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Designing "Repair" Failures

By Steve Royer

I recently ran across an essay titled "Designing Building Failures" by Jonathan Ochshorn who is a Professor in the Department of Architecture at Cornell University. It is based upon the proceedings of the 2006 Building Technology Educators' Symposium, University of Maryland, College Park, August 2006. The essay is on the causes of non-structural building failure. Ochshorn states that structural failure has a probability of .001 percent Masonry joint does not mirror and non-structural failures, particularly "building envelope" failures, have a 3 to



joint in structure

5 percent estimated failure rate. He also states that the later type of failure occurs within the architect's purview. I don't think that he intends to leave contractors and engineers off the hook with this statement.



Structural failures can be catastrophic. Non-structural failures are less noticeable.

The essay and symposium are aimed at the architectural community. However, I think that there are valuable lessons for us in the building restoration and repair industry to learn as well. Mr. Ochshorn asserts that "Almost all guidance for avoiding building failure in traditional construction involves the proper selection, preparation and arrangement of materials of construction". I believe that this assertion holds true for our field also. It starts in the investigation phase, then continues to the design phase,

the construction phase, punch-out and finally the documentation stage. If there is a breakdown at any point in the process we run the risk of designing and constructing "Repair" failures".

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THE AGGREGATE INSIDE

2012 8th Annual Awards Dinner

Nov. 1, 2012 - Beltsville, MD Join us at The Villa!

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Check Out Our Upcoming Events Local & National Events

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ICRI-BWC 3rd Qtr. Meeting Wrap-Up

The September Program of ICRI-BWC was hosted at Snyder's, Linthicum, MD with 79 attendees.

see page 7

21st Annual Golf Tournament

The Tournament is now over and Everyone had a great time! Check out the pictures and find out who won!

see page 8

ICRI MISSION STATEMENT

The mission of the International Concrete Repair Institute is to be a leading resource for education and information to improve the quality of repair, restoration, and protection of concrete and other structures in accordance with consensus criteria.

ICRI is an organization composed of Engineers, Consultants, Contractors, Manufacturers and other Material Suppliers, Property Managers and Owners all working together for the betterment of the industry and of all involved. Providing an open forum to speak about our work, new technologies and methods, exchange ideas.

Creating and following standards to produce the best results for all involved.

PRESIDENT'S MESSAGE



Dear ICRI-BW Chapter Members,

Fall is upon us and for the first time since 1997, the Orioles are in the playoffs! Baseball fans in the area may even get the opportunity to enjoy a Nationals/Orioles match-up in the World Series. Best of luck to both of these ball clubs as they try to advance in their quest to reach their ultimate goal.

Typically, the Fall is the time of the year that finds everyone busy, trying to finish up critical projects at work and at home prior to the weather becoming too much of a factor. Some of our clients may call us with last minute project requests that need to be started immediately and completed before the end of the year as well. We are all out shaking the bushes, seeking new work and projects that will keep us busy for the upcoming year. As we continue to march onward, remember, our ultimate goal as ICRI members is to provide our clients with quality repair projects that meet the project requirements as well as everyone's expectations.

Our September dinner meeting was well attended and featured presentations relating to Safety in the Structural Restoration Industry. Alan Lederman gave a presentation pertaining to mitigating safety hazards through engineering and administrative controls as well as the use of personal protective equipment. Chuck Brienza provided the group with a lively presentation about changing the "status quo" as it relates to safety in our industry. Chuck also provided the group with information regarding the new ICRI 120.1 Safety Guideline and its use. Finally, David Caple joined Alan and Chuck for a round table discussion with the meeting attendees.

Please be sure to mark your calendars for our upcoming November dinner meeting which will be held on Thursday, November 1st. For the regulars, please note the change in venue. The meeting will be held at "The Villa" which is conveniently located on Route 212 (off of I-95) in Beltsville. Maryland. As always, the popular social hour will begin promptly at 5:30 PM. The November meeting will highlight the Chapter Outstanding Project Awards. I always find it interesting to see the quality projects that our peers have completed, and the various methods used to meet the challenges faced during the project implementation. The meeting will also allow us the opportunity to present the 2012 scholarship awards to deserving students and those in our industry that are seeking to improve their industry skills. A copy of the meeting flyer is included with this edition of the Aggregate and can also be found on our website at www.icribwchapter.org.

As I write this article, we just completed our 21st Annual Golf Outing. The event was held at the Glenn Dale Golf

Club. Thanks to Jay Whitton and the many volunteers that assisted in making this event a success. It is always a good time and the proceeds are used to help fund the scholarship program.

Our Chapter will continue to be busy throughout the remainder of the year. Upcoming events that you should put onto your already busy schedule include:

- The ICRI National Fall Convention is scheduled for November 7-9, 2012. The convention will be held at the Rancho Las Palmas Resort and Spa in Rancho Mirage, CA. The topic for the convention is "Life Cycle Repairs – Sustainability". Pack up the golf clubs and get in a few rounds between technical sessions. Registration information can be found at www.icri.org.
- The Annual Fall Seminar will take place on December 6th, 2012. The topic this year will be "High Rise Repairs" and will take place at Concrete Protection & Restoration's warehouse in Baltimore, MD.
- Ballots for the 2013 Board have been emailed out.
 The votes will be tallied on November 1st and the
 new Board will be announced at the conclusion of the
 Dinner meeting.
- The upcoming 25th Anniversary celebration for the International Concrete Repair Institute. Check out www.ICRI.org for more information!

As I conclude this President's message, it is hard to believe that this will be my last. I want to thank the entire membership for your continued support of our organization and our programs. Furthermore, I want to thank the 2012 ICRI-BW Chapter Board of Directors for their commitment to the organization and their dedication towards improving our Chapter. The Board members volunteer their time and talents in order to maintain the high standards set by our Chapter. I am grateful for everyone's efforts.

As mentioned above, the Chapter has plenty of work that needs to be accomplished between now and the end of the year. In my discussions with our membership, it is evident that our member organizations are busy with various projects and have a number of tasks to complete before the year ends. As we march on with our professional lives, don't forget to spend time with your family. Go watch your son or daughter participate in one of their activities. Spend time with your significant other. Here is to everyone hitting home runs with your personal and professional activities and winning your own World Series!

If you have any questions, comments or suggestions, please feel free to contact me by phone at 410-298-2669 or e-mail at pommley@c-p-rinc.com.

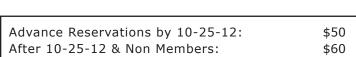
Thank you!

Patrick @'Malley

THE BALTIMORE WASHINGTON CHAPTER OF ICRI

Thursday, November 1, 2012 The Villa 4060 Powder Mill Road Beltsville, MD 20705 301-572-7744

Exit 29B, (MD 212 West) off Beltway



4:00 Board Meeting 5:30 Social Hour

6:30 Dinner & Presentation





Please join us on Thursday, November 1, 2012 for our Eighth Annual Outstanding Repair Projects Awards Program. Help us close the curtain and to celebrate a year of accomplishment when we honor our chosen contractors, engineers, consultants and materials suppliers for jobs well done. This year's program will feature unique projects completed within the last year. This event always has a large turnout from our membership as our local industry leaders showcase the award winning projects form this past year. There will be two awards and each recipient will have time to speak on their special project, challenges and what made the project a success. Projects under consideration as follows:



- ★ University of Virginia JAG School Repair and Renovation
- **X 1401** New York Avenue Hydro demolition and Parking Garage Repairs
- > Johns Hopkins as Mt. Washington Marbury Building Plaza and Garage Repair
- ★ Architect of the Capitol East House Underground Garage Rehabilitation
- **X** Columbia Knoll Condominium Earthquake Damage Repairs at Elevator Machine Room Penthouse
- **X** Eisenhower Executive Office Building Façade Repair Project

Projects are currently being judged by a fine field of judges selected from our national pool of ICRI member companies. Judging is based on a number of criteria including, but not limited to: overall presentation of the project, innovative or difficult approach to making repairs, specialized materials or equipment required, difficulties during construction related to site issues or owner issues, tight construction deadlines or compressed schedules and that the project's success can be attributed to

utilization of ICRI techniques and guidelines in the repairs.

The winners will be allowed to present their project: 1st Place - 30 minutes; 2nd Place - 15 minutes; 3rd Place - 15 minutes.

REGISTRATION DEADLINE IS October 25, 2012

NO-SHOWS WILL BE BILLED

Please email (mikeprizzi@metrosealant.com) or print this page and fax to *Mike Prizzi*, Secretary, at 410-789-7406 no later than October 25, 2012. Checks to ICRI BWC may be turned in at the meeting or mailed with your form to:

Mike Prizzi, Secretary ICRI BW Chapter C/O Metro Sealant & Waterproofing Supply 1041 W. Nursery Road Linthicum, MD 21090

You may also register and pay online at

www.ICRIBWChapter.org

Name:		
Company:		
Telephone:		
Email:		
Number of Guests:	Payment:	☐ Enclosed ☐ Online (Please include receipt)
Guest Names:		
Guest's Company:		

Repair

He also states that "traditional buildings, even when well-constructed, still rely on periodic maintenance, repair and replacement". This is something that we all know continued from page 1 and stress to our customers, because we see the effects of ignored or deferred maintenance all of the time. We know how the cost of building repairs escalates when

maintenance isn't performed. Even our "best effort" repairs still require that a building have monitoring, periodic inspection and maintenance. If a building owner elects to "buy" a less costly repair, the importance, need and frequency of maintenance of the repaired structure will increase. ICRI Committee 140, Life Cycle Performance & Cost recently published a time line in the Concrete Repair Bulletin that graphically shows the relation of maintenance, inspection and repair relative to Life Cycle Cost Analysis. The committee plans to have a first draft of their document in time for the fall convention.



Modification to expansion joint at column

Ochshorn also writes "The risk of enclosure failure is neither as obvious, immediate, nor usually as catastrophic, as is the case with structural failure, so there is less pressure to develop the necessary theoretical or empirical basis". We have all seen and probably have repaired building envelope problems. Improperly installed or non-existent flashings, leaking windows, distressed masonry due to unaccounted for movement, faulty installation or lack of steel relief angles, improper connections or interfaces between dissimilar materials and the list goes on. These failures occur in new construction and sometimes become evident before the building is even occupied. They can also become more pronounced and apparent over time due to freeze thaw cycling, moisture penetration and continued movement of structure.

The continuance of improperly constructed building components and the lack of inspection and improper maintenance can lead to significant repair costs. "The desire to extract the maximum profit from investments in commercial building tends to encourage both marginal construction practices and deferred maintenance" writes Ochshorn. This succinct statement is a reality, not only in our business but in any business that services the commercial sector. It is a reality that we have to deal with and still provide the best end product to our customers while maintaining high standards and constructing durable repairs.

In the repair industry we all know that an engineered shoring design is required if we are repairing the structural elements of a building. Extreme care is normally taken when repairing post tensioned structures, removing large areas of floor slabs and repairing columns and beams that support multiple levels of structure above. Many times it is the small details that get us into trouble. End dams on flashings; the right primers for caulking and coatings; proper surface preparation; correct mortar mixes and application; proper curing of repair materials; proper sequencing of repairs etc. These and other "small" oversights can lead to big problems and can incur a significant cost to remedy.

Failures in new construction could be considered problematic and sometimes even insignificant in comparison with the scope and cost to design and construct a large and complex project. I believe that we have a higher burden to make quality and long lasting repairs because our work is already focused on an area of the structure that is experiencing problems due to deterioration, moisture penetration, structural distress, failure of a building component or improper construction.

The last statement of Ochshorn that I want to guote is "Knowledge is limited because those who have it tend to view it in a proprietary manner, and we are reluctant to share it". ICRI created an exception to this statement. Our organization provides plenty of opportunities to share knowledge, learn from peers and participate in creating solutions to problems.



Building with new flashings being installed



I believe that most of us in this industry do a pretty good job of controlling, limiting and fixing (when necessary) the problems associated with faulty repairs. It is good for our reputation, good for our businesses and good for the industry. We can always do better. Let's make every effort to be sure that we don't make repairs that are "designed" or "executed" to fail.

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Upcoming Chapter Events		Upcoming National Events	
Nov. 1, 2012	ICRI-BWC 4 th Qtr. Awards Banquet The Villa Beltsville, MD	Nov. 7-9, 2012	ICRI 2012 FALL CONVENTION Theme: Life Cycle Repairs — Sustainability
Dec. 6, 2012	ICRI-BWC Fall Technical Seminars Concrete Protection & Restoration Warehouse Baltimore, MD		Rancho Las Palmas Resort and Spa Rancho Mirage, CA ICRI 2013 WOC KICK-OFF PARTY Venue: TBD Las Vegas, NV ICRI 2013 SPRING CONVENTION ICRI celebrates its 25th anniversary! - "Looking Ahead" Tradewinds Islands Resorts St. Pete Beach, FL ICRI 2013 FALL CONVENTION ICRI Celebrates its 25th Anniversary— "Looking Back" Fairmont Chicago Chicago, IL



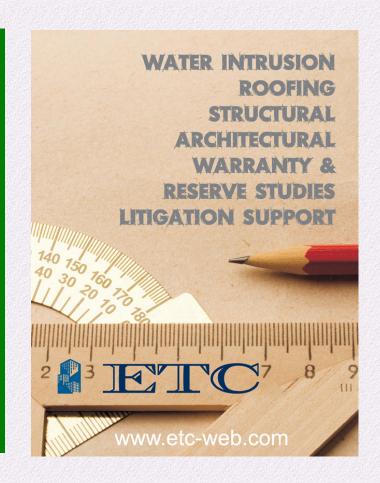
- Expansion Joints & Crack Repair
- Waterproofing
- Concrete Repairs
- Epoxy Injection
- Grouting
- Masonry Repairs
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3RD QUARTER MEETING WRAP-UP

September 13, 2012

The 3rd Quarter dinner meeting for the Baltimore Washington Chapter was all about Safety in the Structural Restoration industry. We were pleased to have such presenters such as Alan Lederman from Froehling & Robertson, Inc.; Chuck Brienza, Director of Safety for Concrete Protection and Restoration, Inc. and David Caple with Pinnacle Safety Network, LLC.

Design professionals, contractors and material representatives alike gathered and enjoyed a social hour full of conversation, networking and interaction. During the social hour the new ICRI Publication 120.1-2009, Guidelines and Recommendations for Safety in the Concrete Repair Industry, was introduced and available for sale.

The group of 79 attendees enjoyed a wonderful dinner which was followed by two stimulating presentations concerning safety in the repair industry. Alan Lederman gave a presentation which described the ways in which safety hazards are mitigated. Alan's presentation covered the engineering, administrative and personal protective equipment measures available to ensure safety.

Chuck Brienza provided information concerning the new ICRI 120.1 Safety Guideline and its use. Changing the "status quo", Chuck described the ICRI 120.1 Safety Guideline as a condensed version of all the applicable OSHA codes and a way to provide visual training and information specific to the repair industry.

The evening concluded with David Caple joining our presenters for a lively round-table discussion regarding safety issues, questions and concerns throughout the repair industry.



Tom Ouska, David Caple, Chuck Brienza, Alan Lederman and Patrick O'Malley



Mingling during the Social Hour!



Hungry?



Everyone Enjoying Dinner!



Alan Lederman gives his presentation on Industrial Hygiene



Chuck Brienza reviews ICRI Publication No. 120.1-2009



David Caple, Chuck Brienza, Alan Lederman Lead a Discussion on Safety



"SAFETY IN THE STRUCTURAL RESTORATION WORKPLACE"

2012 GOLF TOURNAMENT WRAP-UP

The 21st Annual ICRI-BW Chapter Golf Tournament was held on Thursday, October 4th at the Glenn Dale Golf Club. The turnout was great! There were a total of 93 golfers that participated in the tournament this year. Despite overcast conditions in the morning, the skies cleared and it was a beautiful day on the golf course. The morning started off with a continental breakfast for all; liquid refreshments, cigars and snacks were served on the course; a buffet lunch and the awards presentation ended the day.

The golf outing is a major fundraiser with the proceeds funding the scholarship program. There is a significant amount of work that takes place to make this outing successful. Not to be forgotten, the Chapter also wants to recognize and thank all of those volunteers that assisted Jay Whitton this year. The volunteers include Cindy Garman, Mike O'Malley, Shawn Whalen, Chris Carlson and Margaret Mitnick. A special thanks to Cindy Garman for making sure all of the golfers were properly hydrated throughout the day on the course.

The big winners this year include:

Ladies Longest Drive:

Cindy Nunn

Ladies Closest to the Pin:

Patty O'Malley (only because we were not going to allow Cindy Nunn to win any other events today!)

Men's Longest Drive:

Bryan J. DeCarlo

Men's Closest to the Pin:

Jonathan Smith

Straightest Drive:

Tom Curley

1st Place Team: (with a score of 57) Cindy Nunn, Tim Brown, Kevin DeCarlo, Bryan DeCarlo

2nd Place Team: (with a score of 58) (won on 1st playoff hole criteria)
Tom Curley, John Towers, Terre Schnave

3rd Place Team: (with a score of 58)
Brian Baker, Brian Troxel, Chuck Brienza,
Jonathan Smith

We would like to recognize the tournament sponsors. The sponsors for this year's event include the following:

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Our Hole Sponsors:

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Men's Longest Drive:

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A big thanks goes out to all of the participants and sponsors! As you can see, we had a tremendous amount of support from our member organizations.



Bryan DeCarlo, Tim Brown, Cindy Nunn, Kevin DeCarlo



John Towers, Tom Curley, Terre Schnave



Brian Baker, Chuck Brienza, Jonathan Smith, Brian Troxel



Ladies Longest Drive: Cindy Nunn



Straightest Drive: Tom Curley



The ICRI-BWC 50/50 Winner: Mike Stewart

































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