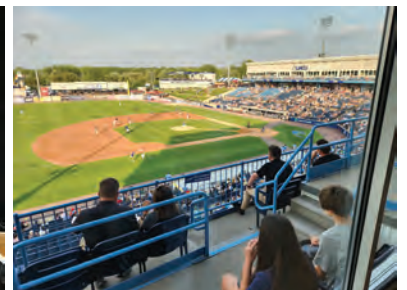
The Michigan Chapter had a blast at their recent summer social outing at the ballpark! They enjoyed dinner and drinks in their private suite. The group had a great time and made some new friends in the industry as they watched their West Michigan Whitecaps cruise to a victory!



Michigan Chapter members enjoying their ballpark suite with the Whitecaps mascot!



The chapter happily drew a big crowd for their summer outing



Summer and baseball—they just go together

CHAPTER ACTIVITIES

BALTIMORE-WASHINGTON HOSTS JOINT EVENT WITH IIBEC

On September 7, 2023, the Baltimore-Washington Chapter of ICRI hosted its first-ever Joint Dinner meeting with the Mid-Atlantic Chapter of International Institute of Building Enclosure Consultants (IIBEC). 120 engineers, consultants, contractors, and material suppliers from both industry organizations enjoyed a lively social hour which was full of robust conversation, networking, and sharing of stories and mutual connections.

While this social hour was an opportunity for many to meet new faces and expand their networks, many of those in attendance are proud members of both organizations and happy for the opportunity to introduce themselves and others.

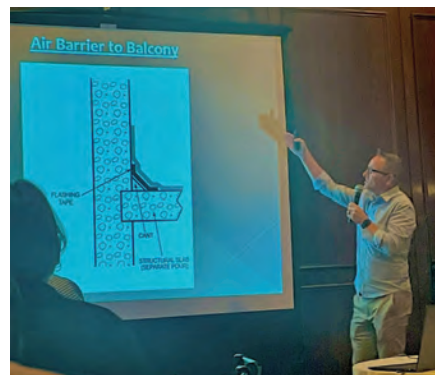
Following the social hour, announcements for upcoming chapter events were given by BW-ICRI Chapter President Luke Valentine, PE, and MidAtlantic IIBEC Chapter President Sam Zalok, PE. Each table was filled with a mix of concrete repair & restoration professionals and building enclosure specialists. Conversation continued as a promotional marketing video for ICRI was then shown and family-style Italian appetizers were served.

Just as the main courses began to make their way to the tables, guest speaker Brian Baker of PPSI was introduced. Brian, who has been working closely with and consulting ICRI and IIBEC members alike since 1993, delivered a technical presentation on critical building envelope transitions. From foundation-to-plaza, plaza-to-wall, wall-to-roof, and expansion joints, Brian highlighted the importance of using compatible materials, proper detailing, and proper construction sequencing to ensure a watertight building envelope. The presentation was filled with countless project-specific photographs and experience-driven examples, which provided deeper insight into the ways things can (and have) gone wrong and how to prevent such events in the future. The technical content was made all the more enjoyable through Brian's humor and deep passion for his profession.

This first of many joint dinner events was solidified by the Mid-Atlantic IIBEC Chapter, which has made a commitment to keep this tradition going next year by hosting the BW-ICRI Chapter. We look forward to next year's joint dinner event and other future opportunities to collaborate with the local IIBEC Chapter.



Baltimore-Washington Chapter members and guests enjoyed dinner with the Mid-Atlantic Chapter of International Institute of Building Enclosure Consultants (IIBEC)



The September presentation was filled with countless project-specific photographs and experience-driven examples

NORTH TEXAS PREVIEWS NEW FIELD APPLICATOR TRAINING PROGRAM

Valuable input was received from North Texas Chapter members attending its September membership meeting as they previewed the new Field Applicator Training Program that is being developed by ICRI. Originally started by past Technical Director Dave Fuller, ICRI Past President Mark LeMay has assumed the lead of the Task Group working to develop the framework for the program. In addition to Mark and Dave, the Task Group includes North Texas members Pete Haveron, Patrick Jorski, Dan Andres, Karl Guderian, and Stephen Grelle, along with Dave Tepke and Jeff Welty, with Dan Wald acting as liaison with the Professional Development Committee.

The purpose of the program is to develop a training program for concrete repair applicators that can be conducted by ICRI chapters or companies under the auspices of ICRI's Subject Matter Experts (SMEs). Attendees who successfully complete the program will receive a "Certificate of Completion" for the Applicator Training Program.

The one-day program will consist of a combination of classroom presentations alternating with workstations where proper repair techniques will be demonstrated. The classroom sessions will cover topics such as the basic components of concrete, typical modes of deterioration, common placement methods, proper substrate and surface preparation, installation techniques, finishing, and curing of repair materials. At the workstations, it is the

intent that students will actively participate in hands-on activities for surface preparation and installation of repair materials.

A summary of the program was presented to the Professional Development Committee at the Fall Convention. A pilot program will be held in North Texas on Wednesday, December 13, 2023.

Once the content of the program has been finalized, the task group will work to get the program translated into Spanish and identify bilingual Subject Matter Experts to deliver this much-needed training program for our members. Stay tuned for further updates on this program!



North Texas Chapter members get a preview of ICRI's new Field Applicator Training Program

CHAPTER ACTIVITIES

NEW ENGLAND PANEL ON PLAZA DECK COATINGS

On September 12, 2023, at the Granite Links Golf Club in Quincy, Massachusetts, the New England Chapter presented a program entitled *Plaza Deck Coatings: Insights from 5 Industry Experts*. Topics discussed were Membrane Selection, Surface Preparation, Common Installation Challenges, and Application Solutions.

The industry expert panel included: John Hamati, Director, Technical Services Dept., American Hydrotech; Shane Imonetti, Construction Material Specialist, Garvin Construction Products; Leonard James, Vice President of Estimating, The Waterproofing Company; David Mattice, Regional Sales Director, Northeast-Siplast; and Scott Walker, Regional Market Manager, The Henry Company.

Plaza waterproofing comes in many shapes and forms. Hot fluid applied, cold fluid applied (based on multiple chemistries), and two-ply mod-bit membranes are all used in projected membrane systems. The chapter set up this event as an opportunity for members and guests to gain key insights about membrane selection, surface preparation, common installation issues, and application solutions from technical specialists, contractors, and distributors that they assembled to share their knowledge and experience.



Introduction with session moderator Wei Lam, PE, Principal, Regional Director - US East, Senior Building Science Specialist with RDH Building Science, Inc.



Networking before the plaza deck discussion



An excellent crowd gathered for this technical event



The panel is ready to take questions

NORTH TEXAS HOLDS 9TH ANNUAL SPORTING CLAY CLASSIC

On Friday, May 12, 2023, the North Texas Chapter gathered members, industry friends, and a bunch of clay targets for their 9th annual Sporting Clay Classic. This year, the event was held at Elm Fork Shooting Sports in Dallas, a scenic and challenging course along the Trinity River. After donuts and coffee in the morning, the group hit all the shooting stations, including a round of "shotgun golf," a game of closest-to-the-pin using a golf ball and a round from a shotgun! The day wrapped up with barbeque sandwiches and a few cold beverages, followed by an award ceremony. A great time was had by all!

The Chapter would like to thank all the participants and sponsors for helping them to raise more than \$4,000 for the North Texas Chapter Scholarship Fund. Congratulations to the winners!

1st Place Team

Patrick Jorski	Sika/Master Builders Solutions
Jeff Lungrin	Sika/Master Builders Solutions
Glen Turner	Centennial Moisture Control
Jeremy Bridwell	Wiss, Janney, Elstner Associates, Inc.

2nd Place Team

Clay Broyles	Euclid Chemical
Jon Robbs	SSI
Kyle Kelly	SouthWest Construction Services
Shawn Simmons	SouthWest Construction Services

3rd Place Team

Ed Carter	Western Specialty Contractors
Pedro Jaquez	Western Specialty Contractors
Scott Grissom	Cushman
Brian Besselieu	Roof Experts

1st Place Individual Shooter

Duane Hollway
GCP Applied Technologies, Inc.

1st Place Shotgun Golf

Denver Price
Sunbelt Waterproofing & Restoration, LLC



Top Right: 1st Place Team (left to right): Jeremy Bridwell, Patrick Jorski, Jeff Lungrin, Glen Turner



Bottom Right: Mickey Whalen of Southwest Construction Services fires away

ICRI CHAPTER NEWS

CHAPTER ACTIVITIES

PITTSBURGH HOSTS FIRST DEMO DAY

The Pittsburgh Chapter held its first ever Technical Demo Day event on September 15, 2023. The event was held at the local 9 BAC IMI training center in Monroeville, Pennsylvania, with approximately 40 member and non-member participants. The event was open as a joint event with the local ACI and CSI organizations as well as the local union apprentice program.

The day began with a great presentation on Concrete Repair 101 by retired ICRI Fellow Fred Goodwin. The presentation was a perfect primer to the technical demonstrations that followed. A total of 5 volunteer vendors attended the event to provide a round robin style demonstration program that had attendees moving from room to room for hands-on learning about various product and application processes. This included colored concrete repair, epoxy anchor installation, epoxy grout injection, form and pour patch repairs, hand patch concrete repairs, rebar priming, traffic bearing coating installation, and quick cure coating system installation.

A huge thank-you to the vendors for their efforts, as well as the venue and volunteers who made the day so enjoyable for everyone. The event seemed a huge success and the chapter hopes it becomes an annual event for future years to come.



Speaker Fred Goodwin Presenting at ICRI 2023 Demo Day



Participants trying their hand at concrete coating installation



Attendees learning about colored concrete patch material



Participants mixing up and installing their best hand patch repairs

Join your local chapter!
Visit www.icri.org

BALTIMORE-WASHINGTON HAS PAST PRESIDENTS CAST OFF



Great day for fishing on the Chesapeake Bay for these six past Presidents of the ICRI Baltimore Washington Chapter. On this August outing you can see, pictured left to right: Dan Anagnos, Justin Long, Chris Carlson, Brian McCabe, Bobby Radcliff, and Steve Dlugos

INTERESTED IN SEEING YOUR CHAPTER NEWS & EVENTS LISTED HERE?

Chapter News & Event Deadlines

JANUARY/FEBRUARY 2024 CRB
Deadline: November 1, 2023

MARCH/APRIL 2024 CRB
Deadline: January 1, 2024

MAY/JUNE 2024 CRB
Deadline: March 1, 2024

Send Chapter News and Events by the deadlines above to
Program Director Dale Regnier at daler@icri.org.



CHAPTER ACTIVITIES

MINNESOTA CHAPTER TAKES TEAM BUILDING TO A NEW LEVEL

The board members of the Minnesota Chapter had an idea for an outing that was outside the box from a typical corporate team building event. A dozen members of the 2022 and 2023 Minnesota Chapter Board of Directors completed a relay run of about 200 miles; traveling from the State Capitol in St. Paul beginning on Friday, August 11, 2023, and finishing on Saturday, August 12 in Duluth, Minnesota, along the shores of Lake Superior. The total moving time for the team was 32 hours, 54 minutes, and 47 seconds.

The event is called a Ragnar and is hosted around the country by www.runragnar.com. Teams are made up of 12 runners; each participant will run 3 legs of the relay, totaling 12-20 miles. The team had two vehicles with 6 people in each, where everyone eats, sleeps, cheers, and laughs with each other for the entire time you are on the route. The icing on the cake is having limited access to showers! Everyone ended up a bit smelly. Despite any discomforts, the entire team thought the experience created some great memories.

Although the group consisted of a handful of experienced endurance athletes, many had not ever run, or had put their personal fitness to the side when work and family commitments took priority. This challenge gave those new runners a goal to achieve. With the same determination and dedication they show at their day job, they would not give up on themselves, nor let their team mates down. It was so very heartwarming to hear teammates support each other with cheering and cowbells as they started and finished their runs.

The team ran through all types of conditions—hot temperatures, a thunderstorm, the dark, and most notably, sleep deprivation. They all tried to get rest when they could but sleeping outside without the proper gear or in the seat of the car just isn't the same as a bed. The smiles at the finish line were those of both relief and celebration for an accomplishment that many people will never attempt.

Following the event, the team celebrated with pizza, storytelling, and a lot more laughing. Although they went home tired and with some pain in their legs and feet, they were all left with memories that will last forever. The Minnesota Chapter plans to carry on this tradition in years to come. Please connect with us if your chapter would like to be part of this team or would like information on how they organized their group, info@icrimn.com.



Everyone together at the finish line



For Van #1 the journey began just before sunrise



Van #2 getting ready to start running



Handing off the baton



Van #2 getting a few moments of sleep



Starting a late night segment



Safety first when helping teammates cross a busy road

CHAPTERS COMMITTEE CHAIR'S LETTER



JON CONNEALY
Chapters Chair

In this installment of my bi-monthly blathering, I want to talk with you about a resurging chapter—the Iowa-Illinois Chapter. And no, I'm not biased to like the Iowa-Illinois Chapter just because I happen to live in Western Iowa. I'm a Nebraskan who lives in Iowa—I'm not FROM Iowa...Husker 'til I die!

At the beginning of this year, the Iowa-Illinois Chapter had lost their chapter leaders. The long-term Treasurer, Tom Karlson, retired after a long and illustrious career, and long-term

President George Rucker, III, passed away under tragic circumstances. I met George through ICRI over 10 years earlier, and during my time in chapter leadership with the Great Plains Chapter, and my time as the Director for Region 5, George and I had become friends. It was important to me, and others, that the chapter continued after his passing.

I reached out to the members of the chapter with a "fish or cut bait" letter stating that if the chapter was not able to field a panel of chapter leaders to be elected, dissolving the chapter would be the only option. This letter was a cause for concern for many of the members and before long, emails from those willing to step up into a leadership role started to arrive.

On March 15, 2023, we had our first meeting where we discussed the roles and responsibilities of the directors and officers of the chapter. We reviewed the generic chapter bylaws, provided by ICRI, and discussed the types of changes they as a chapter could make. We discussed what types of activities other chapters in the regions do annually and best practices. From that meeting, the

officers and directors, along with key committee chairs, were nominated. And, in May the new panel was confirmed unanimously by a vote of the members.

Since then, the Iowa-Illinois Chapter leadership has met three additional times—bylaws have been amended and approved, financials updated, and other administrative tasks completed. The new board has worked incredibly hard to get the chapter back on track.

On Wednesday, October 4, the Iowa-Illinois Chapter held its first event since 2019—a happy hour networking event with 26 attendees at Big Grove Brewery in Iowa City. And, plans are in the works for a holiday/year-end event at Pin Seekers (think upper-midwestern Top Golf), and a Spring technical session.

I would like to take this opportunity to thank and congratulate the Iowa-Illinois Chapter Board for doing an amazing job. I'm looking forward to continuing to work with these individuals in the coming years, and seeing what they have in store for the chapter. The new officers and directors of the Iowa-Illinois Chapter are:

President	Adam Duffy, Western Specialty Contractors
Vice President	Tony Altenhofen, Shive-Hattery
Secretary	David Dixon, D2 Marketing
Treasurer	Andy Olson, Euclid Chemical
Director	Greg Ward, White Cap
Director	Tristan Peterson, E&H Restoration
Director	Adam Collins, Western Specialty Contractors

Jon Connealy, ICRI Chapters Committee Chair
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United States
Dominic Raineri

Sherwin Williams Company

Naples, Florida
United States
Troy Kersey

Structural Reinforcement Solutions

Thornville, OH
United States
Stephen Andrews

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Rick Smith

Crom
Gainesville, Florida
United States

Norm Legare

HB Fuller
United States

Michael Hartman

MAPEI Corp.
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United States

Tim Christian

Miracote Division of Crossfield Products Corp.
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Brandon Bergeron

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Tampa, Florida
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Anthony Wald

White Cap Construction Supply
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C.H. & D. Enterprises, Inc.
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United States

Ravi Devalapura

Mapei
Roseville, California
United States

Jack Hook

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Scientists, LLC
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United States

Kelly Ingram

Western Specialty Contractors
Mabelvale, Arkansas
United States

Kevin Kreilick

RoofPro, Inc.
Baltimore, Maryland
United States

Rich Larson

Restruction A Division of Structural
Preservation Systems
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Matt Renz

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proofing
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United States

Justin Rice

Nystrom
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United States

Ryan Saurer

Valcourt
Bradenton, Florida
United States

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Canada

Luis Barona

Lacombe, Louisiana
United States

David Burton

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Christopher Collins

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United States

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United States

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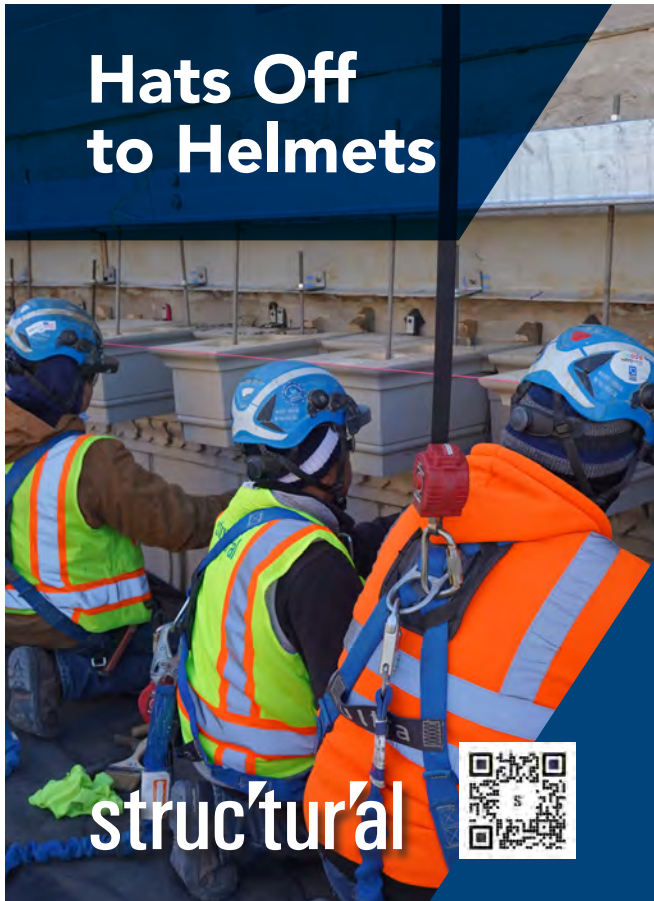
STUDENT MEMBERS

Luigi Berzosa


New Jersey Institute of Technology
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(continued on page 64)

Hats Off to Helmets



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(continued from page 62)

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Ines Bouteldja

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Medea, Msallah
Algeria

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Travis Carter

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Danielle Colavecchio

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Enmanuel David Colmenares Arandia

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Cota, Cundinamarca
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Andrew Davis

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Harleysville, Pennsylvania
United States

M'Hamdi Faiza

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Michael Meyer

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Jada Moore

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Mohammed Skalli

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Alonso Sojo

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Mexicali, Baja California
Mexico

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Riyadh
Saudi Arabia

Yiming Sun

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Syracuse, New York
United States

Kylee Thompson

Gateway Technical College
Sturtevant, Wisconsin
United States

Hector Villafuerte

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Mexico

Lian Walker

Manhattan College
Warwick, New York
United States

INDEX OF ADVERTISERS

Aquajet (Brokk, Inc.)	10
Coastal One Construction Products	13
Coninspect	53
Evonik Corporation	Inside Front Cover
Gary Carlson Equipment	10
MAPEI	Inside Back Cover
Miracote	3
National Waterproofing Supply	63
Quikrete	5
Rapid Set	51
Sika Corporation	Back Cover
Simpson Strong-Tie	11
Structural Group, Inc.	63
Vector Corrosion Technologies	55
Ventures Equipment Company	61



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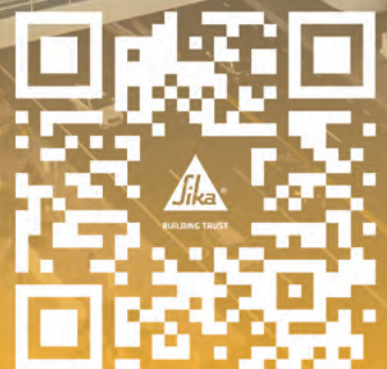


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