ICRI CONCRETE REPAIR BALTIMORE WASHINGTON

The Newsletter of the Baltimore Washington DC chapter of ICRI

The Aggregate

2nd Quarter 2019

Chapter Calendar

Chapter Scholarship Application Available
April 10, 2019

2nd Quarter Chapter Dinner Meeting
May 9, 2019

Call for Outstanding Project Applications
June 5, 2019

Visit us at:
icribwchapter.org

Message from our President

Kevin Kline - *Concrete Protection & Restoration, Inc*

Hello again everyone and welcome to the 2nd edition of our 2019 Aggregate newsletter. We seem to have hit somewhat of a late cold spell, but I hope everyone has mostly thawed out from the winter and is ready for things to get busy again.

Speaking of warm weather… this year's National Spring Convention is being held in sunny Jacksonville, Florida from Monday April 8th through Wednesday April 10th. It is supposed to be spring here in Baltimore, but I am looking forward to a break from these freezing temperatures! If anyone else will be attending, please reach out to me so we can meet up at the convention. Also, the National Fall Convention will be held in Philadelphia, Pennsylvania from November 11th through the 13th. We are always looking for our members to be more involved in our chapter as well as at the national level. If anyone is interested in being the BW Chapter delegate for the fall convention, or if you are on the fence because you are unsure of what your commitments would be, please let me know or reach out to one of the other board members. It's a good way to check out what ICRI is like at the National level and as an extra benefit, our chapter helps cover travel expenses.

Our second social event for 2019 was a few weeks ago on March 27th where several of our members gathered at the new Guinness Open Gate Brewery & Barrel House in Halethorpe, MD. The event was pretty well attended and we were able to take a few groups through their brewery tour where we learned about Guinness, their brewing process and why they selected Baltimore as their new home in the US. We also invited some folks from Plano-Coudon (General Contractor) and Structural Restoration Services (Specialty Restoration Contractor) who gave us some insight on the construction/restoration of the new facility… all while enjoying some of what the new test brewery has to offer.

We are hoping to host some more social events for 2019 including a possible joint venture with the Delaware Valley Chapter, but if anyone has any ideas or recommendations for fun events, please let me know.

Our 2nd Quarter Dinner Meeting is coming up on Thursday May 9th. Please note that we changed the date from May 2nd to May 9th in order to avoid any conflict with the Virginia Chapter's Spring Symposium. Please also note that the times are slightly different than normal. Social hour will start at 6:00 PM instead of our normal 5:30 PM, and dinner & presentation will start around 7:00 PM. For this dinner meeting we will be back at the Gaithersburg Marriott Washingtonian Center. Our speaker is Dr. Farshad Rajabipour who is an Associate Professor of Civil Engineering at Penn State. WE ARE…!! He will be giving a presentation on his research in alkali-silica reaction (ASR) as well as methods for testing, predicting and mitigating damage in concrete.

A few other big calendar items… Our 2019 scholarship application will be available as of the publishing of this newsletter and is included within, or you can find it on our website. Applications are due on September 20th. Call for outstanding project awards will go out on June 5th and are also due on September 20th. All scholarships and award winners will be recognized at our 2019 Awards Banquet on November 7th.

As always, please check our chapter website for the calendar of events and chapter updates and feel free to reach out to me or any of the other board members with any questions or concerns. I know we are all looking forward to the busy construction season, but remember to stay safe and always have fun.

Preventing Lyme Disease

By David Caple

With the beginning of spring comes the warm weather, more outdoor work, and ticks. When I was young I never really remember hearing about anyone with Lyme disease. Now, off the top of my head, I can think of ten people I know that have had it. When I bring this subject up, many others chime in how they too have noticed it seems like more people have the disease than ever before.

Lyme disease is named after the town of Lyme, Connecticut, where a number of cases were identified in 1975 by Alan Steere. This would explain why I had not heard much about it when I was younger. It wasn't identified as a disease until relatively recently.

Early symptoms may include fever, headache, fatigue, depression, and a circular skin rash called Erythema Migrans (EM) which tends to look like a bullseye. Left untreated, later symptoms may involve the joints, heart, and central nervous system. When treated early with antibiotics the infection and its symptoms are eliminated. Delayed or inadequate treatment can lead to more serious symptoms which are disabling and difficult to treat.

The incubation period from infection to the onset of symptoms is usually one to two weeks, but can be much shorter (days), or much longer (months/years). Symptoms most often present themselves from May through September, although after the mild winter we experienced this year, I found a small nymph (young tick) on me as early as April. The nymphal stage of the tick is responsible for most cases of the disease.

The classic early sign of a local infection is a circular outwardly expanding rash at the site of the tick bite, developing three to thirty days after the bite. The rash is red and may be warm, but is generally painless. The innermost area around the bite remains dark red and becomes thicker and firmer. The outer edge remains red giving an appearance of a bullseye. EM occurs in about 80% of infected patients and can be the easiest symptom to identify. EM can also occur on other parts of the body that bear no relation to the original tick bite.

Since most cases of Lyme disease is contracted from the tick when the tick is in its' younger stage, it is important to understand these ticks are very small. Nothing like the ones most of us are familiar with. The young tick is about the size of a poppy seed. Once spotted, removing these small ticks can be very difficult. It is important to use tweezers and to only grab a hold of the tick as close to the spot they are hooked onto your skin. Squeezing the body could push everything inside the tick back through the feed tube and into your body, causing an infection that could have been avoided by proper handling. If in doubt, have a professional remove the tick. After the tick is removed, mark it on your calendar as a reminder to be sure to keep track of time and any potential symptoms that you are aware of. This step is easily forgotten as you go about your day, but it is important to properly track potential exposure.

If you are ever in doubt about whether you may have developed Lyme disease, see a doctor and be sure to tell your doctor that you were bitten by a tick. Some of the symptoms are similar to those associated with other diseases, so be sure your doctor has all the proper information. Lyme Disease can be difficult to diagnose since it is considered the "great imitator". In the late stage of Lyme disease it may be misdiagnosed as multiple sclerosis, rheumatoid arthritis, fibromyalgia, chronic fatigue syndrome, lupus, Chrohn's disease and several other autoimmune and neurodegenerative diseases. Testing can be done to identify the disease.

When working outdoors protect yourself by wearing a hat, long sleeved shirts, and long pants. Tucking your pants into your sock or boots is helpful, regardless of how silly it may look. Light colored clothing will make it easier to identify the tick before it attaches itself. Check your pets because they can bring these bugs into your house. Have a general routine of checking yourself daily before bathing. Removal of ticks within the first 36 hours can greatly reduce transmission rates. In fact, an infection is unlikely if the tick is removed in less than 24 hours. If you think the tick is a deer tick save the tick and contact your physician. A dose of doxycycline given within 72 hours after a high risk tick exposure can prevent development of the disease. Now that you know more about Lyme disease then you may have ever thought you needed, try to protect yourself, your family, and your co-workers from this awful, life changing disease.

References: Wikipedia, WebMD, Center for Disease Control en.wikipedia.org/wiki/Lyme_disease

David Caple, COHC, CEAS
Construction Safety and Health Specialist, is the Principal Member of Pinnacle Safety Network, LLC. He has over 15 years experience in a combination of structural restoration and safety.

VALUE ENGINEERING: VALUE MEANS MORE THAN JUST DOLLARS

by Kenneth K. Sorteberg, Esquire

Many think of value engineering purely as a cost-cutting tool. While it is true that reducing initial project cost is a prime objective of value engineering, value can and does take other forms.

The Society of American Value Engineers (SAVE) recognizes many other objectives of value engineering. Such objectives include:

- reducing cost without sacrificing quality
- broadening a project's function or usefulness,
- creating a higher quality end project,
- reducing schedule requirements,
- reducing long-term maintenance costs,
- ensuring overall long-term cost effectiveness, and
- generally improving project performance.

Project Owners genuinely appreciate receiving unsolicited value engineering options, because Owners can directly benefit from them.

The Owner is not the only one to benefit. By offering value engineering options to an Owner as part of the contractor's proposal, a contractor can gain a competitive edge. Such value engineering options not only get the Owner's attention, but they demonstrate that the contractor has done its homework and is committed to providing a high-quality and cost-effective Project.

An Engineer's design should not be taken for granted as the only way to "skin the cat." Contractors bring a fresh perspective to the Engineer's design. Contractors possess a wealth of experience with a variety of means, methods, equipment and materials. Contractors are also very knowledgeable with respect to costs. Contractors should not underestimate the value of their input.

Today's innovation is tomorrow's convention. In other words, value engineering is the harbinger of progress.

Please feel free to contact Ken Sorteberg at sorteberg@constructionlaw.com with any questions or suggestions for future Legal Columns. Mr. Sorteberg is a civil engineer and an attorney (licensed in MD and DC) who focuses his practice on construction law.

REPAIR AND MAINTENANCE OF RETAINING WALLS

By **Murat "Rod" Seyidoglu, PE, SE**
Ehlert Bryan Consulting Structural Engineers

While retaining walls, designed and built in accordance with the common engineering practice, perform well during their service lives, repairs become necessary as they age, or left unmaintained. The most frequently observed issues, which require repairs, are material deterioration, unaccounted hydrostatic pressure, overgrown vegetation, vehicular impact, excessive surcharge, adjacent construction, erosion and liquefaction. In any retaining wall repair project, it is essential to understand the underlying issues and find practical solutions which would be long lasting and cost effective. While removal and replacement of retaining walls is always an option, it is generally not feasible due to high cost and negative impact to the property. This article will elaborate how such issues are investigated and repaired; also, a brief discussion regarding maintenance is provided.

TYPICAL PROJECT SEQUENCE

From their inception to completion, repair projects greatly vary from new construction projects. As structural engineers of record, we would hardly ever perform any fieldwork for retaining wall design in new construction projects; however, we have to be much more involved with the fieldwork in repair projects to be able to understand the underlying causes behind the reported issues and determine the necessary repairs. Common stages of a repair project a briefly discussed below to give some basic information:

Survey and Field Investigation

The first step is performance of a physical field survey to better understand the reported issues and potential causes. During this investigation, existing dimensions of the wall (height, stem thickness, tip deformation) are measured, loading conditions (surcharge, slopes, loading conditions), drainage (location and spacing of drain pipes), potential modifications as well as the wall deterioration are noted for evaluation. If necessary, test pits are dug at strategic locations for performance of a geotechnical investigation to determine the soil properties and the footing dimensions.

Review of Available Documents and Analysis

The second step is the reviewing the existing drawings, field data, geotechnical engineering report (if performed) and performance of an initial analysis. Analysis is performed to check the wall stability, allowable soil pressures and the structural capacity of the wall itself. If there are no design documents available, reasonable assumptions need to be made for the information not known. The reasons behind the observed distress should be determined and possible solutions should be identified. Modifications to the original construction, unaccounted loading on the retained side, construction of new adjacent structures should be considered during the analysis.

Document Production and Construction

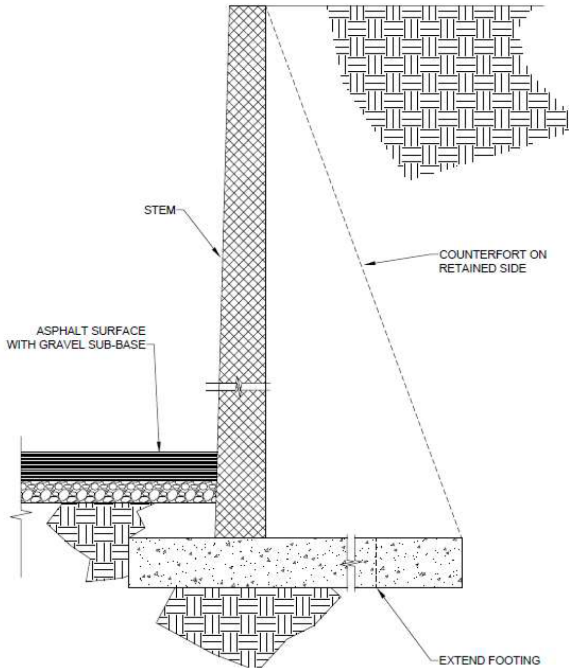
Following the analysis and evaluation, potential options are discussed and the design documents are coordinated with the owner along with the rest of the design team. It is prudent to provide as much information as possible to the contractors in repair design documents. Existing drawings and surveys, geotechnical reports, property surveys, utility layouts and all relevant documents can be given to the contractors to assist them during the bidding and construction. Eliminating uncertainties will allow contactors to bid projects more accurately and build more efficiently. As the bidding and construction procedures vary from project to project; such procedures will not be discussed herein.

REPAIR AND STRENGTHENING METHODS

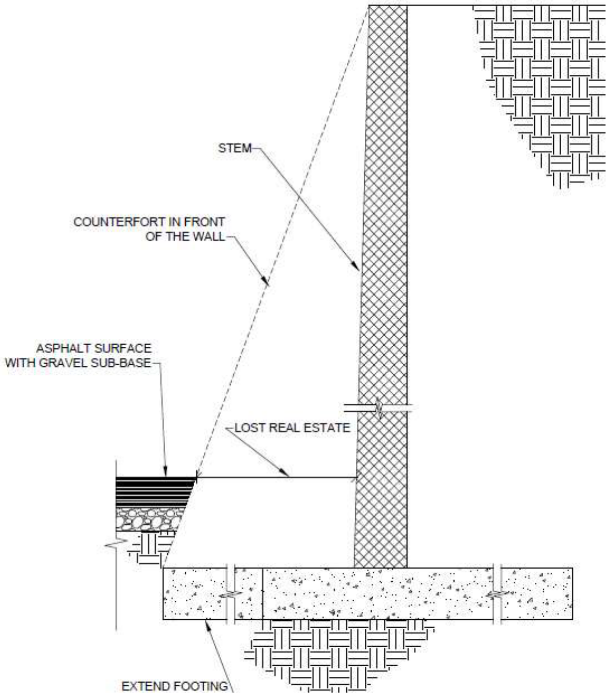
All materials have their own strengths and weaknesses; it is important for engineers repairing existing retaining walls to be familiar with them. While new design projects offer the freedom to choose the structural systems and materials, repair projects require an understanding in the constraints of a variety of different materials. Common methods can be implemented to repair or strengthen almost any type of retaining wall built with any kind of material; however, such methods need to be adjusted to fit each material's limitations. ICRI, ACI, AISC and AWC's guidelines for repairs should be consulted to determine the appropriate procedures for remediating the deterioration as needed. To give a brief overview, some of the strengthening methods used to remediate issues related to global stability of the walls are presented below.

Strengthening by Addition of Counterforts

This is a very efficient and cost-effective method due to its simplicity. Counterforts can be placed in front or behind the stems act as rigid piers to provide flexural capacity, reduce deformation and/or increase the safety factors for overturning and sliding. If placement of the counterforts on the retained is cost prohibitive, due to the required excavation, they can be placed in front of the wall (when adequate space is available) and modifications can be made to the toe for distributing the applied pressures. The design of the counterfort itself can be done by utilizing truss analogy of the internal forces or a strut and tie model. As an alternate, kickers may be utilized to provide support at certain intervals in lieu of counterforts. While kickers are a popular method for temporarily supporting retaining walls, they are not commonly used for permanent repairs.



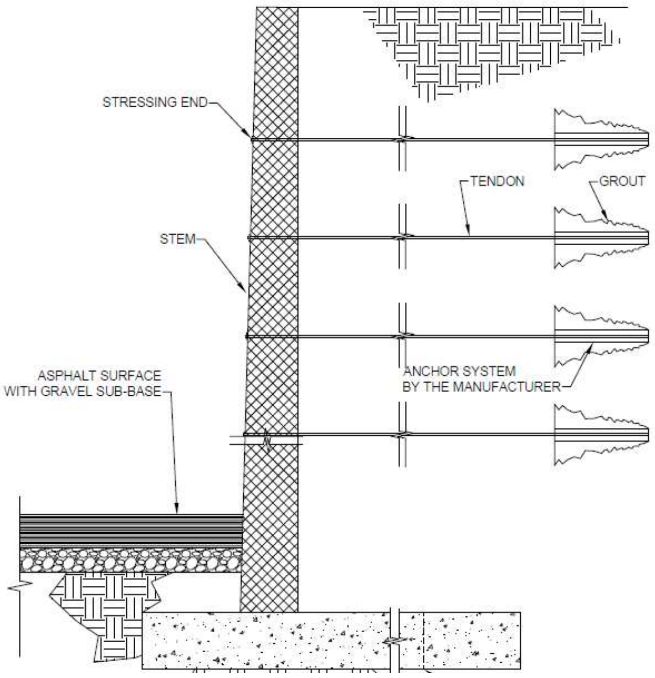
Counterfort on Retained Side



Counterfort in front of the Wall

Strengthening by Addition of Soil Anchors

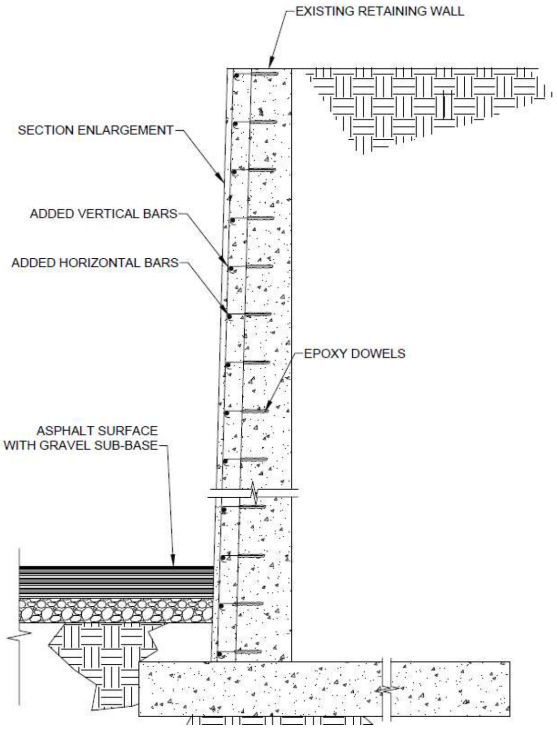
This method has been very popular in construction of anchored sheet pile retaining walls over the last few decades and it is gaining popularity in the renovation industry. Installation of tendons through the wall is a straightforward process; however, determination of the anchorage system and cable length require collaboration with the systemmanufacturers. Due to presence of underground utilities and adjacent foundations, extension of the anchors beyond the active zone may be problematic and increase the cost of these systems. Nevertheless, it is a good alternate to minimize wall deformation and requires a lot less excavation than a counterfort on the retained side.



Soil Anchors

Strengthening by Section Enlargement

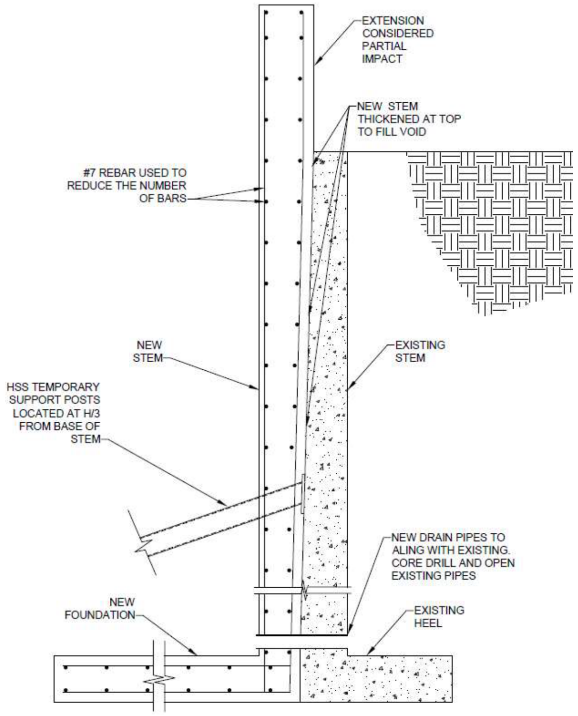
In situations where shear at the base of the wall is an issue at short retaining walls, section enlargement may be an option in concrete and masonry walls. In this method, additional concrete cast is against the original wall surface and reinforcement is added into the newly cast section.



Section Enlargement

Addition of a Secondary Retaining Wall

When the above-mentioned methods cannot be effectively implemented, a second retaining wall can be added in front of the existing wall. Detailed sequencing and temporary shoring plan must be developed to be able to construct the secondary retaining wall in front of the existing. While this method is effective for increasing the structural strength of the wall, resistance against sliding and overturning may have to be obtained by placement of slabs at the top and bottom to restrain the retaining wall.



New Retaining Wall in front of Existing

MAINTENANCE OF RETAINING WALLS

Proper and periodic maintenance of retaining walls can save considerable amount of money to the owners. Costly repairs can be avoided by implementing maintenance measures prior to small issues become bigger and start to affect the operability. Some of the commonly observed maintenance related issues are:

- Clogged drains
- Concrete/Masonry/Wood Deterioration
- Soil Erosion at the Foundation (and Associated Settlement)
- Excessive Vegetation Growth
- Unaccounted Surcharge (Stockpiling, Parking or New Structure on the Retained Side)

Such issues generally go unnoticed for many years until noticeable distress is seen. It is prudent to have retaining walls inspected by qualified engineers on a periodic basis to ensure that such issues are caught and brought to the attention of the owners in a timely manner.

The Baltimore/Washington D.C. Chapter of ICRI is seeking technical articles for publication in its quarterly newsletter, The Aggregate.

The ICRI BWC chapter is looking for individuals interested in contributing a technical article (s) related to industry practice or instruction, technology and design, professional concepts/issues, project profiles, or any other topics relevant to ICRI members. Articles will be presented as the main article in an upcoming edition of The Aggregate. Articles do not necessarily need to be authored by an ICRI member, so please forward this request to any individual outside of the organization who may be interested in submitting. This could be a great opportunity for younger professions to get published or for someone to share an informative or interesting lesson learned article. Please visit the Aggregate archives on the ICRI-BWC website to see the types of articles that have been published previously.

Also, starting in 2019, ICRI BWC has elected to award technical article contributors to the Aggregate with a complimentary registration for the succeeding quarterly dinner meeting for ICRI BWC.

Please contact Mike Payne (mike.payne@feapc.com) with the Newsletter and Communications Committee for more details.

ICRI Baltimore Washington Chapter 2nd Quarter Dinner Meeting

Thursday, May 9th, 2019

Gaithersburg Marriott Washingtonian Center
9751 Washingtonian Blvd
Gaithersburg, MD 20878

SCHEDULE:

4:30 pm Board Meeting
6:00 pm Social Hour
7:00 pm Dinner & Presentation

REGISTRATION:

Member Rate: $50
Non-Member Rate: $60
All after 5/22/19: $60

REGISTRATION DEADLINE IS MAY 2, 2019

Company: _____

Name: _____

E-mail: _____ Phone: _____

Number of Attendees: _____ Attendee Names: _____

_____

Come hear Dr. Farshad Rajabipour of Penn State University present on the state of the art in understanding, testing, predicting, and mitigating the alkali-silica reaction (ASR) damage in concrete.

Dr. Rajabipour earned a B.Sc. degree from Sharif University of Technology and M.Sc. and Ph.D. degrees from Purdue University, all in Civil Engineering. He has 18 years of teaching and research experience in support of sustainable civil infrastructures that are safe, durable, reliable, cost effective, and environmentally positive. Specifically, he performs research on concrete durability and life extension, unconventional pozzolans, alternative and recycled cements, bridge preservation and asset management, and automated construction using additive manufacturing. He has authored over 100 papers and technical reports that have been cited more than 2,100 times to date. He is a fellow of the American Concrete Institute (ACI) and an Associate Editor of the American Society of Civil Engineers (ASCE) Journal of Materials. He is the recipient of the National Science Foundation's CAREER award, ACI Wason Medal, and the Bryant Mather Award from the Transportation Research Board. At Penn State, and in addition to his faculty position, he is the Associate Director for USDOT's Center for Integrated Asset Management of Multi-modal Transportation Infrastructure Systems (CIAMTIS).

Scan and email this completed form to Chapter Secretary, Brian Radigan by February 1st. Checks may be mailed with your form or you can bring them with you to the meeting.

Brian J. Radigan
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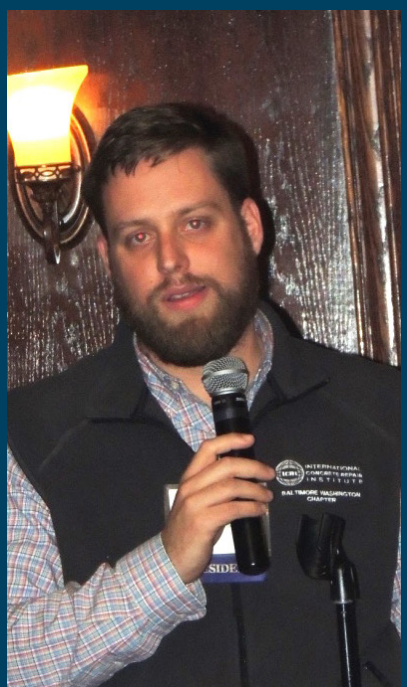
ICRI BALTIMORE WASHINGTON 1st QUARTER DINNER MEETING
Joint Dinner Meeting with ACI

by Brian Radigan | Tremco

Members of both ICRI and ACI's Baltimore/Washington Chapter attended the 2019 1st Quarter Dinner on February 7th. Our first meeting this year was hosted at Maggiano's located at the Tyson's Galleria in Tyson's Corner, VA. A special thanks to Rich Barrett (Lymtal) and the Facilities Committee for setting up the event at one of the chapter's mainstay locations. The sold out crowd enjoyed an intimate but fun social hour. Conversation between old friends and new continued into the main dining hall where a delightful spread was provided through a "family style" dinner prior to the start of the night's technical seminar.

Current Chapter Presidents, Kevin Kline (ICRI) and Bill Lyons (ACI), provided a recap of recent events plus information regarding upcoming ones for their respective associations. On the ICRI side of business, Kevin promoted the upcoming tour at the new Guinness Brewing facility near BWI. Kevin also requested a call for technical articles for inclusion into the Aggregate. A reminder was also given that student scholarship applications were again available for 2019 and the deadline to apply was September.



Kevin and Bill then introduced Scott Silvester, P.E. from Simpson Gumpertz & Heger who presented a thorough seminar on Parking Structure Design, Assessment and Repair. Scott is a broadly experienced consultant in investigating, repairing, and rehabilitating structures. Scott's career has included designing new structures, designing repairs and modifications to existing structures, preserving and rehabilitating historic buildings, investigating existing conditions and failures, and assessing material performance. He has assisted in the resolution of many construction-related disputes by providing expert opinions, reports, and testimony.

In this presentation, Scott illustrated the work & collaboration with peers in a variety of engineering disciplines when it comes to full garage repairs. Some of these disciplines included Owner consulting, materials science, advances in preservation technology, construction engineering, and engineering mechanics. He began with identifying the needs with Owners and how costs for repairs increase the longer it is deferred. Other topics even included the means and methods of the various concrete repairs and when it's appropriate to protect the concrete with a deck coating system. Scott's talk provided a full and comprehensive view of a garage restoration project from conceptualization to completion.

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ICRI BW Chapter Scholarship Program

APPLICATIONS NOW AVAILABLE

Each year, the chapter offers both an academic and industry scholarship to qualified individuals. Criteria and eligibility rules and applications can be found on our web site under the heading ***SCHOLARSHIPS AND AWARDS.***

CONTINUING EDUCATION SCHOLARSHIP PROGRAM GUIDELINES AND APPLICATION 2019 (ACADEMIC)
Each scholarship granted under this program may be up to $1,000.00, plus a one year individual membership in the National ICRI and the Baltimore Washington Chapter of ICRI. The award shall be for one year. Applicants may reapply for subsequent years. The Scholarship Award may be used towards an accredited institution of higher learning, professional certification program or a continuing educational program. The winner will have to submit an accountability of the Scholarship Award.

CONTINUING EDUCATION SCHOLARSHIP PROGRAM GUIDELINES AND APPLICATION 2019 (INDUSTRY)
Each scholarship granted under this program may be up to $1,000.00. The award shall be for one year. Applicants may reapply for subsequent years. The Scholarship Award may be used towards an accredited institution of higher learning, professional certification program or a continuing educational program. The winner will have to submit an accountability of the Scholarship Award.

Questions: Kevin Goudarzi, P.E.: kgoudarzi@kgsconstruction.com or call at (703) 853-0092

The ICRI Baltimore-Washington Chapter continued on with the next in line social event and everyone "Raised a Pint" and enjoyed the Guinness Open Gate Brewery & Barrel House in Halethorpe Maryland. Guiness originated in the brewery of Arthur Guiness at St. James's Gate in Dublin, Ireland and was looking for a location for their brewery in the States and made a great decision on the location, Baltimore! Arthur Guinness started brewing ales in 1759 after he signed a 9,000 year lease.

The social started with a brewery tour at 5 and another at 6. Some of the attendees arrived earlier and enjoyed some of the local brewed beers. After the completion of the brewery tours, a "behind the scenes tour" occurred with the Craig Pool, Plano I Coudon's Senior Project Manager who was responsible for this amazing brewery that we all enjoyed. In addition, Dan Warner, President and Mike Weiss, Foreman from Structural Restoration Services walked all in attendance though the challenges the project presented as well their victories. It was a very informative session and we even learned that the metal beams are not actually metal, the are foam!

A special thank you to Craig Pool, Dan Warner and Mike Weiss. Your willingness to be apart of our event is greatly appreciated. And thanks to everyone who attended!

-Rich Barrett

2019 Chapter Officers

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ICRI - The Next Generation

As a new idea to make the college students familiar with ICRI Baltimore- Washington chapter and the concrete and structural repair industry and give them the overview about this job market for the career in future, Kevin Goudarzi coordinated two meetings with Civil Engineering department of the Catholic University to introduce ICRI BWC to the students along with the technical presentation by him regarding structural restoration by carbon fiber. One meeting was held with ASCE student members of the Catholic university and the other was held with the prestressed concrete students.

Very special thanks to Dr. Arash Massoudieh the chair of civil engineering department of Catholic University, Travis Thonstad and Bryan Minarczyk, the President for the American Society of Civil Engineers student chapter at Catholic University for making these happen. ICRI BWC will participate in the future career fair of this university in Fall 2019.

-Kevin Goudarzi, PE

Chapter Business Card Directory

Visit **www.icribwchapter.org/chapter-sponsorship** to purchase a business card ad and to see our full menu of sponsorship & advertising options.

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