CONCRETE REPAIR
BULLETIN
March/April 2018
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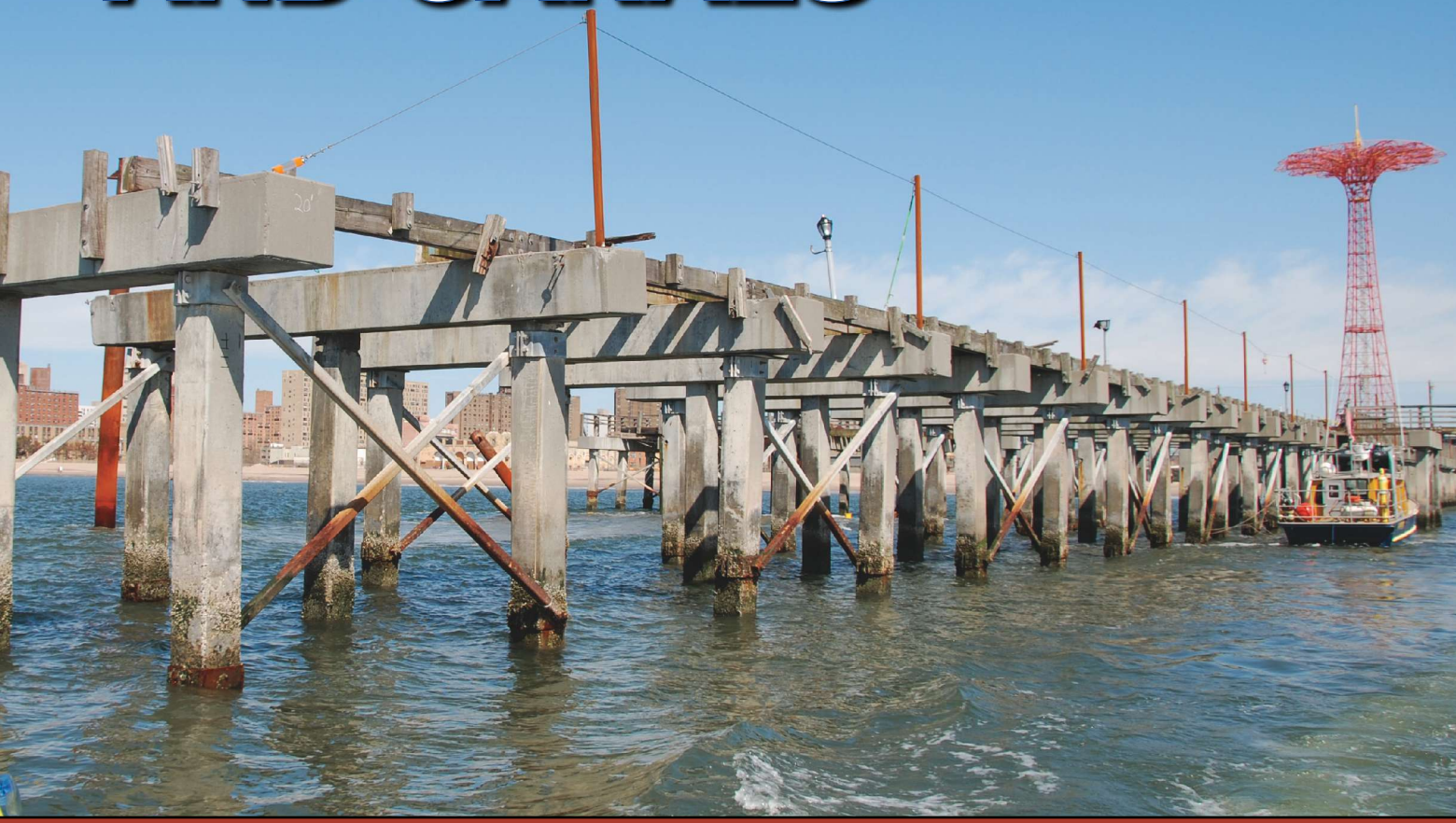
DOCKS, LOCKS AND CANALS



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In Need of Repair

ICRI Fills the Need for Training in the Concrete Repair Industry

The single largest opportunity for people entering the construction trade is in concrete repair, rehabilitation, and restoration.

More concrete is used than all other construction materials combined—12 billion tons placed annually. It is the second most common man-made material in the world, second only to potable water. However, the volume of *existing* concrete is at least 30 times the volume of new concrete—at least 360 billion tons of existing concrete worldwide.

Despite its durability, concrete structures require maintenance and repair.

The ASCE Report Card estimates $4.6 trillion needs to be spent over the next 10 years to return our infrastructure to a "C" rating—$14,241 per American citizen.

Concrete repairs are not performing satisfactorily.

The US Corps of Engineers Study REMR CS2 states, "A little more than 50% of the repairs performed on Corps structures are performing satisfactorily, which is an unacceptable rate. Failures are attributable to design or evaluation errors, material performance, and installation or construction errors. The Corps' experience is not unusual."

The Corps' findings were confirmed by CONREPNET—an examination of 215 case histories where about 50% of repairs were deemed successful. Of those repairs it was found that 20% deteriorated within 5 years, 70% within 10 years, and 90% deteriorated in 25 years.

We NEED trained concrete repair professionals.

An informal poll conducted at the 2017 International Concrete Repair Institute Fall Convention reported over 95% of contractor members polled indicated a need for new workers to go immediately to work in the concrete repair and restoration field.

Due to the number of concrete structures that are in need of repair, restoration, and maintenance—*and* the lack of satisfactory performance of repairs previously performed—the need for field workers who are trained in concrete repair methods and standards has never been greater.

Educational content exists.

ICRI had its origins at a World of Concrete seminar in February 1988, during which attendees voiced their frustration about the lack of standards and guidelines for concrete repair. They also expressed their concern over the proliferation of unqualified contractors entering the industry. These contractors were not properly trained in concrete repair and were underbidding without proper knowledge of surface preparation, equipment, materials, techniques, etc.

Since then, ICRI has created and updated technical guidelines, publications, and certification programs to educate concrete repair professionals on all aspects of concrete repair.

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CRB EDITORIAL DEADLINES

July/August 2018—May 1, 2018
Theme: *Sustainability and Re-purposing*

September/October 2018—July 2, 2018
Theme: *Seismic Solutions*

November/December 2018—September 4, 2018
Theme: *2018 ICRI Project Awards*

January/February 2019—November 1, 2018
Theme: *Cracks and Joints*

INTERNATIONAL CONCRETE REPAIR INSTITUTE

ON THE COVER: Pier from the article *To Repair or Replace: Structural Assessment of Damage at the Steeplechase Pier* on page 12.

CONCRETE REPAIR BULLETIN

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FEATURES

DEPARTMENTS

NOTE FROM THE EDITOR

The year is moving ahead at a rapid pace for ICRI members. The Annual ICRI Kick-Off Party at World of Concrete was a very well attended and successful event. The 2018 Spring Convention is rapidly approaching in April. This year's theme is "Seismic Solutions" and will be held at the InterContinental Mark Hopkins Hotel in San Francisco. The convention will provide a great networking opportunity for all members as well as a wealth of technical information.

The theme of this issue is "Docks, Locks and Canals." The issue contains a wrap-up of the 2017 Fall Convention in New Orleans as well as articles on restoration of a storm damaged pier, a leaking water irrigation system and a project to replace the exterior facade and rehabilitation of the structural framing of an existing building.

I hope you have all had a successful start of the New Year. I look forward to seeing you all in San Francisco!

Jerry Phenney
Editor, CRB
MAPEI Corporation

PRESIDENT'S MESSAGE

NOLA, What a Time


RALPH C. JONES

This issue of the CRB features the theme of our Fall Convention in New Orleans. Dock, Locks and Canals. I am sure most of our members are still saying, "NOLA, what a time." It was an incredible location, a great hotel, and tremendous networking with friends and colleagues. Being from Kansas City, I personally don't get many opportunities to work on docks, locks or canals—but what impressed me about this theme was the fact that many of the same repair methods used on more conventional structures apply to docks, locks and canals as well. Like all of our conventions, this one included great technical presentations from a wide variety of speakers covering assessment, repair and protection of marine structures. The ICRI conventions are always a great opportunity to learn from experts and colleagues, both speakers and fellow attendees.

One of the highlights of the convention was keynote speaker retired Lt. General Russel L. Honoré, a 37 year veteran of the U.S. Army. Lt. General Honoré was the commander of the joint task force for relief efforts in New Orleans after Hurricane Katrina devastated the city. His no-nonsense, direct personality was evident in his presentation. You did not have to wonder what he was thinking. One of the things that impressed me most was his compassion for the people who were suffering from an event the likes most of us will never experience. He also addressed his opinion on family obligations. One of the chapters in his book is, "Save your best leadership for when you get home." If you missed Lt. General Honoré you missed a great opportunity to hear the clear and uncompromising thoughts of a true American hero.

Our 2018 Spring Convention is right around the corner —April 11-13 in San Francisco. What a treat that will be. The evangelist Billy Graham once said, "The bay area is so beautiful, I hesitate to preach about heaven while I'm here." The theme for the Spring convention is *Seismic Solutions*. You can expect another great offering of technical presentations.

There will also be an opportunity to visit the site of the 2017 ICRI Project of the Year. Located on Alcatraz Island, this will be a unique opportunity to visit a historic landmark and see firsthand the work that has been performed on an award winning project. Thanks to Tanya Komas and the Concrete Preservation Institute for making this experience possible for our ICRI members.

If you haven't registered for the convention in the City by the Bay, I encourage you to do so. You don't want to miss this one.

While we are talking about conventions, I have to take this opportunity to personally thank the conventions committee for all of their hard work. The conventions committee is charged with the responsibility of selecting convention locations, planning special events, and finding ways to engage all members of our organization. This committee, chaired by Ingrid Shawn Rodriguez, is energetically working to provide our membership with an enjoyable experience while we broaden our knowledge of proper repair techniques. If you see a conventions committee member, please take a moment to thank them for their efforts.

This is truly an exciting time to be a member of ICRI.

I'll see you in San Fran.

Ralph C. Jones, PE
2018 ICRI President

UPCOMING DATES & INFORMATION

CERTIFICATION CLASSES

Concrete Slab Moisture Testing Certification Program

- March 12-13—Vancouver, British Columbia, Canada
- March 21-22—Biloxi, Mississippi
- April 25-26—Chicago, IL
- June 21-22—Pompano Beach, FL

2018 ICRI SPRING CONVENTION

April 11-13, 2018
Theme: *Seismic Solutions*
InterContinental Mark Hopkins, San Francisco, California

2018 ICRI FALL CONVENTION

November 7-9, 2018
Theme: *Resiliency—Above and Beyond Concrete Restoration*
Omaha Marriott Downtown Capital District, Omaha, Nebraska

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TACTALK

FRED GOODWIN

Unlike previous TAC Talk articles, I am taking this opportunity to provide some useful information about our industry.

Concrete is the second most common man-made material (after potable water) with approximately 3/4 m^3 (about 1 cyd or 2 tons [1814 kg]) used for every person on the planet per year. This amounts to a greater volume of concrete used than all other construction materials combined[1, 2]. Based on cement usage figures, the 82.9 million tons (75.2 billion kg) of portland cement and 2.5 million tons (2.3 billion kg) of masonry cement produced in the US in 2016 amounted to US$10.7 billion of revenue, with most cement used to make concrete worth at least US$60 billion. About 70% of cement sales went to ready-mixed concrete producers, 10% to concrete product manufacturers, 9% to contractors (mainly road paving), 4% each to oil and gas-well drillers and to building materials dealers, and 3% to others[3]. Construction amounted to US$814 billion of the Gross Domestic Product (GDP) in the first quarter of 2017[1]. These figures are just for new construction. The volume of existing concrete is at least 30 times the volume of new concrete, assuming the typical durability of concrete structures.

The American Society of Civil Engineers Report Card estimates a US$4.6 trillion investment is required over the next 10 years to just return our infrastructure to the quality it was in 1988 with a predicted US$2.1 trillion funding gap compared to the estimated funding. In 1990, it was estimated that between US$1 and US$3 trillion is required to rehabilitate all the reinforced concrete structures suffering from distress[4]. It is unlikely that this situation is improving.

Concrete is the most versatile material of construction and has been proven to be durable for thousands of years. It is inexpensive, durable, and easily produced from common materials that are not resource constrained (i.e. limestone, silica, iron, aluminum, and gypsum). Concrete production is also one of the largest consumers of recycled materials whether in the form of supplemental cementitious materials (pozzolans) or use of alternative fuels such as tire disposal or spent solvent disposal in cement production. Concrete is such a great material that we tend to ignore its need for maintenance until deterioration has progressed to the point where the structure is compromised for its intended use, the cost of the repair is greater than the cost of replacement, or the structural integrity is in question. Like most maintenance programs, early implementation and periodic inspection usually bring the greatest rewards. Adding this sort of requirement to the ACI 562-16 Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures and Commentary[5] remains one of the most controversial sections of the document. The most successful concrete repair is the prevention of repair.

A study from 1979[6] indicates that over 70% of concrete construction errors were due to insufficient knowledge, carelessness, and underestimations. A later study from 1993 attributed more than 90% of concrete failures to workmanship, design, and site management. The US Army Corps of Engineers in their 1985 REMR CS-2, as quoted in the Vision 2020 report, stated, "A little more than 50% of the repairs performed on the Corps structures are performing satisfactorily, which is an unacceptable rate. Failures of repairs are attributable to design or evaluation errors, material performance, and installation or construction errors. The Corps experience is not unusual.[8, 9]"

The ConRepNet Thematic Network 2004 report indicated that of the 215 case histories studied, 50% of the repairs were successful and exhibiting no signs of deterioration, 25% were exhibiting evidence of deterioration but not necessarily requiring remedial action, and 25% had failed and were clearly requiring remedial action. The root cause of the repair failures in the ConRepNet report were mainly corrosion, cracking, and debonding[10]. Does this sound familiar to your experience?

Clearly there is room for improvement. Prevention of the need to repair concrete is much more beneficial and cost-effective to extend service-life than the current pattern of placement/wait for deterioration/remove-patch/repeat; much like using a health maintenance plan rather than reliance on emergency room treatment for maintaining our personal health. The need to repair concrete begins with reducing design and construction defects. Deterioration then occurs from exposure to the environment, so use of proper materials and application of protective treatments can reduce these issues. A structure that is already weakened by defects and deterioration becomes more severely damaged than a structure without issues.

Concrete is resistant to fire, flooding, and vermin attack; but concrete is not perfect. Concrete has the weaknesses of relatively low tensile strength, brittleness, it is heavy, it absorbs moisture and dissolved chemicals, and deteriorates rapidly in acidic environments. The main cause of concrete deterioration, however, is corrosion of the reinforcing steel. Failure of concrete is usually shown by cracking. Once concrete cracks, its properties are compromised. Steel reinforcement is added to concrete to improve the tensile properties and although protected (passivated) by the high pH of concrete, it will eventually rust. The protection of steel by concrete is reduced by an interaction of chloride ions (or other deleterious ions) ingress, the lowering of the pH through carbonation, and occasionally DC current leakage or dissimilar metal galvanic corrosion. Two universal rules of concrete construction are that concrete cracks and steel rusts.

The existing concrete inventory presents a challenging story regarding concrete repair. Due to poor design, inadequate maintenance, and changing needs, many structures require repair.

More than 2 miles (3.2 km) out of every 5 miles (8 km) of America's urban interstates are congested and traffic delays cost the country US$160 billion in wasted time and fuel in 2014. One out of every 5 miles (8 km) of highway pavement is in poor condition and our roads have a significant and increasing backlog of rehabilitation needs. Almost forty percent of our bridges are 50 years or older with 56,007 rated as structurally deficient in 2016, averaging 188 million trips across a structurally deficient bridge each day. The average age of the 90,580 dams in the country is 56 years with the number of high-hazard potential dams climbing to nearly 15,500 in 2016 with deficient high-hazard potential dams estimated at 2,170. Nearly 240 million Americans rely on the nation's 14,748 treatment plants for wastewater sanitation, yet the Environmental Protection Agency (EPA) estimates that at least 23,000 to 75,000 sanitary sewer overflow events occur in the United States each year from the 800,000 miles (1.3 million km) of public sewers and 500,000 miles (0.8 million km) of private lateral sewers. There are an estimated 240,000 water main breaks per year in the United States, wasting over two trillion gallons (7.6 trillion liters) of treated drinking water according to the ASCE Report Card 2017[4].

Most of the construction industry focuses on new construction. When engineers graduate, they often have ambitions to build the highest skyscraper, the longest bridge, or other monumental structure. The largest opportunity for utilization of our skills is in rehabilitation and restoration. While new construction makes the news, the volume and need for repair of concrete continues to increase. ICRI and other organizations are aware of this monumental task but need your help to address these issues. ■

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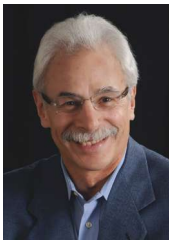
***Fred Goodwin** is chair of the ICRI Technical Activities Committee (TAC).*

SECRETARIATUPDATE


RICK EDELSON

Welcome to Spring and the Secretariat update. By now, most of you are beginning to thaw out and enjoy more comfortable weather. With your thoughts to enjoying the weather and starting up outside projects, I will keep my discussion short and simple.

The Secretariats received 12 ideas in 2016 and 30 new ideas in 2017. Outstanding! Keep them coming! All but a few ideas have been turned into ICRI initiatives with new committees, webinars, publications, and even a process to air grievances that a member may be experiencing. In addition to the new Grievance Committee, ICRI has now formed an ICRI Women's group with two of our past-presidents, Monica Rourke and Katherine Blatz, leading the efforts on creating the group. We are also in the beginning stages of creating a Committee that could provide help with your recruiting efforts.

As I write this article, a new idea is being initiated with the intent of creating an ICRI Disaster Response Committee. We had a very inspiring talk at the General Session lunch in New Orleans by General Honoré about the emergency response in New Orleans after hurricane Katrina. With our thoughts about the more recent hurricanes, it became clear that there is a great need for our members to be able to provide assistance during national and local emergencies. There are numerous ICRI members working on this new initiative. If you are interested, watch for updates.

The Coordination Committee is now fully up and running with a web meeting scheduled just before every convention. The Committee has a dedicated page on the ICRI Causeway site showing a summary of the activities of each ICRI committee which is updated by the Chairs of the committees. With this tool, each committee can monitor the activities of other committees and be ready for interaction where needed. This page also serves as a master calendar of all ICRI initiatives.

The last piece of update is a hearty welcome to Pierre Herbert as the newest Secretariat. He will be joining Jeff Barnes, Mark Nelson and me in our efforts. We want to thank Bud Earley for his dedication and wisdom during his work as Secretariat.

***Rick Edelson** is an ICRI Secretariat, chair of the Coordination Committee, member of the Technical Activities Committee (TAC), and past-president of ICRI.*

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ICRI would like to thank all of our Supporting Members, whose dedication to ICRI is greatly appreciated. Their continued support has greatly enhanced programs both within ICRI and the concrete repair industry as a whole.

INTERNATIONAL CONCRETE REPAIR INSTITUTE

WOMEN IN CONCRETE REPAIR

ICRI proudly announces the first meeting of Women in Concrete Repair!

ICRI is exploring interest in forming a dynamic forum for its female constituents and members to:

- network;
- advance knowledge;
- address barriers that may be controversial regarding growth and participation in policy making and industrial leadership; and most important,
- recognize the challenges and successes of women who share a place within the concrete repair industry.

2018 ICRI Spring Convention

April 11-13, 2018 | InterContinental Mark Hopkins San Francisco

"We empower one another by supporting and helping one another."

If you are interested in attending and/or providing input into the development of this group; stop by our meeting at the ICRI Spring Convention, Friday, April 13 at 10:00 am, or contact: Katherine Blatz, Katherine.blatz@basf.com | Monica Rourke, Mrourke@mapei.com | Dale Regnier, daler@icri.org

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To Repair or Replace: Structural Assessment of Damage at the Steeplechase Pier

BY KIRK M. STAUFFER, STEVEN D. HALL, AND KEVIN C. POULIN

Fig. 1: Aerial view of Steeplechase Pier, Coney Island, Brooklyn, NY @ 2003 Pictometry (Reproduced with permission)

Steeplechase Pier, located in Coney Island, Brooklyn was damaged by Hurricane Sandy in late 2012. During reconstruction of the pier in 2013, the mooring "spud" of a construction barge failed and the barge rammed into the pier, seriously damaging it. This article outlines the response to investigate the damage and develop repairs, talks about the challenges of completing an investigation that determined the condition of the piles, and discusses how the aggressive schedule to reopen the pier ultimately determined the chosen repair scheme.

Background

Steeplechase Pier was originally built as part of Steeplechase Park, the largest and most successful of the original amusement parks at Coney Island. Steeplechase Park opened in 1897 and the pier opened in 1904. The pier was built to allow ferries to easily bring crowds of patrons to the amusement park. Steeplechase Park closed permanently in 1964. The pier was later acquired by the City of New York and placed under the management of the Department of Parks and Recreation for use by the general public.

Steeplechase Pier is cross-shaped in plan and extends from the Coney Island Boardwalk southward into the Atlantic Ocean. The main portion of the pier extends perpendicular to the shoreline out from the boardwalk for 1,100 ft (335 m). The crossing portion, 220 ft (67 m) in length, consists of an east and west extension extending parallel to the shore, and is centered on the main portion 200 ft (61 m) from the southern tip. The pier deck is typically 23 ft (7 m) wide for the majority of its length, however, portions of the pier nearer to the shore are either 33 ft (10 m) or 44 ft (13.4 m) wide. Prior to the 2013 reconstruction, the last major work on the pier occurred in 1994 (Fig. 1).

The primary pier structure consists of 16 in (406 mm) square prestressed concrete piles and precast, conventionally-reinforced beams that span across the piles and cantilever out slightly at each end, creating frames. The frames have three configurations: three-pile (overall length of 26 ft-8 in [8.1 m]), four-pile (overall length of 36 ft-8 in [11.2 m]), and five-pile (overall length of 46 ft-8 in [14.2 m]), in which the piles are spaced at 10 ft (3 m) along the center of the beam. The beams

are 2 ft-6 in (0.8 m) wide and 2 ft-2 in (0.7 m) deep, and include block-outs for connections to the piles that were later filled with concrete. Prior to the 2013 reconstruction, the walking surface of the pier consisted of wood decking supported by wood joists atop the frames (Fig. 2).

Hurricane Sandy struck New York City on October 29, 2012. The storm brought severe and widespread devastation to low-lying and coastal areas throughout the city and region. Compared to Hurricane Irene, which hit New York City in the prior year, precipitation was relatively light and winds were more severe. However, the timing of high tide combined with the more-severe winds created a storm surge that increased the sea level by an additional 10 ft (3 m) and created shallow water waves as large as 32 ft (9.8 m)[1]. This inundated low-lying areas, especially tunnels and basements, and completely destroyed many coastal structures such as seawalls, piers, and boardwalks.

Steeplechase Pier suffered extensive damage to the wood decking and framing, but the concrete frames (piles and beams) emerged from the storm relatively unscathed. The storm surge and waves displaced, detached, or completely removed the wooden decking and framing throughout the pier. The post-Sandy repair scheme for the pier consisted of completely removing and rebuilding elements of the structure atop the existing precast concrete frames.

On April 12, 2013, a construction barge that was stationed adjacent to the southern tip and west extension of the pier suffered a failure of the "spud" mooring system and began to take on water in rough seas. The barge began to sink and rotate horizontally on the water surface and list (tilt), with the southern end of the barge sinking and the northern end raising up. By April 14, 2013, the majority of the barge had submerged. The sinking, rotating, and listing combined with wave action from rough seas caused the barge to impact the pier at two locations—one at the southern tip and one at the west extension. By April 17, 2013, the barge had completely sunk away from the pier and came to rest on the mudline below (Fig. 3).

Fig. 2: Overview of pier construction (some existing wood decking and framing remains)

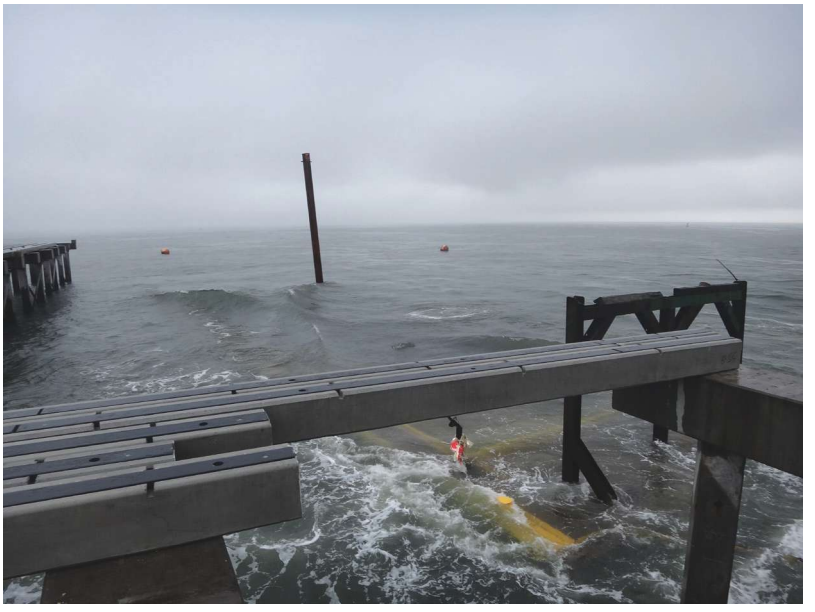

Fig. 3: View of completely-submerged barge (the submerged barge came to rest away from the pier)

Field Investigation

The original reconstruction project had an aggressive schedule, even before the barge unexpectedly damaged portions of the pier, as the City of New York wanted to reopen the pier for the Independence Day fireworks. The investigation assessed if the damaged piles and beams could be repaired or if they needed to be replaced—an executable design was developed for these two scenarios. To expedite the initial repair design while the investigation work was ongoing, an initial assumption was made that the affected piles were only damaged at the top near the beams and could be repaired. The piles were assumed to be in good condition below the waterline and the mudline. This initial assumption would be subject to change pending the findings from continued field investigations.

On April 15, 2013, the damage that was readily apparent above the waterline was observed and documented. The observations were made from atop the remaining portions of the pier deck and from the top of the partially submerged barge that had temporarily stabilized in calm seas. The barge had severely damaged three of the typical three-pile frames. The damage to the piles immediately below the beams was severe and plainly visible.

The barge lifted one of the beams at a frame at the west extension of the pier. At the other two frames (one at the west extension and one near the

Fig. 4: View of rotated beam at southern tip of pier

Fig. 5a & b: Views of (typical) shear failures at piles

Fig. 6: View of lifted beam at west extension of pier

southern tip), the entire frame assembly was displaced at the top (as seen with the naked eye) from its original position. At all three locations, the impact of the barge imparted large lateral forces on the frames, resulting in lateral displacement and shear failures of the piles in a zone directly below the beam. Large horizontal cracks running completely through the pile cross-section, along with associated concrete spalling and lateral displacement across the pile axis, provided evidence of shear failures. The condition of the piles below the waterline remained unknown (Fig. 4 through 6).

Poor weather and difficulty finding an appropriate boat that could navigate between the piles delayed the investigation until April 25, 2013. While on site, the boat was positioned between and against the piles, making hands-on surveys possible from the deck of the boat. Ground penetrating radar (GPR) determined the locations and typical configurations of reinforcement. GPR results were confirmed, along with the sizes of reinforcement, at the concrete spalls caused by the barge impact. Portions of the piles accessible above the waterline were also sounded to survey for damage or delaminations not visually apparent. This hands-on survey from a boat indicated that significant distress to the piles above the waterline was only at the plainly-visible distressed zones (Fig. 7 and 8).

During the hands-on survey, damage to the piles immediately below the beams was found to be significant, and that any repair scheme would require removing and reinstalling the beams. Following the hands-on survey, the contractor was directed to remove the beams in preparation for repair work.

In parallel with the investigation above the waterline, two independent engineering firms conducted multiple underwater surveys of the potentially-damaged piles. The firms made several dives at the affected portions of the pier to survey the condition of the piles below the waterline. Underwater surveys revealed some abrasion damage to the piles. The divers characterized the abrasions as scrapes 2 ft (0.6 m) long, 2 in (51 mm) wide, and up to 1 in (25.4 mm) deep. However, the abrasions did not expose any reinforcement, and none of the underwater surveys revealed any notable structural damage to the piles. Upon completion of the underwater surveys, the investigations above and below the waterline did not contradict the initial assumption— the affected piles were locally damaged directly below the pile cap but, otherwise, were in good condition.

The condition of the piles below the mudline; however, still needed to be evaluated. Because

of the significant horizontal displacement of the piles, the project team recognized that it was possible the piles had been overstressed at their point of fixity somewhere below the mudline.

Non-destructive testing (NDT) was to be used to determine pile conditions below the mudline. The plan was to remove the beams from the affected piles and perform sonic-echo impulse-response testing of the piles. Shortly after removing the first beam, a damaged pile tipped over and sank into the water. Considering that pile damage below the mudline may be more severe than originally suspected, the project team decided not to proceed with the NDT work, and to instead assume that the affected piles were badly damaged below the mudline. The project team also wanted to avoid the risk of delays to the overall project schedule if NDT was inconclusive.

Additionally, shortly after the pile tipped, the owner directed the project team to remove all of the affected piles and physically inspect them on a barge. If the piles were determined to be undamaged, they could be reused, or alternatively, new piles could be installed in their place. Again driven by the project schedule, the project team decided to install new piles. The project schedule no longer had time for the additional inspection, testing, analysis, coordination, and repair that would be required to potentially preserve the affected piles. Design of new piles, with the same or greater capacity as the existing undamaged piles, was chosen as the path forward.

Repair Analysis And Design

The initial analysis was based on visual observations above the water line and assumed that repairs to the piles would need to extend down the prestressed concrete piles several feet below the pile cap. Because the prestressed piles utilized bonded tendons (seven-wire strands) as reinforcement, there was no reliable means to transfer moment through the interface between the new repair and existing pile. Further complicating any repair scheme was the small cross-section of the pile (16 in [406 mm] square), and shear transfer across the interface using added reinforcement bars or dowels would be limited by edge distance. This complicated the transfer of lateral loads and the design of any repair to the damaged piles.

The initial repair design assumed the lower portions of the affected piles could be reused. The repair would consist of connecting the existing beam, using a full-moment connection, to three new stub piles extending down to a point below the shear failures of the existing piles. The tops

Fig. 7: Sounding at affected piles

Fig. 8: Ground-penetrating radar (GPR) at affected piles

Fig. 9: View of damage to affected piles, after removal, below mudline

Fig. 10: Overview of driving new replacement pile

of the existing piles would be selectively demolished and the stub piles would be connected to the existing piles to transfer only shear and axial loads. This initial repair design would effectively shorten the length of the existing piles and upgrade the pile-beam connection from a pinned connection to a full-moment connection. Development of this repair design stopped shortly after an existing pile tipped following removal of the beam. Following the pile failure, and as directed by the owner, the contractor removed and surveyed the affected piles on a barge. At previously-unseen areas below the mudline, the piles exhibited notable damage, such as cracking through the full cross-section, further confirming that the initial repair design would not correct all of the damage (Fig. 9).

New piles and beams were fabricated during removal of the existing piles. Generally, the new piles and beams were designed to be identical to the existing. However, by modifying and implementing some of the detailing planned for use in the initial repair scheme, a precast concrete solution was created to develop the full flexural strength of the new piles at the connection to new beams. The connection used couplers at the end of four threaded No. 10 bars which were cast into the top of each pile. After driving the pile (Fig. 10) and demolishing the tops of the piles to the same elevation, the threaded bars were carefully exposed and couplers used to connect stub lengths of threaded No. 10 bar up through the beam, terminated with nuts and washers atop anchor plates located within the beams. Each pile-to-beam connection was then grouted together using a rapid-strength-gain repair mortar on site, following assembly (Fig. 11 through 13).

Conclusion

The project evolved quickly and the field investigation was complicated, often overridden by coordination and schedule concerns. Because of the aggressive schedule, the decision to forego additional investigations and replace the damaged piles and beams in-kind ultimately proved to be the right choice, especially considering the significant damage to the removed piles. Several technical investigations would have been required to confidently determine the condition of the affected piles and at least several new piles would have been required. The immediate tipping of an affected pile, after removal of its associated beam, provided the most conclusive information, and confirmed the project team's decision and path forward.

Over the course of the project, multiple repair options were designed for various and constantly evolving scenarios. The final design replaced the prestressed concrete piles and precast, conventionally reinforced beams in-kind. However, because of the development of other repair options, improved detailing was implemented and resulted in the final design. ■

Fig. 11: Pile-beam connection prior to assembly

Fig. 12: Pile – beam connection after installation of threaded bars, couplers, plates, washers, and nuts

References

1. *Wave Heights—Hurricane Sandy 2012*. Wave Heights—Hurricane Sandy 2012 Dataset, The National Oceanic and Atmospheric Administration, Sept. 26, 2014, Web: January 24, 2018, https://sos.noaa.gov/datasets/wave-heights-hurricane-sandy-2012/.

Fig. 13: Pile – beam connection after grouting with rapid-strength-gain repair mortar

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Chemical Grouting of Leaking Joints in the Weber Coulee Siphon

BY WESTIN T. JOY

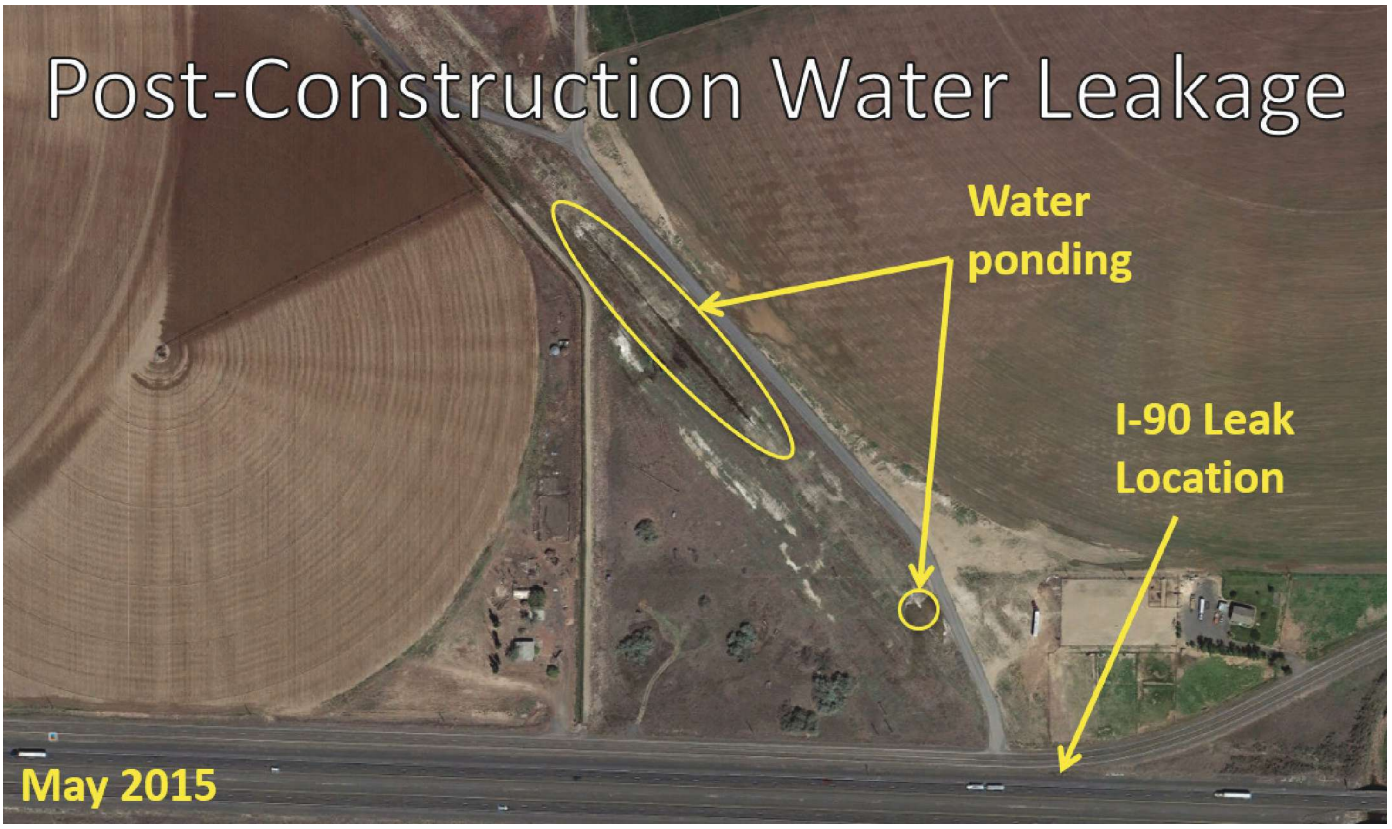

Fig. 1: Water leakage above the Weber Coulee Siphon after construction of the new barrel section

The Columbia Basin Project is located in east central Washington and consists of over 2,600 miles (4184 km) of canals, laterals and pipelines. This system irrigates 671,000 acres (271,544 hectares) of land that harvests US $1.4 billion in produce annually. The Weber Coulee Siphon is located approximately 14 miles (22.5 km) east of Moses Lake, Washington and passes underneath Interstate 90. The original siphon barrel was constructed in the 1960s and construction of a new siphon barrel adjacent to the original barrel was completed in 2012.

Many of the joints in the new barrel failed leakage testing during construction. The cause of the failing joints was typically the result of poor concrete consolidation around the embedded rubber waterstops located in the joints. Most of the failed joints were repaired by the contractor with hydrophilic polyurethane grout injection. However, in subsequent irrigation seasons, areas of seepage and sink holes were observed surrounding the siphon. One area of particular concern was where the siphon barrels pass underneath Interstate 90. Seepage in this area led to pooling water and repeatedly led to softening of the interstate shoulder. Other areas of pooling water were simply becoming a nuisance (Fig. 1).

Site Assessment and Development of the Repair Plan

At the end of the irrigation season in 2015, the Bureau of Reclamation Technical Service Center's Concrete, Geotechnical, and Structural Laboratory performed a condition assessment of the siphon joints and developed a repair plan. The survey team entered the 14 ft (4.3 m) diameter siphon shortly after the canal was dewatered with the hopes of identifying leaking

joints by observing groundwater leaking back into the siphon. Additionally, the location of sink holes and pools of water (Fig. 2) above the siphon were mapped via Global Positioning System (GPS), and ultimately, the locations correlated well with leakage observations inside the siphon (Fig. 3 and 4).

Previous attempts at repair during construction involved injecting a hydrophilic polyurethane directly into the joints, and in a few locations, installation of internal joint seals. In some cases, the polyurethane injection was successful at stopping leaks, or at least resulted in a passing water leakage test. However, during the site assessment, water was observed leaking from several of the grouted joints. Leaks were also observed in several non-injected joints. Hydrophilic polyurethanes have a tendency to desiccate and shrink during periods when the grout is not exposed to water. This physical characteristic could be to blame for the leakage through some of the grouted joints. Application techniques were also suspect, and may have resulted in a less than ideal end product within the joints.

A repair plan was developed that again relied upon chemical grout injection to stop the leaks. Product selection and application techniques would both play important roles in the success of the repairs. A flexible hydrophobic polyurethane was selected for the repairs because they are not prone to desiccation and shrinkage during dry periods. Additionally, the application of the material would be performed in the industry standard way. Drill holes were to be offset from the joints about 6 in (152 mm), and drilled at a 45-60 degree angle to intercept the joint about half-way through the barrel thickness, but just shy of the location of the embedded waterstop. This technique allows grout injection to occur deeper in the section, rather than at the surface of the joint. At locations where grouting was previously performed, the old grout would act as a type of bulkhead for new grout injection. A typical joint detail showing the planned drill holes and grout injection is shown in Figure 5. Lastly, the work was split into phases. Phase 1 would focus on the joints exhibiting the most leakage and the joints at the most critical locations, such as the leaks near Interstate 90. The subsequent irrigation season would provide an opportunity to gauge the effectiveness of the repairs and allow revisions to the plan. Phase 2 would focus on the leaking joints in areas of sinkholes and pooling water. Again, the subsequent irrigation season would allow for an assessment of the repairs. Lastly, Phase 3 would target the rest of the leaking joints if deemed necessary and economical.

Logistical Challenges

Conducting work inside the siphon barrel was challenging for a number of reasons. The total length of the siphon is 5,894 ft (1796 m), with the furthest repair located 4,718 ft (1438 m) from the upstream entrance. The upstream and downstream portals are the only two entry points to the siphon, so the siphon is considered a confined space. The length presents challenges for both personnel and equipment transportation, as well as providing electrical power to the work locations. Additionally, poor weather was a factor during a portion of the repair work.

Fig. 2: Water ponding above siphon barrels

Fig. 3: Looking upstream from inside the siphon. Due to the slope of the siphon, condensation and leakage water also collects on the crown of the siphon

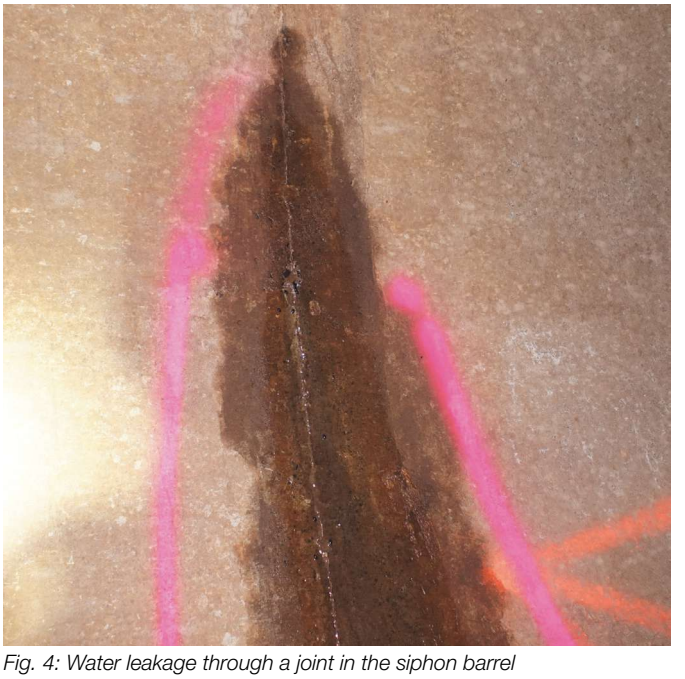

Fig. 4: Water leakage through a joint in the siphon barrel

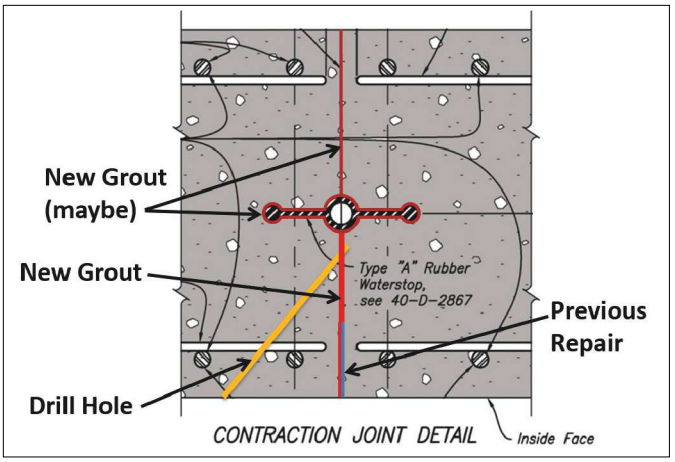

Fig. 5: Contraction joint detail showing grouting plan


Fig. 6: Lowering materials and equipment to siphon entrance after clearing snow and ice


Fig. 7: Grouting sequence

Although air flow and air quality within the siphon was good, air quality was monitored throughout the project. Air quality would be a concern if combustion engines were utilized in any way, especially at the low point of the siphon. Therefore, an electric utility vehicle was utilized to move people and equipment to the work locations, and it also provided a means of egress in case of an emergency.

Electrical power was another hurdle to overcome. At best, the longest run for power from each end of the siphon would have been about 2,950 ft (899 m). However, due to the profile of the siphon, a low spot existed only 1,600 ft (488 m) from the downstream opening where water could not be removed and was about 2 ft (0.6 m) deep for a distance of about 30 ft (9.1 m). Driving the electric utility vehicle through the water and moving equipment past this point was not practical. Therefore, the longest run for power was about 4,100 ft (1250 m). Power was delivered from a power source at the upstream end of the siphon via 4,000 ft (1219 m) of 480V three-phase cable, and was then transformed to 120V via a stepdown transformer. For work conducted downstream of the low spot, power was provided by a generator utilizing the same 480V cable. While cumbersome, the system was effective and reliable.

Another major hurdle was the poor weather. Prior to the start of the second phase of the repairs, several snowstorms resulted in large snow drifts in and around the canal and siphon entrance. At the beginning of Phase 2, a weather system produced multiple days of freezing rain, leading to delays. Snow and ice removal was necessary throughout the project to maintain safe access to the siphon entrance (Fig. 6).

The Repairs

A total of 21 joints were injected during Phases 1 and 2 of the repairs. Scaffolding was utilized to gain access to the entire diameter of the tunnel. Injection holes were drilled into the joints at about a 1 ft (0.3 m) spacing, and cleaned with compressed air. The holes were then fitted with plastic bang-in ports with zerk fittings. Water was injected first to help clean and lubricate the drill holes and joints, as well as provide background moisture for the chemical grout reaction. Injection began at the lowest part of the joint (invert) and proceeded upward on each side of the barrel. The grouting sequence was as follows on each side of the barrel: invert to haunch, haunch to spring line, spring line to shoulder, and shoulder to crown (Fig. 7).

Chemical grout injection generally proceeded without incident. Joint injection is typically much easier and straightforward than crack injection. The grouting path is well defined, and the joints tend to be wide enough that it takes little effort to inject the material. Throughout the repairs, the average grout take was about 2.5 gallons (9.5 liters) per joint. The highest grout take for a joint was about 4 gallons (15.1 liters), and the lowest was about 0.5 gallons (1.9 liters). Due to the openness of the joints, the average grout travel was 3 to 4 ft (0.9 to 1.2 m), although in one instance the grout traveled about 23 ft (7 m) in the joint.

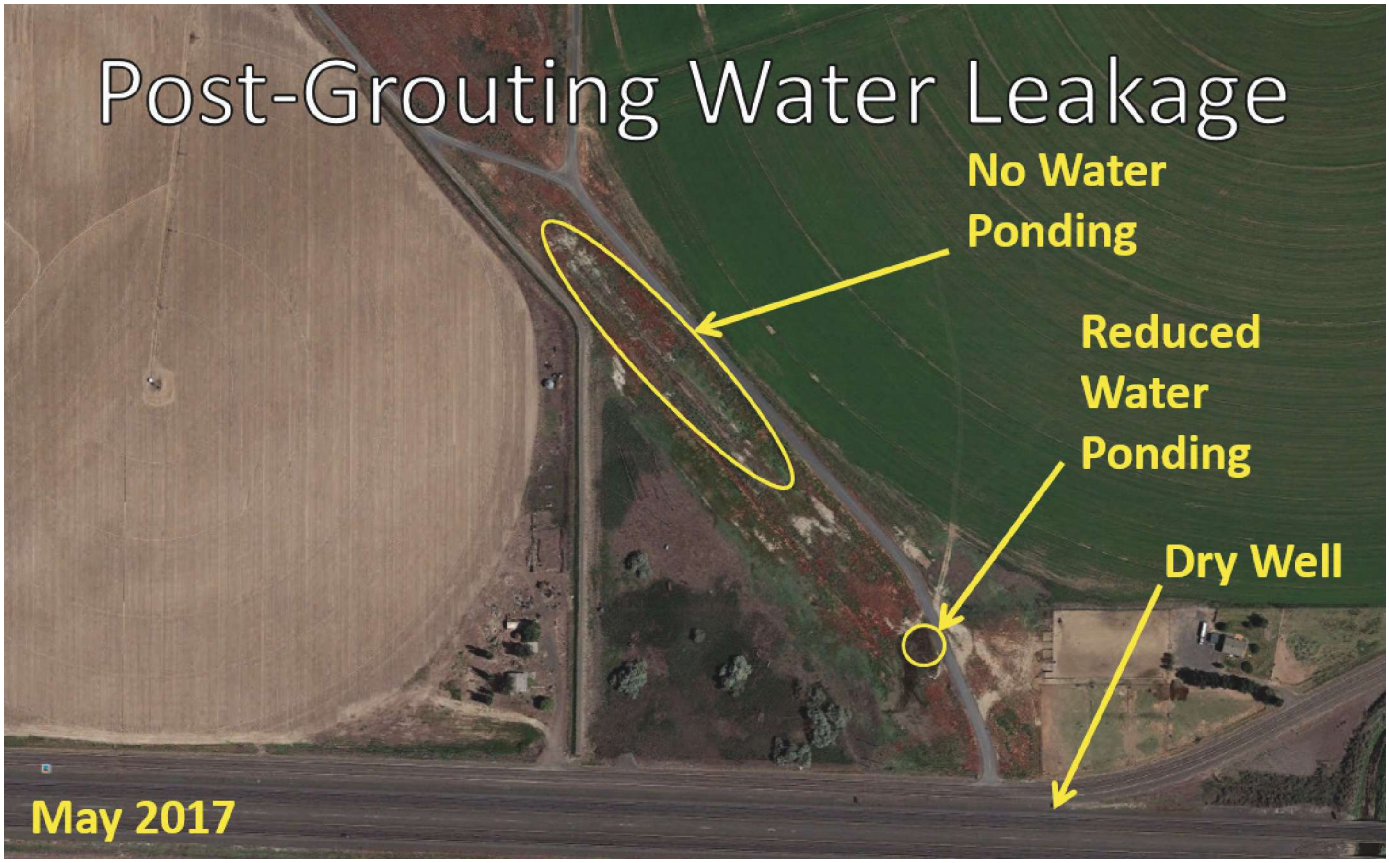

Fig. 8: Site conditions after completing Phases 1 and 2 of the repair plan

Conclusion

Since completing Phases 1 and 2 of the repairs, the conditions above and near the siphon have greatly improved (Fig. 8). Leakage near Interstate 90 has not been observed since completing Phase 1 of the repairs as indicated by a dry monitoring well located near the shoulder of the interstate. Additionally, the long and narrow pond of water shown in Figure 1 appears to have nearly disappeared. Monitoring over time will gauge the effectiveness of the repairs and determine if Phase 3 of the repair plan is needed. ■

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Dapped End Concrete Beam Repair

BY BYOUNG-JUN LEE AND REX CYPHERS

Fig. 1: Building north elevation prior to repair

After a preliminary evaluation of the building revealed severe material deterioration with the exterior walls and structural frame of the building, the owner embarked on a major renovation program to replace the exterior wall systems and to rehabilitate the structural framing. Balancing the exterior repairs with the concurrent interior renovations and full occupancy, while taking into account the needs of both the owner and the tenant, resulted in several challenges to overcome throughout the course of the project (Fig. 1 and 2).

Project Complexities

Significant project complexities stemmed from serving the needs of two clients: Owner and tenant. In order to meet these needs, design documents were completed on a compressed schedule, and design implementation was aggressively limited to only four months from start of construction. For the tenant, portions of the building needed to remain occupied throughout the construction.

At the project outset, the repair scope was primarily architectural and limited to the replacement of the building envelope due to deficiencies found in exterior building walls: removal and replacement of the brick veneer, exterior light gauge framing, exterior sheathing, sliding glass doors, flashing, and air barrier systems. However, as demolition progressed, significant structural problems with a unique hybrid structural system surfaced; severely corroded steel framing and open diagonal cracks were encountered at the dapped ends of prestressed concrete cantilever beams (Fig. 3 through 5).

Upon removing the exterior finishes, open diagonal cracks were observed in a number of cantilevered concrete beams supporting

exterior spandrel beams. Generally, a primary crack originated from re-entrant corners formed by dapped beam ends, with the cracks measuring approximately 0.040 in (1 mm) wide. Given the unusual precast structural framing and component system, lack of redundancy, and low stirrup yield strength (40,000 psi [40 ksi] included on the as-built drawings), further in-depth investigation of the as-built condition of the cantilever concrete beam was undertaken for all cantilever concrete beams located at the perimeter of the building, including crack location and width, frequency of the cracks, and reinforcing steel pattern.

The investigation revealed that existing conditions did not match as-built drawings. The dapped end depth was 9 in (229 mm) and was approximately 40% less than the depth shown on the drawings. Additionally, surface penetrating radar (SPR) revealed large variations in shear reinforcement quantities and placement. While the original structural drawing included five (5) No. 4 bars for full depth closed stirrups at the dapped end, only one to four stirrups were observed.

Dapped End Beam Repair

A series of structural analyses were performed to compute the applied forces on the dapped end, span loading from hollow core floor planks, effect of internal prestressing force, and the strength of the existing member. The results showed the original as-designed cantilevers possessed adequate strength. However, a considerable overstress was estimated with the existing conditions of smaller dapped end size and lack of shear reinforcement. Thus, the repair of the existing dapped end concrete beam was necessary as the deficiency was only limited to the dapped end area, and the remaining concrete beam was adequate to resist the design loads.

An efficient dapped end repair design was developed to address the existing conditions of the structure. The existing beam was conservatively assumed to resist 12,000 lbs (12 kips) of shear force (equivalent to one closed No. 4 stirrup), and the remaining shear demand was supported by a surface-mounted supplemental steel frame fitted to the dapped beam end. A fiber reinforced polymer (FRP) option was considered in the conceptual repair design; however, the supplemental steel frame was selected over the FRP repair because of the limited access surrounded by the precast spandrel panel and fire protection.

The supplemental steel frame incorporated steel plates and angles to act as tension and compression members with a 1 in (25 mm) diameter through-bolt and expansion anchors to transfer loads into the beam (Fig. 6 and 7). The first conceptual repair

Fig. 2: Building south elevation during construction

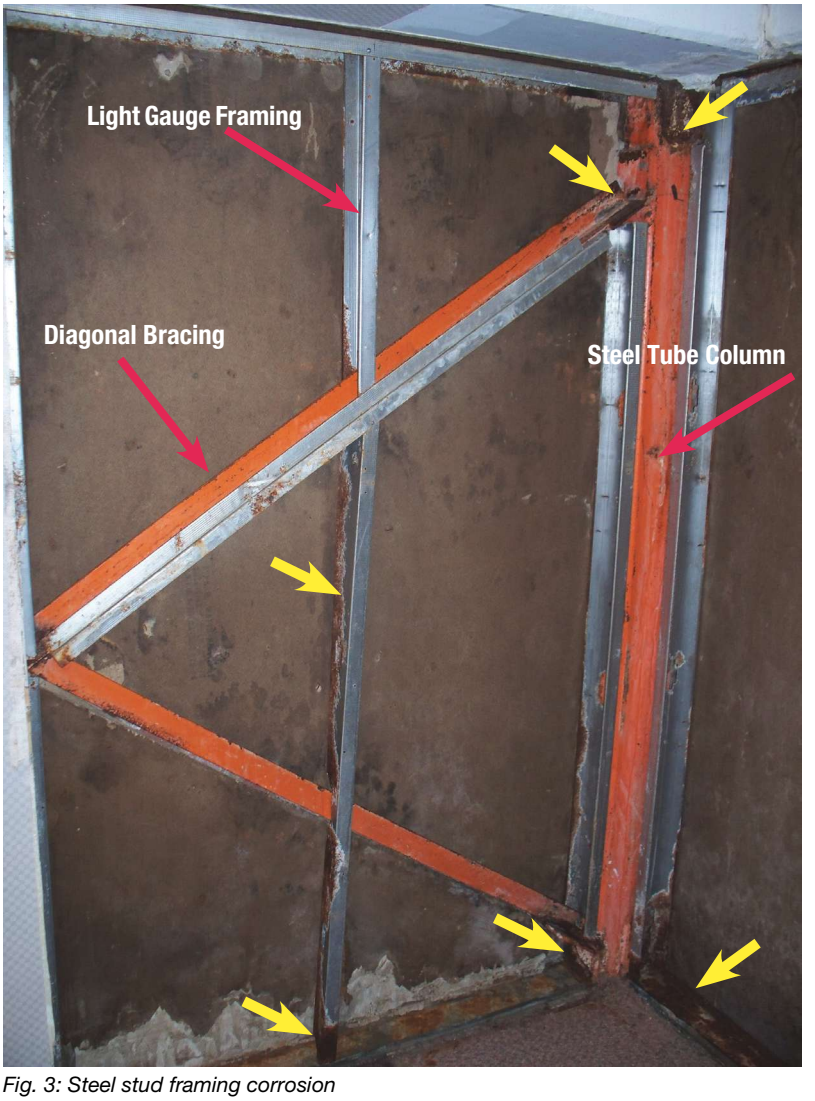

Fig. 3: Steel stud framing corrosion

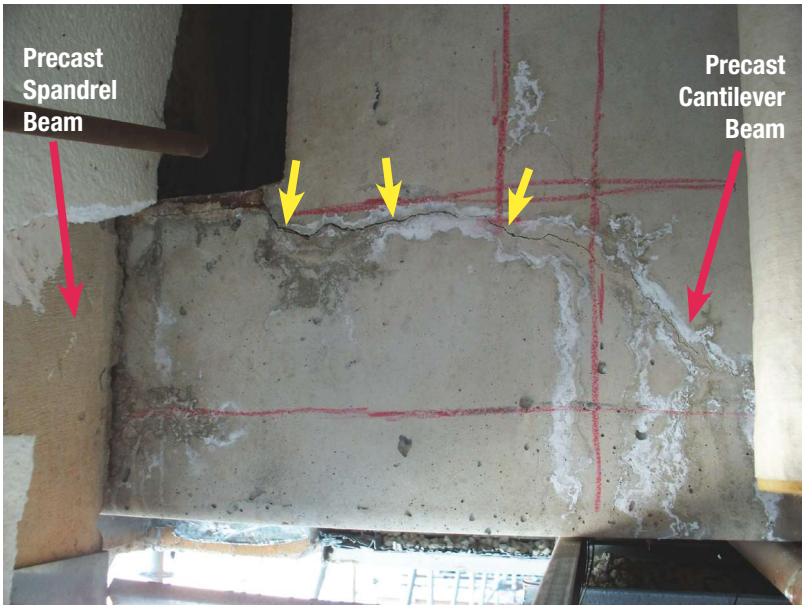

Fig. 4: Cantilever beam dapped end cracking

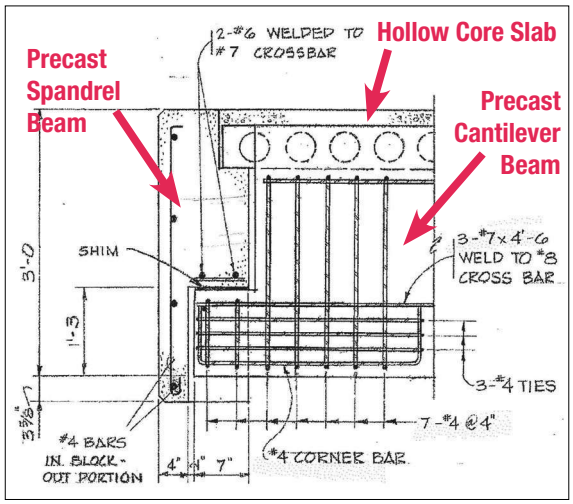

Fig. 5: Original design detail at cantilever beam dapped end

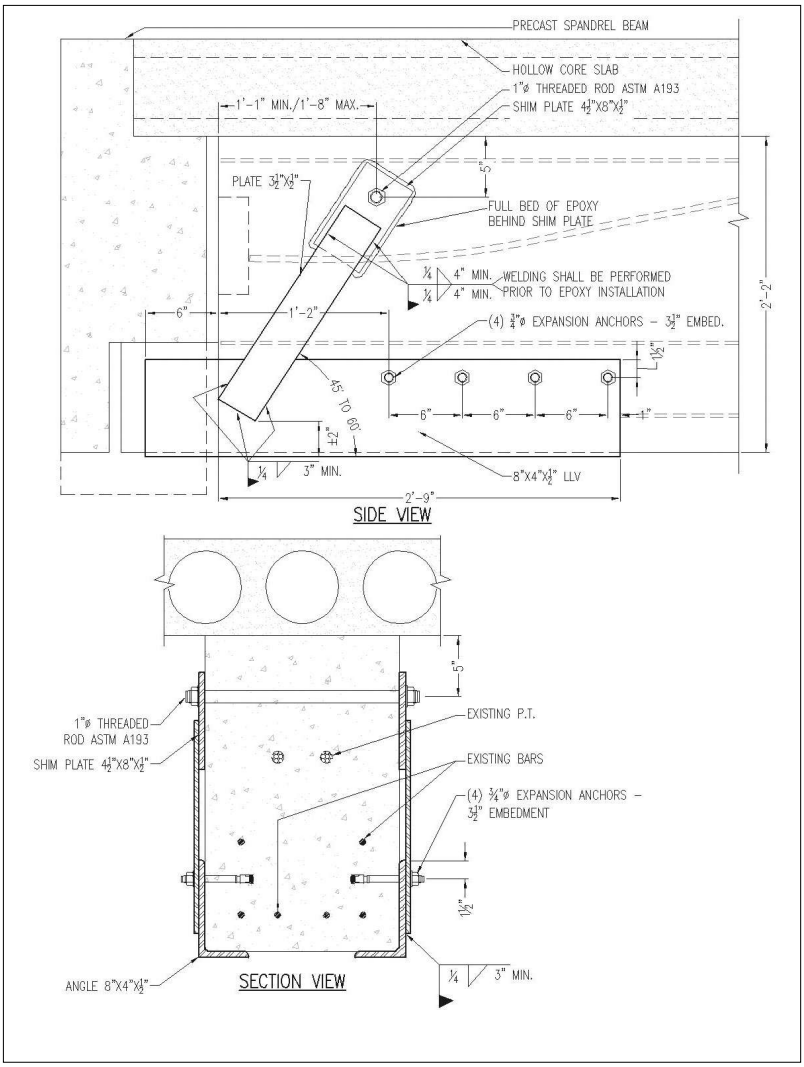

Fig. 6: Supplemental steel frame details at dapped end of beam

design included expansion bolts instead of the through-bolt at the top of the beam, but the final design adopted the through-bolts. The value in using a through-bolt at the top of the beam at each repair was four-fold:

1. One through-bolt replaced 16 expansion anchors at each repair, minimizing labor and materials;
2. The use of fewer bolts minimized the likelihood of damaging post-tensioning during drilling;
3. Through-bolts provided installation flexibility to workers; and
4. The bolt was easily placed in a "bearing" condition, preventing sudden movement in case of a non-ductile failure of the existing dapped end.

Three different configurations of the supplemental steel framing were used in the dapped end repair. Geometry of the diagonal plate and through-bolts, and number of expansion bolts, varied depending on the shear demand. Third floor corner beams had the greatest shear demand, and 1¼ in (32 mm) through-bolt and 10 concrete expansion anchors were used. The fourth and fifth floors had less shear demand, thus a 1 in (25 mm) through-bolt and 4 concrete expansion anchors were used. This shear demand repair was necessary to shorten the construction time so that the overall repair and renovation could be completed in accordance with the original project schedule. This approach also saved material and labor costs to mediate the unexpected emergency repair.

The overall repair cost was greatly reduced by changing the support points of the veneer and repairing only select beams where necessary. Originally, the brick veneer at the fourth floor was supported by a shelf angle attached to the side of the beam. Due to severe corrosion and section loss on the angle, the angle was removed; and the brick veneer was redesigned to be supported on the third floor spandrel beam. As such, the dapped end repair of the third floor beams accounted for the increased loading. In turn, the dapped ends at the fourth and fifth floors were only repaired on select beams (Fig. 8).

Building Envelope Repair

Numerous deficiencies were found in the existing exterior walls from the previous building investigation and included the following:

- Lack of brick veneer anchorage—26-gauge corrugated anchors were used, which are currently prohibited by the Building Code for use with steel frame back-up. The ties discovered also did not engage the veneer or exhibited severe section loss and were no longer effective;
- Corroded steel studs—The severity of this corrosion varied from light surface corrosion to complete section loss;
- Corroded structural steel—Various structural elements, including tube steel columns and brick veneer shelf angles, were unprotected within the masonry wall cavity and exhibited corrosion;
- Improperly installed flashing—The flashing channeled water directly to the building interior. This condition had contributed to the corrosion damage of the slab level stud tracks;
- Discontinuity of exterior sheathing at structural components—Gaps were observed between the ends of the exterior sheathing and adjacent structural components;
- Biological growth—Biological growth was observed on the interior face of the exterior sheathing. In these areas, the exterior sheathing was significantly deteriorated and did not provide reliable lateral bracing for the existing steel studs;
- Lack of building air or moisture barrier—No air or moisture barrier was installed at the exterior building walls;
- Observed water leakage—Water penetration was observed throughout the building during typical rain events; and
- Poor hygrothermal behavior—A portion of the interior moisture related problems were attributed to the poor hygrothermal behavior of the exterior walls based on a series of transient analysis.

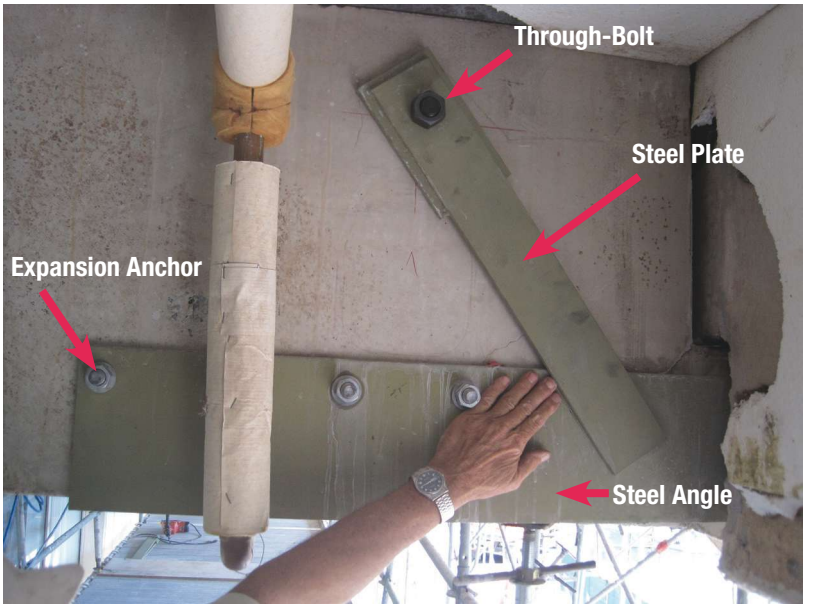

Fig. 7: Supplemental steel frame installed at dapped end of beam


Fig. 8: Supplemental steel frame installed at dapped end of beam on fourth floor

To address existing conditions, recladding provided the most expeditious and cost-effective solution. The following repair recommendations were proposed and performed:

- Brick veneer replacement with adjustable veneer anchors (Fig. 9);
- Steel stud backup wall replacement and supplemental steel framing (Fig. 10);
- Structural steel repair (Fig. 11);
- Air barrier and insulation replacement;
- Sliding door and frame replacement;
- Flashing installation; and
- Soffit framing and finish replacement.

To prevent future corrosion problems, transient hygrothermal and structural models were developed to evaluate the performance of the new, unique exterior wall assembly featuring two "sistered" exterior light gauge studs designed to fit within the limited space of the existing wall assembly. The design allowed the building interior to remain safely occupied while the extensive exterior repairs were underway and prevented long-term degradation due to trapped moisture. Furthermore, the new cladding blends seamlessly with the other buildings in the area (Fig. 12).

Summary

Overall building repairs are summarized in Table 1.

Execution of the design and construction effort exceeded the expectations of the owner as well as the tenant. Despite considerable unforeseen conditions uncovered related to cracking at the dapped ends of prestressed concrete cantilever beams, the project was delivered on time, and the building remained occupied throughout construction. Additionally, the service life of the building was significantly extended. ■

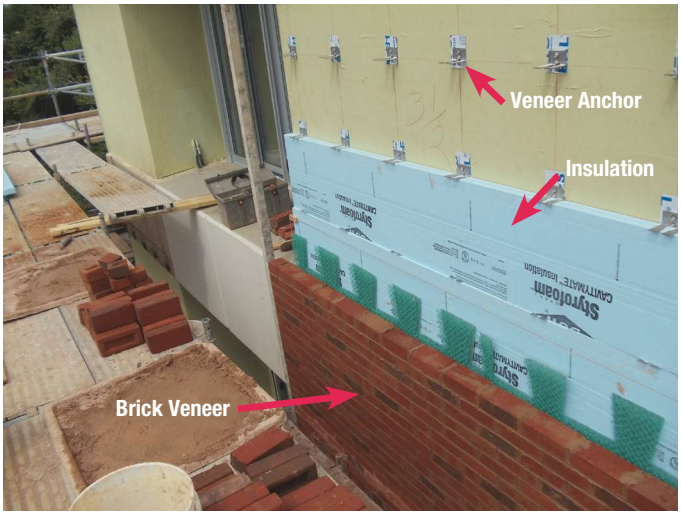

Fig. 9: Brick veneer installation with new veneer anchors

Fig. 10: Exterior wall replacement

Table 1: Building repair summary

Repair Items	Quantity
Dapped End Repair • Supplemental steel support frame installation	24 locations on Level 3 13 locations on Level 4 3 locations on Level 5
Supplemental Steel Tube Column Repair • Supplemental steel column and bracing system installation • Galvanizing existing steel	2 locations on east elevation and 4 locations on west elevation
Exterior Wall Replacement • Steel stud framing system and sheathing • Air barrier system, flashing, and brick veneer • Sliding door and frame replacement • Metal railing reinstallation	13,000 sf (1208 sm)
Soffit Replacement • Soffit framing and plaster finish	6,400 sf (595 sm)

Fig. 11: Structural steel repair


Fig. 12: Completed southeast elevation

Byoung-Jun (BJ) Lee, PhD, PE, SE, *is a Senior Engineer with WDP & Associates Consulting Engineers, Inc., and specializes in architectural engineering and structural engineering services including condition assessment, failure investigation, and repair design. He has expertise in evaluation of existing structures, structural analysis and design, repair and strengthening, nondestructive testing, and construction administration services. The areas of his interest include reinforced concrete structure, steel, composite, masonry, wood, and cold form steel constructions.*

Rex A. Cyphers, PE, *is a Principal with WDP & Associates Consulting Engineers, Inc., and specializes in the design and repair of masonry structures, historic preservation, and building science. He performs forensic field and laboratory investigations, façade and building envelope investigations, structural restoration/analysis and design, architectural retrofit and repair, roofing and waterproofing investigations, and development of design documents, and construction administration services.*

CONCRETE REPAIRCALENDAR

MARCH 12-13, 2018
ICRI Concrete Slab Moisture Testing Certification
Vancouver, British Columbia, Canada Area
Website: **www.icri.org**

MARCH 21-22, 2018
ICRI Concrete Slab Moisture Testing Certification
Biloxi, Mississippi
Website: **www.icri.org**

APRIL 11-13, 2018
2018 ICRI Spring Convention
The InterContinental Mark Hopkins
San Francisco, California
Theme: *Seismic Solutions*
Website: **www.icri.org**

APRIL 25-26, 2018
ICRI Concrete Slab Moisture Testing Certification
Chicago Illinois Area
Website: **www.icri.org**

JUNE 21-22, 2018
ICRI Concrete Slab Moisture Testing Certification
Pompano Beach, Florida
Website: **www.icri.org**

NOVEMBER 7-9, 2018
2018 ICRI Fall Convention
Omaha Marriott Downtown at the Capitol District
Omaha, Nebraska
Theme: *Resiliency—Above and Beyond Concrete Restoration*
Website: **www.icri.org**

INTERESTED IN SEEING YOUR EVENT LISTED IN THIS CALENDAR?

Events can be emailed to editor@icri.org. Content for the July/August 2018 issue is due by May 1, 2018 and content for the September/October 2018 issue is due by July 2, 2018.

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THE 2017 ICRI FALL CONVENTION

Scenes from New Orleans

BY DALE REGNIER

DOCKS LOCKS AND CANALS

2017 ICRI FALL CONVENTION
NEW ORLEANS | NOV. 15-17

Each year, the Fall convention gives our members the opportunity to contribute to important and ongoing committee work, learn something new from our technical presentations, and celebrate the winners of our coveted annual project awards. The 2017 ICRI Fall Convention held November 15-17, 2017, at the Hyatt Regency New Orleans, proved that membership in ICRI is more important than ever.

The convention kicked off with five technical sessions on Wednesday morning followed by an afternoon off. Attendees then gathered on Wednesday evening to mix and mingle with a full complement of 50 exhibitors and industry professionals from around the globe. The convention theme, *Docks, Locks, and Canals*, helped the Technical Activities Committee recruit a wide variety of the finest concrete repair professionals the industry has to offer. It gave attendees a unique glimpse into what is going on in our industry. Insight into new technology like pulse-echo ultrasonic tomography, advancements in galvanic cathodic protection, and the use of polymeric repair materials were just a few of the 15 presentations that provided insight and provoked discussion. The Friday sessions were focused on Vision 2020, industry wide cooperation and ACI Repair Code adoption.

Much of what ICRI does as an industry association comes from the work of the technical and administrative committees. ICRI broadens its reach and expands the industry by working together in these committees. And it seems a new committee is formed at each convention—drawing in more members to share their expertise. Committee meeting attendance was exceptional at the convention, with many first-time attendees getting involved. The convention's General Session on Thursday featured retired Lt. Gen. Russell L. Honoré, a local hero who helped New Orleans recover from catastrophe after the devastation of Hurricane Katrina in 2005. His inspirational speech and real-world leadership lessons were well received and not soon forgotten.

Keynote Speaker Lt. General Russel L. Honoré

The Annual Awards Banquet is the highlight of any Fall convention and our twenty-fifth annual outing did not disappoint. Our emcees for the evening, Awards Committee Chair Elena Kessi and Awards Committee Vice-Chair Brian MacNeil, provided the opportunity for everyone to hear about the challenging work and exceptional achievements necessary to be an award winner. Not only did we honor the 2017 Project of the Year, but we presented eight 2017 Awards of Excellence and ten Awards of Merit. A special thanks to this year's judging panel and congratulations to those ICRI award winners for their hard work, not only on the projects themselves, but on the high quality of all the entries we received.

The convention wrapped with a Night Out at the Bayou Barn where alligators and Cajun cuisine ruled the night. ICRI wishes to thank all the attendees, exhibitors, sponsors, presenters, and award winners for joining us.

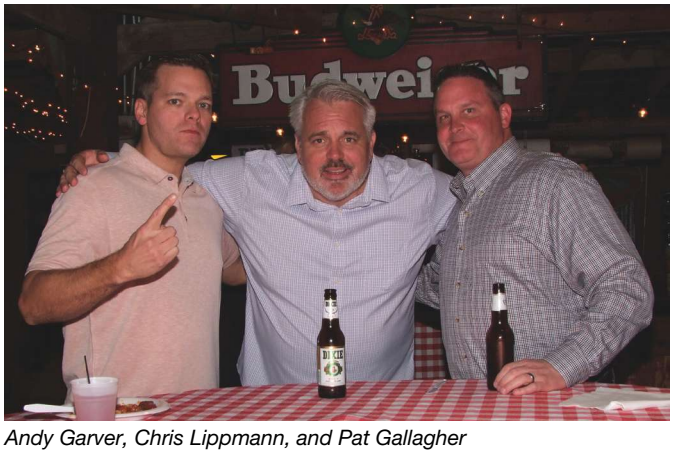
To see more photos of the Fall convention go to www.icri.org.

We hope to see everyone at the ICRI 2018 Spring Convention in San Francisco, California, April 11-14, 2018. We are getting things done at ICRI and extend an invitation for you to get involved. Make the most of your membership and come to a convention. ■

SCENES FROM NEW ORLEANS

Members of the Executive Committee with Keynote Speaker Lt. Gen. Russel L. Honoré (l to right) Mark LeMay, Chris Lippman, General Honoré, Brian Daley, and Ralph Jones

This one looks like trouble



Andy Garver, Chris Lippmann, and Pat Gallagher

Coordination Committee meeting in session

Bayou Barn and the washboard band

The crew from the East Coast ready for the gators

Bayou Barn dinner group (left to right) Keith Harrison, David Karins, Beth Karins, Katherine Blatz, Keith Harrison, Kathryn Bivens

ICRI Fall Convention pictures continued on page 34

Protect & Extend Service Life

Protect and extend the life of concrete with MiraPrime Aqua-Blok. It penetrates deep into the capillary structure of concrete to permanently enhance physical properties and resistance to water absorption. Independent tests have also shown its unique ability to purge unwanted chlorides from treated concrete. Two formulations are available to choose from, depending on your project needs.

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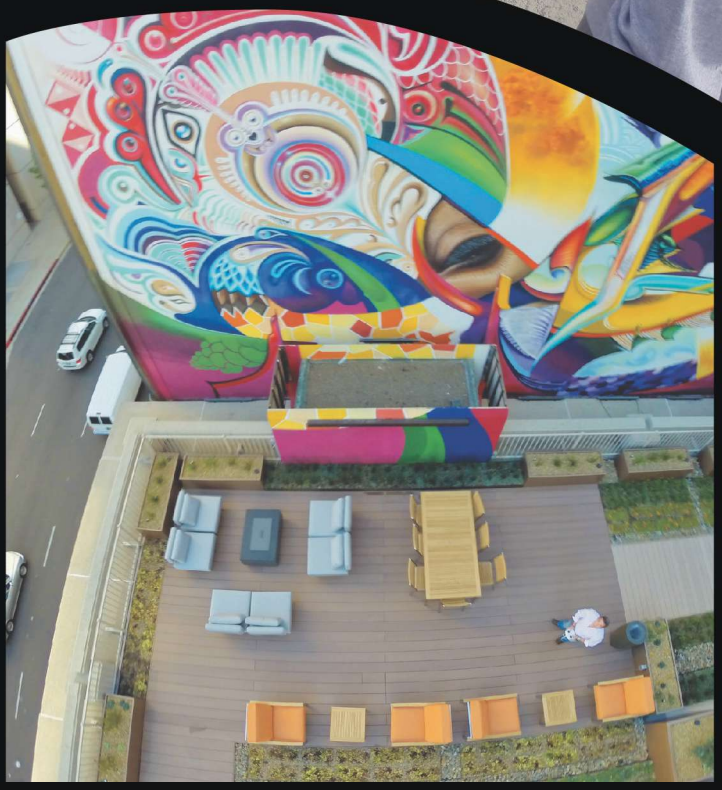

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Products

MiraPrime Aqua-Blok XL

Aqua-Block XL is a clear, single component, water-based, colloidal silicate liquid that quickly migrates into concrete to chemically react with and convert water-soluble calcium hydrate compounds into a dense crystalline network of insoluble calcium silicate hydrate gel that seals, densifies and permanently blocks moisture ingress.

MiraPrime Aqua-Blok XLi

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"The MiraPrime Aqua-Blok XL post-treatment was effective in reducing corrosion so that corrosion after treatment was substantially reduced at a 95% Confidence Limit as was crack length, and chloride ingress versus untreated slabs."

"MiraPrime Aqua-Blok XL is an effective topical treatment to reduce corrosion activity in reinforced concrete due to chloride ingress as determined by the U.S. Bureau of Reclamation M-82 (M0820000.714) Standard Protocol to Evaluate the Performance of Corrosion Mitigation Technologies in Concrete Repairs."

- Tourney Consulting Group

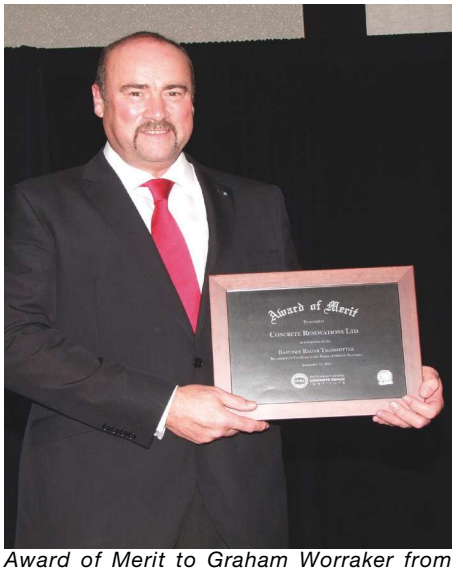
SCENES FROM NEW ORLEANS

Continued from page 31

Project of the Year accolades for Alcatraz QuarterMaster Building submitted by Sika Corporation

Celebrating the Award of Excellence for the Unity Temple Restoration

Award of Excellence to Dennis Wipf from Gervasio & Associates



Award of Merit to Graham Worraker from Concrete Renovations Ltd.

John Weisbarth from Euclid Chemical and their Award of Merit

Liam Ireland of King Packaged Materials with Randy White of GDB Constructeurs

Erik Villari and Ken Destefano from Joseph B. Callahan with their Award of Merit

SCENES FROM NEW ORLEANS

Jason Chodachek and Paul Farrell visit the exhibits

Everyone was smiling during the Welcome Reception

The exhibitors are always a big part of an ICRI Convention

Lunch was a big deal with Lt. Gen. Honoré as the keynote speaker

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INDUSTRYNEWS

NAI APPOINTS NEW VICE PRESIDENT, GLOBAL SUPPLY MANAGEMENT


Eric Emley

NAI, a leading manufacturer of global connectivity solutions for high performance systems used in the industrial technology, telecom, data and medical industries, announces the appointment of Eric Emley to the position of Vice President of Global Supply Management.

In his new role, Mr. Emley will develop new strategies to align NAI's supply chain with the overall business strategies of the company. As a market leader in its field, NAI is known to be nimble and innovative. The new VP Global Supply Management will form the requisite supply chain to accelerate these company traits and maintain the ease of doing business with NAI that customers enjoy today.

To help accomplish these goals, Eric will interface with NAI's plants and external customers to understand their requirements and provide the appropriate supply chain structure to create a competitive advantage in the marketplace. He will also develop his growing team of Sourcing Managers to become Subject Matter Experts in cable, connectors, enclosures and other components used in NAI manufacturing operations. Commodity Specialists will support the quote teams to increase turnaround time.

Eric joins NAI with over 20 years of experience in complex global manufacturing. His background includes successful leadership roles in a variety of industries, including heavy construction equipment, telecom, defense contracting, office furniture, white goods, medical, and architectural lighting.

Prior to joining NAI, Eric was the Vice President & General Manager of the Lighting Division of Group Dekko, with full P&L responsibility, where he successfully led Sales & Marketing, Engineering, New Product Development, Operations, and Supply Chain. He was part of the executive team that led the company through a private equity sale and exit.

Eric began his career in Supply Chain at Teco, Inc., a leading manufacturer of aerial lifts and digger derricks, holding positions of increasing responsibility. He gained global supply chain experience at Terex, where he worked closely with A.T. Kearney to help implement a global supply chain structure to support a multi-billion dollar segmented operational footprint, with manufacturing locations throughout the world.

Jon Jensen, CEO at NAI, stated "Eric's supply chain experience allows him to align NAI's supply chain to support our overall strategy and vision. His track record of establishing strategic relationships with supplier partners, empowering the organizations to make swift decisions and implementing best-in-class processes, will make NAI a partner of choice in the marketplace."

For more information on NAI, please visit: www.nai-group.com.

SIMPSON STRONG-TIE RENEWS PARTNERSHIP WITH HABITAT FOR HUMANITY TO HELP BUILD MORE DISASTER-RESILIENT HOMES

Simpson Strong-Tie is renewing its partnership with Habitat for Humanity to continue supporting the housing organization's efforts to make homes resilient to disasters. This is the 12th consecutive year of the partnership to help more families in need of a decent and affordable place to call home. To date, the manufacturer of structural product solutions has contributed more than $2.75 million toward Habitat's mission.

The company will donate structural connector framing hardware and prefabricated shear walls for new construction and will continue to support Habitat Strong, a program that backs building disaster-resilient homes in weather-sensitive areas.

"We are excited to be partnering with Simpson Strong-Tie for the 12th year," said Lynda Smith, senior director of corporate relations for Habitat for Humanity International. "Their support is incredibly valuable as we work to support communities affected by recent disasters."

"Our long-standing partnership with Habitat for Humanity allows us the opportunity to provide not only monetary and product support, but also technical, engineering and volunteering resources that support the organization's work. We are also very proud to be the primary sponsor of the Habitat Strong program and look forward to continued collaboration with Habitat this year and beyond," noted Simpson Strong-Tie CEO Karen Colonias.

ASTM F2170 UPDATE ALLOWS OFFICIAL RH TEST RESULTS AT JUST 24 HOURS

Response to new science proving results taken at 24 and 72 hours are essentially identical

The international standards organization, ASTM International, has published its revised ASTM F2170 (Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes). The updated standard reduces, from 72 hours to a scant 24 hours, the mandatory wait period before obtaining official, documentable results from an in situ relative humidity (RH) moisture test performed in concrete floor slabs.

This significant reduction in wait time allows contractors and flooring installers to take action on RH test results a full two days earlier than the ASTM F2170 standard previously allowed. It also should enable contractors and flooring professionals to accelerate their construction and remodeling projects accordingly.

ASTM International updated the industry standard for measuring the moisture condition of concrete slabs in response to an ASTM-commissioned Precision and Bias (P&B) interlaboratory study conducted in 2014. That study documented the temperature and RH readings of in situ RH probes at various times within the old 72-hour window, including at the 24-hour mark. The study's findings confirmed that the readings

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obtained at 24 hours were statistically equivalent to readings taken at 72 hours.

"Everyone at Wagner Meters is excited about the change to 24 hours, but we weren't that surprised," said Jason Spangler, Flooring Division manager at Wagner Meters. "Our own internal testing with the Rapid RH® system has long shown essentially identical results between the 72-hour and earlier readings."

"What's a game changer for flooring professionals is that with the revised F2170 standard, they can now take action after just one day instead of having to wait three days," emphasized Spangler. "No other industry-accepted test method for concrete moisture offers such fast results, and certainly none are more reliable or accurate than the RH test."

The F2170 Update Further Supports RH Testing as the Preferred Concrete Moisture Test

ASTM first published its F2170 standard in 2002, in response to Scandinavian research that detailed many of the significant advantages of using RH testing to prevent moisture-related flooring failures. The P&B study results lends further credence to the scientific superiority of RH testing over surface-based moisture condition test methods.

Now, the RH test is shown to be not only more scientifically accurate and reliable, but also more actionable, providing contractors with usable results in a fraction of the time of other test methods.

ASTM International is an international standards organization that has developed and published over 12,000 standards covering a wide range of materials, products, systems, and services.

GERMAN-BASED MANUFACTURING COMPANY, IRION, ANNOUNCES LAUNCH OF SUBSIDIARY "IRION AMERICA"

Irion Vertriebs GmbH, a German-based manufacturer of dispensing tools and caulking gun products worldwide, recently announced the launch of Irion-America, LLC (www.irion-america.com), a United States based sales and distribution subsidiary.

Irion-America was formed in the suburbs of Philadelphia in July 2017. As a manufacturer of high quality caulking and polyurethane foam guns, Irion-America is now stocking these elite products here in the United States. This allows for a superior line of applicators to be delivered within a few days to continental U.S. customers.

"We recognized a demand in the U.S. market for higher quality products and are up to the challenge to provide American businesses with the reliable products they need," said Thomas Irion, CEO of Irion.

Last year alone, Irion sold over 3 million foam and 3 million caulking guns worldwide and with this new subsidiary, expect that number to significantly increase because of the demand in this market. In addition, due to climate change and potential environmental rules and regulations, residential houses and industrial buildings may need to be insulated in a more professional way. Conventional technologies such as nailing and stapling are being replaced by gluing and bonding with polyurethane foam as well as innovative adhesives and sealants of which Irion has developed special caulking guns.

OWNERSHIP TRANSITION FOR WEAVER PRECAST AND SUPERIOR WALLS BY WEAVER NORTHEAST

Effective January 1, 2018, Weaver Precast and Superior Walls by Weaver Northeast have experienced an ownership change. The company now includes Doug Pfautz and Janessa Weaver as partners with Gary Weaver, the original owner of the companies.

"As we enter our 60th year of business, I'm proud and pleased to have Janessa and Doug join me as partners," says Gary Weaver, president and CEO of Weaver Precast and Superior Walls by Weaver Northeast. "This is the first step in a multi-year plan to transfer operating and ownership responsibilities to these two very capable individuals. The future of our company looks extremely bright with Janessa and Doug at the helm."

Doug Pfautz, director of operations of the company, has been with Weaver Precast for 20 years. He has served in various operational, sales and customer service roles. Janessa Weaver, daughter of Gary Weaver, has been with the company for 10 years. With the ownership announcement Janessa will be transitioning into the role of director of sales at the company.

"Weaver Precast was our first licensee for Superior Walls in 1986 and remains a strong player in a very active geographic market of the country," says Keith Weller, vice president and CFO of Superior Walls of America. "We've been in business as the innovator of precast concrete foundation system for more than three decades. During each of those years the people at Weaver have efficiently served the needs of builders while growing their business."

Weaver Precast is located in Ephrata, PA and employs 60 people. The company services southeastern Pennsylvania along with parts of Maryland, the District of Columbia and Virginia. The company purchased the Weaver Northeast territory in 2012. This area consists of the Hudson Valley in New York, along with Connecticut and Rhode Island, plus parts of Massachusetts and Vermont. All Superior Walls precast foundation products are produced at the plant in Pennsylvania and shipped to location where they are installed by crews based in each territory.

INTERESTED IN SEEING YOUR NEWS IN THIS COLUMN?

Email your indusrty news to editor@icri.org. Content for the July/August 2018 issue is due by May 1, 2018, and content for the September/October 2018 issue is due by July 2, 2018.

ACI RELEASES 2018 *ACI COLLECTION OF CONCRETE CODES, SPECIFICATIONS, AND PRACTICES*

The American Concrete Institute has released the 2018 *ACI Collection of Concrete Codes, Specifications, and Practices*.

Formerly known as the *Manual of Concrete Practice*, the ACI Collection is the most comprehensive and largest single source of information on concrete design, construction, and materials, with nearly 50 codes and specifications and more than 200 practices—including all guides and reports.

The ACI Collection features ACI 318 *Building Code Requirements for Structural Concrete*, ACI 301 *Specifications for Structural Concrete*, and ACI 562 *Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures and Commentary*. Additional categories in the ACI Collection include concrete materials, properties, design, construction, reinforcement, specialized application, repair, structural analysis, and innovation, plus popular topics such as slabs, formwork, and masonry.

The ACI Collection is available as a convenient online subscription, a USB drive, and an eight-volume set of books. Specifically developed for individual users, the online subscription of the ACI Collection includes access to every new ACI document as soon as it is published, plus metric and historical versions of ACI's codes and specifications.

Recent feedback indicated that current and prospective users overwhelmingly indicated the name *ACI Collection of Concrete Codes, Specifications, and Practices*" better represented the contents than the previous name *ACI Manual of Concrete Practice*.

Individual volumes of the ACI Collection are also available, plus special online access for multiple users, entire offices, and large multi-national companies. To subscribe or order visit www.concrete.org.

AMERICAN CONCRETE PUMPING ASSOCIATION (ACPA) ANNOUNCES WORKFORCE DEVELOPMENT PROGRAM

The American Concrete Pumping Association (ACPA) is excited to announce the creation of its Workforce Development program, designed to help members recruit job candidates in an increasingly competitive job market.

The ACPA Workforce Development Program includes several new initiatives to help pumping businesses find future operators, such as:

Pump Operator Simulator

Incorporating the latest video software technology, the pump operator simulator gives job candidates a realistic, virtual experience of operating a pump. The simulator will travel with the ACPA to job fairs so candidates can feel the first-hand excitement of pump operation—complete with an authentic pump operator remote from Schwing America Inc.

Like many video games, the pump operator simulator offers different levels of play. The first of the simulator's four levels is known as the "ground level," which offers a very simple pour and is ideal for recruitment efforts at job fairs. Levels climb to higher degrees of difficulty, including a parking garage, the top of a building and a below-grade pour. But unlike many video games, the ACPA simulator has a no-pressure atmosphere where users don't score points or have requirements to advance to the next level. With the ACPA simulator, it's all about the learning experience of operating a pump, not the competition.

While users will have a great time working the remote, they're also exposed to a real-life pumping situation, which means pumping companies also can use the simulator in training new operators. The operator must adjust the simulator until he has access to a good view of the pump truck and the area into which he's pumping. With the remote, the operator moves the boom, starts the pump, blows the horn—everything he or she would do in a real-life pumping situation. When the pour is complete, the simulator requires the operator to fold up the pump boom and turn off the truck.

RecruitMilitary Partnership

In addition to the simulator, the ACPA has formed a strategic relationship with RecruitMilitary, one of the leading resources for connecting with America's best talent—its veterans. In 2018, the ACPA will join RecruitMilitary at 12 of their veterans' job fairs. The ACPA is planning two job fairs in each of its six regions. One of the two fairs in each region will be a physical, on-location job fair, and the other will be a virtual, online event. The ACPA looks forward to promoting concrete pumping careers at these fairs.

The ACPA partnership with RecruitMillitary also provides ACPA members with special access to the RecruitMilitary.com database. Through this database, all ACPA members have the ability to advertise an unlimited number of job postings for the year. ACPA members also can purchase a RecruitMillitary annual user license for $750—an incredibly deep discount off the standard charge of $3,000 per user license. By purchasing a user license, ACPA members will have 12 months of access to thousands of veterans' resumes. To simplify the process for users, the resume database categorizes veteran job-seekers by demographics, location, job expertise, experience, interests, military status and more.

Upcoming Operator Video

The ACPA's upcoming Day in the Life of an Operator video presents the viewer with a real-world pump operating experience: an operator getting up, driving to the job site and performing a concrete pumping job. Available in both English and Spanish, the Day in the Life video will be available in 2018 and will support the two recruiting videos ACPA shows at job fairs. ACPA members will be able to share the video with pump operator candidates to give them an idea of what operating a pump is really like. It's a great way to make sure potential job seekers are serious about a concrete pumping career.

he ACPA is a non-profit association which serves as an advocate for the concrete pumping industry committed to promotion, education and safety for its members and all those coming into contact with a concrete pump on the construction job site. For more information about the ACPA, visit www.concretepumpers.com.

ACI LAUNCHES ALL ACCESS SUBSCRIPTION TO ACI UNIVERSITY WEBINARS AND ON-DEMAND COURSES

The American Concrete Institute (ACI), announces the launch of an all-access subscription to ACI University webinars and on-demand courses.

Unveiled at World of Concrete in Las Vegas, NV, the new 12-month subscription option includes all ACI monthly webinars and ACI's 175+ on-demand courses. Topics include: Admixtures; Codes; Cracking; Design; Durability; and much more. Member price $99 (Regular price $299).

ACI University is a global, online learning resource, providing on-demand access to a wide range of topics on concrete materials, design, and construction, appealing to everyone from testing technicians to practicing engineers.

The all-access subscription is conveniently accessible through desktop and mobile devices. Multi user options are available.

To learn more about the new all-access subscription to ACI University, visit the www.concrete.com.

ACI ANNOUNCES RECIPIENTS OF THE ACI CERTIFICATION AWARD AND ACI CONSTRUCTION AWARD AT WORLD OF CONCRETE 2018

The American Concrete Institute (ACI) announced the recipients of the ACI Certification Award and the ACI Construction Award at a press conference during World of Concrete, Las Vegas, NV, USA, January 24, 2018.

Brian P. Cresenzi, Materials Engineer, HNTB Corp, Tarrytown, NY, received the ACI Construction Award. Cresenzi was recognized for the discussion of concrete production and concrete quality organization, as well as oversight testing and evaluation of the new NY Bridge designed for a 100-year service life without major rehabilitation. Cresenzi has been an ACI member since 1999.

Thomas L. Rozsits, Vice President and Director of Engineering, Ohio Concrete, Columbus, OH, received the ACI Certification Award. Rozsits was recognized for outstanding service on ACI Certification Committees, and tireless service in developing, promoting, supporting, and deliv-

ering ACI Certification programs. Rozsits has been an ACI member since 2012.

Genaro L. Salinas, FACI, Concrete Construction Consultant, Salinas Consultants, El Paso, TX, received the ACI Certification Award. Salinas was recognized for outstanding service on ACI Certification Committees, and tireless service in developing, promoting, supporting, and delivering ACI Certification programs. Salinas has been an ACI member since 1997.

Wayne M. Wilson, FACI, Senior Technical Service Engineer, LafargeHolcim, Suwanee, GA, received the ACI Certification Award. Wilson was recognized for outstanding service on ACI Certification Committees, and tireless service in developing, promoting, supporting, and delivering ACI Certification programs. Wilson has been an ACI member since 1996.

CRMCA TO ROLL OUT *BUILD WITH STRENGTH* CONCRETE AWARENESS CAMPAIGN

Ric Suzio, of Suzio-York Hill Companies and Committee Chairman of the Connecticut Ready Mixed Concrete Association's (CRMCA) Build with Strength Committee, announced that the CRMCA will be marketing a comprehensive "Build With Strength" campaign to the Connecticut construction market. The Connecticut Build with Strength campaign will be targeted to the Connecticut architecture, design and engineering communities to promote the versatile uses of concrete in construction.

CRMCA President, Kevin Miller of Tilcon Connecticut remarked that, "The Connecticut Build with Strength campaign is modeled after the National Ready Mixed Concrete Association campaign and showcases the latest projects, trends and technologies in the ready mixed concrete industry. The mission of CRMCA is to promote the use of ready mixed concrete and innovative construction products and technologies in the state of Connecticut. In the month's to come, we will be rolling out a statewide Build with Strength campaign. We have a significant "tool kit" of resources available for architects and engineers designing projects. We have an extensive library of case studies detailing unique construction projects utilizing concrete. We also have a number of qualified personnel from the National Ready Mixed Concrete Association to make presentations to the design community."

Build with Strength is a coalition of architects, builders, engineers, emergency services personnel and policymakers supported by the National Ready Mixed Concrete Association. Their mission is to educate the building and design communities and policymakers on the benefits of ready mixed concrete, and encourage its use as the building material of choice for low- to mid-rise structures. No other material can replicate concrete's advantages in terms of strength, durability, safety, ease of use, and long-term value.

Connecticut Concrete Promotion Council 's Executive Director Dominic Di Cenzo commented," The Connecticut Ready Mixed Concrete Association plans on utilizing Build with Strength resources provided by the National Ready Mixed Concrete Association (NRMCA). We have a wealth of tools to educate the Connecticut construction specifiers and those involved with the design and engineering of multi-story buildings, commercial office buildings and infrastructure. We also have a team of speakers to draw upon from Connecticut and at the national level (NRMCA) available for presentations. We will be using case studies, infographics and video to promote Connecticut Build with Strength campaign via social media, press releases and educational events.

Don Penepent, of Tilcon Connecticut and Co-Chair of the CRMCA's Education Committee, also commented that, "Besides all the presenters and presentations available from NRMCA, design, architecture and engineering firms should take advantage of the Build with Strength Design Center. The Design Center is FREE concrete project design and technical assistance available through the National Ready Mixed Concrete Association's Build

with Strength web site. The Design Center can assist design professionals in choosing the right concrete solution for a wide variety of projects, from multi-family residential/mixed use, to industrial and health care facilities. NRMCA is staffed with an expert team of engineers and architects that are available to help specifiers select the most appropriate concrete system for concrete frame and post-tension systems, voided slab systems, insulating concrete forming (ICF), and tilt-up concrete wall constructions."

Visit www.ctconstruction.org for more information on educational and certification programs.

ACI HONORS OUTSTANDING CONTRIBUTIONS TO THE INDUSTRY

The American Concrete Institute (ACI) is pleased to recognize several individuals for their outstanding contributions and dedication to ACI and the concrete industry. The 2018 honorees include the induction of Honorary Members, ACI's highest honor, which recognizes persons of eminence in the field of the Institute's interest, or one who has performed extraordinary meritorious service to the Institute. The following six individuals are inducted as Honorary Members: Florian Barth, James Harris, William Hime, Frank Kozelski, S.K. Manjrekar, and Edward K. Rice. View citations.

ACI is also pleased to recognize 24 individuals for maintaining their membership and participating in ACI activities for at least five decades. ACI honors 24 new Fellows for their outstanding contributions to the production or use of concrete materials, products, and structures in the areas of education, research, development, design, construction, or management.

The following medals and awards recognize exemplary achievement, groundbreaking research, and service to ACI and the concrete industry:

Arthur R. Anderson Medal—David W. Fowler

Roger H. Corbetta Concrete Constructor Award—Chris Plue

Joe W. Kelly Award—Antonio Nanni

Henry L. Kennedy Award—Rolf Pawski

Alfred E. Lindau Award—Cary Kopczynski

Henry C. Turner Medal—John T. Wolsiefer And Tony Kojundic

Charles S. Whitney Medal—Roberto Stark

Cedric Willson Lightweight Aggregate Concrete Award—Karl F. Meyer

Concrete Sustainability Award—Martha G. Vangeem

ACI Certification Award—Thomas L. Rozsits, Genaro L. Salinas, Wayne M. Wilson

ACI Young Member Award For Professional Achievement – Amir Bonakdar, Dimitri Feys, J. Bret Robertson

Wason Medal for Most Meritorious Paper—N.J. (John) Gardner; Lloyd Keller; Kamal H. Khayat; David A. Lange; And Ahmed R. Omran

ACI Construction Award—Brian P. Cresenzi

Wason Medal for Materials Research—Hocine Siad, Mohamed Lachemi, Mustafa Şahmaran, And Khandaker M. Anwar Hossain

Chester Paul Siess Award for Excellence in Structural Research—Giorgio Talotti Proestos, Gwang-Min Bae, Jae-Yeol Cho, Evan C. Bentz, And Michael P. Collins

ACI Design Award—Luis E. García, Mete A. Sozen, Anthony E. Fiorato, Luis E. Yamín, And Juan F. Correal

Delmar L. Bloem Distinguished Service Award—Thomas Van Dam, Maria Juenger, Carin Roberts-Wollmann, Julie K. Buffenbarger

ACI Strategic Advancement Award—Michael J. Paul

Walter P. Moore, Jr. Faculty Achievement Award—Matthew D. Lovell

ACI Education Award—William E. Rushing Jr., William D. Palmer Jr.

Chapter Activities Award—Tim Cost, John E. Ellis II, Arturo Gaytan-Covarrubias, William J. Lyons III

ACI Foundation Award Recipients:

Jean-Claude Roumain Innovation in Concrete Award—Michael Sprinkel

Arthur J. Boase Award—Conrad Paulson

Robert E. Philleo Award—W. Jason Weiss

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

ACI LAUNCHES MIDDLE EAST WEBSITE

The American Concrete Institute (ACI) has launched concrete.org/MiddleEast – a website designed specifically for concrete professionals in the Middle East region.

The website features Middle East regional events, news, training opportunities, and chapters. The website also features a built-in translator.

"As the American Concrete Institute accelerates efforts worldwide, the concrete.org/MiddleEast site provides ACI the opportunity to deliver industry-leading technical resources to the concrete community in the Middle East," stated Ronald G. Burg, P.E., Executive Vice President, American Concrete Institute. "Additionally, the Institute will use the site as a portal to connect with professionals and learn from the tremendous innovation in concrete materials, design, and construction taking place in the region."

The rapid construction growth in the Gulf region has led to an increase in the use of ACI 318 and acknowledgement that *ACI 318: Building Code Requirements for Structural Concrete* is one of the most essential and valuable standards with respect to the design of reinforced concrete structures.

Leaders of the Gulf Cooperation Council Standardization Organization recently entered into an agreement with the American Concrete Institute to cooperate towards a better understanding and use of concrete and cementitious materials in civil infrastructure. ACI is also partnering The Big 5 Heavy to host the ACI Concrete Essentials Seminar Series, taking place in Dubai, UAE, March 26-27, 2018.

Visit the site at www.concrete.org/MiddleEast to learn more.

Email your association news to editor@icri.org. Content for the July/August 2018 issue is due by May 1, 2018 and content for the September/October 2018 issue is due by July 2, 2018.

PEOPLE ON THE MOVE

PECORA CORPORATION WELCOMES MARIA ISABEL COLOMA


Maria Isabel Coloma

Pecora Corporation is proud to announce and welcome **Maria Isabel Coloma** as its new Technical Sales Representative covering Southern Florida. She comes to Pecora from Universal Engineering Sciences, where she served as Business Development Representative, responsible for market research and developing growth strategies. Maria had served in International Sales with Coastal Construction Products for nine years. Ms. Coloma brings experience and a proven track record of success in the construction industry which will be invaluable in supporting the goals and objectives of the Pecora Sales Team. Ms. Coloma holds a Bachelor's of Science in Business Management and Marketing from Miami Dade College.

GARDNER ENGINEERING HIRES PHILIP HEISEL


Philip Heisel

Gardner Engineering, a consulting firm specializing in building and site repair and restoration services, is pleased to announce the addition of **Mr. Philip Heisel** to their team. Mr. Heisel is a graduate of Virginia Tech, where he studied Structural Engineering, and will combine his 7 plus years of experience in estimating and managing structural restoration projects with his education in engineering and design. Most recently with Structural Preservation Systems, Mr. Heisel specialized in strengthening and concrete repair projects. As an Estimator and Project Manager with Restoration East, he was involved in estimating and managing projects and overseeing crews that completed waterproofing and concrete restoration for plazas and parking garages.

As a Project Manager with Gardner Engineering, Mr. Heisel will focus on translating his project management experience to engineering design. Mr. Heisel also serves as a director on the Board of Directors for the Baltimore Washington Chapter of ICRI. He is looking forward to tackling complex structural restoration projects in the Baltimore-DC area alongside his Gardner colleagues.

RATHS, RATHS & JOHNSON ANNOUNCES THE PROMOTION OF NEW ASSOCIATE PRINCIPALS

Raths, Raths & Johnson, Inc. (RRJ), a national architecture, engineering and forensics consulting firm headquartered in Willowbrook, Illinois is pleased to announce the promotion of **George R. Mulholland, SE, PE, Sarah K. Flock, NCARB** and **Patrick E. Reicher, SE, REWC, REWO, CCS, CCCA** to Associate Principals. In this new role, they will be responsible for project management, thought leadership, and strategic client development across RRJ's expert architectural and structural engineering consulting practice.


George R. Mulholland

George is an accomplished forensic structural engineer with over 29 years of experience in structural and building enclosure evaluations, remediation design, and litigation support on related building failures. His engineering career started at RRJ in 1988, and during this time, he has been a skillful project manager and held several senior titles in the management of a vast portfolio of distressed facades, buildings, and structures, involving structural evaluation, field investigation and testing, and repair/restoration design. He consults in many areas providing expertise in structural peer review, structural analysis, construction quality assurance programs, and expert witness testimony.

George is a licensed Structural Engineer in Illinois and a licensed Professional Engineer in Arizona, Illinois, Iowa, Missouri, and South Carolina. He is an active member of several professional organizations serving in leadership roles as the Chairman of the American Society of Civil Engineers (ASCE) Standards

PEOPLE ON THE MOVE

Committee on Structural Condition Assessment and Director of the International Concrete Repair Institute (ICRI), Chicago Chapter. He is also a member of the Precast/Prestressed Concrete Institute (PCI) Building Code Committee, Structural Engineers Association of Illinois (SEAOI), and the American Institute of Steel Construction (AISC). (GRM photo attached)

Sarah K. Flock

Sarah joined RRJ in 2002 and is responsible for field investigations and testing of exterior wall systems involving air infiltration, water leakage, material, and other performance related problems. During her 15-year career at RRJ, she has gained expertise in water leakage and moisture intrusion investigations and litigation support. She specializes in thermal performance and computational analysis of building enclosure systems and components and in the resolution of moisture intrusion and condensation problems. She is a licensed Architect in Illinois, South Carolina, and Wisconsin, a certified Building Enclosure Commissioning Process Provider (BECxP), and a certified Commissioning Authority + Building Enclosure (CxA+BE).

Sarah is active in several professional organizations and speaks and writes on building enclosure thermal performance and condensation issues across the industry. She serves on multiple ASTM International committees and is a Board Member and Co-Chair of the Technical Research Committee for the Air Barrier Association of America (ABBA). She is also a member of the American Institute of Architects (AIA), the Building Enclosures Council-Chicago (BEC-Chicago), Construction Specifications Institute (CSI), Exterior Design Institute (EDI), American Society of Healthcare Engineering (ASHE), and the Apartment Building Owners and Managers Association (ABOMA). (SFK photo attached)

Patrick E. Reicher

Patrick joined RRJ in 2016 as a Senior Engineer responsible for the project management of building enclosure investigations, consulting, field testing, and remedial design projects. He has over 12 years of experience as a forensic engineer and project manager of building enclosure and structural field investigations, repair design, and construction quality assurance programs. He has expert knowledge of exterior wall systems, diagnostic testing and protocols, and field quality control specifications for enclosure repair design programs. Previously, Patrick gained experience in forensic engineering and structural design at two consulting engineering firms in the Chicago area.

He is an Illinois licensed Structural Engineer, and is certified as a Registered Exterior Wall Consultant (REWC), Registered Exterior Wall Observer (REWO), Certified Construction Specifier (CCS), and a Certified Construction Contract Administrator (CCCA).

Patrick serves in directorships and several committee roles at the national and chapter level of RCI, Inc. (Institute for Roofing, Waterproofing, and Building Envelope Professionals) and the American Architectural Manufacturers Association (AAMA). His other professional memberships include the Building Enclosure Council of Chicago (BEC-Chicago), the International Concrete Repair Institute (ICRI), and the Apartment Building Owners and Managers Association (ABOMA).

INTERESTED IN SEEING YOUR PEOPLE IN THIS COLUMN?

Email your People on the Move announcements to editor@icri.org. Content for the July/August 2018 issue is due by May 1, 2018 and content for the September/October 2018 issue is due by July 2, 2018.

CHAPTER MEETINGS & EVENTS

BALTIMORE-WASHINGTON
May 3, 2018
2ND QUARTER DINNER MEETING
Location: TBD

CAROLINAS
May 17 & 18, 2018
CHAPTER MEGA DEMO
Raleigh, NC

CHICAGO
April 17, 2018
CHAPTER DINNER MEETING
Westwood Tavern
Schaumburg, IL

DELAWARE VALLEY
March 20, 2018
CHAPTER DINNER MEETING
Topic: Construction Contracts
Philadelphia, PA

FLORIDA FIRST COAST
March 15, 2018
CHAPTER TECHNICAL MEETING
Topic: Post Tension Repair
University of North Florida
Jacksonville, FL

April 11, 2018
CHAPTER SOCIAL OUTING
Jumbo Shrimp Opening Game
Bragan Field
Jacksonville, FL

FLORIDA WEST COAST
April 4, 2018
CHAPTER MEETING
Speaker: George Reedy
Pinellas Taproom
Clearwater, FL

GEORGIA
March 22, 2018
CHAPTER LUNCHEON MEETING
Maggiano's Perimeter
Atlanta, GA

April 26, 2018
CHAPTER LUNCHEON MEETING
Maggiano's Perimeter
Atlanta, GA

GREATER CINCINNATI
April 18, 2018
CHAPTER MEETING
Topic: Masonry Repair Materials and Techniques
Location: TBD

GULF SOUTH
March 8, 2018
CHAPTER SPRING ALL-DAY MEETING
Topic: Repair in Wet Environments
Pensacola Bay Center
Pensacola, FL

MICHIGAN
March 2, 2018
CHAPTER DEMO DAY EVENT
Offices of J. Dedoes
Wixom, MI

April 12, 2018
CHAPTER TECHNICAL MEETING
Topic: Corrosion Control
Western Michigan University
Kalamazoo, MI

NEW ENGLAND
March 6, 2018
CHAPTER TECHNICAL MEETING
Topic: Moisture Related Flooring Failures
Red Ale Hook Brewery
Portsmouth, NH

May 8, 2018
CHAPTER TECHNICAL MEETING
Topic: Concrete Pumping Technology
Granite Links
Quincy, MA

NORTH TEXAS
April 4, 2018
CHAPTER MEETING W/UTA
Joint Meeting with UTA ASCE
University of Texas at Arlington
Arlington, TX

PITTSBURGH
March 15, 2018
JOINT TECHNICAL MEETING
Topic: 562 Repair Code
North Park Lounge
Cranberry Township, PA

ROCKY MOUNTAIN
March 2, 2018
CHAPTER SOCIAL OUTING
Loveland Ski Area
Dillon, CO

SOUTH CENTRAL TEXAS
March 22, 2018
CHAPTER MEMBERSHIP LUNCHEON
NXNW Restaurant & Brewery
Austin, TX

April 20, 2018
CHAPTER GOLF TOURNAMENT
Plum Creek Golf Course
Kyle, TX

VIRGINIA
April 19, 2018
CHAPTER SPRING SYMPOSIUM
Colonial Heritage Golf Club
Williamsburg, VA

BALTIMORE-WASHGINTON HOSTS AWARDS DINNER

The ICRI Baltimore Washington Chapter convened once again for its 2017 Awards Dinner Meeting at Maggiano's Little Italy restaurant at the Tyson's Galleria in McLean, VA. A special thank you to Facilities Committee Chair Rich Barrett (BASF) who coordinated and made the arrangements for the chapter's prestigious awards dinner. Maggiano's proved to be great location for the Board of Director's meeting and the 2017 Awards dinner and is set to host future ICRI events. The evening began with a wonderful social hour and final ballot submissions. The social hour provided a great opportunity for members to catch up with old friends, network with new contacts and chat about the upcoming awards presentations. Before the program started, the attendees enjoyed a family-style dinner full of delicious entrees and appetizers.

Final ballots were counted and the following individuals have been elected to serve on the Baltimore Washington ICRI Board of Directors:

The 2018 Chapter Officers are:

- President—Robert Radcliff, PE (ETC)
- Vice President—Kevin Kline (CP&R)
- Secretary—Brian Radigan (Tremco)
- Treasurer—Brian Baker (PPSI)
- Treasurer Elect—Nick Henn, PE (ETC)
- Immediate Past President—Shannon Bentz (DESMAN)

The 2017 Chapter Directors are:

- Justin Long, PE (SK&A Associates)
- Adam Hibshman (Valcourt Exterior Building Services)
- Rich Barrett (BASF)
- Phil Heisel (STRUCTURAL)
- David Bickel, Sr. (CP&R)
- Michael Payne, PE (FEC)
- Brian Heil (Kenseal)
- Paul Askham (Gale Associates)

Attendees enjoyed the networking

The Awards Dinner kicked-off with opening statements and announcements from our out-going President, Shannon Bentz (Desman). Brian Radigan (Tremco -Awards Committee Chair) and the other sub-committee members received a total of three (3) submissions for consideration for the 2017 Baltimore Washington Outstanding Project of the Year Awards. Five judges, nationally active with ICRI across the country, judged this year's awards on the basis of the newly established scoring criteria which included: Planning/Phasing; Design Issues & Project Administration; Structural, Architectural and/or Operational Improvements; Technical Innovation; and Costs.

Bobby Radcliff (ETC) presented the 3rd place Award winning project for The Greens II at Leisure World. This project involved the restoration of the garage and storage room space over the course of two different phases. The scope included the repair of concrete defects in the garages and storage rooms, addressed water intrusion issues in the lower levels, and abated severe microbiological growth present in the storage areas. The project showed major trials in logistics and coordination.

Rick Edelson (l) and Matt Nachman (r) enjoyed catching up

Kevin Kline with CP&R presented the 2nd Place Award Winning project for the GBMC Physicians Pavilion West in Towson, MD. The project scope addressed the impact of leaks against some below-grade occupied space. The work involved excavating the foundation, removing the existing waterproofing system and installing a new cold-applied waterproofing membrane with sub-grade drainage. It was a great example of geotechnical and safety challenges.

The first place project was present by Pat O'Malley with CP&R on the Executive Office Building and Montgomery County Circuit. The scope focused on the restoration of a heavily utilized plaza in front of an active Circuit Court. Each part of the project was challenged with conducting the work amongst noise restrictions, requirements for temporary public access. Not only did it involve

Dave Rodler (l), Pat O'Malley (c), and Brian Radigan (r) after the first place award presentation

Bobby Radcliff (l), accepting his award from Brian Radigan (r)

structural and waterproofing work but also coordination of subs in landscaping, mechanical, plumbing, electrical and signage items.

Each project had its own level of complexity, phasing challenges, budgetary constraints and other technical challenges and each presenter did an outstanding job detailing how they met those challenges head on. The Baltimore Washington ICRI Chapter thanks all of those who submitted their projects this year and to our winners for presenting their projects to share their outstanding projects and unique repair experiences!

Kevin Kline (l) receives his award from Brian Radigan (r)

CHICAGO HOSTS SEMINAR ON COMMON REPAIR MISTAKES

Are you still making mistakes in your concrete repairs? If you are, you should have attended the Chicago Chapter's November Dinner Meeting & Educational Seminar, where Pete Popovic (WJE) let an interesting session discussing many of the potential pitfalls that we all strive to avoid in our projects. Pete's extensive knowledge and experience in our industry provided great insight and perspective on many of the issues that face engineers, contractors and material suppliers when working to extend the service life of concrete structures. Thanks again to Mr. Popovic and the ICRI Chicago Chapter Programs Committee for providing another great educational opportunity for our members. Be sure to check out this year's meetings to further your knowledge and benefit from the experience represented in your ICRI Chicago Chapter.

Attendees learning more about preventing common repair mistakes

HOLIDAY FUN AND GAMES WITH THE CHICAGO CHAPTER

On December 7 the Chicago Chapter held its annual Holiday Party bringing friends and industry partners together in celebration of the season and our 2017 accomplishments! All in attendance enjoyed great pizza, games and a few beverages at Pyramid Pizza in Addison. 2017 was another interesting year in the concrete repair industry, so the break in action before the holiday crunch provided a welcome opportunity to step away and share in reflection of projects past. Thanks to the ICRI Chicago chapter social activities committee and staff at Pyramid Pizza for another very successful event.

Guests of the Chicago Chapter gather at Pyramid Pizza for a Winter Social Outing

Participants enjoyed a giant Jenga game

PITTSBURGH HOSTS FREEZE-THAW BALL

The Pittsburgh Chapter recently held its 4th Annual Freeze-Thaw Ball (this year with a new name!) to celebrate 2017 and start 2018 right. As usual, there was plenty to eat and talk about as guests enjoyed an evening of networking. A number of door prizes were raffled off throughout the evening, including a big screen TV – many thanks to all of the sponsors. The funds raised from the event will support the Pittsburgh Chapter scholarship, which will be awarded to a student pursuing post-secondary education related to the concrete repair industry.

The Pittsburgh Chapter thanks the generous sponsors at their Freeze-Thaw Ball

The annual Freeze-Thaw Ball is a great opportunity to network

MINNESOTA MEGA DEMO IS A HIT ONCE AGAIN

The Minnesota Chapter 2018 Mega Demo was a huge success! The chapter welcomed different members from across the industry, including; contractors (a total of 18), restoration engineers (18), distributors (18) and manufacturer representatives (17). For 2018, ICRI Minnesota focused on THE EVOLUTION of REPAIR. With so many options out there, the chapter chose to touch on the newest and most innovative ways to repair concrete today. This year's presentations were; new building code requirements as it applies to concrete repairs, post-tensioned cable repair, fabric-reinforced concrete matrix, and drone technology used for surveying buildings.

2018 president Kim Deibel welcomed attendees as they settled into their seats and continued with the chapter's tradition of all attendees introducing themselves. It was great to hear that there were attendees present with from 1 year to 50 years in the industry. The education began with presenter Jason Coleman from Philadelphia based O'Donnell & Naccarato Structural Engineers. Jason is a licensed professional engineer in 4 states with more than 19 years of restoration experience. Jason's presentation revolved around the challenging building codes and the disconnect with different boards of industry standards. Next, Patrick Lewis and Mike Retterath of Walker Restoration talked about button head post tensioning replacement. They touched on opinions of construction costs, repair scenarios and documents, and performing the repairs. Dale Regnier, the ICRI national Chapter Relations Director then provided an update on National ICRI.

For the Award portion of the day, the ICRI Minnesota 2018 Apprentice Awards were given to three individuals, one for each trade; bricklayer, cement mason and laborer. The Award is a $500 credit to Brock White or CMI to go towards purchasing tools. In 2017, the chapter lost a dear friend, John Amundson to ALS. John was instrumental in starting the Chapter and received the lifetime achievement award in 2013. To honor John's memory and legacy the Minnesota Chapter Board voted to rename the chapter's scholarship award to the John A. Amundson Scholarship Award. John's wife, Laura was present on this day to help award this year's $1,500 scholarship to Allison Menges. Allison is pursuing a degree in the concrete and construction field.

After lunch the ICRI MN 2018 Lifetime Achievement Award was presented to Tom Reger from Cement Masons Union Local 633. Tom has been a friend to many in our business and it was an honor to watch him receive the award. Ryan Riley, Senior Engineer of Buildings Consulting Group was on hand for the afternoon sessions to talk about composite column repair at the Olive Street Garage. Ryan showed the severely corroded steel beams and deteriorated composite concrete and steel column supporting a large transfer beam at the Olive Street Garage in St. Louis, MO.

Lastly, Mike Loukusa, president and founder of Immersion Data Solutions(IDS), presented on "Drone Technology". IDS is an imaging and software company that improves assessment, inspection, modeling, and project management by combining actionable imagery with geolocation in an Immersive Platform. Mike shared the ease of sending a drone into the air to get an up close and personal view of the side of a building without leaving the safety of the ground. The days of spending thousand to rig a 20-story high rise to inspect the outside of a building are behind us.

ICRI Minnesota is grateful to the Cement Masons Local #633 for allowing the use of their training center! There was huge effort by their team to ensure a great area and space for the 2018 Mega Demo. ICRI would also like to thank all of our sponsors with table tops at the Mega Demo. Chapter sponsorships help make this great event possible and it ensures reasonable pricing for all attendees.

Kim Deibel (l) presented the Lifetime Achievement Award for 2018 to Tom Reger. And Dave Schutta (r) of the Cement Masons Union accepted on Tom's behalf

Attendees listen as Mike Loukusa of IDS presented on Drone Technology

The crowd at the 2018 Mega Demo was entertained by the drone demonstration

ROCKY MOUNTAIN HOSTS CELEBRATION

The Rocky Mountain Chapter held its annual end of the year holiday party at TopGolf in Centennial, Colorado to celebrate the end of another successful year, 2017. The new Board of Directors were introduced along with the traditional transferring of the "Fez of the Prez." Receiving the "Fez of the Prez" for 2018 was Angela Echols from Procoat Systems. Mike Devlin with Rocket Supply is the incoming Vice-President and Adam Hercher with BASF is the incoming Secretary. Terry McGovern of Wiss, Janney, Elstner Associates has volunteered to continue in his role as the Chapters Treasurer. The new First-Year Directors elected for 2018 are JR Lake with Sika, Craig Cowen from Surface Analytics and Kim West with ASR Companies.

Leo Whiteley, with Walker Consultants, was also recognized for his dedicated services to the Rocky Mountain Chapter and as National Director for Region 7.

Angela Echols (r) presented an award of appreciation and dedication of service to Leo Whiteley (l) who has served the chapter and ICRI National for many years

The Officers and Directors for the Rocky Mountain Chapter for 2018 are: (l-r) Kim West, Past-President and new Director; Adam Hercher, Secretary; Angela Echols, President; Terry McGovern, Treasurer; Chris Yoder, Director; Chad Grote, Director; Dave Reis, Director; and Craig Cowen, Director. Not present Mike Devlin, Vice President and JR Lake, Director

FLORIDA FIRST COAST HOSTS SILICA SEMINAR

On January 16, 2018 the Florida First Coast Chapter held its first presentation of 2018 at the University of North Florida in Jacksonville. Thirty-seven members and guests were in attendance to hear Brian Sturtecky, CSP, OSHA Area Director Jacksonville Florida review Table 1 regulations for controlling Crystalline Silica per their standards. After the presentation, guests viewed several difference demonstrations by Dewalt on the various types of equipment available to comply with these new standards.

Presenter Brian Sturtecky from OSHA presented on crystalline Silica standards

DELAWARE VALLEY DELIVERS A WINTER SOCIAL

On January 12, 2018 the Delaware Valley Chapter held its annual winter social outing at Helium Comedy Club in center city Philadelphia, PA. The evening started with pre-show networking and socializing in a private room. Then the members and guests were treated to a live performance by local comedian and headliner Todd Glass. The chapter welcomed many members and spouses. Everyone had a fantastic time.

Did you know that ICRI has 38 chapters, including 2 student chapters, across the US and Canada?
Visit www.icri.org to find out more.

For the latest ICRI Chapter information visit www.icri.org

2018 CHAPTER NEWS DEADLINES

JULY/AUGUST 2018
May 10, 2018

SEPTEMBER/OCTOBER 2018
July 10, 2018

Send your Chapter News to Dale Regnier, Chapter Relations Director, at daler@icri.org

NEW ENGLAND HOSTS CASINO NIGHT TO SUPPORT FOR LOCAL CHARITY

The New England Chapter held its annual Holiday Social at Granite Links Country Club in Quincy, MA on December 13, 2017. The theme this year was a Casino Night and included a Craps table, Roulette, Black Jack, and a Poker table. Attendance at the event was just under 50 people, and prizes for casino games consisted of Celtics and Red Sox tickets and various gifts cards. All of the prizes were graciously donated by Chapter members or sponsors. In addition to the casino games, those in attendance enjoyed dinner, drinks, and a good time catching up with friends and colleagues.

The $20 admission fee plus proceeds from the event were donated to a local organization known as The Gavin Foundation, which is a Boston-based alcohol and drug abuse rehabilitation program for young men and women ages 16-20. This organization serves close to 100 adolescents and their families each year.

The Chapter also donated proceeds to the foundation from a live auction held at the event for some premier Celtics and Red Sox tickets. Altogether, the Chapter raised $2,900 for The Gavin Foundation. A special thanks to Sean Davis of Alpha Weatherproofing, Catherine Maloney of Maloney Marketing Associates and Matt Mead of Neogard for coordinating the event, and thanks to Dan Clark of A.H. Harris for coordinating with The Gavin Foundation.

The New England Chapter Board of Directors presenting The Gavin Foundation with a check for $2,000. An additional $900 was raised from a live auction held during the event

Attendees mingled and tried their hand at the various casino games available

Players getting a refresher on the rules of the game

Poker was a popular game at this event

Roulette players considering their wager

CHAPTER NEWS

CHAPTERS COMMITTEE CHAIR'S LETTER

MICHELLE NOBEL
Chapters Chair

Welcome to 2018, seems we've been off to a cold start so far! I'd like to take this opportunity to introduce myself, I'm Michelle Nobel with the Sika Corporation and I'm proud and honored to take over the reins of Chapters Committee Chair from John McDougall with Baker Restoration. With the ever present help and tutelage of Dale Regnier, Chapter Relations Director, I hope to make you all proud too.

The exciting news is we've seen growth in our chapters like the growth we've been seeing in our industry. The growth has brought new interest from people looking to start new chapters in other areas of the country, which is thrilling and encouraging for ICRI.

By now, the chapter awards paperwork should have been filled out by all the past presidents for 2017. This is a great way to gauge how well your chapter is performing. After filling out the paperwork, you can see the areas that may need improvement. As the President of The Florida West Coast Chapter in 2016, I made it a goal to become the ICRI Chapter of the Year because we hadn't won for several years. We achieved that goal with the help of everyone joining in to help improve the chapter's programs, events and attending the ICRI Chapter Roundtable.

The first Roundtable of 2018 will be held in Tampa on February 26th and 27th. This is a regional event that members from Virginia, Carolinas, Georgia, Gulf South, Florida First Coast, Central Florida, Florida West Coast, Southwest Flor6ida and Southeast Florida are all invited to attend. It looks to be the most productive and well attended Roundtable we've ever had because all of the chapters in the designated area will be participating. This is a great time to learn what other chapters have done to be successful in membership retention, fundraising and local events. New ideas that come from the Roundtable help all that attend. I highly encourage everyone to participate when you have the chance, I've been in attendance at several Roundtables and I've always come away with more knowledge of the workings of ICRI and creative ideas that have helped me, the Florida West Coast Chapter and all that attended. It's always a great way to learn what other members do within their chapter to be successful. The second roundtable this year will be in Philadelphia. The Baltimore Washington, Delaware Valley, Metro New York, Connecticut, Pittsburg, New England, Quebec and Toronto chapters will all be invited to attend. Make sure you send two delegates to the Roundtable events so your chapter can benefit from this meeting.

The Spring Convention is right around the corner from April 11th to the 13th. There will be a private tour of the ICRI Project of the Year, The Alcatraz Quartermaster Warehouse Building. This area is not normally open to the public, so if you want to tour this area, you need to come to the Spring Convention. I know that there will be a lot of people wanting to see this building, so sign up early because only 150 people will be allowed to attend. ALL chapters should make sure that they have delegates going to the conventions. This is an opportunity for newer members or even members that haven't been to a convention for a few years, to take advantage of this program. To find out more information on being a delegate, please talk to the current chapter president or go to the icri.org website. In order to host an ICRI Convention in your area, someone from the chapter needs to do a presentation at the Spring Convention. The presentation should be only be a few minutes and it should include why the convention should be in your city and what the local highlights are to attract people to the convention.

Lastly, I'd like to thank all the 2017 Chapter Leaders for their guidance and dedication to their chapters and welcome all the 2018 Chapter Leaders. Without your leadership and support, we wouldn't be able to achieve the progress in our chapters that we've achieved. Thank you all for your time and effort in progressing your chapters and I look forward to seeing you all at the ICRI Inter-Chapter Luncheon in San Francisco, at the ICRI Spring Convention. This one of the best times to learn about chapter events other than the Roundtables. There are many new opportunities coming up for our chapter partners for partnering with ICRI through hosting certifications, conventions and other events. I'll see you all in San Francisco!

Sincerely,
Michelle Nobel
2018 Chapters Committee Chair

NEW PRODUCTS

PROSOCO LAUNCHES MORE POWERFUL GRAFFITI REMOVER

A new graffiti-removing product from PROSOCO offers a more powerful punch than its predecessor.

Defacer Eraser Graffiti Remover, which replaces the now-discontinued Graffiti Wipe, is a liquid formula that more effectively eliminates graffiti with a shorter dwell time that gets the project done faster and contractors onto the next job more quickly.

BEFORE Graffiti Remover

AFTER Graffiti Remover

"Another improvement users will notice is less ghosting left on the substrate because it's more effective at removing graffiti in general," said Jake Boyer, leader of PROSOCO's line of masonry cleaners and protective treatments.

Graffiti Remover is designed specifically to work with PROSOCO's Blok-Guard anti-graffiti treatments.

Water-rinsable and compliant with all known VOC regulations, Graffiti Remover has a pleasant citrus scent.

For more information, visit our Graffiti Remover product page.

PARKER TWINHAMMER™ BONDED AIR/WATER JACKHAMMER HOSE SYSTEM DELIVERS BOTH AIR AND WATER IN A SINGLE CONFIGURATION

For efficient, effective and safe compliance with new OSHA Respirable Crystalline Silica (RCS) standard for jackhammer operation

The Industrial Hose Division of Parker Hannifin Corporation, the global leader in motion and control technologies, has launched a new hose system designed to assist construction and rental equipment companies, state and local government agencies and those who employ jackhammer and breaker operators to easily, effectively and safely comply with a new OSHA Respirable Crystalline Silica (RCS) standard.

Parker Twinhammer™ hose is the first factory-assembled dual hose system that delivers both air and water in a single, bonded twin-line configuration for dust suppression in heavy duty pneumatic jackhammer applications.

Twinhammer hose assemblies feature durable, chemically bonded and abrasion resistant lines that enable efficient installation and kink-resistant handling that easily negotiates debris and obstacles, eliminating the need for intrusive clamps, straps, tape or other devices to join distinct air and water hoses.

The assemblies incorporate maintenance-free permanent crimped universal fittings for easy connection/disconnection to the air supply, and rust-resistant brass male NPT couplings for attachment to the water supply and spray apparatus.

The new twin line hose system concurrently:

- transfers air to power heavy duty pneumatic jackhammers
- transfers water to suppress silica dust produced by tool operation
- helps create a safer and more efficient work environment

"Parker has reacted quickly to develop and deploy an efficient wet-spray hose solution designed as an integral component of an OSHA-compliant silica dust suppression system," said Alex James, product sales manager, Parker Industrial Hose Division. "The Parker Twinhammer hose dual air and water lines feature a stable, unitized design that allows fit-to-need adjustment for easy attachment to air and water sources. The adjustment also allows easy attachment to jackhammers on the other end of the hose."

Parker has also introduced a hose spray kit to transfer water from the supply hose to the jackhammer tool bit. The kit provides efficient and consistent water angle, distance, flow and spray pattern for effective silica dust control.

Twinhammer hose is identified as Series 7084 in Parker nomenclature. Product information is available at the Series 7084 page on Parker.com. A Parker Summary Guide with OSHA regulatory information is also available for download. Learn more at www.parker.com.

FLIR ANNOUNCES INTELLIROCK III CONCRETE PROFILING SOLUTION WITH INDUSTRY'S FIRST BUILT-IN THERMAL IMAGER

Latest Concrete Monitoring System Allows Users to Monitor Strength and Temperature Remotely

FLIR Systems, Inc. (NASDAQ: FLIR) today launched the FLIR intelliRock™ III, the first concrete strength and temperature profiling system equipped with a built-in thermal imager. Powered by the FLIR Lepton® thermal micro camera, the intelliRock III system pro-

vides construction professionals with instant access to the data and alerts they need to continuously monitor projects, ensuring maximum concrete quality and that project specifications and deadlines are met.

The third generation intelliRock system is the only concrete monitoring tool featuring profiling technology to allow users to detect delamination, monitor insulation performance, and view curing box and specimen temperatures and other temperature extremes. The system also delivers real-time information needed for safer and efficient management of concrete-related workflow.

The intelliRock III, which stores up to 999 images, features a wireless remote with 4G LTE wireless communication and cloud software for convenient reporting, saving, and reviewing critical data from anywhere via mobile device. Users can schedule SMS or email alerts to their smartphone for strength, temperature, or differential changes from multiple loggers. The intelliRock III reader has Bluetooth® connectivity to transfer data to the computer. It is also the only system with uninterruptable and uneditable logging, always providing valid, reliable data. A sliding-scale logger comparison helps ensure differentials are accurate to prevent thermal cracking and potential structural defects.

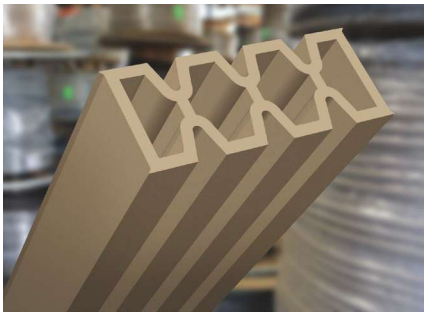
"The FLIR intelliRock III delivers the industry's first concrete monitoring solution with a built-in thermal imager and cloud based connectivity, making it easier to collect and share data from the office or the field," said Jim O'Daniel, International Sales and Operations Manager for concrete products at FLIR. "This flexibility will help construction professionals expedite their schedules, ensure critical specifications are met, and avoid steep penalties associated with unmet deadlines."

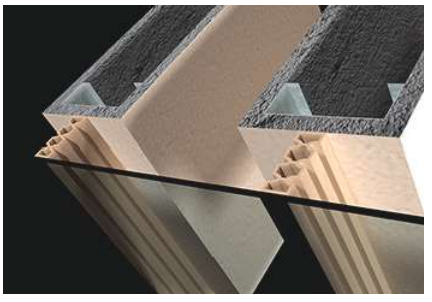
To learn more about the FLIR intelliRock III, visit www.flir.com/intellirock3.

BALCO USA INTRODUCES THE MICHAEL RIZZA™ PARTITION CLOSURE SERIES

PCS-Series seals vertical joints between interior partitions and exterior curtain wall and glazing systems; boasts a high STC rating, aesthetic appearance and labor-reducing installation time.

Balco USA, Wichita, Kan., a leading manufacturer of high performance construction products, introduced the Michael Rizza™ Partition Closure System (PCS-Series), the architecture/construction industry's only vertical silicone compression seal and sound transmission dampener that's molded into a single 100-foot-long length. The aesthetic PCS-Series is an easy-to-install, economical product designed for vertical junctures and joints between the ends of partitions and curtain walls and glazing for office facilities, hotels, hospitals and other commercial buildings.





The PCS-Series' 100-foot (30-m) length is the industry's longest, which reduces labor-intensive multiple splicing associated with other partition closures. The 100-percent silicone construction is easily cut onsite with a utility knife and has the flexibility to fit into two-inch-wide (51-mm) expansion joints between exterior glass or mullion curtain walls and CMU or drywall partitions. The installation process is completed with a one-step silicone rubber building joint sealant, such as Dow Corning® 790, which complements the PCS-Series' abatement of sound/vibration transmission, thermal transfer and dirt/dust infiltration.

The one-piece, bellows-like design consists of two hexagonal and two trapezoidal-shaped chambers that allow the PCS-Series to easily expand and contract within a ±1/2-inch (12.5-mm) range without the use of mechanical springs or parts. The open chambers give the PCS-Series superior, lab-tested sound reduction qualities of up to STC-58, depending on single or double-sided installation configurations.

An optional 10-foot-long (3-m) anodized aluminum Tube Channel Base Member (PCS-1B) and a C-Channel Base Member (PCS-1C) allow one side of the PCS-Series to be inserted and held securely. Both channels can accommodate larger joint openings and can be installed onto building materials non-invasively with construction adhesives such as Liquid Nails or Sikaflex 1A.

The PCS-Series standard color is black, however colors from the Dow Corning 790 silicone color palette are available for matching building materials.

Other features of the PCS-Series include:

- Doesn't lose flexibility, deteriorate or fade, because of inherent endurance of silicone and built-in ultraviolet light inhibitors;
- Tested for cyclic movement under the ASTM E1399 Standard;

- Contributes to Leadership in Environmental and Energy Design (LEED®) credits;
- Standard one-year warranty.

For additional information visit www.balcousa.com.

BOSCH GSH27-26 BRUTE™ TURBO BREAKER HAMMER WITH GPS TRACKING, SDS-MAX™ HAMMERS WITH GPS25-4 RETROFIT TRACKING MODULE ENSURE REAL-TIME LOCATION ANYWHERE

The Bosch GSH27-26 Brute™ Turbo is the world's first breaker hammer with GPS tracking that makes sure jobsite managers know where this powerful tool is at all times; a retrofit option (GPS25-4) brings the same capability to all current Bosch SDS-max™ hammers.

The Bosch GPS device on the Brute Turbo and the SDS-max hammer retrofit offer always-on location tracking. The device works for months at a time because it's powered by a Lithium-ion battery that recharges automatically as soon as the tool is plugged in. In addition, the tracking device can notify a user about various activities, including non-working hour activation and non-authorized location use. Users are notified about these actions via cellular network on a smart phone.

The tracking feature, which reverts to cellular network coverage when GPS is not available, can be managed through the free Bosch GPS tracking app (available for Android™ and iOS®). The app can be found online at the Apple App Store® or the Google Play™ Store. During the first twelve months of ownership the tracking service is free; after the initial one-year period the service will cost of $9.99 per month or $99 per year.

The Bosch GSH27-62 Brute Turbo Breaker Hammer with GPS Tracking offers an outstanding concrete removal rate, yet weighs only 64 pounds. With 1,000 bpm and 43 Ft.-Lbs. of impact energy, this versatile heavy-duty tool can tackle applications that range from outdoor asphalt work to indoor foundation removal. The breaker hammer doesn't require a compressor because it can be powered by a 115/120V AC/DC 15-amp outlet or a 2,500-watt portable generator. The breaker hammer's custom cart doubles as a hammer hauler and a hand truck. Truck rails allow the cart to be raised or lowered easily from a truck.

The Brute Turbo's powerful impact energy improves performance, yet doesn't affect overall durability. Category-leading motor efficiency, minimal energy loss in the seals, heavy-duty springs and fasteners, and a rugged spring dampening system offer users a tool that's built for power, but doesn't forget user comfort. The Bosch Service Minder™ Brush System shuts the tool off when brush replacement, lubrication or preventative maintenance is needed and a grease-packed gearbox and hammer mechanism eliminate any potential contamination caused by jobsite lubrication.

The GSH27-26 Brute Turbo Breaker Hammer's Active Vibration Control™ system includes a longer air cushion in the hammer mechanism that reduces vibration levels at the source. Ergonomic shock-mounted handles complete the vibration control system by providing the user with the lowest vibration level possible without adding size or weight to the tool. The Brute Turbo comes complete with a non-slip rubber cover to prevent the tool from tipping while in storage, custom cart and four chisels.

The GPS25-4 retrofit is available for ten different Bosch SDS-max hammers that extend from 10-amp power to 15 amps with impact energy from 5.6 EPTA to 17.0 EPTA. No load BPM ranges from 900-2,900 BPM. Operation options include rotary hammer and hammer only modes.

To learn more visit www.boschtools.com.

PETTIBONE INTRODUCES NEXT GEN T944X TELEHANDLER WITH INDUSTRY-EXCLUSIVE TRAVERSING BOOM

The new Pettibone Traverse T944X is the industry's only new telehandler with an extendable, traversing boom that moves loads by traveling horizontally. Up to 70 inches of horizontal boom transfer allows users to precisely and safely place loads at full lift height through tight openings without having to coordinate multiple boom functions.

With the Traverse, the specified lift height of 44 feet, 6 inches is nearly identical to the 44-foot landing height. This stands in contrast to a traditional fixed boom pivot, where the true landing height is generally several feet less than the advertised lift height, as operators must account for withdrawing the forks out of the load with enough rearward travel for the fork tips to clear the landing zone. The traversing boom allows for maximum forward reach of 35 feet, 10 inches.

The T944X builds upon Pettibone's traditional rock-solid design, delivering the same ruggedness and dependability while providing several new design enhancements.

The telehandler is powered by a 74-horsepower Cummins QSF 3.8 Tier

4 Final diesel engine that features a DOC muffler and requires no diesel exhaust fluid (DEF). The side pod engine offers easy service access while allowing excellent curbside visibility and ground clearance of 18 inches. A 117-horsepower option is also available.

Drivetrain and axles have been optimized to provide greater tractive effort with minimal tradeoff on top end speed. A pintle hitch mount adds versatility for towing trailers. Built for use on rough terrain, the unit offers full-time 4-wheel-drive with limited-slip front axle differential. Tight steer angle capability provides an efficient turning radius of 14 feet, 1 inch. The Dana VDT12000 Powershift transmission offers three speeds, forward and reverse.

Pettibone's leading hydraulics continue to deliver exceptional controllability and overall operating feel, while enhancing efficiency and cycle speeds. Cylinder cushioning has been introduced to dampen the end of strokes – both extending and retracting – to avoid the wear-and-tear of hard, jarring stops, while also helping prevent the potential spilling of a load. The telehandler also uses a single lift cylinder that improves operator sight lines, and has twin hydraulic lines for tilt and auxiliary plumbing.

The T944X offers maximum lift capacity of 9,000 pounds with its newly designed boom. Featuring formed boom plates and less welding, the structure offers greater strength while reducing weight. The design also minimizes boom deflection for better control and accuracy when placing loads.

Boom overlap has been nearly doubled from previous models to provide smoother operation and reduce contact forces on wear pads, thereby extending service life. A bottom-mounted external extend cylinder further reduces the load on wear pads by up to 50-percent. This cylinder location also provides greatly improved service access to internal boom components. A single extension chain eliminates the needs to balance dual chains. Another new introduction is fastener-less wear pads for simplified service.

For more information visit www.gopettibone.com

PRESPAN FLOOR SYSTEM LAUNCHED BY NORTHEAST PRECAST—NEW PRECAST FLOOR SYSTEM BRINGS SPACE UNDER GARAGES

Northeast Precast, manufacturer of custom precast panels and systems, has announced the introduction of a new product: Prespan. The patented new flooring system features insulated precast floor planks for both residential and commercial projects.

"One of the best things about Prespan is that it allows for extra space to be constructed under the garage in the building stage of a project," says Mark Gorgas, commercial division general manager for Northeast Precast. "This added space can be very valuable for anyone looking for extra storage space in the home or commercial building.

"The Prespan system eliminates the need for interior structural supports. The precast floor system leaves you with a complete open space with no columns or load bearing walls."

According to Gorgas, Prespan allows builders to gain a clear span of the entire building to create a full basement or crawl space walls under the garage. The rigid product features less deflection and is 25 percent lighter compared to hollow core planks.

"Being able to put a full basement under a garage is a big win for homeowners that dream of extra space," says Gorgas. "According to HomeAdvisor.com the average national cost of building an addition is $41,891, with most homeowners spending between $21,001 and $64,817.

"Planning ahead by using the space under the garage is the most affordable space that you can add to your home. If the cost saving benefit of the added living space is not enough, the design flexibility will win you over."

Northeast Precast's Prespan floor plank system installs well with all concrete wall types. There are no manufacturing job size limitations. Northeast Precast's efficient manufacturing processes allow for projects of all sizes.

For more information visit www.northeastprecast.com.

FAMILY OF BOSCH 360° THREE-PLANE LEVELING AND ALIGNMENT LINE LASERS OFFER ALL-IN-ONE LAYOUT CONVENIENCE IN GREEN BEAM (GLL3-330CG) AND RED BEAM (GLL3-330C AND GLL3-300)

When the job is leveling and alignment, sometimes it takes a family to get the job done right. Bosch GLL3-330CG, GLL3-330C and GLL3-300 Three-Plane Leveling and Alignment Line Lasers deliver accuracy, long range and convenient all-in-one job layout to meet a variety of tasks on the jobsite. The self-leveling lasers provide one 360° horizontal plane and two 360° vertical planes with references that cover the floor, wall

and ceiling to serve all leveling needs. The two vertical lines cross at 90° angles so the user can quickly arrange and square the layout of the room from one mark.

The GLL3-330C (red beam) and GLL3-330CG (green beam) are Bluetooth® connected, which brings an added measure of efficiency and convenience to the user. With upgraded diodes and brighter beams, these plane lasers offer a visible range up to 200 ft. diameter, increasing to 330 ft. diameter when paired with an optional Bosch LR8 or LR 6 receiver for full jobsite coverage. The GLL3-330CG's green laser diodes generate green lines up to 4X brighter than standard red beams. The tool excels in ambient and bright lighting environments, allowing the user to see lines easily.

The two lasers have dual power technology to accommodate either a Bosch 12V Max Lithium-ion battery or four AA alkaline batteries. The 12V Max battery provides power in a compact package for extended laser runtime on all-day layout jobs.

In addition, users can control the operation of the GLL3-330C and GLL3-330CG Bosch lasers remotely with a smart phone and the free Bosch Leveling Remote App, available at the Apple App Store® and Google Play™ Store. The app allows users to turn the leveling laser on and off, select the number of laser planes active and adjust the visibility of the laser lines. The app also provides battery status and out-of-level alerts.

The GLL3-300 offers upgraded diodes and a brighter red beam with a visible range of up to 200 ft. diameter and 300 ft. diameter when using an optional Bosch LR8 or LR6 receiver for full job site coverage. The tool is powered by four AA alkaline batteries.

VisiMax™ is About Performance
All three lasers feature Bosch-exclusive VisiMax Technology, which monitors the laser's temperature to ensure maximum diode performance. VisiMax delivers optimum visibility for all jobsite conditions while protecting the laser diodes from overheating. This helps maintain the life and reliability of the tool even when used at extreme temperatures.

To learn more visit www.boschtools.com.

THE GEBBIE TECH SYSTEM

Game changer in the world of vertical wall repairs – saving time and money. The patented Gebbie Tech system is a proven vertical concrete wall crack repair system using Roadware 10-Minute Concrete Mender™.

The Christchurch Earthquakes in New Zealand caused extensive damage to concrete structures including warehouses, bridges and other vital infrastructure. This necessitated an effective and fast repair strategy due to the large volume of repairs required. The Gebbie Tech System was integral to getting Christchurch back on its feet! The number one advantage of the system is that repairs can be completed in just one day.

The system works by using a hand gun to inject the quick curing Roadware 10-Minute Concrete Mender - completing concrete wall crack repairs in just one day. The Gebbie Tech Injection System installs Concrete Mender™ deep into vertical cracks without messy ports or extra days waiting for epoxy to cure. The system allows vertical concrete wall repairs to be completed using Roadware 10- Minute Concrete Mender with a hand gun – previously only used on floor repairs.

Roadware recommends the Gebbie Tech System for using Roadware 10 Minute Concrete Mender to repair vertical cracks in walls and structures from hairline to ¼ inch in width. Comprehensive testing has been completed by Opus International Consultants - repairs have consistently achieved results higher than the manufactured panel. The Gebbie Tech System is the go-to repair strategy of choice for top engineers in New Zealand.

A major advantage of the system is the curing time of the Roadware 10-Minute Concrete Mender. This enables wall crack repairs to be carried out in one day. Over 44 yards have been achieved in one day, by a two-person crew. Alternative processes can take up to three days to repair a concrete wall, due to the method of application, and their curing time. The Gebbie Tech System delivers efficiencies in both labour and downtime for additional contractors such as painters. Warehouses, bridges and commercial buildings can be re-accessed and operational quickly, due to the fast cure times of the Roadware 10-Minute Concrete Mender™. The system uses the Roadware 10 Minute Concrete Mender hand gun – alternative options use expensive pumps.

For more detailed information visit www.gebbietech.com.

INTERESTED IN SEEING YOUR NEW PRODUCTS IN THIS COLUMN?

Email your new product information to editor@icri.org. Content for the July/August 2018 issue is due by May 1, 2018 and content for the September/October 2018 issue is due by July 2, 2018.

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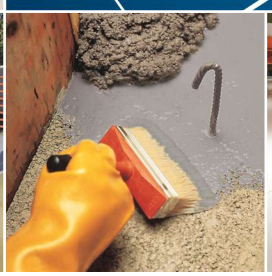
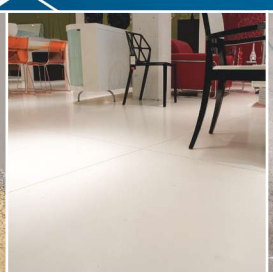
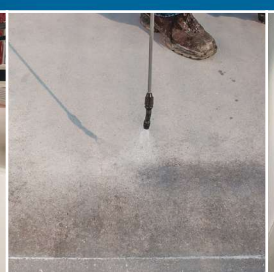

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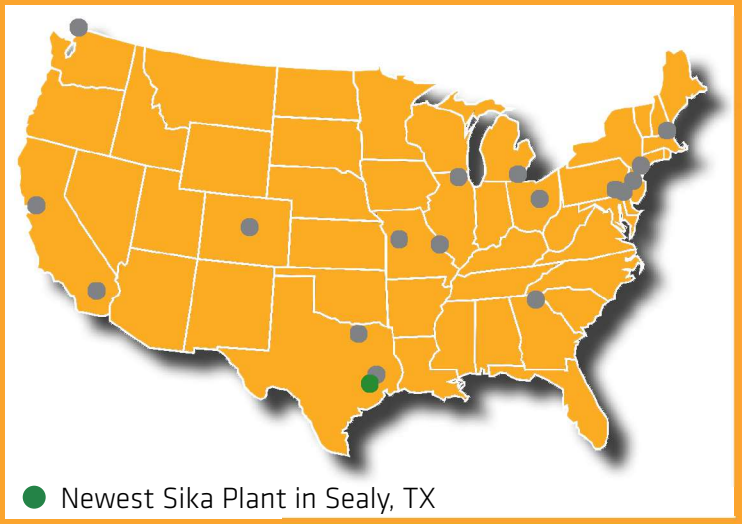

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