



Fall 2018 | Las Vegas

# Program Book

## The Concrete Convention and Exposition



**October 14-18, 2018**

Rio All-Suites Hotel  
Las Vegas, NV, USA

For more information, please visit [aciconvention.org](http://aciconvention.org)

# Convention Sponsors

Sponsors are listed as of 9/17/18

## Concrete Sponsor



Las Vegas Chapter – ACI

## Cement Sponsor



Baker Concrete Construction

## Admixture Sponsors



BASF Corporation



EUCLID CHEMICAL

The Euclid Chemical Company



FiberForce by ABC Polymer Industries



GCP Applied Technologies

## Coarse Aggregate Sponsors



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Southern California Chapter – ACI

## Las Vegas Chapter Convention Committee

### Committee Co-Chairs

James Bristow, NOVA Geotechnical & Inspection Services  
Werner Hellmer, Clark County Department of Building and Fire Protection

### Hot Topic

Mark Bliss, CalPortland

### Las Vegas Chapter Lead Liaison and Treasurer

Dawn Miller, Las Vegas Chapter – ACI

### Student Competition

Tanner Hartranft, Diversified Consulting Services

### Contractors' Day

Chris Welly, Construction Testing Services

### Guest Programs

Andrea Scott, Hydro-Arch

### At-Large

Carl Cunningham, CCPE Ltd.  
Robert Morrison, Silver Star Ready Mix  
Robert Rapoza, Southwest Geotechnical  
Rick VanHorn, Terracon

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The Concrete Convention and Exposition – Spring 2019   Québec City, QC, Canada .....	Outside Back Cover

Download the  
**Convention**  
**App!**



Search "ACI Convention" on  
your Apple or Android device.

Detailed program information and program changes  
can be found in the Convention App!

# American Concrete Institute Board of Direction

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## **Executive Vice President**

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# ACI President's Welcome

ACI Members and Guests:



On behalf of myself and ACI, it is a pleasure to welcome you to Las Vegas, NV, and The ACI Concrete Convention and Exposition.

The ACI Concrete Convention and Exposition provides the industry with a professional environment where individuals from across the globe come together to share new ideas and discover innovative ways to use concrete. The ACI Convention offers educational opportunities for personal growth, committee opportunities for technical advancement, and networking opportunities for professional enrichment. The opportunities are numerous, with over 300 committee meetings; 40+ technical sessions; an exciting student competition; and numerous networking events, culminating with the Concrete Mixer at the Brooklyn Bowl on Tuesday night. In addition, the industry exposition showcases the products and services of more than 40 companies from around the world! I urge you to make the most of your time here and attend all of these events.

The Las Vegas Chapter Convention Committee has put a great deal of effort into developing a convention program that is both memorable and productive. Please join me in thanking them by stopping by the host chapter desk during the ACI Convention.














None of this could be possible without the aid and support from our outstanding exhibitors and sponsors. Anyone who is wearing an exhibitor badge or sponsor ribbon has played an integral role in the success of this convention. Please be sure to thank them while at the convention and stop by their booths to see the newest products and services on the market today.

On behalf of Risë and myself, we are honored and excited to be able to share this week with you, and we hope you will enjoy all that Las Vegas has to offer. Thank you for attending the convention and for your continued involvement in ACI.

Kind Regards,  
David Lange  
ACI President



# ACI Sustaining Members


Advanced Construction Technology Services

American Society of Concrete Contractors

Ash Grove Cement Co.

Baker Concrete Construction, Inc.

Barrier-1 Inc.

BASF Admixtures, Inc.

Bauman Landscape & Construction

Bentley Systems Inc.

Boral Resources

Braun Intertec Corporation

Cantera Concrete Company

CHRYSO, Inc.

Concrete Reinforcing Steel Institute


Concrete Strategies LLC

CTLGroup

Curecrete Distribution, Inc.

Dayton Superior Corporation

Doka USA Ltd.

Ductilcrete Slab Systems, LLC

The Euclid Chemical Company

Full-Tilt Constructors, Inc.

Future Tech Consultants

GCP Applied Technologies

Keystone Structural Concrete LLC

Kleinfelder

Kryton International Inc.


LafargeHolcim (US) Inc.

Lehigh Hanson

Lithko Contracting, LLC

Meadow Burke Products Inc.

Metromont Corporation

Minova USA, Inc.

Modern Technology Laboratories (MTL)

Multiquip Inc.

Municipal Testing

North S.Tarr Concrete Consulting PC

Oztec Industries, Inc.

Penetron International Ltd.

PERI Formwork Systems, Inc.


Portland Cement Association

Precast/Prestressed Concrete Institute

QuakeWrap Inc.

Seretta Construction Inc.

Sika Corporation

Specialty Products Group, Inc.

STRUCTURAL

Structural Services, Inc.

Tekna Chem SPA

TWC Concrete Services, LLC

Twining Concrete Insight

Wacker Neuson

W. R. Meadows, Inc.

## General Information

For detailed program information and program changes, download the Convention App.

### Convention App

Download the ACI Convention App and have all the information you need for the week ahead at your fingertips. Updated schedules, exhibitor and sponsor information, and more are all available through the app. Search “ACI Convention” on your Apple or Android device. This app is the same one from the Salt Lake City Convention.

### Schedule Changes

Cancellations, additions, and location changes to the convention schedule will be posted daily on a monitor in the exhibit area, signs at registration and the convention app.

### Exhibit Hall Refreshments—Amazon A & G

Beverages are available courtesy of ACI during the following hours:

Saturday	Soda	2:00 pm – 6:00 pm
Sunday – Wednesday	Coffee	7:00 am – 10:00 am
Sunday – Tuesday	Soda	1:00 pm – 4:00 pm

### ACI Store—Amazon A & G

Visit the ACI Store to receive 10% off ACI publications. To learn more about the new ACI membership benefits and how to become a member, visit the ACI Store. The ACI Store is open during the following hours:

Saturday	2:00 pm – 6:00 pm
Sunday – Tuesday	8:00 am – 5:00 pm
Sunday	7:00 pm – 8:00 pm
Wednesday	8:00 am – 12:00 pm

**ACI University**—A new global and online learning resource providing on-demand access to a wide range of topics on concrete materials, design, and construction. Learn more at the ACI University booth, located near the ACI Store.

**ACI Foundation**—A nonprofit subsidiary of ACI that facilitates industry research, collaboration, and student fellowships/scholarships. Learn more at the ACI Foundation booth, located near the ACI Store.

**Career Center**—ACI’s online job search engine is specifically designed to target jobs in the industry. Learn more at the Career Center, located near the ACI Store.

### ACI Cyber Café and Meeting Spot—Amazon A & G

Stop by the ACI Cyber Café and Meeting Spot—the perfect place to stay connected with work and family or network with ACI attendees during refreshment breaks. Use the computers to browse the web, print on demand, or catch up on e-mail.

Saturday	2:00 pm – 6:00 pm
Sunday – Tuesday	8:00 am – 5:00 pm
Wednesday	8:00 am – 12:00 pm

### ACI Lunch Concession—Amazon A & G

Stop by the exhibit hall to grab a quick bite to eat.

Sunday – Tuesday	11:00 am – 2:00 pm
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### Looking for Exercise?

Meet up with other ACI attendees in the **Hotel Main Lobby** at the Rio All-Suites Hotel before heading out for your morning run or walk. Local area maps are available at the hotel concierge desk. All are welcome.

Sunday – Wednesday	5:00 am and 6:00 am
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Morning yoga classes will be offered in **Amazon H** at the Rio All-Suites Hotel for those who are interested in putting a little balance into a hectic week. Led by yoga teacher Kimberly Kayler, this intro to yoga class requires no experience. Registration is not required and a limited quantity of yoga mats will be provided.

Monday – Wednesday	6:00 am – 6:45 am
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*\*Please consult your physician to determine if you are fit for this type of activity. Run/walk at your own risk.*

### Session Handouts on Demand

Handouts are available from speakers who have elected to provide and post them to the ACI website. Stop by the Cyber Café or go to [www.aciconvention.org/handouts](http://www.aciconvention.org/handouts) to download or print a copy of the handouts for the sessions you plan to attend. If you do not find a handout for a particular session, please contact the speaker for more information.

### Suitcasing

Attendees, sponsors, or exhibitors found to be “suitcasing” (soliciting business in session and committee meeting rooms, aisles, or the booth of another exhibitor) will be asked by staff to cease this practice. Should this continue, they will be asked to leave the show floor immediately and will forfeit any exhibitor points earned for that show.

### Local Information—Amazon Foyer



The Las Vegas Chapter Convention Committee members will be happy to answer general convention questions and provide information about the local area. Stop by the information desk during the following hours:

Saturday	2:00 pm – 5:00 pm
Sunday – Tuesday	8:00 am – 5:00 pm

# General Information

## The Rio All-Suites Hotel Dining

### Carnival World Buffet

Hours: Monday – Friday 4:00 pm – 9:00 pm; Saturday – Sunday 10:00 am – 9:00 pm

### Guy Fieri's El Burro Borracho Restaurant

Hours: Daily 4:00 pm – 10:00 pm

### All-American Bar and Grille

Hours: Daily 11:00 am – 12:00 am

### Voodoo Steakhouse at the Rio

Hours: Monday – Thursday 5:00 pm – 10:00 pm; Friday – Saturday 5:00 pm – 10:30 pm

### Wine Cellar & Tasting Room at the Rio

Hours: Monday – Thursday 4:00 pm – 10:00 pm; Friday – Saturday 3:00 pm – 11:00 pm; Sunday 3:00 pm – 10:00 pm

### Royal India Bistro

Hours: Daily 11:00 am – 10:00 pm

### KJ Dim Sum & Seafood

Hours: Daily 10:00 am – 2:00 am

### Hash House A Go Go

Hours: Monday – Friday 6:00 am – 1:00 pm; Saturday – Sunday 6:00 am – 3:00 pm

### Sports Deli at the Rio

Hours: Daily 8:00 am – 6:00 pm

### Pho Da Nang Vietnamese Kitchen

Hours: Sunday – Thursday 11:00 am – 11:00 pm; Friday – Saturday 11:00 am – 1:00 am

### Starbucks

Pavilion Corridor location open daily 6:30 am – 1:00 pm

Ipanema Tower location open Sunday – Thursday 5:00 am – 11:00 pm; Friday – Saturday open 24 hours

### Smashburger at the Rio

Hours: Daily 8:00 am – 4:00 am

Please visit <https://www.visitlasvegas.com/food-drink/> to view additional restaurants and hours in Las Vegas.

## Continuing Education



All sessions approved by the American Institute of Architects (AIA) or the International Code Council (ICC) are noted with AIA or ICC logo and the number of hours. ACI is an AIA and ICC approved education provider.

## Earn CEUs/PDHs for Session Attendance

Attend the entire duration of a session and record the codes given out during the session using the spaces provided next to the session details in the program book. In most cases, one contact hour is equal to one Professional Development Hour (PDH). Check with your state board for acceptance criteria.

**Please note: ACI does not track and cannot provide documentation confirming attendee participation or attendance at any ACI session held during the convention.**

For attendance certificates:

1. Visit [www.concrete.org](http://www.concrete.org) and sign in.
2. Hover over **My ACI** and click on **My ACI CEU/PDH**.
3. Select the convention, day, and title of the session for which you are submitting session codes.
4. After successfully submitting the session codes, your certificate will be available under the session title.

If you earned a certificate for a session and would like ACI to report your CEUs/PDHs to the Florida Board of Professional Engineers or AIA, e-mail your Professional Engineer's or Architecture license number to Eva Korzeniewski at [emk@concrete.org](mailto:emk@concrete.org).

## Speaker Ready Room—Tango C

The Speaker Ready Room is available to moderators, speakers, and committee Chairs during the following hours:

Saturday	2:00 pm – 6:00 pm
Sunday – Tuesday	7:00 am – 6:00 pm
Wednesday	7:00 am – 2:00 pm

All speakers are requested to check in at the Speaker Ready Room 1 day prior to their session to ensure that their presentations have been uploaded and work properly on the ACI computers. *Please Note: Speakers participating in a mini session cannot check their presentation into the Speaker Ready Room. They must bring their presentation with them to the mini session.*

## The Concrete Convention and Exposition

### Spring 2019 | Québec City, QC, Canada — Amazon Foyer



Mark your calendars for The Concrete Convention and Exposition in Québec City, QC, Canada, March 24-28, 2019, at the Québec City Convention Centre and Hilton Québec. Stop by the Québec and Eastern Ontario Chapter Convention Committee desk Saturday through Tuesday to learn more about the convention!

# Meeting Space Map





# Rio Property Map

## CARNIVAL WORLD

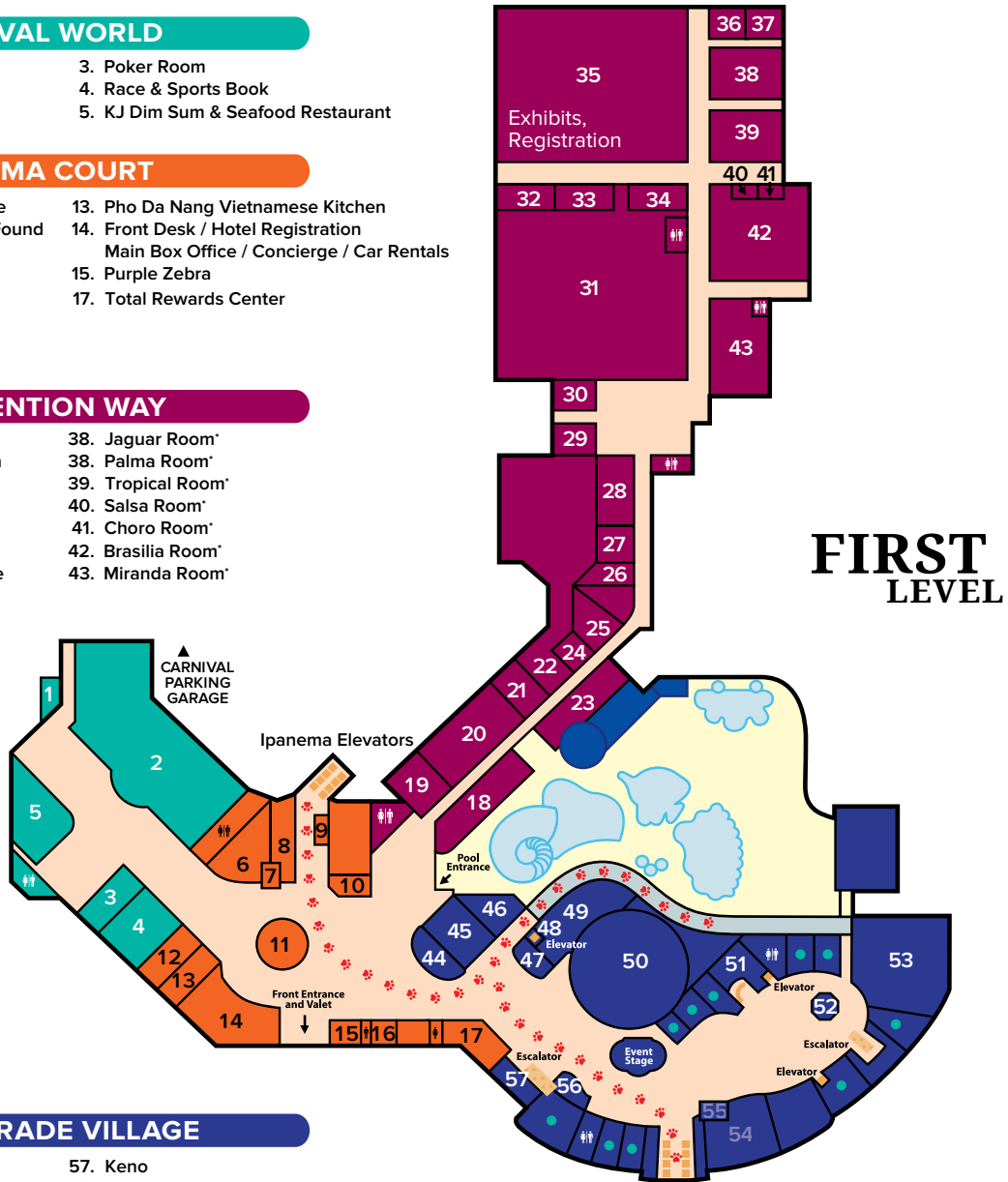
- |                          |                                    |
|--------------------------|------------------------------------|
| 1. Uber Pickup           | 3. Poker Room                      |
| 2. Carnival World Buffet | 4. Race & Sports Book              |
|                          | 5. KJ Dim Sum & Seafood Restaurant |

## IPANEMA COURT

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| 6. All-American Bar & Grille     | 13. Pho Da Nang Vietnamese Kitchen  |
| 7. Hotel Security / Lost & Found | 14. Front Desk / Hotel Registration |
| 8. Rio Logo Gift Shop            | 15. Purple Zebra                    |
| 9. Starbucks Coffee              | 17. Total Rewards Center            |
| 10. Main Casino Cashier          |                                     |
| 11. iBar Ultra Lounge            |                                     |
| 12. Sports Deli                  |                                     |

## CONVENTION WAY

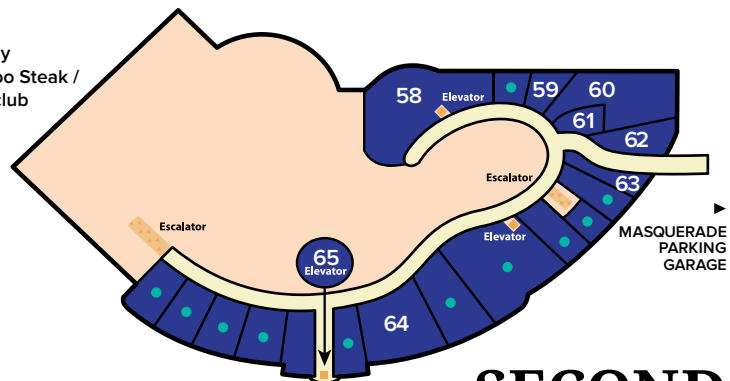
- |                                           |                    |
|-------------------------------------------|--------------------|
| 18. El Burro Borracho                     | 38. Jaguar Room*   |
| 19. Promotions Registration               | 38. Palma Room*    |
| 20. Hash House A Go Go                    | 39. Tropical Room* |
| 21. Starbucks Coffee                      | 40. Salsa Room*    |
| 22. Penn & Teller Theater                 | 41. Choro Room*    |
| 23. The Spa at Rio                        | 42. Brasilia Room* |
| 24. Penn & Teller Box Office              | 43. Miranda Room*  |
| 25. Belize Room                           |                    |
| 26. Pavilion Florist                      |                    |
| 27. FedEx Store                           |                    |
| 28. Convention Services, Catering & Sales |                    |
| 29. Janeiro Boardroom                     |                    |
| 30. Flamengo Boardroom*                   |                    |
| 31. Rio Pavilion*                         |                    |
| 32. Tango Room*                           |                    |
| 33. Conga Room*                           |                    |
| 34. Lambda Room*                          |                    |
| 35. Amazon Room*                          |                    |
| 36. Coco Room*                            |                    |



**FIRST LEVEL**

## MASQUERADE VILLAGE

- |                                     |                                                                                                      |
|-------------------------------------|------------------------------------------------------------------------------------------------------|
| 44. Shutters Bar                    | 57. Keno                                                                                             |
| 45. High-Limit Tables               | 59. Wetzel's Pretzels                                                                                |
| 46. Royal India                     | 60. Chippendales Theatre                                                                             |
| 47. High Limit Slots                | 61. Flirt Lounge                                                                                     |
| 48. Comedy Cellar                   | 62. Chippendales Boutique                                                                            |
| 49. Diamond Lounge Elevator         | 63. Count's Tattoo Company                                                                           |
| 50. Rio Showroom                    | 64. Voodoo Zipline / VooDoo Steak / VooDoo Rooftop Nightclub (take elevator to 50th and 51st floors) |
| 51. The Wine Cellar (Guest Events)* |                                                                                                      |
| 53. Mini Kiss Golf                  |                                                                                                      |
| 56. Masquerade Bar                  |                                                                                                      |



**SECOND LEVEL**

\*ACI meeting space

Masquerade Village Shopping Area

Pet Relief Area

# Exhibitors

ACI would like to thank all exhibitors for their participation in and support of The ACI Concrete Convention and Exposition. To learn more about each of these exhibitors, stop by their booth in Amazon A & G or visit the convention app.

## EXHIBIT HOURS

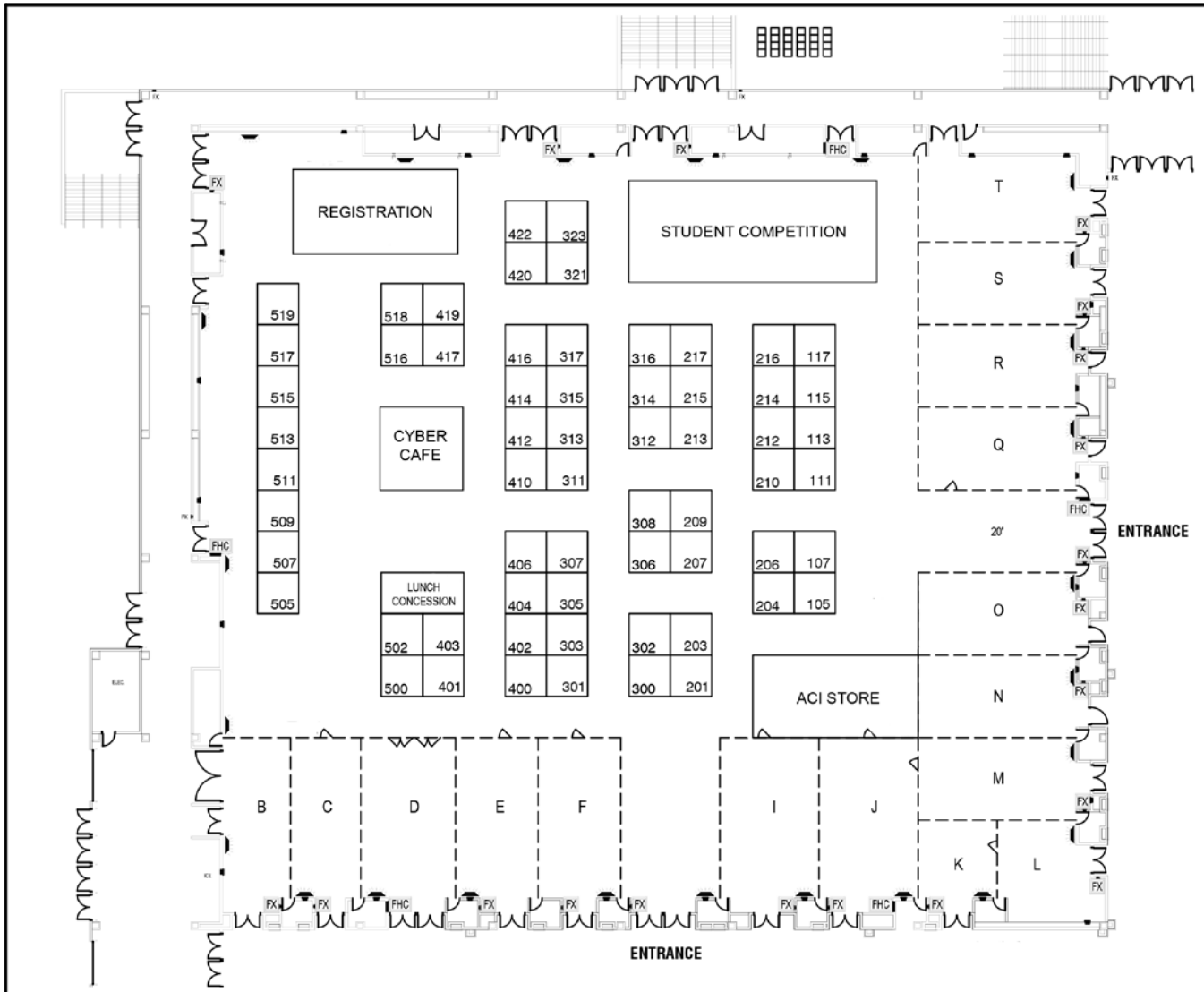
Sunday – Tuesday 8:00 am – 5:00 pm

<b>Aquafin, Inc.</b> www.aquafin.net	<b>Booth #406</b>	<b>International Zinc Association</b> www.zinc.org	<b>Booth #203</b>
<b>BarSplice Products</b> www.barsplice.com	<b>Booth #305</b>	<b>Jobsite Stud Welding</b> www.jobstestud.com	<b>Booth #404</b>
<b>BASF Corporation</b> www.master-builders-solutions.basf.us	<b>Booth #201</b>	<b>JORDAHL® USA Inc.</b> www.jordahlusa.com/en	<b>Booth #301</b>
<b>Bekaert Corporation/Dramix Fibers</b> www.bekaert.com	<b>Booths #213 &amp; 215</b>	<b>Kryton International Inc.</b> www.kryton.com	<b>Booth #300</b>
<b>Burgess Pigment Company</b> www.OPTIPOZZ.com	<b>Booth #410</b>	<b>Largo Concrete, Inc.</b> www.largoconcrete.com	<b>Booth #217</b>
<b>Buzzi Unicem USA</b> www.buzziunicemusa.com	<b>Booth #505</b>	<b>MAPEI/GRT</b> www.grtinc.com	<b>Booth #416</b>
<b>Červenka Consulting</b> www.cervenka.cz	<b>Booth #316</b>	<b>Nickel Institute</b> www.nickelinstitute.org	<b>Booth #517</b>
<b>Cincinnati USA CVB</b> www.cincyusa.com	<b>Booth #422</b>	<b>Olson Engineering, Inc.</b> www.olsonengineering.com	<b>Booth #113</b>
<b>CMEC</b> www.cmec.org	<b>Booth #107</b>	<b>Peak Innovations, Inc.</b> www.peak-innovations.com	<b>Booths #516 &amp; 417</b>
<b>COMMAND Center</b> www.COMMANDCenterConcrete.com	<b>Booth #212</b>	<b>Peikko USA</b> www.peikkousa.com	<b>Booth #314</b>
<b>Concrete Reinforcing Steel Institute (CRSI)</b> www.crsi.org	<b>Booth #400</b>	<b>Portland Cement Association</b> www.cement.org	<b>Booth #419</b>
<b>Concrete Sealants, Inc.</b> www.conseal.com	<b>Booth #111</b>	<b>Premier CPG</b> www.premiercpg.com	<b>Booth #518</b>
<b>Concrete Sensors</b> www.concretesensors.com	<b>Booth #412</b>	<b>Proceq USA, Inc.</b> www.proceq.com	<b>Booth #311</b>
<b>ConnectMe Solutions</b> www.officewirelesslv.com	<b>Booth #115</b>	<b>Radarview LLC</b> www.radarviewllc.com	<b>Booth #502</b>
<b>Controls Group USA</b> www.controls-usa.com	<b>Booth #308</b>	<b>Rhino Carbon Fiber</b> www.rhinocarbonfiber.com	<b>Booth #117</b>
<b>Cresset Chemical Company</b> www.cresset.com	<b>Booth #312</b>	<b>Sika Corporation</b> www.usa.sika.com	<b>Booths #204 &amp; 206</b>
<b>FiberForce by ABC Polymer</b> www.abcpolymerindustries.com	<b>Booth #321</b>	<b>Silica Fume Association</b> www.silicafume.org	<b>Booth #313</b>
<b>Forney</b> www.forneyonline.com	<b>Booth #420</b>	<b>Slag Cement Association</b> www.slagcement.org	<b>Booth #317</b>
<b>FPrimeC Solutions Inc</b> www.fprimec.com	<b>Booth #515</b>	<b>Structural Technologies</b> www.structuraltechnologies.com	<b>Booth #306</b>
<b>GCP Applied Technologies</b> www.gcpat.com/en/solutions	<b>Booth #209</b>	<b>Taylor and Francis</b> www.crcpress.com	<b>Booth #302</b>
<b>GEM Technologies, Inc.</b> www.gemtechnologiesinc.com	<b>Booth #401</b>	<b>The Euclid Chemical Company</b> www.euclidchemical.com	<b>Booth #513</b>
<b>Geophysical Survey Systems, Inc.</b> www.geophysical.com	<b>Booth #414</b>	<b>Vector Corrosion Technologies Inc.</b> www.vector-corrosion.com	<b>Booth #303</b>
<b>Germann Instruments</b> www.germann.org	<b>Booths #214 &amp; 216</b>	<b>Warstone Innovations, LLC</b> www.warstoneinnovations.com/scs-system	<b>Booth #507</b>
<b>Giatec Scientific, Inc.</b> www.giatec.ca	<b>Booth #403</b>	<b>Wicktek, Inc.</b> www.densicrete.com	<b>Booth #509</b>
<b>Headed Reinforcement Corp. (HRC)</b> www.hrc-usa.com	<b>Booth #105</b>	<b>Xypex Chemical Corporation</b> www.xypex.com	<b>Booth #210</b>
<b>Humboldt Mfg. Co.</b> www.humboldtmfg.com	<b>Booth #207</b>	<b>Zircon Corporation</b> www.zircon.com	<b>Booth #511</b>
<b>International Concrete Repair Institute</b> www.icri.org	<b>Booth #307</b>		

Exhibitors are listed as of 9/17/18.

# Exhibitor Floor Plan

## AMAZON A & G



## Exhibitor Demonstration Schedule

TIME	MONDAY, OCTOBER 21	TIME	TUESDAY, OCTOBER 22
9:00 - 9:30 am	GSSI—GSSI StructureScan Mini XT GPR	9:00 - 9:30 am	Germann Instruments—CAPO-Test: Alternative to Testing Cores
10:30 - 11:00 am	FPrimeC Solutions, Inc.—Non-Destructive Evaluation of Integrity in Piles and Deep Foundations	9:45 - 10:15 am	GEM Technologies, Inc.—Increase Productivity, Save Time and Labor Cost with New Concrete Application
11:15 - 11:45 am	Kryton International Inc.—Hardening Methods for Increased Abrasion Resistance of Concrete	1:15 - 11:45 am	Wicktek, Inc.—Removing Salt from Inside Concrete
1:00 - 1:30 pm	Olson Engineering—Windows 10 Tablet NDE Platforms for Impact Echo, Sonic Echo, and Resonance Tests	1:45 - 2:15 pm	Zircon Corporation—Scan Before You Drill; Locate and Avoid Rebar

Demonstrations schedule listed as of 9/17/18.

For the most up-to-date list of exhibitor demonstrations, please check the Convention App

# Daily Program

For detailed program information and program changes, download the Convention App.

√= Separate fee required ★ = Guest-only event

Friday, October 12, 2018	
<b>6:30 pm - 9:00 pm</b>	
Committee Meetings	See Numeric or Convention App for detailed list
Saturday, October 13, 2018	
<b>7:00 am - 6:00 pm</b>	
Committee Meetings	See Numeric or Convention App for detailed list
<b>2:00 pm - 6:00 pm</b>	
ACI Registration	Amazon A & G
ACI Store	Amazon A & G
ACI Cyber Café & Meeting Spot	Amazon A & G
Afternoon Soda Break	Amazon A & G
Speaker Ready Room	Tango C
<b>8:00 pm - 9:30 pm</b>	
Student Networking Reception	Brasilia 7
Sunday, October 14, 2018	
<b>5:00 am and 6:00 am</b>	
Run/Walk Meet-Up	Hotel Main Lobby
<b>7:00 am - 10:00 am</b>	
★ Guest Hospitality	Barrel Room
Coffee Break	Amazon A & G
<b>7:00 am - 5:30 pm</b>	
Committee Meetings	See Numeric or Convention App for detailed list
<b>7:00 am - 6:00 pm</b>	
Speaker Ready Room	Tango C
<b>7:30 am - 11:30 am—Session</b>	
11th ACI Concrete Sustainability Forum	Amazon I-J
<b>7:30 am - 5:00 pm</b>	
ACI Registration	Amazon A & G
<b>8:00 am - 9:00 am—Mini Session</b>	
Advances in FRM and SRG for Structural Strengthening	Miranda 6
<b>8:00 am - 9:00 am</b>	
Convention Orientation Breakfast	Brasilia 4-5
★ Guest Overview	Barrel Room
<b>8:00 am - 10:00 am—Session</b>	
Seismic Behavior of Reinforced Concrete Columns Constructed Using High-Strength and Ultra-High-Performance Material, Part 1 of 2	Amazon Q-R
<b>8:00 am - 5:00 pm</b>	
ACI Cyber Café & Meeting Spot	Amazon A & G
ACI Store	Amazon A & G
Exhibits	Amazon A & G

<b>8:30 am - 4:00 pm</b>	
Student Pervious Concrete Cylinder Competition	Amazon A & G
<b>9:00 am - 10:00 am—Mini Session</b>	
Advances in FRM/SRG Repair Technologies	Miranda 6
<b>10:00 am - 11:30 am—Session</b>	
ACI International Forum	Brasilia 3
<b>10:00 am - 5:00 pm</b>	
★ Guest Lounge	Barrel Room
<b>10:30 am - 12:30 pm—Sessions</b>	
Blast Resistance of Precast Concrete	Amazon S-T
The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 1 of 4	Amazon Q-R
<b>11:00 am - 12:00 pm—Mini Session</b>	
Nano-Modified Concrete Coating for Improved Strength and Durability	Amazon O
<b>11:00 am - 2:00 pm</b>	
Lunch Concession	Amazon A & G
<b>11:30 am - 1:30 pm</b>	
√ International Lunch	Brasilia 4-5
<b>1:00 pm - 3:00 pm—Sessions</b>	
History of Concrete	Amazon I-J
The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 2 of 4	Amazon Q-R
<b>1:00 pm - 4:00 pm</b>	
Afternoon Soda Break	Amazon A & G
<b>2:00 pm - 4:00 pm</b>	
√ Las Vegas Stadium Site Tour	Depart Miranda Patio
<b>2:30 pm - 3:30 pm—Mini Session</b>	
Ensuring a Successful High-Strength Concrete Project, Part 2 of 2	Tropical D
<b>3:30 pm - 5:30 pm—Sessions</b>	
SDC—Innovations in Concrete Technology	Amazon I-J
Numerical Modeling and Analysis of Two-Way Slabs	Amazon S-T
Performance Criteria for Ready Mixed Concrete: Where Are We Today?	Amazon Q-R
<b>4:00 pm - 5:00 pm—Mini Session</b>	
Case Studies on Nano-Enhanced Concrete to Increase the Durability and Service Life of Concrete	Miranda 6
<b>5:45 pm - 7:00 pm</b>	
Opening Session & Keynote Presentation	Brasilia 2 & 6
<b>7:00 pm - 8:00 pm</b>	
Opening Reception	Amazon A & G
<b>8:00 pm - 9:30 pm</b>	
Young Professional Networking Event	Amazon A & G
<b>8:00 pm - 10:00 pm</b>	
√ Honorary Dinner in Celebration of Professor Zdeněk P. Bažant	Voodoo Steakhouse

# Daily Program

For detailed program information and program changes, download the Convention App.

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<b>8:00 pm - 10:00 pm—Sessions</b>	
Hot Topic Session: Busting 90 Minutes	Amazon S-T
Hot Topic Session: Can Codes and Standards Improve the Performance and Longevity of Existing Concrete Structures?	Amazon Q-R
<b>Monday, October 15, 2018</b>	
<b>5:00 am and 6:00 am</b>	
Run/Walk Meet-Up	Hotel Main Lobby
<b>6:00 am - 6:45 am</b>	
Morning Yoga Class	Amazon H
<b>6:30 am - 8:00 am</b>	
Workshop for Technical Committee Chairs (by invitation only)	Brasilia 2 & 6
<b>7:00 am - 8:30 am</b>	
Speaker Development Breakfast	Brasilia 7
<b>7:00 am - 10:00 am</b>	
★ Guest Hospitality	Barrel Room
Coffee Break	Amazon A & G
<b>7:00 am - 6:00 pm</b>	
Speaker Ready Room	Tango C
<b>7:00 am - 7:00 pm</b>	
Committee Meetings	See Numeric or Convention App for detailed list
<b>7:30 am - 5:00 pm</b>	
ACI Registration	Amazon A & G
<b>8:00 am - 8:30 am</b>	
Coffee at Meeting Spot for first-time attendees	Amazon A & G
<b>8:00 am - 5:00 pm</b>	
ACI Cyber Café & Meeting Spot	Amazon A & G
ACI Store	Amazon A & G
Exhibits	Amazon A & G
<b>8:15 am - 9:15 am—Mini Session</b>	
Factors Affecting Surface Appearance When Using SCC	Amazon D-F
<b>8:30 am - 9:30 am—Mini Sessions</b>	
Acceptance of Concrete Test	Conga C
Symposium on Fracture Mechanics, Size Effect, and Aging Phenomena of Concrete Structures Celebrating Professor Bažant's 80th Birthday, Part 1 of 4	Amazon C
<b>8:30 am - 10:30 am—Sessions</b>	
Materials Science Aspects Related to Digital Manufacturing (3-D Printing) of Cementitious Materials	Amazon Q-R
Research in Progress, Part 1 of 2	Amazon I-J
What I Wish I Knew: Career Paths in the Concrete Industry	Amazon S-T
<b>10:00 am - 11:00 am—Mini Sessions</b>	
Recent Research on Fire Performance of Concrete	Tropical D

Symposium on Fracture Mechanics, Size Effect, and Aging Phenomena of Concrete Structures Celebrating Professor Bažant's 80th Birthday, Part 2 of 4	Amazon B
The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 3 of 4	Amazon M
<b>10:00 am - 11:30 am—Session</b>	
ACI Student Forum	Brasilia 1
<b>10:00 am - 2:30 pm</b>	
★ Guest Lounge	Barrel Room
<b>10:30 am - 12:00 pm—Session</b>	
ACI 123 Concrete Research Poster Session	Amazon A & G
<b>11:00 am - 12:00 pm—Mini Session</b>	
Computational Modeling of Concrete Materials and Structures: Calibration, Validation, and State of the Practice	Tropical H
<b>11:00 am - 1:00 pm—Sessions</b>	
Materials Science of Aggregates and Their Role in Concrete Performance	Amazon S-T
Research in Progress, Part 2 of 2	Amazon I-J
The Role of Materials in Sustainable Concrete Construction, Part 1 of 2	Amazon Q-R
<b>11:00 am - 2:00 pm</b>	
Lunch Concession	Amazon A & G
<b>11:30 am - 12:30 pm—Mini Session</b>	
Seismic Behavior of Reinforced Concrete Columns Constructed Using High-Strength and Ultra-High-Performance Materials, Part 1 of 2	Tropical C
<b>11:30 am - 1:30 pm</b>	
✓ Student Lunch	Brasilia 2 & 6
<b>1:00 pm - 2:00 pm—Mini Sessions</b>	
New Developments in Energy Code Compliance for Concrete and Masonry Structures	Lambda C
Recovered Fly Ash for Use in Concrete	Jaguar A-B
<b>1:00 pm - 4:00 pm</b>	
Afternoon Soda Break	Amazon A & G
<b>1:30 pm - 2:00 pm</b>	
Sodas at The Meeting Spot for first-time attendees	Amazon A & G
<b>1:30 pm - 3:30 pm—Sessions</b>	
Computational Modeling of Concrete Materials and Structures: Calibration, Validation, and State of the Practice	Amazon I-J
Laser Scanning for Tolerances	Amazon S-T
The Role of Materials in Sustainable Concrete Construction, Part 2 of 2	Amazon Q-R
<b>2:00 pm - 3:00 pm—Mini Session</b>	
The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 4 of 4	Amazon O
<b>3:30 pm - 5:00 pm</b>	
★ Guest Social	Barrel Room



# Daily Program

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<b>4:00 pm - 6:00 pm—Sessions</b>	
New Developments in BIM for Cast-in-Place Concrete	Amazon S-T
SCC and Mass Concrete Quality Control and Construction Challenges	Amazon I-J
Specifications and ACI 211 Proportioning Concrete Mixtures, Part 1 of 2	Amazon Q-R
<b>5:00 pm - 6:00 pm—Mini Session</b>	
Concrete with Recycled Materials	Tropical G
<b>5:30 pm - 6:30 pm</b>	
Women in ACI Reception	Amazon D-F
<b>5:30 pm - 10:30 pm</b>	
√Excellence in Concrete Construction Awards and Gala	Brasilia 2 & 6
<b>6:30 pm - 8:30 pm—Session</b>	
123 Forum: Life after Fly Ash: What is the Alternative?	Amazon Q-R
<b>Tuesday, October 16, 2018</b>	
<b>5:00 am and 6:00 am</b>	
Run/Walk Meet-Up	Hotel Main Lobby
<b>6:00 am - 6:45 am</b>	
Morning Yoga Class	Amazon H
<b>7:00 am - 10:00 am</b>	
★ Guest Hospitality	Barrel Room
Coffee Break	Amazon A & G
<b>7:00 am - 6:00 pm</b>	
Speaker Ready Room	Tango C
Committee Meetings	See Numeric or Convention App for detailed list
<b>7:30 am - 5:00 pm</b>	
ACI Registration	Amazon A & G
<b>8:00 am - 8:30 am</b>	
Coffee at Meeting Spot for first-time attendees	Amazon A & G
<b>8:00 am - 9:00 am—Mini Session</b>	
Microbially Induced Corrosion of Concrete	Brasilia 1 & 4
<b>8:00 am - 5:00 pm</b>	
ACI Cyber Café & Meeting Spot	Amazon A & G
ACI Store	Amazon A & G
Exhibits	Amazon A & G
<b>8:30 am - 9:30 am—Mini Session</b>	
Advancing the Cellular Structure for Concrete	Conga C
<b>8:30 am - 10:30 am—Sessions</b>	
Contractors' Day Session: Build, Implode, Repeat!—A History of Construction, Demolition, and Redevelopment in Las Vegas	Amazon I-J
Repair Application Procedures and Case Studies, Part 1 of 2	Amazon S-T
Specifications and ACI 211 Proportioning Concrete Mixtures, Part 2 of 2	Amazon Q-R

<b>10:00 am - 5:00 pm</b>	
★ Guest Lounge	Barrel Room
<b>11:00 am - 1:00 pm—Sessions</b>	
Analytical Techniques Bringing the Nanoscale to the Bigger World	Amazon Q-R
Constructability: From Definition to Industry Practice	Amazon I-J
Repair Application Procedures and Case Studies, Part 2 of 2	Amazon S-T
<b>11:00 am - 2:00 pm</b>	
Lunch Concession	Amazon A & G
<b>11:30 am - 1:30 pm</b>	
√Contractors' Day Lunch	Brasilia 2
<b>12:00 pm - 1:00 pm—Mini Session</b>	
Recent Advances in Alternative Cements	Rio Pavilion 10
<b>1:00 pm - 2:00 pm—Mini Session</b>	
Beyond Modulus: Applying the Results of Nanoindentation	Brasilia 1 & 4
<b>1:00 pm - 4:00 pm</b>	
Afternoon Soda Break	Amazon A & G
<b>1:30 pm - 2:00 pm</b>	
Sodas at The Meeting Spot for first-time attendees	Amazon A & G
<b>1:30 pm - 3:30 pm—Sessions</b>	
Contractors' Day Session: Lighting the NEON in Las Vegas	Amazon I-J
Open Topic Session, Part 1 of 2	Amazon S-T
Symposium on Fracturing, Scaling, Aging and Deterioration Phenomena in Concrete Structures Celebrating Professor Bazant's 80th Birthday, Part 3 of 4	Amazon Q-R
<b>2:00 pm - 3:00 pm—Mini Session</b>	
The Role of Admixtures in Reducing Corrosion	Coco A-B
<b>4:00 pm - 6:00 pm—Sessions</b>	
Open Topic Session, Part 2 of 2	Amazon S-T
Sustainable and Low-Cementitious-Materials-Content Self-Consolidating Concrete	Amazon I-J
Symposium on Fracturing, Scaling, Aging and Deterioration Phenomena in Concrete Structures Celebrating Professor Bazant's 80th Birthday, Part 4 of 4	Amazon Q-R
<b>5:30 pm - 6:30 pm</b>	
Faculty Network Reception	Brasilia 5
<b>6:00 pm - 6:30 pm</b>	
Pre-Mixer Gathering for first-time attendees	All-American Bar and Grille
<b>6:30 pm - 9:30 pm</b>	
Concrete Mixer	Brooklyn Bowl Depart Miranda Patio (Buses will begin to depart at 5:30 pm)

# Daily Program

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<b>Wednesday, October 17, 2018</b>	
<b>5:00 am and 6:00 am</b>	
Run/Walk Meet-Up	Hotel Main Lobby
<b>6:00 am - 6:45 am</b>	
Morning Yoga Class	Amazon H
<b>7:00 am - 10:00 am</b>	
★ Guest Hospitality	Barrel Room
Coffee Break	Amazon A & G
<b>7:00 am - 2:00 pm</b>	
Speaker Ready Room	Tango C
<b>7:00 am - 6:00 pm</b>	
Committee Meetings	See Numeric or Convention App for detailed list
✓ Adhesive Anchor Installation Inspector Certification Exam	Coco A-B
✓ Concrete Construction Special Inspector Certification Exam	Coco A-B
✓ Concrete Quality Technical Manager Certification Exam	Coco A-B
✓ Concrete Transportation Construction Inspector Certification Exam	Coco A-B
<b>8:00 am - 12:00 pm</b>	
ACI Cyber Café & Meeting Spot	Amazon A & G
ACI Registration	Amazon A & G
ACI Store	Amazon A & G
<b>8:30 am - 10:30 am—Sessions</b>	
Analysis and Interpretation of Structural Health Monitoring (SHM) Data: Big Data Management and Field Studies	Amazon Q-R
Specifications for Repair of Concrete in Buildings	Amazon I-J
<b>10:00 am - 5:00 pm</b>	
★ Guest Lounge	Barrel Room
<b>11:00 am - 1:00 pm—Sessions</b>	
Concrete with Recycled Materials, Part 1 of 2	Amazon Q-R
Emerging Concepts and Technologies in Fiber-Reinforced Concrete, Part 1 of 2	Amazon I-J
Seismic Rehabilitation—From Analysis to Practical Application, Part 1 of 2	Amazon S-T
<b>1:30 pm - 3:30 pm—Sessions</b>	
Concrete with Recycled Materials, Part 2 of 2	Amazon Q-R
Emerging Concepts and Technologies in Fiber-Reinforced Concrete, Part 2 of 2	Amazon I-J
Seismic Rehabilitation—From Analysis to Practical Application, Part 2 of 2	Amazon S-T
<b>6:30 pm - 8:00 pm</b>	
President's Reception	Miranda 1-4

<b>Thursday, October 18, 2018</b>	
<b>10:15 am - 5:00 pm</b>	
Board of Direction	Palma A, B, E, F

# Numerical Committee Meeting Listing

For detailed program information and program changes, download the Convention App.

Code	Committee	Day	Time	Room Name
ACIFDD	ACI Foundation Development	Mon	2:00 pm - 4:00 pm	Flamengo Boardroom
ACIFdn	ACI Foundation	Wed	8:00 am - 11:30 am	Amazon N
CAC	Chapter Activities	Mon	3:00 pm - 4:00 pm	Tropical H
CAC-TG2	CAC Student Competition Task Group	Wed	10:00 am - 11:30 am	Amazon M
CLC	Construction Liaison	Sun	8:00 am - 10:30 am	Tropical D
CPC	Certification Programs	Tue	2:00 pm - 5:00 pm	Tropical C
CRC	Concrete Research Council	Tue	11:00 am - 1:00 pm	Amazon N
C601	New Certification Programs	Mon	3:00 pm - 4:30 pm	Lambada A
C601-E	Concrete Construction Sustainability	Tue	7:30 am - 9:00 am	Amazon O
C601-F	NDT Technician	Mon	1:00 pm - 3:00 pm	Tropical A
C601-I	Shotcrete Inspector Subcommittee	Sun	1:00 pm - 2:00 pm	Tango B
C610	Field Technician Cert	Mon	8:30 am - 11:00 am	Tropical C
C612	Self-Consolidating Concrete Technician Certification	Mon	11:30 am - 1:00 pm	Amazon N
C620	Laboratory Tech Cert	Tue	8:30 am - 10:00 am	Palma C, D, G, H
C621	Cement Tester Certification	Wed	8:30 am - 9:30 am	Lambada B
C630	Construction Inspector Cert	Mon	1:00 pm - 2:30 pm	Tropical B
C631	Conc Transportation Const Insp	Tue	10:00 am - 11:30 am	Tropical C
C640	Craftsman Cert	Sun	11:00 am - 2:00 pm	Amazon N
C650	Tilt-up Certification Committee	Sun	4:00 pm - 5:30 pm	Tropical A
C655	Foundation Constructor Certification	Mon	11:30 am - 1:00 pm	Tropical B
C660	Shotcrete Nozzleman Cert	Sun	10:00 am - 12:00 pm	Palma C, D, G, H
C670	Masonry Technician Certification	Mon	3:00 pm - 4:30 pm	Conga C
C680	Adhesive Anchor Installer—Joint CRSI	Sun	11:30 am - 1:00 pm	Tropical D
C681	Adhesive Anchor Installation Inspector Certification	Mon	4:30 pm - 5:30 pm	Tropical H
C690	Concrete Quality Technical Manager Certification	Wed	10:30 am - 11:30 am	Lambada B
EAC	Educational Activities	Tue	8:00 am - 11:30 am	Tropical D
E701	Materials for Concrete Construction	Sun	9:00 am - 10:30 am	Amazon M
E702	Designing Concrete Structures	Mon	8:30 am - 10:30 am	Conga C
E703	Concrete Construction Practices	Mon	4:00 pm - 6:00 pm	Jaguar A-B
E706	Concrete Repair Education	Sun	8:00 am - 10:00 am	Lambada C
E707	Specification Education	Tue	11:30 am - 1:00 pm	Rio Pavilion 11
E710	ACI University Programs	Sun	10:30 am - 12:00 pm	Amazon M
E905	Training Programs	Sun	9:00 am - 10:00 am	Amazon O
HTC	Hot Topic	Sun	2:30 pm - 4:00 pm	Tropical A
IAC	International Advisory Committee	Tue	9:30 am - 11:30 am	Amazon O
IC-Cert	International Certification	Sun	1:30 pm - 3:00 pm	Tropical F
IC-Conf	International Conferences	Mon	7:15 am - 8:30 am	Tropical B
IPAC	International Project Awards Committee	Tue	7:00 am - 8:30 am	Tropical C
MEMC	Membership	Sun	1:00 pm - 3:00 pm	Lambada C
MJEB	Materials Journal Editorial Board	Sun	9:00 am - 10:00 am	Tropical H
SYPAC	Student and Young Professional Activities Committee	Wed	8:00 am - 9:30 am	Jaguar A-B
S801	Student Competitions	Sun	7:30 am - 9:00 am	Amazon B
S802	Teaching Methods and Educational Materials	Mon	8:30 am - 9:30 am	Tropical D
S805	Collegiate Concrete Council	Sun	4:00 pm - 5:30 pm	Brasilia 7
S806	Young Professional Activities Committee	Mon	2:00 pm - 3:30 pm	Tropical C
TAC	Technical Activities	Fri	6:30 pm - 9:00 pm	Amazon M
TAC	Technical Activities	Sat	7:00 am - 6:30 pm	Amazon M

# Numerical Committee Meeting Listing

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Code	Committee	Day	Time	Room Name
TAC-RG1	TAC Review Group 1	Sat	1:00 pm - 4:00 pm	Conga A
TAC-RG2	TAC Review Group 2	Sat	1:00 pm - 4:00 pm	Conga B
TAC-RG3	TAC Review Group 3	Sat	1:00 pm - 4:00 pm	Conga C
TCSC	TAC Construction Standards Committee	Wed	7:30 am - 9:30 am	Amazon M
TRRC	TAC Repair & Rehab	Tue	7:00 am - 8:30 am	Rio Pavilion 11
TTAG	Technology Transfer Advisory Group	Tue	6:30 am - 8:00 am	Tropical G
117	Tolerances	Tue	8:00 am - 12:00 pm	Coco A-B
117-A	Editorial and General Requirements	Mon	3:00 pm - 4:00 pm	Amazon K
117-D	Cast in Place Concrete for Buildings	Mon	4:00 pm - 5:00 pm	Amazon K
117-F	Cast in Place Floors	Mon	5:00 pm - 6:00 pm	Amazon K
117-N	Tolerance Data	Mon	1:00 pm - 2:00 pm	Tango B
120	History of Concrete	Tue	1:30 pm - 3:00 pm	Tropical G
121	Quality Assurance Systems for Concrete	Sun	3:00 pm - 5:00 pm	Tropical F
122	Energy Efficiency of Concrete and Masonry Systems—Joint ACI-TMS	Mon	1:00 pm - 3:00 pm	Lambada C
123	Research and Current Developments	Sun	4:00 pm - 5:30 pm	Brasilia 3
124	Aesthetics	Mon	12:30 pm - 2:00 pm	Tropical G
130	Sustainability of Concrete	Mon	2:00 pm - 5:00 pm	Amazon M
130	Sustainability of Concrete	Tue	11:00 am - 1:00 pm	Brasilia 1 & 4
130-A	Materials	Mon	8:30 am - 10:00 am	Palma A, B, E, F
130-C	Structures in Service	Tue	10:00 am - 11:00 am	Tropical A
130-E	Design/Specifications/Codes/Regulations	Tue	9:30 am - 11:00 am	Tropical E
130-G	Education/Certification	Mon	11:00 am - 12:00 pm	Tropical A
130-L	Liaison Subcommittee	Mon	10:00 am - 11:00 am	Tropical A
131	BIM	Sat	8:00 am - 5:00 pm	Brasilia 3
131	BIM	Tue	3:00 pm - 5:00 pm	Brasilia 1 & 4
132	Responsibility (Formally RCC)	Sun	2:00 pm - 5:00 pm	Conga C
133	Disaster Reconnaissance	Sun	12:30 pm - 3:30 pm	Tropical B
134	Concrete Constructability	Tue	3:00 pm - 5:00 pm	Brasilia 3
201	Durability	Tue	8:00 am - 11:00 am	Brasilia 1 & 4
201-D	Durability-Oversight Committee	Mon	11:30 am - 1:00 pm	Conga A
201-TG1	Aggressive Chemicals	Mon	3:00 pm - 4:00 pm	Tropical E
201-TG2	Physical Salt Attack	Sun	11:00 am - 12:00 pm	Tropical H
201-TG3	Alkali-Aggregate Reactivity	Sun	12:00 pm - 2:00 pm	Tropical H
201-TG5	Microbially Induced Corrosion of Concrete	Sun	10:00 am - 11:00 am	Tropical H
201-TG6	Performance Options for 318 Code Requirements for Concrete Durability	Sun	4:00 pm - 5:00 pm	Tropical H
207	Mass Concrete	Mon	10:00 am - 1:00 pm	Palma A, B, E, F
209	Creep & Shrinkage	Mon	10:00 am - 1:00 pm	Amazon B
209-C	Models Applicability and Uncertainty	Sun	3:30 pm - 4:30 pm	Amazon K
209-D	Numerical Methods and 3D Analyses	Sun	4:30 pm - 5:30 pm	Amazon K
209-E	Experimental Methods and Monitoring	Mon	1:00 pm - 2:00 pm	Palma A, B, E, F
211	Proportioning	Wed	8:00 am - 10:00 am	Palma C, D, G, H
211-A	Proportioning-Editorial	Tue	10:00 am - 12:00 pm	Tango B
211-I	Assessing Aggregate Gradation	Tue	1:00 pm - 3:00 pm	Tango A
211-M	Aggregate Packing Model	Mon	10:00 am - 11:00 am	Amazon L
211-N	Proportioning with Ground Limestone and Material Fillers	Tue	3:00 pm - 5:00 pm	Tango A
211-TG2	Developing & Using a Three Point Curve Task Group	Tue	11:30 am - 1:00 pm	Tango A

# Numerical Committee Meeting Listing

For detailed program information and program changes, download the Convention App.

Code	Committee	Day	Time	Room Name
212	Chemical Admixtures	Mon	2:00 pm - 5:00 pm	Amazon N
213	Lightweight	Tue	1:30 pm - 3:30 pm	Rio Pavilion 11
213-TG1	Lightweight-Editorial TG	Tue	11:00 am - 12:30 pm	Amazon L
214	Strength Tests	Mon	3:30 pm - 5:30 pm	Tropical C
214-A	Document Preparation	Mon	12:30 pm - 2:00 pm	Tango A
215	Fatigue	Sun	12:00 pm - 2:00 pm	Conga C
216	Fire Resistance and Fire Protection of Structures	Mon	10:00 am - 12:00 pm	Tropical D
221	Aggregates	Tue	11:00 am - 1:30 pm	Brasilia 7
222	Corrosion	Tue	2:00 pm - 5:00 pm	Coco A-B
222-TG1	Developing Standardized Tests for Chloride Threshold	Sun	1:00 pm - 3:00 pm	Amazon M
223	Shrinkage Compensating	Tue	2:00 pm - 5:00 pm	Amazon M
224	Cracking	Sun	2:30 pm - 5:00 pm	Tropical E
225	Hydraulic Cements	Mon	1:00 pm - 5:00 pm	Conga A
228	Nondestructive Testing	Sun	9:30 am - 12:30 pm	Brasilia 7
228-B	Visual Inspection	Sun	1:00 pm - 3:00 pm	Tango A
229	Controlled Low-Strength Materials	Tue	2:00 pm - 4:00 pm	Amazon C
230	Soil Cement	Tue	8:00 am - 9:30 am	Tango B
231	Early Age	Mon	12:30 pm - 2:30 pm	Conga C
232	Fly Ash in Concrete	Mon	1:00 pm - 4:00 pm	Jaguar A-B
233	Ground Slag	Tue	2:00 pm - 5:00 pm	Palma C, D, G, H
234	Silica Fume	Tue	2:00 pm - 4:30 pm	Conga A
236	Material Science	Mon	4:30 pm - 5:30 pm	Rio Pavilion 10-11
236-TG1	Advanced Analysis Techniques	Sun	3:00 pm - 4:00 pm	Amazon L
237	Self-Consolidating Concrete	Mon	8:15 am - 12:15 pm	Amazon D-F
238	Workability of Fresh Concrete	Tue	8:00 am - 10:00 am	Tango A
238-A	Student Workability	Tue	10:00 am - 11:30 am	Tango A
239	Ultra-High Performance Concrete	Mon	3:30 pm - 6:00 pm	Coco A-B
239-A	Emerging Technology Report	Sun	1:00 pm - 3:00 pm	Amazon K
239-C	Structural Design on UHPC	Mon	10:30 am - 12:30 pm	Conga C
239-D	Materials & Methods of Construction with UHPC	Mon	1:00 pm - 3:00 pm	Brasilia 1
240	Natural Pozzolans	Mon	10:00 am - 1:00 pm	Amazon C
241	Nanotechnology of Concrete	Sun	4:00 pm - 5:30 pm	Miranda 6
241-A	The Application and Implementation of Nano-Engineered Concrete	Tue	1:00 pm - 3:00 pm	Brasilia 1 & 4
241-SC	Steering Committee	Sun	11:00 am - 12:00 pm	Amazon O
241-TG1	Dispersion of Nanoparticles in Concrete Materials TG1	Sun	1:30 pm - 3:00 pm	Miranda 6
241-TG2	Nanoscale Fiber Reinforced Concrete Task Group	Sun	3:00 pm - 4:00 pm	Miranda 6
242	Alternative Cements	Tue	12:00 pm - 3:00 pm	Rio Pavilion 10
301	Specifications	Sun	1:00 pm - 4:00 pm	Brasilia 7
301	Specifications	Mon	1:00 pm - 4:00 pm	Amazon D-F
301-A	General Requirements, Definitions, and Tolerances - Section 1	Sun	8:00 am - 9:30 am	Tropical E
301-B	Formwork and Formwork Accessories - Section 2	Sat	6:30 pm - 8:30 pm	Palma A, B, E, F
301-C	Reinforcement and Reinforcement Supports - Section 3	Sat	4:30 pm - 6:30 pm	Conga C
301-D	Concrete Mixtures - Section 4	Sun	8:00 am - 9:30 am	Tropical C
301-E	Handling, Placing, and Constructing - Section 5	Sat	4:30 pm - 6:00 pm	Palma A, B, E, F
301-F	Architectural Concrete - Section 6	Sun	10:30 am - 12:30 pm	Coco A-B



# Numerical Committee Meeting Listing

For detailed program information and program changes, download the Convention App.

Code	Committee	Day	Time	Room Name
301-G	Lightweight Concrete - Section 7	Mon	8:00 am - 9:00 am	Amazon M
301-H	Mass Concrete - Section 8	Sun	9:30 am - 11:00 am	Tango B
301-I	Post-Tensioned Concrete - Section 9	Sun	8:00 am - 9:30 am	Tango B
301-J	Shrinkage Compensating Concrete - Section 10	Sun	8:00 am - 9:30 am	Tropical A
301-K	Industrial Floor Slabs - Section 11	Sun	9:30 am - 11:00 am	Tropical A
301-L	Tilt-Up Construction - Section 12	Sun	7:30 am - 9:30 am	Tropical B
301-SC	Spec-Steering Committee	Sat	3:00 pm - 4:30 pm	Palma A, B, E, F
302	Floor Construction	Mon	8:30 am - 1:00 pm	Brasilia 7
303	Architectural CIP	Mon	8:30 am - 11:30 am	Conga A
304	Measuring/Mix/Trans/Placing	Mon	11:30 am - 1:00 pm	Palma C, D, G, H
304-F	Measuring/Mixing-Volumetric	Mon	10:00 am - 10:30 am	Tropical F
305	Hot Weather	Sun	2:00 pm - 4:00 pm	Tropical C
306	Cold Weather	Tue	8:30 am - 11:00 am	Tropical H
307	Chimneys	Mon	2:00 pm - 5:00 pm	Tango A
308	Curing	Wed	10:00 am - 1:00 pm	Amazon O
308-A	Curing-Guide	Wed	8:00 am - 10:00 am	Amazon O
308-B	Curing-Specifications	Tue	4:00 pm - 5:30 pm	Rio Pavilion 11
309	Consolidation	Sun	3:00 pm - 4:30 pm	Conga B
310	Decorative Concrete	Tue	3:00 pm - 5:00 pm	Brasilia 2
310-J	Polished Finishes	Tue	10:00 am - 12:30 pm	Jaguar A-B
310/308-TG2	Curing Decorative Concrete Joint Task	Tue	9:00 am - 10:00 am	Jaguar A-B
311	Inspection	Tue	12:30 pm - 2:30 pm	Brasilia 3
314	Simplified Design Buildings	Sun	8:30 am - 10:30 am	Amazon N
315	Detailing of Concrete Reinforcement	Sun	2:00 pm - 5:00 pm	Amazon N
318	Building Code	Mon	8:00 am - 6:00 pm	Brasilia 4-5
318	Building Code	Wed	8:00 am - 6:00 pm	Brasilia 6
318-A	General Concrete Construction	Sun	8:00 am - 12:30 pm	Conga A
318-A	General Concrete Construction	Tue	1:30 pm - 6:00 pm	Tropical H
318-B	Anchorage and Reinforcement	Sun	1:00 pm - 5:30 pm	Amazon O
318-B	Anchorage and Reinforcement	Tue	8:00 am - 12:30 pm	Amazon D-F
318-C	Safety, Serviceability, and Analysis	Tue	8:00 am - 12:30 pm	Amazon B
318-D	Members	Tue	1:30 pm - 6:00 pm	Amazon B
318-E	Section and Member Strength	Sun	1:00 pm - 5:30 pm	Miranda 3
318-E	Section and Member Strength	Tue	7:30 am - 12:30 pm	Amazon C
318-F	Foundations	Tue	8:00 am - 12:30 pm	Conga B
318-G	Precast and Prestressed Concrete	Tue	8:00 am - 12:30 pm	Palma A, B, E, F
318-H	Seismic Provisions	Sun	8:00 am - 12:30 pm	Tropical G
318-H	Seismic Provisions	Tue	1:30 pm - 6:00 pm	Brasilia 7
318-J	Joints and Connections	Tue	1:30 pm - 6:00 pm	Amazon N
318-L	International Liaison	Sun	8:00 am - 9:30 am	Conga C
318-N	Nonlinear Dynamic Analysis	Sun	1:00 pm - 5:00 pm	Miranda 5
318-R	High Strength Reinforcement	Sun	8:00 am - 12:30 pm	Miranda 5
318-R	High Strength Reinforcement	Tue	1:30 pm - 6:00 pm	Palma A, B, E, F
318-S	Spanish Translation	Sun	1:00 pm - 3:00 pm	Miranda 4
325	Pavements	Tue	3:30 pm - 5:30 pm	Tropical D
325-A	Pavements-Design	Tue	9:00 am - 10:00 am	Brasilia 3
325-C	Pavements-Prestressed and Precast	Tue	10:30 am - 11:30 am	Brasilia 3

# Numerical Committee Meeting Listing

For detailed program information and program changes, download the Convention App.

Code	Committee	Day	Time	Room Name
325-E	Accelerated Paving	Tue	2:00 pm - 3:30 pm	Tropical D
325-F	Concrete Pavement Overlays	Tue	12:00 pm - 1:00 pm	Tropical D
325-TG1	Task Group on Thin Concrete Pavements	Tue	1:00 pm - 2:00 pm	Tropical D
327	RCC Pavements	Tue	11:00 am - 1:00 pm	Tropical H
329	Performance Criteria for Ready-Mixed Concrete	Wed	9:30 am - 11:30 am	Jaguar A-B
330	Parking Lots & Site Paving	Wed	8:00 am - 12:00 pm	Brasilia 5
332	Residential Concrete	Tue	1:30 pm - 5:00 pm	Jaguar A-B
332-B	Residential Concrete Materials and Placement	Sun	4:00 pm - 5:30 pm	Tropical G
332-D&E	Residential Concrete-Footings & Foundation Walls & Residential Concrete-Above Grade Walls	Tue	10:30 am - 12:00 pm	Amazon K
332-F	Residential Concrete-Slabs	Tue	10:30 am - 12:00 pm	Conga A
334	Shells	Mon	5:00 pm - 7:00 pm	Conga A
335	Composite Hybrid	Sun	11:30 am - 1:00 pm	Tango A
336	Footings, Mats and Drilled Piers	Sun	1:30 pm - 5:30 pm	Palma C, D, G, H
341	Earthquake-Resistant Bridges	Sun	3:00 pm - 5:00 pm	Amazon C
341-A	Earthquake Resistant Bridges-Columns	Sun	9:00 am - 11:00 am	Amazon C
341-C	Earthquake Resistant Bridges-Retrofit	Sun	11:00 am - 1:00 pm	Amazon C
341-D	Earthquake Resistant Bridges-Performance-Based Seismic Design	Sun	1:00 pm - 3:00 pm	Amazon C
342	Bridge Evaluation	Sun	8:30 am - 10:30 am	Coco A-B
343	Bridge Design	Mon	10:00 am - 12:00 pm	Amazon M
345	Bridge Construction, Maintenance, and Repair	Sun	1:30 pm - 3:30 pm	Miranda 1
347	Formwork for Concrete	Sat	2:00 pm - 6:00 pm	Lambada C
347	Formwork for Concrete	Sun	8:00 am - 12:00 pm	Amazon D-F
348	Structural Reliability and Safety	Mon	1:30 pm - 3:00 pm	Amazon O
349	Nuclear Structures	Tue	1:30 pm - 5:00 pm	Brasilia 6
349-A&B	Nuclear Structures-Materials & Nuclear Structures-Design	Mon	1:00 pm - 4:30 pm	Palma C, D, G, H
349-C	Nuclear Str-Anchorage	Mon	8:00 am - 11:00 am	Palma C, D, G, H
350	Environmental Structures	Wed	8:00 am - 4:00 pm	Brasilia 2-3
350-A	Env Str-General & Concrete	Tue	1:00 pm - 5:00 pm	Tropical E
350-B	Env Str-Durability	Mon	8:30 am - 1:00 pm	Tango B
350-C	Env Str-Reinf & Devel	Sun	8:30 am - 11:30 am	Lambada A
350-D	Env Str-Structural	Mon	8:30 am - 6:30 pm	Conga B
350-E	Env Str-Precast/Prestressed	Sun	1:30 pm - 5:30 pm	Lambada A
350-F	Env Str-Seismic	Tue	8:30 am - 3:00 pm	Flamengo Boardroom
350-G&K	Tightness Testing & Hazardous Materials	Mon	8:00 am - 12:00 pm	Tango A
350-H	Env Str-Editorial	Mon	12:30 pm - 2:00 pm	Amazon M
350-J	Env Str-Education	Tue	1:00 pm - 3:00 pm	Amazon L
350-L	Env Str-Specification	Tue	5:00 pm - 6:00 pm	Amazon L
350-SC	Env Str-Steering Comm	Sun	11:30 am - 1:00 pm	Lambada A
351	Equip Foundations	Tue	10:00 am - 12:00 pm	Palma C, D, G, H
351-C	Equipment Foundations - Dynamic Foundations	Mon	4:30 pm - 6:30 pm	Palma C, D, G, H
351-D	Design Provisions for Heavy Industrial Equipment and Machinery Concrete Support Structures	Tue	8:30 am - 10:00 am	Tropical C
352	Joints	Sun	2:00 pm - 5:00 pm	Palma A, B, E, F
352-TG1	Slab-Column Joints & Connections	Mon	12:00 pm - 1:30 pm	Brasilia 3
352-TG2	Beam-Column Joints & Connections	Mon	1:30 pm - 3:00 pm	Brasilia 3

# Numerical Committee Meeting Listing

For detailed program information and program changes, download the Convention App.

Code	Committee	Day	Time	Room Name
355	Anchorage	Sun	1:30 pm - 5:00 pm	Amazon D-F
357	Offshore & Marine	Tue	8:00 am - 11:00 am	Lambada C
357-TG1	ACI 357R-84 Revision	Mon	8:00 am - 10:00 am	Tropical E
357-TG1	ACI 357R-84 Revision	Tue	1:00 pm - 3:00 pm	Amazon K
357-TG2	ACI 357.2R-10 Revision	Sun	2:00 pm - 3:00 pm	Brasilia 3
357-TG3	ACI 357.3R-14 Revision	Sun	3:00 pm - 4:00 pm	Brasilia 3
359	Nuclear Reactors	Wed	9:00 am - 1:00 pm	Amazon D-F
359-A&B	Working Group on Design & Working Group on Materials, Fabrication & Examination	Tue	8:00 am - 12:00 pm	Lambada A
359-C	Working Group on Modernization	Wed	7:00 am - 9:00 am	Amazon D-F
360	Slabs on Ground	Sun	12:30 pm - 2:00 pm	Miranda 2
360	Slabs on Ground	Mon	2:00 pm - 6:30 pm	Brasilia 7
362	Parking Structures	Mon	1:00 pm - 5:00 pm	Tropical D
362-A	Updating Guide to Struct Maint of Pkg Struct Doc	Sun	1:00 pm - 4:00 pm	Tropical G
363	High-Strength	Sun	2:30 pm - 5:00 pm	Tropical D
363-A	High-Strength Lightweight Concrete	Tue	3:30 pm - 5:00 pm	Amazon L
364	Rehabilitation	Mon	1:00 pm - 4:00 pm	Amazon C
364-A&C	Rehabilitation-Evaluation & Rehabilitation-TechNotes	Mon	9:30 am - 11:00 am	Amazon K
364-L	Liaison Subcommittee	Mon	8:00 am - 9:00 am	Tropical A
364-TG1	Rehabilitation Guide	Mon	11:00 am - 12:00 pm	Amazon K
365	Service Life	Mon	9:00 am - 11:00 am	Amazon N
369	Seismic Rehab	Mon	2:00 pm - 6:00 pm	Amazon B
369-A	General Provision	Sun	9:00 am - 12:00 pm	Amazon B
369-C	Frames	Sun	1:00 pm - 4:00 pm	Lambada B
369-D	Walls	Sun	10:00 am - 12:00 pm	Lambada B
369-E	Diaphragms and Foundations	Sun	8:00 am - 10:00 am	Lambada B
369-F	Retrofit	Sun	3:00 pm - 5:30 pm	Lambada C
370	Blast and Impact Load Effects	Sun	3:00 pm - 5:00 pm	Amazon M
371	Elevated Tanks with Concrete Pedestals	Mon	3:00 pm - 5:00 pm	Amazon O
372	Prestressed/Wire Wrapped	Tue	3:00 pm - 5:00 pm	Amazon K
374	Seismic Design	Mon	8:30 am - 12:00 pm	Jaguar A-B
375	Design for Wind Loads	Mon	1:00 pm - 3:30 pm	Coco A-B
376	RLG Containment Structures	Mon	1:00 pm - 4:00 pm	Lambada B
376-01	Steering Subcommittee	Sun	10:30 am - 12:00 pm	Amazon L
376-A	Code, Education & Publication Subcommittee	Mon	10:00 am - 12:00 pm	Lambada B
376-B	Materials Subcommittee	Sun	1:00 pm - 3:00 pm	Conga B
376-C	Analysis Subcommittee	Sun	3:00 pm - 5:00 pm	Tango A
376-D	Design & Construction Subcommittee	Mon	8:00 am - 10:00 am	Lambada B
377	Performance-Based Structural Integrity & Resilience of Concrete Structures	Mon	10:00 am - 12:30 pm	Lambada A
378	Concrete Wind Turbine Towers	Mon	8:15 am - 9:30 am	Amazon K
408	Bond and Development of Steel Reinforcement	Sun	8:30 am - 11:30 am	Jaguar A-B
408-A	Mechanical Reinforcing Bar Anchorages and Splices	Sun	1:30 pm - 3:30 pm	Jaguar A-B
421	Reinf Slabs	Sun	10:00 am - 1:00 pm	Tropical C
423	Prestressed	Mon	8:30 am - 12:30 pm	Tropical G
423-C	Corrsn & Repr Grtd Tendons	Sun	3:30 pm - 5:30 pm	Conga A
423-F	Sustainable Prestressed Concrete	Sun	1:00 pm - 3:00 pm	Conga A
423-G	Specification for Unbonded Single-Strand Tendon Materials	Mon	4:00 pm - 6:00 pm	Amazon L

# Numerical Committee Meeting Listing

For detailed program information and program changes, download the Convention App.

Code	Committee	Day	Time	Room Name
423/445	Adhoc Grp on Shear in Prestress Conc	Sun	4:00 pm - 5:30 pm	Lambada B
423-TG2	Anchorage Zone Task Group	Sun	4:00 pm - 5:30 pm	Tango B
435	Deflection	Mon	3:00 pm - 6:00 pm	Tropical A
437	Strength Evaluation	Mon	10:30 am - 12:30 pm	Tropical F
439	Steel Reinforcement	Mon	8:30 am - 10:30 am	Tropical H
439-A	Steel Reinf-Wire	Sun	3:30 pm - 5:00 pm	Tropical B
440	Fiber Reinforced Polymer	Tue	8:00 am - 11:00 am	Brasilia 6
440-D	Research Development and Applications	Mon	10:00 am - 11:30 am	Rio Pavilion 10-11
440-F	FRP-Repair Strengthening	Mon	1:00 pm - 4:00 pm	Rio Pavilion 10-11
440-G	FRP-Student	Mon	11:30 am - 1:00 pm	Rio Pavilion 10-11
440-H	FRP-Reinforced Concrete	Sun	2:30 pm - 5:00 pm	Miranda 7-8
440-H	FRP-Reinforced Concrete	Mon	8:00 am - 10:00 am	Rio Pavilion 10-11
440-J	FRP-Stay-in-Place Forms	Sun	10:30 am - 12:00 pm	Miranda 7-8
440-M	FRP-Repair of Masonry Str	Sun	8:00 am - 10:30 am	Miranda 7-8
440-TG3	Anchorage Task Group	Sun	1:00 pm - 2:30 pm	Tropical D
441	Columns	Mon	11:30 am - 2:00 pm	Tropical C
441-B	Lateral Reinforcement	Mon	9:00 am - 10:00 am	Tropical A
444	Structural Health Monitoring and Instrumentation	Tue	8:00 am - 11:00 am	Amazon N
445	Shear and Torsion—Joint ACI-ASCE	Mon	2:00 pm - 6:00 pm	Palma A, B, E, F
445-A	Shear & Torsion-Strut & Tie	Sun	9:30 am - 12:30 pm	Miranda 1
445-B	Shear & Torsion-Seismic Shear	Sun	9:30 am - 11:30 am	Tropical F
445-C	Shear & Torsion-Punching Shear	Sun	1:00 pm - 3:00 pm	Amazon L
445-D	Shear & Torsion-Database	Sun	2:00 pm - 5:00 pm	Miranda 2
445-E	Shear & Torsion-Torsion	Sun	12:30 pm - 2:00 pm	Tropical E
446	Fracture Mechanics	Mon	8:30 am - 10:00 am	Amazon C
447	Finite Element Analysis	Mon	11:00 am - 1:30 pm	Tropical H
506	Shotcreting	Tue	8:30 am - 11:30 am	Tropical G
506-A	Shotcreting-Evaluation	Mon	12:30 pm - 2:30 pm	Amazon L
506-B	Shotcreting-Fiber Reinforced	Mon	2:30 pm - 4:00 pm	Amazon L
506-C&E	Shotcreting-Guide & Shotcreting-Specifications	Mon	8:30 am - 11:00 am	Lambada C
506-F	Shotcreting-Underground	Mon	4:00 pm - 5:00 pm	Lambada B
506-H	Shotcreting-Pools	Sun	2:00 pm - 4:00 pm	Tango B
515	Protective Systems	Tue	9:00 am - 11:00 am	Tropical B
522	Pervious Concrete	Tue	8:00 am - 11:00 am	Brasilia 7
523	Cellular Concrete	Tue	8:30 am - 10:30 am	Conga C
524	Plastering	Mon	8:30 am - 10:00 am	Amazon B
533	Precast Panels	Mon	8:30 am - 10:00 am	Amazon L
543	Piles	Mon	8:30 am - 11:30 am	Tropical B
544	Fiber Reinforced Concrete	Tue	3:00 pm - 5:30 pm	Amazon D-F
544-A	FRC-Production & Applications	Mon	2:00 pm - 5:00 pm	Tropical G
544-C	FRC-Testing	Tue	2:00 pm - 3:00 pm	Amazon D-F
544-D	FRC-Structural Uses	Tue	12:00 pm - 1:30 pm	Amazon M
544-E	FRC-Mechanical Properties	Mon	5:00 pm - 6:30 pm	Amazon N
544-F	FRC-Durability	Tue	10:30 am - 12:00 pm	Amazon M
544-SC	FRC-Steering Committee	Mon	8:30 am - 10:00 am	Lambada A

# Numerical Committee Meeting Listing

For detailed program information and program changes, download the Convention App.

Code	Committee	Day	Time	Room Name
546	Repair	Mon	9:30 am - 1:00 pm	Coco A-B
546-B	Repair-Material Selection Guide	Sun	8:00 am - 9:00 am	Tango A
546-C	Repair-Guide	Sun	9:00 am - 10:00 am	Tango A
546-D	Packaged Repair Materials	Mon	8:00 am - 9:30 am	Coco A-B
546-E	Corrosion Studies	Sun	10:00 am - 11:30 am	Tango A
548	Polymers and Polymer Adhesives for Concrete	Tue	8:30 am - 11:30 am	Rio Pavilion 11
548-A	Polymer-Overlays	Mon	1:00 pm - 3:00 pm	Tropical F
548-B	Adhesives in Concrete	Mon	3:00 pm - 5:00 pm	Tropical F
548-TG1	Updating Guide for the Use of Polymers in Concrete	Mon	11:00 am - 12:30 pm	Amazon L
549	Thin Reinforced	Sun	9:00 am - 12:00 pm	Miranda 6
549-L	Liaison	Sun	8:00 am - 9:00 am	Miranda 6
550	Precast Structures	Sun	3:00 pm - 5:00 pm	Amazon B
551	Tilt-Up	Sun	9:00 am - 11:00 am	Palma A, B, E, F
552	Cementitious Grouting	Tue	4:00 pm - 5:30 pm	Amazon O
555	Recycled	Mon	5:00 pm - 6:30 pm	Tropical G
560	Design & Constr ICFs	Tue	8:30 am - 10:30 am	Amazon M
562	Evaluation, Repair, and Rehab	Sun	1:00 pm - 5:00 pm	Coco A-B
562-A	General	Sat	12:00 pm - 4:00 pm	Lambada A
562-B	Loads	Sat	4:00 pm - 6:00 pm	Lambada A
562-C	Evaluation	Sun	8:00 am - 10:00 am	Amazon L
562-D	Design	Sat	9:00 am - 12:00 pm	Lambada A
562-E	Coordination	Mon	8:00 am - 10:00 am	Tropical F
562-F	Durability	Sat	6:00 pm - 9:00 pm	Lambada A
563	Specs Repair of Sruct Concrete in Buildings	Tue	1:00 pm - 5:00 pm	Conga C
564	3-D Printing with Cementitious Materials	Mon	1:30 pm - 3:00 pm	Amazon K





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# Sessions & Events

For detailed program information and program changes, download the Convention App.

✓ = Separate fee required ★ = Guest-only event

## Saturday, October 13, 2018

### 8:00 pm – 9:30 pm

#### **Student Networking Reception—Brasilia 7**

Sponsored by ACI Student and Young Professional Activities Committee

The ACI Student and Young Professional Activities Committee (SYPAC) invites all students, faculty advisors, and mentors to the Student Networking Reception. This casual and fun environment is an opportunity to engage with future concrete professionals and professors. Students will participate in games to win door prizes. In addition, food and beverages will be provided for free on a first-come, first-served basis.

## Sunday, October 14, 2018

### 7:30 am – 11:30 am

#### **11th ACI Concrete Sustainability Forum—Amazon I-J**

Sponsored by ACI Committees 130, 201, 236, 318, 349, and C601  
Moderated by Koji Sakai, Japan Sustainability Institute; and Julie Buffenbarger, Beton Consulting Engineers

Topic: We Are Getting Into a New Stage!

The forum continues to provide the latest on technological innovations, new design systems, and programs related to best practices when considering concrete sustainability. This year's program will include:

1. Sustainability assessor certificate program;
2. Incorporation of sustainability into codes and standards;
3. Resilience-based building design;
4. An innovative bridge; and
5. Panel discussions for our future.

Join with code/standard writers, leaders in global sustainability and resiliency initiatives, and other interested parties to learn about and provide direction for improving and expanding the use of sustainable products, applications, and practices.

#### **7:30 am: Introduction and Welcome**

Koji Sakai, Japan Sustainability Institute

#### **7:45 am: Sustainability Assessor Certificate Program**

Sean Monkman, CarbonCure Technologies Inc.

#### **8:10 am: Incorporation of Sustainability into ACI Building Code**

Randall Poston, Pivot Engineers

#### **8:35 am: Incorporation of Sustainability into ISO 19338**

James Wight, University of Michigan

#### **9:00 am: Incorporation of Sustainability into fib Model Code**

Koji Sakai, Japan Sustainability Institute

#### **9:25 am: Break**

#### **9:40 am: Resilience-Based Building Design**

Evan Reis, US Resiliency Council

#### **10:05 am: Innovative Technology—Butterfly-Web Bridge**

Akio Kasuga, Sumitomo Mitsui Construction Co., Ltd.

#### **10:30 am: Panel Discussions**

Koji Sakai, Japan Sustainability Institute; Julie Buffenbarger, Beton Consulting Engineers; Sean Monkman, CarbonCure Technologies Inc.; Randall Poston, Pivot Engineers; James Wight, University of Michigan; Evan Reis, US Resiliency Council; and Akio Kasuga, Sumitomo Mitsui Construction Co., Ltd.

#### **11:20 am: Closing Remarks**

Julie Buffenbarger, Beton Consulting Engineers



PDH Codes: \_\_\_\_\_

### 8:00 am – 9:00 am

#### **Convention Orientation Breakfast—Brasilia 4-5**

Moderated by David A. Lange, University of Illinois

First-time convention attendees are invited for a continental breakfast and brief session to orient you to the week ahead. Attendees will have the opportunity to meet other first-time convention attendees, connect with convention mentors, and learn about what The Concrete Convention and Exposition has to offer.

### 8:00 am – 9:00 am

#### **MINI SESSION: Advances in FRCM and SRG for Structural Strengthening—Miranda 6**

Sponsored by ACI Subcommittee 549-L and RILEM TC 250-CSM  
Moderated by Gianmarco de Felice, Roma Tre University

The purpose of this mini session is to bring together researchers working on fabric-reinforced cementitious matrix (FRCM) systems to present the state of the art of this emerging technology.

#### **8:00 am: Development of FRCM Composites with Lime-Based Matrices**

Bekir Pekmezci, Istanbul Technical University

#### **8:15 am: Seismic Upgrade with SRG Composite Systems: 15 Years of Laboratory and Field Applications**

Paolo Casadei, Kerakoll SPA

#### **8:30 am: Design and Experimental Outcome in the Confinement with FRCM Systems**

Maria Antonietta Aiello, University of Salento, Italy; and Alessio Cascardi, University of Salento, Italy

#### **8:45 am: Out-of-Plane Cyclic Behavior of FRCM-Strengthened Masonry Walls**

Claudio Mazzotti, University of Bologna, Italy; and Alessandro Bellini, University of Bologna, Italy



PDH Codes: \_\_\_\_\_

# Sessions & Events

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## Sunday, October 14, 2018

### 8:00 am – 10:00 am

#### **Seismic Behavior of Reinforced Concrete Columns Constructed Using High-Strength and Ultra-High-Performance Materials, Part 1 of 2—Amazon Q-R**

Sponsored by ACI Committee 341 and Joint ACI-ASCE Committee 441

Moderated by Mohamed El-Gawady, Missouri S&T

This session will provide a forum for students, researchers, and practitioners to discuss seismic behavior of reinforced concrete columns constructed using high-strength and ultra-high-performance materials. Columns constructed using high-performance materials such as high- and ultra-high-performance concrete (HPC and UHPC), shape memory alloys (SMAs), high-strength steel, and fiber-reinforced polymer (FRP) as internal or external reinforcement will be discussed during this session. This session will present the state of the art on seismic design of high-performance columns.

#### **8:00 am: Shake-Table Studies of a Two-Span Bridge System with Steel Superstructure and ABC Connections**

M. Saïid Saïidi, University of Nevada, Reno; Ahmad Itani, University of Nevada, Reno; and Elmira Shoushtari, University of Nevada, Reno

#### **8:20 am: Finite Element Modeling of Seismic Behavior of Ultra-High-Performance Concrete Bridge Columns Length**

Mohamed Moustafa, University of Nevada, Reno; Negar Naeimi, University of Nevada, Reno; and Mahmoud Aboukifa, University of Nevada, Reno

#### **8:40 am: Seismic-Resistant Precast Bridge Columns Utilizing Ultra-High-Performance Concrete Connection**

Kevin Mackie, University of Central Florida

#### **9:00 am: Shaking Table Testing of High Energy Dissipating Reinforced Rubberized Concrete Columns**

Mohamed El-Gawady, Missouri S&T

#### **9:20 am: Impact of Composite Tensile Behavior and Reinforcement Ratio on the Failure Mechanisms of Steel-Reinforced HPFRCC Flexural Members**

Yi Shao, Stanford University; and Sarah Billington, Stanford University

#### **9:40 am: Parameters Affecting the Axial Load Response of Ultra-High-Performance Concrete (UHPC) Columns**

Hassan Aoude, University of Ottawa; and Denis Mitchell, McGill University



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PDH Codes: \_\_\_\_\_

### 8:30 am – 4:00 pm

#### **Student Pervious Concrete Cylinder Competition—Amazon A & G**

Sponsored by ACI Committees S801 and 522

Moderated by Walter H. Flood IV, Flood Testing Labs Inc.

Students will be challenged to apply sustainability concepts and use their knowledge of concrete mixture design by producing pervious concrete that balances permeability and splitting tensile strength. In addition, students will develop a mixture design that demonstrates cementitious efficiency—that is, main-

taining the overall performance of the mixture with the lowest amount of cementitious material. Testing device provided by Forney.

### 9:00 am – 10:00 am

#### **MINI SESSION: Advances in FRCM/SRG Repair Technologies—Miranda 6**

Sponsored by ACI Committee 549

Moderated by Antonio Nanni, University of Miami

Present the latest development in technology to support the development of the new ACI-RILEM document.

#### **9:00 am: FRCM at the Historic Napa County Courthouse** Brad Erickson, Simpson Strong-Tie; and Aniket Borwankar, Simpson Strong-Tie

#### **9:15 am: Seismic Retrofit of Structural Elements with FRCM Prior to Recent Earthquakes in Italy; What Happened to Them?**

Giovanni Mantegazza, Ruredil S.p.A

#### **9:30 am: Contribution of Externally Bonded FRCM to the Shear Strength of RC Beams—A Mechanical Model**

Lesley Sneed, Missouri S&T; Carlo Pellegrino, University of Padova; Tommaso D'Antino, Politecnico di Milano; and Jaime Gonzalez-Libreros, University of Padua

#### **9:45 am: Performance of FRCM-Strengthened RC Beams Subject to Fatigue**

Houman Hadad, University of Miami; and Antonio Nanni, University of Miami



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PDH Codes: \_\_\_\_\_

### 10:00 am – 11:30 am

#### **ACI International Forum—Brasilia 3**

Chaired by Vice President Randall Poston, Pivot Engineers

The ACI International Forum provides an opportunity for convention attendees to meet and learn from ACI international partners, ACI chapter representatives, and ACI leadership about worldwide events, activities, initiatives, and common themes of interest to the concrete materials, design, and construction industry.

Speakers include: Prof. Nemkumar Banthia, Canada India Research Center of Excellence; Mr. Jorge Martinez Chavez, President, Central & Southern Mexico Chapter – ACI; Speaker TBD, Northeast Mexico Chapter – ACI; Mr. Julio Timerman, President, Instituto Brasileiro do Concreto – IBRACON; Mr. Con Komselis, President, Concrete Institute of Australia; Prof. Maria Kaszynska, Dean, West Pomeranian University of Technology, Szczecin, Poland; Ms. Li Wei, Singapore Chapter – ACI; Prof. Dimitri Feys, RILEM; Mr. Ziad Awad, Lebanon Chapter – ACI; Dr. Surendra Manjrekar, India Chapter – ACI; Mr. Alejandro Perez, Asociación Científico-Técnica del Hormigón Estructural (ACHE), Spain; Prof. Liberato Ferrera, Italy Chapter – ACI.

### 10:30 am – 12:30 pm

#### **Blast Resistance of Precast Concrete—Amazon S-T**

Sponsored by ACI Committee 370

Moderated by Thomas Mander, University of Texas at San Antonio



# Sessions & Events

For detailed program information and program changes, download the Convention App.

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This session will provide ACI members an overview of research performed through private and industry funding over the last decade. Presentations will highlight full-scale, high-explosive and shock tube test programs, analysis methodologies, and design response limits. This session is appropriate for researchers, practitioners, and students.

## 10:30 am: Testing and Analysis of Blast-Loaded Precast Concrete Wall Panels

Marlon Bazan, Protection Engineering Consultants; and Charles Oswald, Protection Engineering Consultants

## 10:54 am: Unified Performance-Based Blast-Resistant Design Methodology for Precast Concrete Insulated Wall Panels

Matthew Gombeda, Lehigh University; Clay Naito, Lehigh University; and Spencer Quiel, Lehigh University

## 11:18 am: Open-Air Blast Testing of Large Prestressed Concrete Slabs

Jason Florek, Stone Security Engineering

## 11:42 am: Blast Response Limits for Load-Bearing Prestressed Concrete Panels

Thomas Mander, University of Texas at San Antonio

## 12:06 pm: Effect of High Strain Rates of Reinforced Concrete Bond Strength

Eric Jacques, Virginia Polytechnic Institute and State University



PDH Codes: \_\_\_\_\_

## 10:30 am – 12:30 pm

### *The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 1 of 4—Amazon Q-R*

Sponsored by ACI Committees 342 and 348, and Joint ACI-ASCE Committee 343

Moderated by Hani Nassif, Rutgers University; and Andrzej Nowak, Auburn University

Professor Dennis Mertz passed away last year after a prolonged battle with cancer. He spent a large portion of his professional career working on advancing the state of the art of bridge engineering. He was a great friend and colleague to many at ACI and ASCE. Joint ACI-ASCE Committee 343, joined with ACI Committees 342 and 348, would like to sponsor three sessions to honor his contributions and achievements in concrete bridge design and evaluation. These sessions will highlight the important work and collaborative efforts that Dr. Mertz had with others at ACI and ASCE on various topics. These sessions will also be an opportunity to combine the efforts among ACI and ASCE researchers and practitioners in addressing various topics related to the design and evaluation of concrete bridges. The scope and outcome of the session are relevant to ACI's mission because: 1) awareness will be raised on established design methodologies applied for various limit states covering topics related to flexure, shear, fatigue, and torsion; 2) emerging design and evaluation approaches and recent development in design practices, code standards, and related applications will be presented; and 3) the Symposium Publication (SP) will be a new document expected to be an important reference for the next decade in relation to design philosophies and evaluation methods of new and existing concrete bridges.

## 10:30 am: Updating AASHTO Concrete Design Provisions—Professor Mertz's Final Major Contribution to AASHTO

John Kulicki, Modjeski and Masters; and Gregg Freeby, American Segmental Bridge Institute

## 10:54 am: Calibration of the Fatigue Limit States in AASHTO LRFD Bridge Design Specifications

Dennis Mertz (posthumously); Wagdy Wassef, WSP; John Kulicki, Modjeski and Masters; and Andrzej Nowak, Auburn University

## 11:18 am: Load and Resistance Factors for Concrete Bridges and Buildings

Andrzej Nowak, Auburn University; and Olga Iatsko, Auburn University

## 11:42 am: Calibration of Service I Limit State for Reinforced Concrete Bridge Deck Designed Using Empirical Method

Dan Su, Embry-Riddle Aeronautical University; and Hani Nassif, Rutgers University

## 12:06 pm: Establishing the Baseline Performance of a Segmental Concrete Cable-Stayed Bridge

Michael Chajes, University of Delaware; Harry Shenton, University of Delaware; Hadi Al-Khateeb, Jacobs Engineering; and Christos Aloupis, University of Delaware



PDH Codes: \_\_\_\_\_

## 11:00 am – 12:00 pm

### *MINI SESSION: Nano-Modified Concrete Coating for Improved Strength and Durability—Amazon O*

Sponsored by ACI Subcommittee 241-SC

Moderated by Mahmoud Reda Taha, University of New Mexico

The proposed session will present state-of-the-art research on new nanomodified organic and inorganic coating materials used for improving concrete strength and durability. Presentations will discuss new research findings and explain the objective of using these new materials for concrete coating.

## 11:00 am: Meta Material-Based Hybrid Nanoparticles for Coating

Pengkun Hou, University of Jinan; and Surendra Shah, Northwestern University

## 11:15 am: Enhancement of Concrete Surface Properties by Nano-Silica and Nano-Clay Coatings

Mohamed Bassuoni, University of Manitoba

## 11:30 am: Nano-Modified MMA to Enable FRP Strengthening of Unqualified Concrete Substrates

Mahmoud Reda Taha, University of New Mexico

## 11:45 am: Engineering Smart TiO<sub>2</sub> Nanoparticle-Modified Coatings for Enhanced Corrosion Resistance

Qingxu Jin, Georgia Institute of Technology; Marisol Fardos, Instituto de Catálisis y Petroleoquímica; Ana Bahamonde, Instituto de Catálisis y Petroleoquímica; Guarav Sant, University of California, Los Angeles; Magdalena Balonis-Sant, University of California, Los Angeles; and Kimberly Kurtis, Georgia Institute of Technology



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# Sessions & Events

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## Sunday, October 14, 2018

### 11:30 am – 1:30 pm

#### ✓ *International Lunch—Brasilia 4-5*

\$30 U.S. per person

**Topic: Space and Prefab: International Museum of the Baroque**

Sponsored by ACI International Advisory Committee  
Speaker: Rafael Barona Coghlan, President of Consortium Danstek

Join industry colleagues and friends for the International Lunch with featured speaker Rafael Barona Coghlan, President of Consortium Danstek. In 2015, Rafael and his team engineered, fabricated, and erected one of the most complex concrete buildings in the world—the International Museum of the Baroque. Located in Puebla, Mexico, and designed by Pritzker Prize winner Japanese architect Toyo Ito, this new museum—a white concrete sculptural work of art—was erected with a one-of-a-kind prefabricated sandwich wall. The exterior concrete façade walls became the structural solution to achieve 82 ft clear span exhibition halls. Seven hundred and two panels ranging between 12 and 28 tons were erected by 12 cranes working simultaneously to give shape to this masterpiece. The bubble deck slabs and the perimeter walls were outfitted with embedded electrical and HVAC hardware. This 236,000 ft<sup>2</sup> building was built in 27 weeks without budget overruns and ahead of schedule.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability. Please notify the ACI Registration Desk if you have any dietary restrictions.

### 1:00 pm – 3:00 pm

#### *History of Concrete—Amazon I-J*

Sponsored by ACI Committee 120  
Moderated by Dean Houdeshell, Cemen Tech Inc.; and Ryan Scott, GCP Applied Technologies

This session, open to all ACI convention attendees, includes presentations of historical aspects of concrete and concrete construction practice. Attendees will gain a greater understanding and appreciation of the development of the concrete industry.

#### **1:00 pm: How Did North America's First Portland Cement Concrete End Up in Halifax Harbour?**

Sean Monkman, CarbonCure Technologies Inc

#### **1:20 pm: CSI of Girl Encased in Concrete**

Megan Huberty, American Engineering Testing

#### **1:40 pm: Selecting Restoration Mortar Based on Building Age**

Ryan Scott, GCP Applied Technologies

#### **2:00 pm: Who is Carl Menzel?**

Anne Werner, Southern Illinois University Edwardsville

#### **2:20 pm: Evolution of Caesars Palace: 50 Years of Concrete Construction**

Jacob Borgerson, Wiss, Janney, Elstner Associates, Inc.

#### **2:40 pm: History of the Hard Hat**

Luke Snell, Western Technologies



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PDH Codes: \_\_\_\_\_

### 1:00 pm – 3:00 pm

#### *The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 2 of 4—Amazon Q-R*

Sponsored by ACI Committees 342 and 348, and Joint ACI-ASCE Committee 343

Moderated by Hani Nassif, Rutgers University; and Andrzej Nowak, Auburn University

The session description for this session may be found in the Part 1 listing; refer to page 25.

#### **1:00 pm: Structural Health Monitoring of Latex-Modified Concrete (LMC) Overlays on Bridge Decks**

Nakin Suksawang, Florida Institute of Technology; and Hani Nassif, Rutgers University

#### **1:20 pm: Autogenous Shrinkage in Self-Consolidating Concrete**

Maria Kaszynska, West Pomeranian University of Technology, Poland; and Adam Zielinski, West Pomeranian University of Technology, Poland

#### **1:40 pm: Long-Term Deflection of Reinforced Concrete Bridge Girders Strengthened with Composite Sheets**

David Michnimer, University of Colorado Denver; and Yail Jimmy Kim, University of Colorado Denver

#### **2:00 pm: Design Developments for Extradosed Prestressed Bridges**

Steven Stroh, AECOM

#### **2:20 pm: Modeling Material Response of Fiber Composites used for the Retrofit of Existing Concrete Structures under Blast Loadings**

Sary Malak, Notre Dame University, Lebanon; and Neven Krstulovic-Opara, ExxonMobil Production

#### **2:40 pm: Development of a New Short-Span Bridge System—A Comprehensive Approach**

Tevfik Terzioglu, Texas A&M Transportation Institute; Dongqi Jiang, Nanjing University of Science and Technology; Mary Beth Hueste, Texas A&M University; and John Mander, Texas A&M University



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### 2:00 pm – 4:00 pm

#### ✓ *Las Vegas Stadium Site Tour—Depart Miranda Patio*

\$25 U.S. per person

Coordinated by Las Vegas Chapter – ACI

Take a guided walking tour of the newest addition to the Las Vegas skyline, the Las Vegas Stadium—future home of the NFL Raiders franchise. This is an active construction site tour led by members of the design-build team Mortenson | McCarthy Joint Venture. Be one of the few to get an inside view of the progress of one of Las Vegas's newest structural icons. Attendees are required to wear long pants, closed-toe shoes, short- or long-sleeved shirt, attend a brief safety presentation, and sign a waiver. Personal protection equipment (hard hat, vest, safety glasses, and gloves) will be provided by the Las Vegas Chapter – ACI and must be worn on the tour.

\*Tour can be cancelled due to inclement weather for safety.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets are available for purchase at ACI Registration. Tours are nonrefundable. All tours depart from the Miranda Patio.



# Sessions & Events

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## 2:30 pm – 3:30 pm

### **MINI SESSION: Ensuring a Successful High-Strength Concrete Project, Part 2 of 2—Tropical D**

Sponsored by ACI Committee 363

Moderated by Seamus Freyne, Mississippi State University

This session highlights the successful use of high-strength concrete (HSC). The session also includes performance of HSC in tall buildings, information on developing HSC mixture proportions, and best practices on testing HSC.

#### **2:30 pm: The Challenges the Industry Faces with Increased Testing for Modulus of Elasticity in HSC**

Benjamin Birch, CTLGroup

#### **2:50 pm: The Use of High-Strength Concrete in the Couture Tower in Milwaukee, WI**

Jordan Komp, Thornton Tomasetti

#### **3:10 pm: Meeting the Designer's Needs: Conceptual Mixture Development for High-Strength Concrete**

Jason Wimberly, GCP Applied Technologies



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PDH Codes: \_\_\_\_\_

## 3:30 pm – 5:30 pm

### **SDC—Innovations in Concrete Technology—Amazon I-J**

Sponsored by TTAG

Moderated by Steven Kosmatka, Portland Cement Association; and Lawrence Sutter, Michigan Technological University

The ACI Foundation's Strategic Development Council (SDC) collaborates across the concrete industry to address industry challenges and creates a forum to introduce and encourage new technologies. The future of concrete technology poses great possibilities through digitization and automation. The highest-impact innovations of the future will involve the adoption of technology and tools that will redefine the means and methods used to manage concrete construction projects. Yet for a variety of reasons, companies are resistant to invest in, and harness, these new technologies. The session will highlight opportunities for the future, ways the concrete industry is using new tools and preparing for others, as well as evaluating the obstacles facing innovative technology.

#### **3:30 pm: A Futuristic Approach to Construction**

Ryan Fertig, Compass Peak Research

#### **4:00 pm: HoloLens: Augmented Reality and Construction**

David Burczyk, Trimble Buildings

#### **4:30 pm: Foundations of Concrete Research: Enabling Resilient Infrastructure with Measurement Science**

Scott Jones, National Institute of Standards and Technology

#### **5:00 pm: Barriers to Emerging Technology Commercialization and Adoption**

Anne Ellis, Ellis Global Group



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PDH Codes: \_\_\_\_\_

## 3:30 pm – 5:30 pm

### **Numerical Modeling and Analysis of Two-Way Slabs—Amazon S-T**

Sponsored by Joint ACI-ASCE Committees 421 and 447

Moderated by Trevor Hrynyk, University of Texas at Austin; and Aikaterini Genikomsou, Queen's University

The potential authors are from several countries; the session is not co-sponsored by an international organization. This session is focused on examining the application of numerical modeling and analysis techniques for the design and/or performance assessment of two-way reinforced concrete slab systems and connections. Presentations focused on different modeling strategies to approach slab design challenges and highlighting the current state of the art in numerical assessment of reinforced concrete slab structural performance will be included. The session will be of interest to practitioners who employ such techniques and to academics focused on their development.

#### **3:30 pm: Design Optimization of Post-Tensioned Slabs**

Allan Bommer, Bentley Systems, Inc; and Jonathan Hirsch, Bentley Systems, Inc

#### **3:45 pm: A Damage-Plasticity Model for Finite Element Analysis of Slab-Column Connections**

Aikaterini Genikomsou, Queen's University; and Maria Polak, University of Waterloo

#### **4:00 pm: Shell-Based Nonlinear Analysis of Punching Critical Flat Plates**

Chong Yik Goh, University of Texas at Austin; and Trevor Hrynyk, University of Texas at Austin

#### **4:15 pm: Conservative Design is Inaccurate—Modeling and Design of Two-Way Flat-Plate Systems**

Ricardo Henocho, Skidmore Owings & Merrill Foundation

#### **4:30 pm: Structural Performance of Reinforced Concrete Slab Subjected to Fire and Explosion**

Jiangpeng Shu, Norwegian University of Science and Technology; Max Hendriks, DIANA FEA; and Jan Overli, Norwegian University of Science and Technology

#### **5:15 pm: Design Guide for Twisting Moments in Slabs**

Allan Bommer, Bentley Systems, Inc; and BJ Siljenbert, Barr Engineering



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# Sessions & Events

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## Sunday, October 14, 2018

### 3:30 pm – 5:30 pm

#### **Performance Criteria for Ready Mixed Concrete: Where Are We Today?—Amazon Q-R**

Sponsored by ACI Committee 329

Moderated by John Gibbons, Portland Cement Association

Present the current state of the art in performance criteria for ready mixed concrete in the United States, Canada, and Europe. Design professionals, concrete contractors, and ready mixed concrete producers should attend to learn how far the industry has progressed and what is in the way of further progress.

#### **3:30 pm: Performance Spec Concrete for a Super-Tall Building**

Eamonn Connolly, James McHugh Construction Co; and Max Levin, James McHugh Construction Co

#### **3:50 pm: Eliminating Prescriptive Requirements for Concrete is an Easy First Step**

Colin Lobo, NRMCA

#### **4:10 pm: Performance Requirements for Ready Mixed Concrete in North America—Are We There Yet?**

Oscar Antommattei, Kiewit Engineering Group

#### **4:30 pm: Concrete Slabs-on-Ground and the Practicality of Performance-Based Specifications**

Patrick Harrison, Structural Services, Inc.

#### **4:50 pm: Regional Differences in Concrete Performance**

Paul Treacy, James McHugh Construction Co

#### **5:10 pm: Minnesota DOT Concrete Specifications**

Joshua Edwards, AVR Inc.



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### 4:00 pm – 5:00 pm

#### **MINI SESSION: Case Studies on Nano-Enhanced Concrete to Increase the Durability and Service Life of Concrete—Miranda 6**

Sponsored by ACI Committee 241

Moderated by Jon Belkowitz, Intelligent Concrete

Nanoparticles designed for cement composites and concrete have been successfully used in limited applications over the last 20 years to enhance both the strength and durability of concrete.

#### **4:00 pm: Effect of CNTs and CNFs on the Corrosion of Reinforcement in Concrete**

Maria Konsta-Gdoutos, Northwestern University

#### **4:15 pm: Field Investigation of Semi-Flowable Self-Consolidating Concrete Using Nanoclay for Shape Stability during Slip-Form Paving**

Gilson Lomboy, Rowan University

#### **4:30 pm: The Impact of Alumina-Modified Colloidal Silica on ASR**

Jon Belkowitz, Intelligent Concrete

#### **4:45 pm: Study on Colloidal Silica-Enhanced Recycled Concrete Aggregate Concrete**

Whitney Le Belkowitz, Intelligent Concrete



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### 5:45 pm – 7:00 pm

#### **Opening Session and Keynote Presentation—Brasilia 2 & 6**

The Opening Session is the official start to the ACI Convention and will begin with a welcome address by ACI President, David Lange. Next, we'll kick off the convention with our keynote speaker, Gretchen Rubin. Gretchen Rubin is one of today's most influential and thought-provoking observers of happiness and human nature. She is the author of several books, including No. 1 national best seller, *The Happiness Project*. Don't miss out on this keynote presentation!

### 7:00 pm – 8:00 pm

#### **Opening Reception—Amazon A & G**

Immediately following the conclusion of the Opening Session, attendees are invited to the exhibit hall for this evening reception. Reunite with colleagues, network with new acquaintances, and learn about the products and services offered by our exhibitors. A cash bar and light refreshments will be available.

### 8:00 pm – 9:30 pm

#### **Young Professional Networking Event—Amazon A & G**

Sponsored by the ACI Student and Young Professional Activities Committee

SYPAC (Student and Young Professionals Activities Committee) invites all graduate students, young professionals, and mentors to a casual networking exchange following the Opening Reception. Attendees will establish connections with fellow young members. Bring your business card for a chance to win door prizes.

### 8:00 pm – 10:00 pm

#### **✓ Honorary Dinner in Celebration of Professor Zdeněk P. Bažant—Voodoo Steakhouse \$127 U.S. per person**

Professor Bažant's colleagues, collaborators, former students, and friends will gather for this dinner at the Rio's Voodoo Steakhouse to kick off a 2-day technical workshop to celebrate the profound impact that the scientific achievements of Professor Zdeněk P. Bažant have had and continue to have on the design of concrete structures. For several decades, Bažant has worked painstakingly within several technical committees of the American Concrete Institute to bridge the gap between academia and practitioners. By battling the conservatism and inertia of certain traditional segments of the concrete community, Bažant has been able to translate his fine scientific work on creep and size effect into practical technical specifications that have enhanced reliability, durability, and safety of concrete structures. The dinner will be an opportunity to reflect, in a convivial and relaxed environment, on Bažant's legacy within the American Concrete Institute.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets will be available for purchase on-site, based on availability. Please notify the ACI Registration Desk if you have any dietary restrictions.

# Sessions & Events

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## 8:00 pm – 10:00 pm

### Hot Topic Session: Busting 90 Minutes—Amazon S-T

Sponsored by Hot Topic Committee

Moderated by Richard Van Horn, Terracon Consultants, Inc.

The ASTM C94 90-minute time limitation has been around for over 80 years and committee members are now discussing its removal! The committee is now reviewing current science and modern design techniques for concrete mixtures by considering the time limit to be determined by the specifier and/or ready mix producer. This session will explain why this proposed change is being debated and give examples of scenarios showing expanded time limits of 2 or more hours. We'll show how the pot-life of concrete can be extended without harm and why the typical 90-minute limit has become an antiquated standard. Examples of successful projects will illustrate the capabilities possible where longer time limits have been implemented.

#### 8:00 pm: 90 Minutes: Love It or Lose It?

G. Terry Harris, GCP Applied Technologies

#### 8:40 pm: Evaluation of the 90-Minute Rule as an Acceptance Criteria

Mohamed Mahgoub, New Jersey Institute of Technology; and Wayne Rawlins, New Jersey Institute of Technology

#### 9:20 pm: Extending Concrete Slump Life: Proven Technologies and Projects with Challenging Placements

Mark Bury, BASF Admixtures Inc.



PDH Codes: \_\_\_\_\_

## 8:00 pm – 10:00 pm

### Hot Topic Session: Can Codes and Standards Improve the Performance and Longevity of Existing Concrete Structures?—Amazon Q-R

Sponsored by Hot Topic Committee

Moderated by Keith Kesner, CVM Professional; and David Whitmore, Vector Corrosion Technologies, Inc.

Over the past 30 years, concrete repair professionals have recognized a need to improve the performance of concrete repair practice. Various references indicate that approximately 50% of concrete repairs fail within a period of 10 years. The premature failure of concrete repairs creates a series of problems, including:

- Safety risks associated with potential falling debris hazards
- Risks associated with unsafe structures
- Costs in the billions of dollars associated with the repair and re-repair of concrete structures

The concrete industry has developed several new standards and codes specifically to improve the design side of concrete repair practice. These include ACI 562, Concrete Repair Code; ACI 563, Concrete Repair Specifications; and ACI 437.2, Standard for Load Testing of Existing Concrete Structures. While the ACI 562 code is gaining acceptance at the state level, it has not been adopted into the International Existing Building Code, largely because of resistance from some anti-code design professionals. The hot topic session will aim to explore five viewpoints on how to improve concrete repair practice from the perspective of design professionals, contractors, and academics.

#### 8:00 pm: Introduction

David Whitmore, Vector Corrosion Technologies, Inc.; and Keith Kesner, CVM Professional

#### 8:05 pm: It Is All on the Contractors

Carl Larosche, Wiss, Janney, Elstner Associates, Inc.

#### 8:22 pm: It Is All on the Design Professionals

Tarek Alkhrdaji, Structural Technologies

#### 8:39 pm: It Is All About Academic Instruction

Lawrence Kahn, Georgia Institute of Technology School of Civil and Environmental Engineering

#### 8:56 pm: Adoption of ACI 562 into IBC/IEBC

Keith Kesner, CVM Professional

#### 9:13 pm: Unifying ACI 318 and ACI 562 into One Code, "ACI 880"

Tracy Marcotte, CVM Professional

#### 9:30 pm: Group Discussion

David Whitmore, Vector Corrosion Technologies, Inc.; and Keith Kesner, CVM Professional



PDH Codes: \_\_\_\_\_

## Monday, October 15, 2018

### 6:30 am – 8:00 am

#### Workshop for Technical Committee Chairs (by invitation only)—Brasilia 2 & 6

Sponsored by the ACI Technical Activities Committee (TAC)  
Moderated by Lawrence Kahn, Georgia Institute of Technology

ACI technical committee Chairs are expected to attend this breakfast workshop to meet with fellow Chairs, TAC members, and ACI staff to hear updates on important recent developments of interest to ACI technical committee Chairs. There will be table discussions and short presentations. If you are unable to attend, please ask the Secretary of your committee or another committee member to represent you in your absence. *Attendance is by invitation only.*

### 7:00 am – 8:30 am

#### Speaker Development Breakfast—Brasilia 7

Sponsored by ACI Committee S802  
Moderated by Chris Carroll, Saint Louis University

#### Speaker: Lawrence Novak, Portland Cement Association

#### Topic: Top Ten Useful Lessons for Structural Engineers

Samuel Smiles, a Scottish author (1812-1904), wrote that "We learn wisdom from failure much more than from success. We often discover what will do, by finding out what will not do; and probably he who never made a mistake, never made a discovery." Typically, much is written and presented about outstanding projects in our profession. Rarely do we talk about the philosophy behind the design... even rarer do we take two steps back and delve into the important life lessons which can be gleaned from a career in our profession and the importance of building resilient communities. We would like to take this opportunity to lead the group on an amazing journey of discovery to explore what we really do and what the world expects of us. The thoughts offered are geared toward individuals at all phases of their far-reaching careers—from students to those enjoying their retirement—and all the wonderful experiences and challenging decisions we encounter along the path.

# Sessions & Events

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## Monday, October 15, 2018

### 8:15 am – 9:15 am

#### **MINI SESSION: Factors Affecting Surface Appearance When Using SCC—Amazon D-F**

Sponsored by ACI Committee 237

Moderated by Boris Haranki, Westinghouse Electric Corporation

There seems to be an expectation that casting members with SCC automatically produces surfaces free of defects. This session will present case studies, factors affecting surface defects when SCC is used, and methods to improve surface appearance to minimize repairs/rework to bring surface finish in compliance with Contract Documents.

#### **8:15 am: Methods to Reduce Surface Defects When SCC is Used in New Nuclear Construction**

Boris Haranki, Westinghouse Electric Corporation

#### **8:30 am: When Concrete Becomes Artwork**

Anthony Candiloro, Euclid Chemical

#### **8:45 am: Effect of Rheological Properties on Quality of Formed Surfaces Cast with SCC and Super-Workable Concrete**

Kamal Khayat, Missouri S&T



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PDH Codes: \_\_\_\_\_

### 8:30 am – 9:30 am

#### **MINI SESSION: Acceptance of Concrete Test—Conga C**

Sponsored by ACI Committee EAC

Moderated by Kimberly Kramer, Kansas State University

To present one of the E702 Design Examples: You are the Field Engineer on a project that is currently underway. The project specification states that the concrete strength is 3500 psi in twenty-eight (28) days. The following data contains the two (2) 6 x 12 in. cylinders tested at twenty-eight (28) days. You need to evaluate this data and determine if the concrete is acceptable.

#### **8:30 am: Acceptance Procedures for Concrete Tests**

Luke Snell, Western Technologies



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PDH Codes: \_\_\_\_\_

### 8:30 am – 9:30 am

#### **MINI SESSION: Symposium on Fracture Mechanics, Size Effect, and Aging Phenomena of Concrete Structures Celebrating Professor Bažant's 80th Birthday, Part 1 of 4—Amazon C**

Sponsored by Joint ACI-ASCE Committee 446

Moderated by Christian Carloni, University of Bologna; and Roman Wan-Wendner, BOKU Vienna

The theme is international, and we expect several contributions from research groups from other countries. Professor Bažant's work is well-known worldwide and we are confident that several researchers will attend. The BOD of IA-ConCreep has approved the co-sponsorship of the Bažant ACI symposium. This symposium will gather researchers and practitioners who work

on applications of fracture mechanics of concrete and how fracture mechanics is related to size effect and aging phenomena. Professional engineers and architects who work in the field of reinforced concrete design and researchers who are interested in the last developments in the fields of fracture mechanics, size effect, aging phenomena, and their relationship should attend.

#### **8:30 am: Influence of the Width of the Specimen on the Fracture Response of Concrete Notched Beams**

Christian Carloni, Case Western Reserve University; Mattia Santandrea; University of Bologna; and Giulia Baietti, University of Bologna

#### **8:50 am: A Machine Learning Approach to the Identification of the Lattice Discrete Particle Model Parameters**

Mohammed Alnaggar, Rensselaer Polytechnic Institute; and Naina Bhanot, The SK&A Group

#### **9:10 am: Cohesive Crack Analysis of Size Effect for Samples with Blunt Notches and Generalized Size Effect Curve for Quasi-Brittle Materials**

Giovanni Di Luzio, Politecnico di Milano; and Gianluca Cusatis, Northwestern University



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PDH Codes: \_\_\_\_\_

### 8:30 am – 10:30 am

#### **Materials Science Aspects Related to Digital Manufacturing (3-D Printing) of Cementitious Materials—Amazon Q-R**

Sponsored by ACI Committees 236, 238, and 552

Moderated by Narayanan Neithalath, Arizona State University; and Gaurav Sant, University of California, Los Angeles

The field of digital manufacturing (3-D printing) of concrete is rapidly evolving. An understanding of material properties and processing related parameters, and how they influence the properties of three-dimensional (3-D) printed structural components, is essential to ensure further advances in this nascent field. The proposed sessions will provide new information on selection of binder materials and combinations for successful 3-D printing; rheological characterization of cementitious materials as applied to digital manufacturing; the role of interfaces in the plastic and hardened stages; and microstructural architectures achievable by digital manufacturing to enable novel, multi-functional cementitious composites with special properties. This session will be valuable for researchers and students, and industrial entities interested in digital manufacturing and material processing.

#### **8:30 am: Rheological Control of 3-D Printed Cement Paste**

Scott Jones, National Institute of Standards and Technology; Dale Bentz, National Institute of Standards and Technology; Nicos Martys, National Institute of Standards and Technology; and William George, National Institute of Standards and Technology

#### **8:47 am: Elucidating Internal Geometry—Mechanical Property Relationships of 3-D-Printed Components to Maximize Strength-to-Weight Ratio**

Gaurav Sant, University of California, Los Angeles; Iman Mehdipour, University of Missouri; Gabriel Falzone, University of California, Los Angeles; and Monday Uchenna Okoronkwo, University of California, Los Angeles



# Sessions & Events

For detailed program information and program changes, download the Convention App.

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## 9:04 am: Mechanical Response and Micro-CT Characterization of 3-D Printed Cement Paste Elements with Controlled Architecture

Jan Olek, Purdue University; Mohamadreza Moini, Purdue University; Pablo Zavattieri, Purdue University; and Jeffrey Youngblood, Purdue University

## 9:21 am: Microstructural Packing, Rheology, and Ram Extrusion Characteristics of 3-D-Printable Cementitious Binders

Narayanan Neithalath, Arizona State University; Aashay Arora, Arizona State University; and Hussam Alghamdi, King Abdulaziz University

## 9:38 am: Approaches to Produce Additively Manufactured Concrete Mixtures

Raissa Ferron, University of Texas at Austin

## 9:55 am: 3-D Printing of Steel Fiber-Reinforced Concrete: Rheological and Mechanical Aspects

Liberato Ferrara, Politecnico di Milano; Costantino Menna, University of Naples Federico II; Domenico Asprone, University of Naples Federico II; and Francesco Lo Monte, Politecnico di Milano

## 10:12 am: Electromagnetic Alignment of Ferromagnetic Fibers in Fresh Concrete Mortar: 3-D Printing Prospective

Ehsan Dehghan Niri, New Mexico State University; Brad Weldon, New Mexico State University; Sina Zamen, New Mexico State University; and Andres Alvarez, New Mexico State University



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## 8:30 am – 10:30 am

### Research in Progress, Part 1 of 2—Amazon I-J

Sponsored by ACI Committee 123

Moderated by Matthew O'Reilly, University of Kansas

This session will feature presentations of original, unpublished results from ongoing research projects and leading-edge concrete technology and research throughout the world.

### 8:30 am: An Experimental Study on the Effect of Wall-Slab Connection Details in Liquid-Containing Structures

Reza Kianoush, Ryerson University

### 8:45 am: Strain Rate Sensitivity and Behavior of Ultra-High-Performance Concrete under High-Frequency Shear Loading

Md Abdullah Al Sarfin, Utah State University; Andrew Sorensen, Utah State University; Robert Thomas, Clarkson University; and Peter Collins, Pennsylvania State University

### 9:00 am: Finite Element Evaluation of the Flexural Behavior of Concrete Elements with Unbonded and Bonded Prestressing

Seaska Perez Aviles, University of Florida; H. R. Trey Hamilton III, University of Florida; and Gary Consolazio, University of Florida

### 9:15 am: Large GFRP-Confined Concrete Columns Subjected to Simulated Seismic Loads

Zahra Kharal, University of Toronto; and Shamim Sheikh, University of Toronto, Department of Civil Engineering

### 9:30 am: End Region Crack Characterization

Glenda Diaz Acosta, University of Florida; H. R. Trey Hamilton III, University of Florida; and Gary Consolazio, University of Florida

## 9:45 am: Experimental and Analytical Investigation of Fiber-Reinforced Concrete Used for Bridge Traffic Railings under Impact Loading

Jeffrey Honig, University of Florida; H. R. Trey Hamilton III, University of Florida; and Gary Consolazio, University of Florida

## 10:00 am: Towards Stochastic Finite Element Analysis and Field Assessment of Reinforced Concrete Structures

Raymond Ma, University of Toronto; Frank Vecchio, University of Toronto; and Fae Azhari, University of Toronto

## 10:15 am: Early-Age Deflections in Composite Bridge Girders with Concrete Slab

Hema Jayaseelan, Oklahoma State University; and Bruce Russell, Oklahoma State University



PDH Codes: \_\_\_\_\_

## 8:30 am – 10:30 am

### What I Wish I Knew: Career Paths in the Concrete Industry—Amazon S-T

Sponsored by ACI Committee S806

Moderated by Lauren McCauley, Balfour Beatty Construction; and Samhar Hoz, Helix Steel

This session is targeted mostly at undergraduate students and graduate students who are unsure of what they want to do when they graduate. Five people from different fields and at different levels of experience will present on their experiences within the industry. They will speak on topics such as potential career paths available after completing a degree in the civil engineering or construction engineering fields, how ACI impacts that career path and what committees are applicable, the challenges of the industry, what the speaker did not expect when starting their career, what makes that career opportunity fun, and how the speaker found their passion. The session will conclude with a 30-minute Q&A with all speakers.

### 8:45 am: Entering the Engineering Industry

Michael Ahern, Pivot Engineers

### 9:00 am: Entering the Education Profession

Armen Amirkhonian, University of Alabama

### 9:15 am: Entering the Manufacturing Industry

Joshua Edwards, AVR Inc.

### 9:30 am: Entering the Construction Industry

Andres Matos, Flood Testing Laboratories

### 9:45 am: Entering the Consulting Industry

Mohamed El-Batanouny, Wiss, Janney, Elstner Associates, Inc.



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# Sessions & Events

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## Monday, October 15, 2018

### 10:00 am – 11:00 am

#### **MINI SESSION: Recent Research on Fire Performance of Concrete—Tropical D**

Sponsored by the ACI Committee 216  
Moderated by Nicholas Lang, National Concrete Masonry Association

This session will review two recent research programs related to fire performance of concrete. The first is a project that looks at the out-of-plane behavior and stability of reinforced concrete bearing walls during fire testing. The second is an investigation into how mixture variables can affect fire performance of concrete. These research projects have the potential to affect future versions of ACI and TMS standards related to fire performance of concrete structures and elements.

#### **10:00 am: Out-of-Plane Behavior and Stability of Reinforced Concrete Bearing Walls**

Kevin Mueller, Jensen Hughes; and Yahya Kurama, University of Notre Dame

#### **10:30 am: How the Water/Binder Ratio and Voids Affect the Performances of Hardened Concrete Subjected to Fire**

Kamran Nemati, University of Washington



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### 10:00 am – 11:00 am

#### **MINI SESSION: Symposium on Fracture Mechanics, Size Effect, and Aging Phenomena of Concrete Structures Celebrating Professor Bazant's 80th Birthday, Part 2 of 4—Amazon B**

Sponsored by Joint ACI-ASCE Committee 446  
Moderated by Christian Carloni, University of Bologna; and Roman Wan-Wendner, BOKU Vienna

The session description for this session may be found in the Part 1 listing; refer to page 30.

#### **10:00 am: Tertiary Creep of Concrete in Tension and Compression**

Roman Wan-Wendner, BOKU Vienna; Giovanni Di Luzio, Politecnico di Milano; Jan Vorel, Czech Technical University in Prague; Marco Marcon, BOKU Vienna; and Ioannis Boumakis, BOKU Vienna

#### **10:20 am: Investigation of Fracture Based on Sequentially Linear Analysis**

Jan Vorel, Czech Technical University in Prague; Roman Wan-Wendner, BOKU Vienna; and Lisa-Marie Czernuschka, BOKU Vienna

#### **10:40 am: On Power-Law Tail of Strength Distribution of Quasi Brittle Structures**

Jia-Liang Le, University of Minnesota; and Zhifeng Xu, University of Minnesota



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### 10:00 am – 11:00 am

#### **MINI SESSION: The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 3 of 4—Amazon M**

Sponsored by ACI Committees 342 and 348, and Joint ACI-ASCE Committee 343  
Moderated by Hani Nassif, Rutgers University; and Michael Chajes, University of Delaware

The session description for this session may be found in the Part 1 listing; refer to page 25.

#### **10:00 am: System Capacity of Vintage Reinforced Concrete Moment Frame Culverts with No Overlay**

Thomas Schumacher, Portland State University; Timothy Porter, Whitman, Requardt and Associates; and Ping Jiang, Delaware Department of Transportation

#### **10:20 am: Service Life Design of Highway Bridges**

Thomas Murphy, Modjeski and Masters; Franklin Moon, Rutgers University; and Travis Hopper, Modjeski and Masters

#### **10:40 am: Analysis of a Fire-Damaged and FRP Laminated-Strengthened Reinforced Concrete Bridge**

Santosh Timilsina, University of Texas at Arlington; and Nur Yazdani, University of Texas at Arlington



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### 10:00 am – 11:30 am

#### **ACI Student Forum—Brasilia 1**

Sponsored by the ACI Student and Young Professional Activities Committee  
Moderated by Kanette Worlds, American Concrete Institute

The ACI Student Forum provides an opportunity for student chapters and competition teams to exchange ideas and best practices. Student speakers will deliver presentations about the activities and achievements of their student chapter or competition team. A limited number of presentation spots are available. Speakers may present as a group or individually.



# Sessions & Events

For detailed program information and program changes, download the Convention App.

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## 10:30 am – 12:00 pm

### **ACI 123 Concrete Research Poster Session—Amazon A & G**

Sponsored by ACI Committee 123

Moderated by Robert Thomas, Clarkson University

The ACI 123 Concrete Research Poster Session complements the existing Research in Progress and Open Topic sessions and provides further opportunity for the presentation of original, unpublished results from ongoing research projects and leading-edge concrete technology throughout the world.

#### **10:30 am: Adiabatic Temperature Rise in Ternary Blends Containing Fly Ash and Slag**

Yogiraj Sargam, Iowa State University; Kyle Riding, University of Florida; and Kejin Wang, Iowa State University

#### **10:39 am: Examination of Cellulose Nano-Fibrils for Internal Curing of Cement Based Materials**

Hosain Haddad Kolour, University of Maine; Eric Landis, University of Maine; and Parivash Takashi, University of Maine

#### **10:48 am: The Influence of Cellulose Nanomaterials on the Fracture Properties of Ultra-High-Performance Concrete**

Yi Peng, University of Maine Orono; and Eric Landis, University of Maine

#### **10:57 am: Performance of NO<sub>x</sub> Sequestered Demolished Concrete (NSDC) in Mitigating Corrosion of Steel in New Concrete**

Erandi Ariyachandra, Clarkson University; Sulapha Peethamparan, Clarkson University; Shrish Patel, Stony Brook University; and Alexander Orlov, Stony Brook University

#### **11:06 am: Understanding ASR Deterioration in Concrete Pavements with Anisotropic Restraint**

Richard Deschenes, Youngstown State University; and Romit Thapa, Youngstown State University

#### **11:15 am: Use of Agglomerated Geopolymer Pellets as a Partial Replacement for Aggregate to Mitigate Alkali-Silica Reaction-Related Damages**

Omar Amer, Clemson University; and Prasad Rangaraju, Clemson University

#### **11:24 am: Modeling Damage Accumulation of Fiber-Reinforced Concrete Using Repeated Impact Testing**

Ryan Langford, Utah State University; Andrew Sorensen, Utah State University; Robert Thomas, Clarkson University; and Md Abdullah Al Sarfin, Utah State University

#### **11:33 am: Non-Rigid Formwork Systems with Optimized Concrete Mixtures**

Cole Ayers, Southern Polytechnic State University; Giovanni Loreto, Kennesaw State University; and Arash Soleimani, Kennesaw State University

#### **11:42 am: Impact Performance of Thermoplastic Composite Reinforced Ultra-High-Performance Concrete**

Reagan Smith Gillis, University of Maine; Eric Landis, University of Maine; and Todd S. Rushing, U.S. Army Engineer Research and Development Center

#### **11:51 am: Numerical Simulation of Fastening of Non-Structural Components to Concrete Slabs**

Salvio Aragao Almeida Junior, University of Toledo; and Serhan Guner, University of Toledo

## 11:00 am – 12:00 pm

### **MINI SESSION: Computational Modeling of Concrete Materials and Structures: Calibration, Validation, and State of the Practice—Tropical H**

Sponsored by Joint ACI-ASCE Committee 447

Moderated by Mohammed Alnaggar, Rensselaer Polytechnic Institute

This mini session aims at creating a forum for researchers and practitioners to discuss the calibration and validation of computational models for concrete materials and structures, including: (a) the latest research findings; and (b) case studies on practical applications.

#### **11:00 am: Predicting the Shear Response of a 4000 mm Deep Section**

Evan Bentz, University of Toronto; and Michael Collins, University of Toronto

#### **11:15 am: Adhesive Anchor Systems under Sustained Loads**

Roman Wan-Wendner, BOKU Vienna

#### **11:30 am: Computational Simulation of RC Structures under Earthquake Loads: State-of-the-Art and Modeling Guidelines**

Mohammadreza Moharrami, Simpson Gumpertz & Heger; Sadik Can Girgin, Dokuz Eylul University; Chenxi Xing, Virginia Polytechnic Institute and State University; Ioannis Koutromanos, Virginia Polytechnic Institute and State University; Roberto Leon, Virginia Polytechnic Institute and State University; and Jeremy Bowers, Simpson Gumpertz & Heger

#### **11:45 am: Global Safety Formats and Model Uncertainties in Computational Modeling of Concrete Structures**

Jan Cervenka, Cervenka Consulting S.r.o.; and Vladimir Cervenka, Cervenka Consulting S.r.o.

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# Sessions & Events

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## Monday, October 15, 2018

### 11:00 am – 1:00 pm

#### **Materials Science of Aggregates and Their Role in Concrete Performance—Amazon S-T**

Sponsored by ACI Committees 221 and 236

Moderated by Jason Ideker, Oregon State University; and David Rothstein, Twining Concrete Insight

This session will cover recent advances in using materials science of aggregates to improve concrete quality and performance. Although often overlooked, aggregates constitute the bulk of concrete by mass and volume and their properties are central to understanding concrete properties and performance. Topics will include improving concrete with internal curing, issues surrounding the use of recycled concrete aggregates, how aggregate properties are critical for self-consolidating concrete, and the mechanisms of deleterious aggregate reactions such as pyrrhotite attack. This session will be of interest to aggregate and concrete suppliers, engineers, students and researchers, and consultants engaged in testing and investigating concrete.

#### **11:00 am: Aggregates: The Hole Story: Examining Porosity, Absorption and Desorption Rate, and Its Implications on Performance**

William Weiss, Oregon State University

#### **11:20 am: Proportioning Aggregates for Concrete with (and without) Materials Science**

Eric Koehler, Titan America; and Soo-Duck Hwang, Missouri S&T

#### **11:40 am: Mechanical and Durability Properties of Pavement Concretes Made with Recycled Concrete Aggregates**

Jan Olek, Purdue University; Nancy Whiting, Transportation Research Board; and Kho Verian, Solidia Technologies

#### **12:00 pm: Use of Reclaimed Asphalt Pavement (RAP) to Make Portland Cement Concrete (PCC) for Pavement Applications**

Anol Mukhopadhyay, Texas A&M Transportation Institute

#### **12:20 pm: Impact of Aggregates on the Hydration Process and Microstructure of Calcium Aluminate Cement Concrete**

Matthew Adams, New Jersey Institute of Technology

#### **12:40 pm: Recent Developments in Research and Specifications for Sulfide-Bearing Aggregates Used in Concrete Construction**

Benoit Fournier, Laval University; Josee Duchesne, Université Laval; Medhat Shehata, Ryerson University; and Patrice Rivard, University of Sherbrooke



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### 11:00 am – 1:00 pm

#### **Research in Progress, Part 2 of 2—Amazon I-J**

Sponsored by ACI Committee 123

Moderated by Matthew O'Reilly, University of Kansas

The session description for this session may be found in the Part 1 listing; refer to page 31.

#### **11:00 am: Assessing the Reliability of Alternative Accelerated Laboratory Tests to Evaluate Alkali-Silica Reaction**

Krishna Siva Teja Chopperla, Oregon State University; Jussara Tanesi, SES Group Associates; Kevin Folliard, University of Texas at Austin; Jason Ideker, Oregon State University; Thanoo Drimalas, University of Texas at Austin; and Ahmad Ardani, FHWA Transportation

#### **11:15 am: Hydration Kinetics of Alkali-Activated Slag and Fly Ash Systems at a High Solution to Binder Ratio**

Chathurani Chandrasiri, Clarkson University; and Sulapha Peethamparan, Clarkson University

#### **11:30 am: Role of Stress State in Time-Dependent Deformation Characteristics for Cementitious Materials**

Subodh Mhamankar, Kansas State University

#### **11:45 am: Strategies for Delaying Calcium Sulfoaluminate (CSA) Cement Concrete Setting Time**

Cansu Acarturk, The Ohio State University; and Lisa Burris, The Ohio State University

#### **12:00 pm: Long-Term Durability Investigation of Cold Weather Concrete**

Danielle Kennedy, U.S. Army Corps of Engineers

#### **12:15 pm: Effectiveness of Ultra-High-Performance Concrete Coating on the Resistance of Steel Reinforcement to Corrosion**

Haitham Hussein, Clemson University; Amir Poursaeed, Clemson University; and Prasad Rangaraju, Clemson University

#### **12:30 pm: Pozzolanic Properties of Woody Bio Ash**

Warda Ashraf, University of Maine; and Naveen Saladi, University of Maine

#### **12:45 pm: Development and Utilization of Silica-Cellulose Nanocomposites for Portland Cement Systems**

Kavyashirisha Kamasamudram, University of Maine; and Eric Landis, University of Maine



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# Sessions & Events

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## 11:00 am – 1:00 pm

### **The Role of Materials in Sustainable Concrete Construction, Part 1 of 2—Amazon Q-R**

Sponsored by ACI Committees 130, 201, and 212  
Moderated by Kimberly Kramer, Kansas State University

ACI 130's *Sustainability of Concrete Materials* book will have been approved and published by the time of the Las Vegas convention. Therefore, this session will introduce the ACI community to this new publication.

#### **11:00 am: Sustainability of Concrete is All Wet**

Mark Chrzanowski, Jacobs

#### **11:24 am: Carbon Footprint of Synthetic Fiber-Reinforced Concrete Floors**

Michael Mahoney, Euclid Chemical

#### **11:48 am: Recycled Concrete Aggregates: Improving the Sustainability of Our Highway Infrastructure**

Tara Cavalline, University of North Carolina at Charlotte

#### **12:12 pm: The Impact of Chemical Admixtures on Concrete Sustainability**

James Aldred, Concrete Future Pty Ltd.

#### **12:35 pm: Mixture Proportioning and Optimized Aggregate Gradations**

Peter Taylor, CP Tech Center



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## 11:30 am – 12:30 pm

### **MINI SESSION: Seismic Behavior of Reinforced Concrete Columns Constructed Using High-Strength and Ultra-High-Performance Materials, Part 2 of 2—Tropical C**

Sponsored by ACI Committee 341 and Joint ACI-ASCE Committee 441

Moderated by Mohamed El-Gawady, Missouri S&T

The session description for this session may be found in the Part 1 listing; refer to page 24.

#### **11:30 am: Accelerated Bridge Construction in Seismic Regions Using High-Performance Materials**

Bora Gencturk, University of Southern California; and F. Hosseini, University of Southern California

#### **11:45 am: Applications of Titanium Alloy Bars in Civil Infrastructure**

Mustafa Mashal, Idaho State University; and Hamed Kouhestani, Idaho State University

#### **12:00 pm: Design Guideline for SMA-Reinforced ECC Bridge Columns**

Mostafa Tazarv, South Dakota State University; and M. Saiid Saiidi, University of Nevada, Reno

#### **12:15 pm: Seismic Performance of Steel-Reinforced Concrete Composite Columns in Existing Buildings**

Wael Hassan, American University in Cairo; and Mayer Farag, American University in Cairo



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## 11:30 am – 1:30 pm

### **✓ Student Lunch—Brasilia 2 & 6**

\$63 U.S. per person

#### **Topic: Accelerating Your Career—Overcoming the Early Roadblocks to Success**

Sponsored by Baker Concrete Construction Company, Inc.



Coordinated by: The Las Vegas Chapter ACI Convention Committee  
Speaker: Chip Espinoza, PhD

Join students and other ACI attendees for the Student Lunch with featured speaker Dr. Chip Espinoza. Espinoza's keynote speech is based on international research he conducted with young professionals with less than 4 years of experience. He asked, "What is the biggest challenge you faced transitioning in your career?" He will be sharing his findings published in his book *Millennials@Work: 7 Skills Every Twenty-Something Needs to Overcome Roadblocks and Achieve Greatness at Work*. Attendees will learn practical strategies for overcoming potential career roadblocks and acquire a better understanding of why many young professionals experience culture shock when they enter the workforce. Your first manager may not be the one you want but you can help her or him become the one you need. All are welcome to register for the lunch. Following the lecture, the results of the student competition will be announced.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability. Please notify the ACI Registration Desk if you have any dietary restrictions.

# Sessions & Events

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## Monday, October 15, 2018

### 1:00 pm – 2:00 pm

#### **MINI SESSION: New Developments in Energy Code Compliance for Concrete and Masonry Structures—Lambada C**

Sponsored by ACI Committee 122

Moderated by Jeffrey Speck, Trinity Lightweight; and Hongyan Ma, Missouri S&T

Energy Code requirements are revised and implemented at regular intervals, requiring the concrete industry to not only stay abreast of new Code requirements and compliance procedures but also to develop new technologies to improve the energy performance of concrete buildings. This session presents three papers addressing both code compliance and new technologies. ASHRAE 90.1-2016, “Energy Standard for Buildings Except Low-Rise Residential Buildings,” has increased verification and documentation requirements for minimizing air leakage through buildings. Essentially, two compliance paths exist. In the first, whole buildings can comply by meeting testing requirements. In the second, individual components can pass by meeting certain testing requirements or being constructed of concrete or other materials that limit air leakage. However, using the second method, the building must have: 1) a design review; and 2) periodic inspection of the air barrier components during construction while they are still accessible for inspection and repair to verify compliance. Using either compliance path, documentation and reporting is required. The code requirements, their implications for concrete buildings, and compliance paths available will be discussed in detail. Phase-change materials (PCMs) have been widely proposed to enhance building energy efficiency as they can regulate the indoor temperature when used in building envelopes. To be incorporated in concrete or masonry, PCMs must be encapsulated or stabilized in lightweight porous inclusions. This mini session intends to address several methods of adding phase-change materials, such as using graphene-, cenosphere-, and general lightweight aggregate. The mechanisms of PCM stabilization in different inclusions will be introduced, and the interactions between PCMs carrying inclusions and concrete/block matrix will be illustrated. Strategies of adding PCMs without reducing the strength of construction materials will be discussed. The overall thermal properties and energy efficiency of PCM-incorporated concrete will also be demonstrated.

#### **1:00 pm: ASHRAE 90.1 and IECC Minimum Air Leakage Requirements: Implications for Concrete Buildings**

Martha VanGeem, VanGeem Consulting

#### **1:30 pm: Development of Energy-Efficient Concrete Materials through Innovative Encapsulation Strategies for Phase Change Materials**

Behrouz Shafei, Iowa State University; and Meysam Najimi, Iowa State University

#### **1:45 pm: Bio-Inspired Functionalization of Microencapsulated Cenosphere Impregnated with Phase Change Materials Having Capability to Interact in Cement Mortar**

Jialai Wang, The University of Alabama; and Sudipta Halder, National Institute of Technology, Silchar



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### 1:00 pm – 2:00 pm

#### **MINI SESSION: Recovered Fly Ash for Use in Concrete—Jaguar A-B**

Sponsored by ACI Committee 232

Moderated by Lawrence Sutter, Michigan Technological University

The objective is to provide information on the recovery of fly ash from landfills or impoundments and discuss how that ash is processed for use in concrete.

#### **1:00 pm: Extending the Supply of Supplementary Cementitious Materials with Recovered Fly Ash**

Ivan Diaz-Loya, Boral Resources

#### **1:15 pm: Landfilled Fly Ash Reclamation and Beneficiation Using Triboelectrostatic Separation**

Eric Koehler, Titan America

#### **1:30 pm: Reclaimed Fly Ash: Have No Fear**

Tilghman Keiper, The SEFA Group

#### **1:45 pm: Protocol for Sampling and Evaluation of Landfilled Fly Ash for Use as Concrete Pozzolan**

Farshad Rajabipour, Penn State University



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### 1:30 pm – 3:30 pm

#### **Computational Modeling of Concrete Materials and Structures: Calibration, Validation, and State of the Practice—Amazon I-J**

Sponsored by Joint ACI-ASCE Committees 446 and 447

Moderated by Fabio Matta, University of South Carolina; and Mohammed Alnaggar, Rensselaer Polytechnic Institute

This session aims at creating a forum for researchers and practitioners with a shared interest in the calibration, validation, and practical application of computational models for concrete materials and structures. To this end, the session blends contributions on the latest research developments with practice-oriented case studies. Research-oriented presentations are expected to report on advances in the state of the art and offer a perspective on practical implications. Practice-oriented presentations are expected to report on significant case studies.

#### **1:30 pm: Numerical Modeling of Anchor Breakout Capacity in Concrete Podium Slab**

Frank Ding, Simpson Strong Tie Co

#### **1:50 pm: Calibration and Validation of Three-Dimensional Nonlinear Finite Element Models for Thin Reinforced Concrete Walls Subjected to Cyclic Lateral Loading**

Carlos Blandon, Antioquia School of Engineering

#### **2:10 pm: Numerical Modeling of Concrete Building Pounding during Seismic Events—A Case Study**

Asad Bassam, SC Solutions

#### **2:30 pm: Strut-and-tie Method for Modeling Concrete Floor Diaphragms**

Liling Cao, Thornton Tomasetti

#### **2:50 pm: Experimental Study and Numerical Simulation of Three-Edge Bearing Test of Large-Diameter Prestressed Concrete Cylinder Pipes**

Mehdi Zarghamee, Simpson Gumpertz Heger Inc.

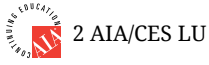


# Sessions & Events

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**3:10 pm: Comparative Study of Concrete Modeling in Nonlinear Finite Element Analysis: A Practical Perspective**  
Kai Zhang, Westinghouse Electric Co.



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## 1:30 pm – 3:30 pm

### **Laser Scanning for Tolerances—Amazon S-T**

Sponsored by ACI Construction Liaison Committee and Joint ACI-ASCC Committee 117

Moderated by Bruce Suprenant, American Society of Concrete Contractors

This session will present the current state-of-the-art on laser scanning for tolerances that include the processing necessary to take point cloud data and synthesize it into an understandable report that can be used to determine tolerance compliance.

Design professionals, construction managers, concrete contractors, and others that are interested in using laser scanning should attend.

#### **1:30 pm: Laser Scanning for Concrete Tolerances**

Philip Lorenzo, Rithm

#### **2:00 pm: Using USIBD to Specify Laser Scanning Services**

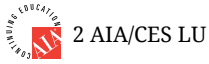
John Russo, Architectural Resource Consultants

#### **2:30 pm: Lessons Learned from Processing Laser Scanning**

William Paul, BKF Engineers, Inc.

#### **3:00 pm: ACI-ASCC 117 Future Document on Laser Scanning**

Eric Peterson, Webcor Builders



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PDH Codes: \_\_\_\_\_

## 1:30 pm – 3:30 pm

### **The Role of Materials in Sustainable Concrete Construction, Part 2 of 2—Amazon Q-R**

Sponsored by ACI Committees 130, 201, and 212

Moderated by Kimberly Kramer, Kansas State University

The session description for this session may be found in the Part 1 listing; refer to page 35.

#### **1:30 pm: Portland Cement: It Is Not the Devil You Think It Is**

Laurent Barcelo, LafargeHolcim

#### **1:54 pm: Quantifying the Effects of Mitigation Strategies in Reducing the Environmental Impacts of Concrete**

Sabbie Miller, University of California, Davis

#### **2:18 pm: Natural Pozzolans as Sustainable Supplementary Cementitious Materials**

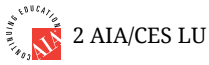
Maria Juenger, University of Texas at Austin

#### **2:42 pm: Reducing Clinker Content and Carbon Footprint of Concrete Using SCMs, Limestone, and Optimized Aggregate Gradations**

R. Doug Hooton, University of Toronto

#### **3:06 pm: Achieving Sustainability by Use of Alternative Cements**

Lawrence Sutter, Michigan Technological University



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PDH Codes: \_\_\_\_\_

## 2:00 pm – 3:00 pm

### **MINI SESSION: The Dennis Mertz Symposium on Design and Evaluation of Concrete Bridges, Part 4 of 4—Amazon O**

Sponsored by ACI Committees 342 and 348, and Joint ACI-ASCE Committee 343

Moderated by Hani Nassif, Rutgers University; and Andrzej Nowak, Auburn University

The session description for this session may be found in the Part 1 listing; refer to page 25.

#### **2:00 pm: Spatial Variation of Concrete Strength in Safety Evaluation of Existing Concrete Structure**

Ming Liu, NAVFAC – EXWC

#### **2:20 pm: WIM-Based Fatigue Load Spectra for Bridges**

Olga Iatsko, Auburn University; Anjan Babu, Auburn University; and Andrzej Nowak, Auburn University

#### **2:40 pm: Evaluating the Redundancy of Bridge Substructures**

Jian Yang, STV Architecture & Planning; and Michel Ghosn, The City College of New York



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## 4:00 pm – 6:00 pm

### **New Developments in BIM for Cast-in-Place Concrete—Amazon S-T**

Sponsored by ACI Committee 131

Moderated by David Grundler, Applied Systems Associates Inc.; and Peter Carrato, Ellis Global Group

The objective of this session is to inform ACI members of the progress being made by ACI Committee 131 on Building Information Modeling (BIM). The session will primarily focus on new developments within ACI 131 and the industry at large, including the recently published ACI 131.2R, which covers an IFC-based data exchange protocol for reinforcement in cast-in-place concrete. The session will also include presentations from a few early adopters discussing the benefits and drawbacks of this “new” technology and their vision of the future as well as ongoing work in ACI Committee 131 for the next exchanges intended to cover other major components in the reinforced concrete supply chain.

#### **4:00 pm: Introduction to ACI 131 and BIM**

Christopher Brown, Skidmore Owings & Merrill LLP

#### **4:20 pm: What Does 131.2R-17 Mean to Software Vendors?**

Allan Bommer, Bentley Systems Inc; Barry Butler, SDS/2

#### **4:45 pm: Evolving Reinforcing Bar Workflows**

Dennis Fontenot, Commercial Metals Company

#### **5:10 pm: Application of BIM and Technology in Concrete Field Operations**

Michael Hernandez, Parsons

#### **5:35 pm: What's Next for 131 and BIM?**

Christopher Brown, Skidmore Owings & Merrill LLP; Daniel D. Berend, Belfast DC; and Dinesh Reddy Allam, Sundt Construction



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PDH Codes: \_\_\_\_\_

# Sessions & Events

For detailed program information and program changes, download the Convention App.

✓ = Separate fee required ★ = Guest-only event

## Monday, October 15, 2018

### 4:00 pm – 6:00 pm

#### **SCC and Mass Concrete Quality Control and Construction Challenges—Amazon I-J**

Sponsored by ACI Committees 207, 231, and 237  
Moderated by Lloyd Keller, EllisDon Corporation; and Eric Peterson, Webcor Builders

This session is intended for all users of SCC and mass concrete including academics, students, concrete producers, contractors, and materials suppliers. It will describe methods and materials used to control properties of the plastic and hardened concrete such that SCC can effectively be used as a material in our evolving construction markets throughout North and South America.

#### **4:00 pm: Ensuring Field Performance of Self-Consolidating Concrete Through the Use of Chemical Admixtures**

Joseph Daczko, BASF Corporation

#### **4:15 pm: Shrinkage Control Admixtures in Conventional and Self-Consolidating Concrete—Performance and Some Paradoxes**

German Hermida, Cemex

#### **4:30 pm: SCC Quality Control from a Canadian Ready Mix Producer's Perspective**

Bryan Schulz, St Marys Cement Inc.

#### **4:45 pm: Low-Heat SCC Mat Foundations in Chicago—Performance and Placing Challenges**

John Gibbons, Portland Cement Association

#### **5:00 pm: Controlling the Rheological Properties of SCC in Forms Not Designed for Full Liquid Head**

Lloyd Keller, EllisDon Corporations

#### **5:15 pm: Mass Concrete Mixture Designs and Quality Control for Congested Mat Foundations in California**

Eric Petersen, Webcor Builders

#### **5:30 pm: It Has to be Flowable, Not Segregate, and Low Temperature Rise, Too?!?**

John Gajda, MJ2 Consulting, PLLC

#### **5:45 pm: When Rocky Met Sandy: A Robust and Flowable Story**

Oscar Antommattei, Kiewit Engineering Group



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PDH Codes: \_\_\_\_\_

### 4:00 pm – 6:00 pm

#### **Specifications and ACI 211 Proportioning Concrete Mixtures, Part 1 of 2—Amazon Q-R**

Sponsored by ACI Committee 211  
Moderated by Frank Kozeliski, Kozeliski Consulting LLC; and Allyn Luke, Rutgers University

The objective of these sessions is to provide information on how to use ACI 211 mixture proportioning guidelines to meet project specifications. Case studies will be presented to demonstrate how challenging performance requirements can be achieved with innovative mixture proportioning techniques that include optimizing aggregate gradation, using supplementary cementitious materials in ternary mixtures, and using recycled aggregates. In addition, the following topics will be discussed: 1) limitations caused by specifying cement content and supple-

mentary cementitious material replacement level on concrete performance; 2) prescriptive versus performance-based specifications; 3) impact of optimizing aggregate gradation and improved particle packing on performance; and 4) impact of mixture proportioning parameters on the fluid transport and durability.

#### **4:00 pm: The 411 on 211: How 211 is Used in Practice**

G. Terry Harris, GCP Applied Technologies

#### **4:24 pm: The Role of Minimum Cement Contents in Concrete Specifications and Mixture Proportioning**

Karthik Obla, NRMCA

#### **4:48 pm: Use of Four Aggregates in Mixture Design**

Frank Kozeliski, Kozeliski Consulting LLC

#### **5:12 pm: Proposed Mixture Proportioning Method for Concrete Made with Coarse Recycled Concrete Aggregate (RCA)**

Gholamreza Fathifazl, Carleton University, The Department of Civil and Environmental Engineering

#### **5:36 pm: Unwritten Laws and Principles of Concrete Mixture Design**

Marllon Cook, Oklahoma State University



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PDH Codes: \_\_\_\_\_

### 5:00 pm – 6:00 pm

#### **MINI SESSION: Concrete with Recycled Materials—Tropical G**

Sponsored by ACI Committee 555  
Moderated by Mohamed Mahgoub, New Jersey Institute of Technology

Using recycled concrete in construction reduces energy use in the CO<sub>2</sub> emissions from calcination and minimizes the total environmental impact during the structure's entire life cycle.

#### **5:00 pm: Use of RAP to Make PCC for Pavement Application**

Anol Mukhopadhyay, Texas A&M Transportation Institute

#### **5:15 pm: Integrated C&D Waste Management to Increase the Amount of Reused C&D**

Pedro Quiroga, Escuela Colombiana de Ingeniería

#### **5:30 pm: Performance Evaluation of Steel Fiber-Reinforced Rubberized Concrete**

Qingli Dai, Michigan Technological University

#### **5:45 pm: Effect of Evaluated Temperatures on the Bond Behavior between Concrete Made with RCA and Steel Reinforcement**

Salah Sarhat, Queen's University; Hamzeh Hajiloo, Queen's University; and Mark Green, Queen's University



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PDH Codes: \_\_\_\_\_

### 5:30 pm – 6:30 pm

#### **Women in ACI Reception—Amazon D-F**

All registered convention attendees are invited to attend the Women in ACI Reception. This longstanding ACI tradition is a great opportunity to get to know other women in the concrete industry. All are welcome at this reception! A cash bar and light hors d'oeuvres will be served.



# Sessions & Events

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## 5:30 pm – 10:30 pm

### ✓ **Excellence in Concrete Construction Awards and Gala—Brasilia 2 & 6**

\$95 U.S. per person

Doors open: 5:30 pm

Dinner and Awards Presentation: 6:30 pm – 8:30 pm

Dessert Reception: 8:30 pm – 10:30 pm

The ACI Excellence in Concrete Construction Awards will showcase and honor some of the most creative projects the concrete world has to offer. Over 81 concrete projects from around the world were nominated by ACI Chapters and International Partners. Entries were judged by an independent panel of industry professionals representing diverse backgrounds, with technical expertise in six award categories. First- and second-place awards will be given in each category, in addition to an overall “Excellence” award to be revealed the evening of the Gala. Following the Awards Dinner, celebrate the accomplishments of those recognized at the dessert reception. A cash bar will be available.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability. Please notify the ACI Registration Desk if you have any dietary restrictions.

## 6:30 pm – 8:30 pm

### **123 Forum: Life after Fly Ash: What Is The Alternative?—Amazon Q-R**

Sponsored by ACI Committee 123

Moderated by Jacob Henschen, Valparaiso University; and Jan Vosahlik, CTLGroup

According to the American Coal Ash Association, the production of fly ash has declined with the closure of several coal power plants due to environmental regulation and competition from other fuel sources. Over the same period, the utilization of fly ash has steadily increased. With advances in renewable energy technologies and the concrete industries pushing for higher fly ash usage, these trends are expected to continue. Even today, concrete end users are being required to seek alternative sources of fly ash because of shortages. Researchers have already begun looking for viable fly ash replacements. This forum will provide insight to ongoing activities of alternatives to fly ash.

The forum will focus on the following themes:

- How can positive aspects of fly ash such as reduced heat of hydration, increased durability, etc. be provided through other means?
- Can other current supplementary cementitious materials provide similar performance and economics?
- What other materials should be considered when seeking a fly ash replacement?
- Should non-portland-cement binders be prioritized over alternative pozzolans?

A panel of experts from various backgrounds will discuss these questions and more to provide the audience information regarding the latest developments of concrete research. The forum will start with short presentation by each of the panelists. The presentations will be followed by an interactive discussion with the audience.

### **6:30 pm: ACI 123 Concrete Research Poster Session - Outstanding Poster Award Announcement**

Robert Thomas, Clarkson University

### **6:35 pm: Introduction of Panelists and Forum Topic**

Jan Vosahlik, CTLGroup; and Jacob Henschen, Valparaiso University

### **6:40 pm: Why is it Difficult to Imagine Modern Concrete Mixtures without Fly Ash?**

Lawrence Sutter, Michigan Technological University

### **6:55 pm: Beyond Fly Ash: New Chemical Routes for Alkali-Activated Cements and Synthetic SCMs**

Wil Srubar, University of Colorado Boulder

### **7:10 pm: Alternative Binder Compositions: Evolution or Revolution?**

Kimberly Kurtis, Georgia Institute of Technology

### **7:25 pm: Is Rice Nice — for Concrete?**

Feraidon Ataie, California State University Chico

### **7:40 pm: Natural Pozzolans/Off-Spec Ashes**

Farshad Rajabipour, The Pennsylvania State University

### **7:55 pm: Audience Questions and Panel Discussion**

Jacob Henschen, Valparaiso University; Jan Vosahlik, CTLGroup; Larry Sutter, Michigan Technological University; Wil Srubar, University of Colorado Boulder; Kimberly Kurtis, Georgia Institute of Technology; Feraidon Ataie, California State University Chico; and Farshad Rajabipour, The Pennsylvania State University



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## Tuesday, October 16, 2018

## 8:00 am – 9:00 am

### **MINI SESSION: Microbially Induced Corrosion of Concrete—Brasilia 1 & 4**

Sponsored by the ACI Committee 201

Moderated by James Aldred, Concrete Future Ply Ltd.

Microbiologically induced or influenced corrosion (MIC) of concrete is the deterioration as a result of complex chemical and microbiological processes as a result of putrefaction of organic matter. This deterioration is common in concrete sewer pipes and tunnels as well as septic tanks and municipal waste facilities. It has also been observed in concrete elements within estuarine environments. The mini session will include presentations on field observations of concrete exposed to MIC, concrete performance exposed accelerated exposure testing regimes, and possible methods to improve concrete's resistance to MIC.

### **8:00 am: Rehabilitation of Waste Water Treatment Structures Affected by MIC**

Meghdad Hoseini, WSP Canada Inc.

### **8:15 am: Test Procedures to Assess the Resistance of Concrete to MIC**

W. Jason Weiss, Oregon State University; and O. Burkan Isgor, Oregon State University

### **8:30 am: The Performance of Mitigation Measures for MIC**

Samuel Lines, Concrete Sealants Inc

### **8:45 am: Microbially Induced Corrosion of Concrete—An International Perspective**

James Aldred, Concrete Future Ply Ltd.



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# Sessions & Events

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## Tuesday, October 16, 2018

### 8:30 am – 9:30 am

#### **MINI SESSION: Advancing the Cellular Structure for Concrete—Conga C**

Sponsored by ACI Committee 523

Moderated by Milton Gomez, Aerix Industries

The presentation will provide an overview of modern technologies and applications related to low-density cellular concrete, recognizing ongoing research focusing on novel technologies related to the design of low-density cellular concrete and its application. It will focus on learning about green technologies based on the utilization of industrial byproducts while also learning merging applications. The presentation will report on the activation technology for fly ash to improve strength and the utilization of cement-based materials while studying energy absorption properties.

#### **8:30 am: The Activation of Fly Ash for Improved Performance**

Konstantin Sobolev, University of Wisconsin–Milwaukee

#### **8:50 am: Case Studies of Novel Uses for Cellular Concrete**

Trevor Towery, Elastizell Corporation of America

#### **9:10 am: Crushing Behavior and Energy Consumption of Foamed Concrete during Impacts**

Yu Song, University of Illinois; and David Lange, University of Illinois



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### 8:30 am – 10:30 am

#### **Contractors' Day Session: Build, Implode, Repeat!—A History of Construction, Demolition, and Redevelopment in Las Vegas—Amazon I-J**

Sponsored by Las Vegas Chapter – ACI

Moderated by Chris Welly, Construction Testing Services

This session will provide an overview of growth patterns and development of the Las Vegas Valley. The timeline will start at prehistoric times and then briefly cover early settlement, the Hoover Dam years, World War II, Old Vegas, and the Atomic Era. Particular attention will be given to discussing the more recent explosive growth and redevelopment of the area with an emphasis on construction and demolition of unique major facilities. We will explore how Las Vegas has positioned itself as a leader in the redevelopment arena. Join us for an insightful and lively review of how this piece of the west was won!

#### **History of Building in Las Vegas**

Werner Hellmer, Clark County Department of Building and Fire Prevention

#### **Demolition of Las Vegas Structures**

Joseph Farre, Sigma Engineering



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PREFERRED EDUCATION PROVIDER

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### 8:30 am – 10:30 am

#### **Repair Application Procedures and Case Studies, Part 1 of 2—Amazon S-T**

Sponsored by ACI Committee E706

Moderated by J. Christopher Ball, Vector Corrosion Services; and Aamer Syed, Sika Corporation

In commemoration of the committee's 20-year anniversary, ACI Committee E706, Concrete Repair Education, requests to sponsor educational sessions covering Concrete Repair Application Procedures (RAP) documents and associated case studies. Anyone interested in concrete repair techniques and case studies would benefit from this session.

#### **8:30 am: RAP 1—Structural Crack Repair by Epoxy Injection**

Aamer Syed, Sika Corporation

#### **8:47 am: RAP 2—Crack Repair by Gravity Feed with Resin**

Aamer Syed, Sika Corporation

#### **9:04 am: RAP 3—Spall Repair by Low-Velocity Spraying**

Fred Goodwin, BASF Construction Chemicals

#### **9:21 am: RAP 4—Surface Repair Using Form-and-Pour Techniques**

Peter Emmons, STRUCTURAL

#### **9:38 am: RAP 5—Surface Repair Using Form-and-Pump Techniques**

Peter Emmons, STRUCTURAL

#### **9:55 am: RAP 6—Vertical and Overhead Spall Repair by Hand Application**

J. Christopher Ball, Vector Corrosion Services

#### **10:12 am: RAP 7—Spall Repair of Horizontal Surfaces**

Peter Emmons, STRUCTURAL



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### 8:30 am – 10:30 am

#### **Specifications and ACI 211 Proportioning Concrete Mixtures, Part 2 of 2—Amazon Q-R**

Sponsored by ACI Committee 211

Moderated by Frank Kozeliski, Kozeliski Consulting LLC; and Allyn Luke, Rutgers University

The session description for this session may be found in the Part 1 listing; refer to page 38.

#### **8:30 am: Influence of Cement Content on Durability—Myth versus Reality**

Emilio Garcia-Taengua, Technical University of Valencia

#### **8:54 am: What Aggregate Characteristics Are Not Specified But Really Affect Concrete Performance?**

Jussara Tanesi, SES Group Associates, LLC; Dale Bentz, National Institute of Standards and Technology; Ahmad Ardani, FHWA Transportation; and Mengesha Beyene, SES Group and Association, LLC

#### **9:18 am: Performance-Based Mixture Proportioning**

Ezgi Yurdakul, GCP Applied Technologies; and Peter Taylor, CP Tech Center

# Sessions & Events

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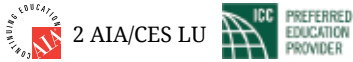
✓ = Separate fee required ★ = Guest-only event

## 9:42 am: Using the Tarantula Curve to Proportion Concrete Mixtures

Tyler Ley, Oklahoma State University; and Riyadh Alturki, Oklahoma State University

## 10:06 am: Five Ways Concrete Suppliers and Specifiers Can Collaborate for Better Concrete

Eric Koehler, Titan America



PDH Codes: \_\_\_\_\_

## 11:00 am – 1:00 pm

### *Analytical Techniques Bringing the Nanoscale to the Bigger World—Amazon Q-R*

Sponsored by ACI Committees 236 and 241

Moderated by Peter Stynoski, U.S. Army ERDCCERL; and Sean Monkman, CarbonCure Technologies

This session will describe analytical techniques which enhance our understanding of cement and concrete at the nanoscale. Demonstrating the methods and substantiating the value of characterizing concrete at the smallest scales will improve awareness and enable transfer of nanotechnologies into industry practice. Each presentation will serve the concerns of both scientific and practical audiences while demonstrating the application of a specific analytical method to examine the promising macroscale effects of applied nanomaterials and nanoscale characteristics.

### 11:00 am: Optical Properties and Photocatalytic Cement Performance Using UV-Vis Spectroscopy

Aniruddha Baral, University of Illinois; and Jeffery Roesler, University of Illinois

### 11:20 am: Nanoscale Investigation of the Interaction between Calcium-Silicate-Hydrate/Polymer Synthesized Using the Layer-by-Layer Method

Mahsa Kamali, University of Miami; and Ali Ghahremaninezhad, University of Miami

### 11:40 am: Application of Quantitative Nanomechanical Mapping on the Interfacial Transition Zone of Carbon Nanotube-Reinforced Cementitious Materials

Raul Marrero, Northwestern University; Yuan Gao, Northwestern University; Xingyi Zhu, Tongji University; David Corr, Northwestern University; and Surendra Shah, Northwestern University

### 12:00 pm: Ion Concentration Profiling of Alkali-Activated Fly Ash Using Atom Probe Tomography

Atolo Tuinukuafe, University of Alabama; Tyler Kaub, University of Alabama; Armen Amirkhonian, University of Alabama; Paul Allison, University of Alabama; Gregory Thompson, University of Alabama; and Charles Weiss, Jr. U.S. Army ERDC-GSL

### 12:20 pm: 3-D Imaging of the Structure and Chemistry of Hydration

Tyler Ley, Oklahoma State University; Qinang Hu, Oklahoma State University; Masoud Moradian, Oklahoma State University; and Xiaodan Li, Oklahoma State University

## 12:40 pm: Synergistic Application of Nano-Mechanical Characterization and Synchrotron Imaging for Effective Property Prediction of Cement-Based Materials

Sumanta Das, University of Rhode Island; Nikhilesh Chawla, Arizona State University; and Narayanan Neithalath, Arizona State University



PDH Codes: \_\_\_\_\_

## 11:00 am – 1:00 pm

### *Constructability: From Definition to Industry Practice—Amazon I-J*

Sponsored by ACI Committees 124 and CLC

Moderated by Oscar Antommattei, Kiewit Engineering Group

This session presents constructability review perspectives from the different parties: design professionals, construction managers, concrete contractors, and ready mix producers. All industry professionals should attend to learn how each party views their responsibility for a constructability review and how that interacts with the other parties' constructability review.

### 11:00 am: An Introduction and Overview to ACI 134 Constructability Committee

Jim Cornell, JN Cornell Associates LLC

### 11:20 am: What is Constructability?

John Hausfeld, Baker Concrete Construction Inc.

### 11:40 am: Use of Heavy Equipment on Existing Bridges during Construction

Kyle Eyre, Kiewit

### 12:00 pm: Constructability of Elevating Concrete Slabs on Grade

Anthony Lamanna, Arizona State University

### 12:20 pm: When Structural Concrete is Architectural Concrete

Kevin MacDonald, Beton Consulting Engineers LLC

### 12:40 pm: 403 N Wabash—Innovative Tower Crane Support Scheme for a Challenging Urban Site

Eamonn Connolly, James McHugh Construction Co.



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# Sessions & Events

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## Tuesday, October 16, 2018

### 11:00 am – 1:00 pm

#### **Repair Application Procedures and Case Studies, Part 2 of 2—Amazon S-T**

Sponsored by ACI Committee E706

Moderated by J. Christopher Ball, Vector Corrosion Services; and John Lund, Martin/Martin Consulting Engineers

The session description for this session may be found in the Part 1 listing; refer to page 40.

#### **11:00 am: RAP 8—Installation of Embedded Galvanic Anodes**

David Whitmore, Vector Corrosion Technologies, Inc.

#### **11:17 am: RAP 9—Spall Repair by Pre-Placed Aggregate Method**

John Lund, Martin/Martin Consulting Engineers

#### **11:34 am: RAP 10—Leveling—Re-profiling of Vertical and Overhead Surface**

H. Peter Golter, 3M

#### **11:51 am: RAP 11—Slab Jacking**

Fred Goodwin, BASF Construction Chemicals

#### **12:08 pm: RAP 12—Concrete Repair by Shotcrete Application**

Charles Hanskat, American Shotcrete Association

#### **12:25 pm: RAP 13—Methacrylate Flood Coat**

John Lund, Martin/Martin Consulting Engineers

#### **12:42 pm: RAP 14—Concrete Removal Using Hydro Demolition**

Tom McCann, Rampart Hydro Services



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PDH Codes: \_\_\_\_\_

### 11:30 am – 1:30 pm

#### **✓ Contractors' Day Lunch—Brasilia 2**

\$64 U.S. per person

Coordinated by Las Vegas Chapter ACI Convention Committee

Speaker: Paul Dudzinski

#### **Topic: The Las Vegas Stadium—The Newest Vegas Icon**

Join other ACI attendees and contractors for the Contractors' Day Lunch. Enjoy a special presentation by Paul Dudzinski, Mortenson-McCarthy Joint Venture, about the construction of the newest addition to the Las Vegas skyline, the Las Vegas Stadium—future home of the NFL Raiders franchise. Dudzinski will provide a project overview, share the architect's design inspiration, highlight one-of-a-kind design elements, and discuss unique aspects of building in the desert. He will also explain how virtual reality is being used in the project for everything from planning construction to the sale of the stadium suites.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability. Please notify the ACI Registration Desk if you have any dietary restrictions.

### 12:00 pm – 1:00 pm

#### **MINI SESSION: Recent Advances in Alternative Cements—Rio Pavilion 10**

Sponsored by ACI Committee 242

Moderated by Robert Thomas, Clarkson University

Researchers and industry professionals will present on recent advances in alternative (non-portland) cements and concretes. Topics will include: 1) chemical and mineralogical characterization of alternative cements; 2) mechanical properties and durability of concrete made with alternative cements; and 3) case studies and applications of concretes made with alternative cements.

#### **12:00 pm: Performance of Precast Prestressed Beams Cast with Calcium Sulfoaluminate-Belite Cement Concrete**

Cameron Murray, University of Arkansas; Royce Floyd, University of Oklahoma; and Chris Ramseyer, University of Oklahoma

#### **12:10 pm: There's More to the Alkali Than We Realize—Use of Atom Probe Tomography to Elucidate Alkali-Activation**

Atolo Tuinukuafe, University of Alabama; Tyler Kaub, University of Alabama; Charles Weiss, Jr., U.S. Army Corps of Engineers; Paul Allison, University of Alabama; Greg Thompson, University of Alabama; and Armen Amirkhanean, University of Alabama

#### **12:20 pm: Durability Performance of Carbonated Calcium Silicate-Based Cementitious Materials Exposed to Freezing and Thawing and Chloride-Based Deicing Salt**

Yaghoob Farnam, Drexel University; Chiara Villani, BASF; Jitendra Jain, Solidia Technologies; and Jason Weiss, Oregon State University

#### **12:30 pm: Is the Reaction in Alkali-Activated Binders a Nucleation and Growth Controlled Process?**

Paramita Mondal, University of Delaware; Sravanthi Puligilla, Tesla Inc.; and Dipobrat Sarbapalli, University of Illinois

#### **12:40 pm: Durability of Rapid-Set (Ettringite-Based) Concrete**

Tedd Moffatt, Queen's University; and Michael Thomas, University of New Brunswick

#### **12:50 pm: Thermal Properties of Fly Ash/Glass-Based Geopolymers**

Casey Sundberg, University of Minnesota Duluth; and Mary Christiansen, University of Minnesota Duluth



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PDH Codes: \_\_\_\_\_

### 1:00 pm – 2:00 pm

#### **MINI SESSION: Beyond Modulus: Applying the Results of Nanoindentation—Brasilia 1 & 4**

Sponsored by ACI Subcommittee 241-A

Moderated by Peter Stynoski, U.S. Army ERDCCERL

This mini session will discuss practical uses of nanoindentation test results which reach beyond the determination of hardness and reduced modulus. Demonstrating the methods and substantiating the value of characterizing concrete at the smallest scales will improve awareness and enable transfer of nanotechnologies into industry practice. By examining the promising macro-scale effects of nanomaterials and nanoscale characteristics, presentations in this mini session will complement the mission of Subcommittee 241-A, which is to disseminate information about the applications of nanotechnology and nanoengineering of concrete.



# Sessions & Events

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## 1:00 pm: Coupling Nanoindentation and Quantitative Energy-Dispersive Spectroscopy (NIQEDS) to Characterize the Influence of Nanomaterials on Cement Paste Microstructures

William Wilson, Université de Sherbrooke; Hisseine Ousmane, Université de Sherbrooke; Luca Sorelli, Université Laval; and Arezki Tagnit-Hamou, Université de Sherbrooke

**1:30 pm: Upscaling Fracture Toughness of CSH Using Nanoindentation and the Extended Finite Element Method**  
Mahmoud Reda Taha, University of New Mexico; and Eslam Soliman, University of New Mexico



1 AIA/CES LU



PDH Codes: \_\_\_\_\_

## 1:30 pm – 3:30 pm

### Contractors' Day Session: Lighting the NEON in Las Vegas—Amazon I-J

Sponsored by Las Vegas Chapter – ACI

Moderated by Oscar Antommattei, Kiewit Engineering Group

The NEON project is a design-build project to improve mobility and safety for the public traveling within the I-15 and the US 95 corridors in the Las Vegas, NV, area. At approximately \$550 million, the NEON project is also the Nevada Department of Transportation's (NDOT) largest contract to date. The major elements of the NEON project are generally categorized into: a) the HOV system; b) the Charleston Interchange reconstruction; c) the I-15 Freeway reconstruction; d) the US 95 reconstruction; e) Grand Central Industrial Connector; f) local street connections; and g) ancillary improvements.

#### 1:30 pm: Project NEON—Planning

Dale Keller, Solomon Colors Inc.

#### 2:00 pm: Project NEON—Design

Angelo Spata, Atkins

#### 2:30 pm: Project NEON—Construction

Jody Schott, Kiewit

#### 3:00 pm: Project NEON—Concrete Pavements (Design, Materials, and Construction)

Thomas Van Dam, Nichols Consulting Engineers



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PDH Codes: \_\_\_\_\_

## 1:30 pm – 3:30 pm

### Open Topic Session, Part 1 of 2—Amazon S-T

Sponsored by Las Vegas Chapter – ACI

Moderated by Natassia Brenkus, The Ohio State University; and Jovan Tatar, University of Delaware

The Open Topic Session is a forum for presenting recent technical information that could not be scheduled into other convention sessions.

#### 1:30 pm: Delamination Behavior of Curved Post-Tensioned Concrete Structures

Jongkwon Choi, University of Texas at Austin

#### 1:50 pm: Non-Destructive Evaluation of Concrete Construction Condition Using Ultrasonic Echo Tomography—Experience from the Laboratory to the Real World

Zhengqi Li, Terracon Consultants

#### 2:10 pm: A Proposed Approach and Formulation to Determine Debonding Strain Limit of FRP Sheets Anchored with FRP Spike Anchors

Alaa Al-Sammari, University of Massachusetts Amherst

#### 2:30 pm: Mechanics-Based Approach for the Flexural Behavior of UHPFRC Beams

Alexander Sturm, North Carolina State University

#### 2:50 pm: Investigation of Pull-Through and Pull-Out Failure Modes of Torque-Controlled Expansion Anchors in Static Tests

Zhao Chen, Washington State University

#### 3:10 pm: Anchorage of Epoxy-Coated Reinforcing Bar Post-Installed Using Chemical Adhesives

Connor Mills, University of Minnesota Duluth



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PDH Codes: \_\_\_\_\_

## 1:30 pm – 3:30 pm

### Symposium on Fracturing, Scaling, Aging, and Deterioration Phenomena in Concrete Structures Celebrating Professor Bazant's 80th Birthday, Part 3 of 4—Amazon Q-R

Sponsored by ACI Committee 209 and Joint ACI-ASCE Committee 446

Moderated by Christian Carloni, University of Bologna; and Roman Wan-Wendner, BOKU Vienna

The session description for this session may be found in the Part 1 listing; refer to page 30.

#### 1:30 pm: Microplanes and Microstructure: Connecting Abstractions and Reality

Eric Landis, University of Maine

#### 1:50 pm: Griffith's Postulate: Grand Canonical Monte Carlo Approach for Fracture Mechanics of Solids

Franz Ulm, Massachusetts Institute of Technology; Roland Pellenq, Massachusetts Institute of Technology; and Talal Al-Mulla, Massachusetts Institute of Technology

#### 2:10 pm: Micro- and Meso-Mechanical Modeling of Effect of Freezing on Modulus of Elasticity of Concrete

Yunping Xi, University of Colorado; and Yao Wang, University of Colorado

#### 2:30 pm: Discrete Meso-Mechanical Modeling of Concrete Fracture

John Bolander, University of California, Davis; Daisuke Asahina, University of California, Davis; and Sonoko Ichimaru, University of California, Davis

#### 2:50 pm: Modelling of Scratch Tests Using the PPR Potential-Based Cohesive Model

Ange Therese Akono, Northwestern University; and Jiaxin Chen, Northwestern University

#### 3:10 pm: Fracture and Size Effect in Microscale Experiments and Modelling

Erik Schlangen, Delft University of Technology; Hongzhi Zhang, Delft University of Technology; and Branko Savija, Delft University of Technology



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PDH Codes: \_\_\_\_\_

# Sessions & Events

For detailed program information and program changes, download the Convention App.

✓ = Separate fee required ★ = Guest-only event

## Tuesday, October 16, 2018

### 2:00 pm – 3:00 pm

#### **MINI SESSION: The Role of Admixtures in Reducing Corrosion—Coco A-B**

Sponsored by ACI Committee 209 and Joint ACI-ASCE Committee 446

Moderated by Jason Tuerack, Hycrete, Inc.

**2:00 pm: Extending the Life of Bridge Decks and Sea Walls**  
Philip Rhodes, Hycrete, Inc.

**2:30 pm: Corrosion Inhibitors in Concrete**  
Neal Berke, Tourney Consulting Group, LLC



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PDH Codes: \_\_\_\_\_

### 4:00 pm – 6:00 pm

#### **Open Topic Session, Part 2 of 2—Amazon S-T**

Sponsored by Las Vegas Chapter – ACI

Moderated by Natassia Brenkus, The Ohio State University; and Jovan Tatar, University of Delaware

The session description for this session may be found in the Part 1 listing; refer to page 43.

**4:00 pm: Evaluating the Efficacy of Antimicrobial Additives for Concrete against Microbially Induced Corrosion**  
Ali Erbehtas, Oregon State University

**4:20 pm: Mechanical and Thermal Properties of Lightweight Cementitious Composites: Experimental Study and Modeling**  
Hongyu Zhou, University of Alabama in Huntsville

**4:40 pm: Geopolymers for Use as Passive Safety Barriers in Nuclear Power Plant Core Meltdowns and Structural Fires**  
Casey Sundberg, University of Minnesota Duluth

**5:00 pm: Improving Alkali-Activated Cementitious Systems Properties Using Rice Straw Ash Treated With Sodium Hydroxide**

Feraidon Ataie, California State University, Chico

**5:20 pm: An Extension of the Powers Brownyard Model to Pastes Containing SCM**

Deborah Glosser, Oregon State University

**5:40 pm: The Old Seven-Mile Bridge: A Case Study on the Transport Properties of a 100+ Year Old Bridge in the Florida Keys**

Caitlin Tibbets, University of Florida



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PDH Codes: \_\_\_\_\_

### 4:00 pm – 6:00 pm

#### **Sustainable and Low-Cementitious-Materials-Content Self-Consolidating Concrete—Amazon I-J**

Sponsored by ACI Committees 237 and 238

Moderated by H. Celik Ozyildirim, Virginia Transportation Research Council; and Olafur Wallevik, Innovation Center Iceland

The use of self-consolidating concrete (SCC) can contribute to increased productivity, an improved working environment, and

improved concrete mechanical behavior and durability. However, use of SCC is still generally low, mainly due to the high cost associated with the high cement content and admixtures. The effective reduction of cement and cementitious materials contents in SCC mixtures will reduce cost and also minimize environmental impact. Among other benefits of reduced cement content leading to reduced paste content is reduced concrete shrinkage and thereby reduced risk for crack formation. This section includes presentations on the benefits, design, and performance of SCC with low cementitious materials content.

**4:00 pm: From Eco-SCC to Extreme Eco-SCC Effect—Where Are We Now?**

Olafur Wallevik, Innovation Center Iceland

**4:25 pm: Mixture Design Approach for Low-Powder Self-Consolidating Concrete: Eco-SCC—Content Optimization and Performance**

Kamal Khayat, Missouri S&T; Olafur Wallevik, Innovation Center Iceland; and Behrouz Esmaeilkhaniyan, Beton Provincial Ltee

**4:50 pm: Sustainable Self-Consolidating Concrete (SCC): Utilization of Limestone Powders**

Natalia Cardelino, Mercer University; Kimberly Kurtis, Georgia Institute of Technology; and Russell Gentry, Georgia Institute of Technology

**5:10 pm: The Rheology of Control Flow Concrete**

G. Terry Harris, GCP Applied Technologies; Klaus Alexander Rieder, GCP Applied Technologies; Elizabeth Burns, GCP Applied Technologies; and Joshua Curto, GCP Applied Technologies

**5:35 pm: Eco-Efficient Self-Consolidating Concrete (Eco-SCC) with Low Powder Content and Recycled Concrete Aggregate**

Jiong Hu, University of Nebraska—Lincoln



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PDH Codes: \_\_\_\_\_

### 4:00 pm – 6:00 pm

#### **Symposium on Fracturing, Scaling, Aging, and Deterioration Phenomena in Concrete Structures Celebrating Professor Bazant's 80th Birthday, Part 4 of 4—Amazon Q-R**

Sponsored by ACI Committee 209 and Joint ACI-ASCE Committee 446

Moderated by Christian Carloni, University of Bologna; and JiaLiang Le, University of Minnesota

The session description for this session may be found in the Part 1 listing; refer to page 30.

**4:00 pm: Microplane Model with Relaxed Kinematic Constraint in the Framework of Micro Polar Cosserat Continuum**

Josko Ozbolt, University of Stuttgart; and Serena Gambarelli, University of Stuttgart

**4:20 pm: Long-Term Analysis of Continuous Box-Girder Bridges Based on Short-Term Creep and Shrinkage Tests**

Luigi Cedolin, Politecnico di Milano; Giovanni Di Luzio, Politecnico di Milano; and Carlo Beltrami, Lombardi Ingegneria S.R.L.

**4:40 pm: Numerical Stimulation of Concrete 3-D Printing**

Gianluca Cusatis, Northwestern University; Elham Ramyar, Northwestern University; Daniele Pelessone, ES3; and Xinwei Zhoe, ES3



# Sessions & Events

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## 5:00 pm: On Crack Band Model Application in Finite Element Nonlinear Analysis in Engineering Practice

Jan Červenka, Červenka Consulting S.r.o

## 5:20 pm: Quasibrittle Fracture, Size Effect and Structural Design: Précis of Problems, Progress, Prospects

Zdeněk Bažant, Northwestern University



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PDH Codes: \_\_\_\_\_

## 5:30 pm – 6:30 pm

### Faculty Network Reception—Brasilia 5

Faculty members and students are invited to attend this informal reception for an opportunity to exchange ideas and network. Light hors d'oeuvres and a cash bar will be available.

## 6:30 pm – 9:30 pm

### Concrete Mixer—Brooklyn Bowl Las Vegas

Sponsored in part by Las Vegas Chapter – ACI



Join ACI attendees and guests for an evening of networking, entertainment, bowling, and great food during the Concrete Mixer, held at the Brooklyn Bowl Las Vegas. An assortment of food and beverages will be available. The Concrete Mixer is sponsored in part by the Las Vegas Chapter – ACI. **Transportation will depart from the Rio All-Suites Hotel (Miranda Patio) beginning at 5:30 pm. The last bus will depart from the LINQ/Brooklyn Bowl at 10:00 pm. After 10:00 pm attendees will be on their own for transportation.**

## Wednesday, October 17, 2018

## 7:00 am – 6:00 pm

### ✓ Adhesive Anchor Installation Inspector Certification Exam—Coco A-B

The 45-minute installation examination is closed-book and consists of approximately 45 multiple-choice questions. To pass the installation examination, the examinee must attain a minimum score of 74%. The 75-minute inspection examination is open-book and consists of approximately 55 multiple choice questions. To pass the installation examination, the examinee must attain a minimum score of 70%.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability.

## 7:00 am – 6:00 pm

### ✓ Concrete Construction Special Inspector Certification Exam—Coco A-B

The 3-hour written inspection examination is open-book and consists of approximately 80 multiple-choice questions. The 1-hour plans reading examination consists of approximately 20 questions and is designed to test the examinee's ability to read and understand engineering drawings. The minimum passing grade for each examination is 70%.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability.

## 7:00 am – 6:00 pm

### ✓ Concrete Quality Technical Manager Certification Exam—Coco A-B

The 4-hour written examination is open-book and consists of approximately 100 multiple-choice questions. To pass the written examination, BOTH of the following conditions must be met:  
1. At least 60% correct for each of the required test methods and practices; and  
2. A minimum score of 70% overall.

The 2-hour practical application examination is open-book and consists of approximately 25 multiple-choice questions. The minimum passing grade for the examination is 70%.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability.

## 7:00 am – 6:00 pm

### ✓ Concrete Transportation Construction Inspector Certification Exam—Coco A-B

The 3-hour written inspection examination is open-book and consists of approximately 80 multiple-choice questions. The 1-hour plans reading examination consists of approximately 20 questions and is designed to test the examinee's ability to read and understand engineering drawings. The minimum passing grade for each examination is 70%.

**PREREGISTRATION IS REQUIRED TO ATTEND.** Tickets may be purchased at the ACI Registration Desk up to 24 hours prior to the event, based on availability.

# Sessions & Events

For detailed program information and program changes, download the Convention App.

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## Wednesday, October 17, 2018

### 8:30 am – 10:30 am

#### ***Analysis and Interpretation of Structural Health Monitoring (SHM) Data: Big Data Management and Field Studies—Amazon Q-R***

Sponsored by ACI Committee 444

Moderated by Mohamed El-Batanouny, Wiss, Janney, Elstner Associates, Inc.; and Marwa Abdelrahman, Wiss, Janney, Elstner Associates, Inc.

The objective of this session is to present and discuss different approaches to analyze and reduce data from structural health monitoring systems, especially in field settings. The focus is how to translate SHM data into useful information that can be used by engineers and owners to: 1) understand the current condition of the monitored structure; 2) predict remaining service life and damage prognosis; and 3) schedule and prioritize maintenance, if applicable. Understand how SHM technologies can be used to monitor reinforced and prestressed concrete structures and elements under field as well as laboratory conditions.

#### **8:30 am: Analysis of “Big Data” From a Precast Concrete Bridge Deck on Long-Span Bridges**

Michael Forde, University of Edinburgh; Cameron Gair, Transport Scotland; Oliver Riches, Arup; and Thomas Reynolds, University of Edinburgh

#### **8:55 am: Development of an Elevation Monitoring Program to Accurately and Efficiently Measure Reinforced Concrete Core Wall Shortening During Construction of High-rise Buildings**

Jordan Baldwin, Ridgeline Engineering

#### **9:20 am: Long-Term Monitoring of Streicker Bridge**

Branko Glisic, Princeton University

#### **9:45 am: Concrete Bridge Damage Detection Using Wireless Sensor Networks (WSNs)**

Mohamed Mahgoub, New Jersey Institute of Technology

#### **10:10 am: Challenges and Solutions in Handling and Analyses of Large Data Sets from Large-Area Electrical Resistance Tomography-Based Sensing Skins**

Mohammad Pour-Ghaz, North Carolina State University; Reza Rashednia, North Carolina State University; and Aku Seppanen, University of Eastern Finland



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PDH Codes: \_\_\_\_\_

### 8:30 am – 10:30 am

#### ***Specifications for Repair of Concrete in Buildings—Amazon I-J***

Sponsored by ACI Committee 563

Moderated by Tracy Marcotte, CVM Professional; and Kyle Stanish, Klein and Hoffman

The inaugural concrete repair specifications have arrived, and immediately one wonders, “What makes concrete repair specifications different from new concrete specifications?” Attendees will learn implications for architects and engineers when specifying concrete repair, and special requirements for bracing and shoring, surface preparation, and the use of proprietary materials. At last, repair specifiers have a foundation document on which they can rely for a wide range of projects, from small repair projects to large building-wide rehabilitation work.

#### **8:30 am: Welcome and Introduction to Specifications**

Tracy Marcotte, CVM Professional

#### **8:45 am: Everything 563 Shares with 301 Specifications**

Kyle Stanish, Klein and Hoffman; and Kevin Krawiec, Corrosion Probe Inc.

#### **9:05 am: Brand New, Section 2: Bracing and Shoring**

David VanOcker, CVM Professional

#### **9:25 am: Brand New, Section 3: Surface Preparation**

Kenneth Lozen, International Concrete Repair Institute

#### **9:45 am: Brand New, Section 8: Proprietary Repair Materials**

Fred Goodwin, BASF Construction Chemicals

#### **10:05 am: What the Future Might Hold for 563**

John Lund, Martin/Martin Consulting Engineers



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PDH Codes: \_\_\_\_\_

### 11:00 am – 1:00 pm

#### ***Concrete with Recycled Materials, Part 1 of 2—Amazon Q-R***

Sponsored by ACI Committee 555

Moderated by Mohamed Mahgoub, New Jersey Institute of Technology; and Ahmed Ibrahim, University of Idaho

Concrete is the world’s most widely used construction material. Yet, the production of portland cement, an essential constituent of concrete, leads to greenhouse gas emissions into the atmosphere. The production of 1 ton of portland cement clinker releases approximately one ton of CO<sub>2</sub> and other greenhouse gases. Environmental considerations have been a major thrust for the sustainable development of the cement and concrete industries. A sustainable concrete structure is designed and built to have a positive environmental footprint during its entire life cycle. Concrete is increasingly being considered as a sustainable material owing to its low inherent energy requirements and little associated waste. Not only is it made from some of the most plentiful resources on Earth but it can also be made with numerous recycled materials and byproducts and is itself entirely recyclable. Emerging breakthroughs in concrete technology have allowed producing ultra-high-performance concrete requiring less raw materials, along with structures that are much more durable to reduce maintenance, repair, and reconstruction.

#### **11:00 am: Concrete Produced with Nanoglass**

Ahmed Ibrahim, University of Idaho

#### **11:17 am: Self-Consolidating Concrete Using FRAP and High Volume of Supplementary Cementitious Materials**

Yasser Khodair, Bradley University

#### **11:34 am: Thermal and Mechanical Properties of Rubberized Concrete Masonry**

Mohamed El-Gawady, Missouri S&T

#### **11:51 am: Cement-Based Mortars Containing Plastic Waste as Aggregate**

Alessandro Fantilli, Polytechnic University of Turin

#### **12:08 pm: Bond Strength of 100% Fine and Coarse Recycled Concrete Using Half-Beam Specimens**

Shahria Alam, University of British Columbia

# Sessions & Events

For detailed program information and program changes, download the Convention App.

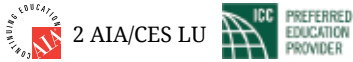
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## 12:25 pm: Eco-Efficient RCA Concrete: From the Microscope to Structural Behavior

Martin Noel, University of Ottawa; and Leandro Moretti Sanchez, University of Ottawa

## 12:42 pm: Effect of Level of Deterioration of the Demolished Concrete on the Properties Produced RCA

Medhat Shehata, Ryerson University



PDH Codes: \_\_\_\_\_

## 11:00 am – 1:00 pm

### *Emerging Concepts and Technologies in Fiber-Reinforced Concrete, Part 1 of 2—Amazon I-J*

Sponsored by ACI Committees 241 and 544

Moderated by Liberato Ferrara, Politecnico di Milano; and Nemkumar Banthia, University of British Columbia

While fiber-reinforced concrete is gaining increasing popularity in several building and infrastructural applications, also thanks to the availability of design rules in international codes (including ACI 544 reports), new exciting emerging technologies and applications are arising which push ahead the boundaries of knowledge and engineering practice. These range from the use of functionalized micro and nanoscale constituents, providing tailored performance such as self-healing, self-curing, self-sensing abilities; to new types of fibers, in case obtained by recycling by products of other industrial activities; to new testing concepts and methodologies, such as coupling mechanical and durability related issues; to high-end applications which go from challenging use of FRC for taller and more efficient wind towers and offshore structures; to additive manufacturing/3-D printing applications.

### 11:00 am: Effects of Very Small Additions of Carbon Nanotubes and Carbon Nanofibers on Concrete Properties

Surendra Shah, Northwestern University; and Maria Konsta, Democritus University of Thrace

### 11:20 am: Concrete under Nanoscope: The Effect of Nano-Fibers on Performance of Nano-Engineered Concrete

Konstantin Sobolev, University of Wisconsin; and Scott Muzenski, Professional Service Industries

### 11:40 am: High-Performance Cement-Based Composites Reinforced with Nanomaterials, Textiles, and Their Combination

Alva Peled, Ben Gurion University

### 12:00 pm: Recent Developments and Future Trends in Natural Fiber-Reinforced Cement-Based Composite Systems

Flavio Silva, Pontifical Catholic University of Rio de Janeiro

### 12:20 pm: Benefits of Hybrid Combinations of Amorphous Metallic and Steel Fibers in Structural Applications

Ravindra Gettu, Indian Institute of Technology Madras; Sujatha Jose, Indian Institute of Technology Madras; and Steffi Stephen, Kannur University

### 12:40 pm: FRC With Co-Extruded Fibers: Performance Enhancement and Sensing

Nemkumar Banthia, University of British Columbia



PDH Codes: \_\_\_\_\_

## 11:00 am – 1:00 pm

### *Seismic Rehabilitation—From Analysis to Practical Application, Part 1 of 2—Amazon S-T*

Sponsored by ACI Committee 369

Moderated by Sergio Brena, University of Massachusetts; and Nancy Varney, Simpson Gumpertz & Heger

This session will present the latest advances in seismic rehabilitation of existing concrete buildings that have come out of recent research projects and experiences from recent earthquakes around the world. The session will present results of evaluation studies applied to existing structures using current ASCE 41, ACI 369.1R-17, or other local seismic evaluation and retrofit standards. Attendees will also be presented with information on recent research results of laboratory experiments of retrofitted structural components. An overview of ongoing activities within ACI 369 to update the ACI 369.117 standard will also be presented.

### 11:00 am: Guidance on Nonlinear Modeling of New and Existing Concrete Buildings

Laura Lowes, University of Washington

### 11:20 am: Overview of the NIST-ATC Project on Benchmarking of Existing Buildings Evaluation Methodologies

Siamak Sattar, National Institute of Standards and Technology

### 11:40 am: Application and Evaluation of Methods for Assessing the Earthquake Vulnerability of Existing Buildings

Laura Lowes, University of Washington; Dawn Lehman, University of Washington; and J. Sumearil, University of Washington

### 11:50 am: ASCE 41 versus TEASPA: Comparison of Seismic Evaluation Results of RC Frame Buildings Damaged during 2016 Meinong Earthquake, Taiwan

Jiun-Wei Lai, University of California, Berkeley; Shyhjiann Hwang, National Taiwan University; Insung Kim, Degenkolb Engineers; Daniel Zepeda, Degenkolb Engineers; Garrett Hagen, Degenkolb Engineers; and Kirk Johnston, Degenkolb Engineers

### 12:10 pm: Evaluation of ASCE-41 Modeling Parameters and Acceptance Criteria through a RC Building Case Study

Adolfo Matamoros, University of Texas at San Antonio; Andres Lepage, University of Kansas; Anil Suwal, University of Texas at San Antonio

### 12:30 pm: Ongoing Activities for Future Updates on ACI 369.1

Insung Kim, Degenkolb Engineers; Sergio Brena, University of Massachusetts; Adolfo Matamoros, University of Texas at San Antonio; Garrett Hagen, Degenkolb Engineers; and Arne Halterman, Holmes Culley



PDH Codes: \_\_\_\_\_

## 1:30 pm – 3:30 pm

### **Concrete with Recycled Materials, Part 2 of 2—Amazon Q-R**

Sponsored by ACI Committee 555

Moderated by Mohamed Mahgoub, New Jersey Institute of Technology; and Yasser A. Khodair, Bradley University

The session description for this session may be found in the Part 1 listing; refer to page 46.

#### **1:30 pm: Seismic Behavior of Recycled Aggregate Concrete Columns**

Shahria Alam, University of British Columbia

#### **1:47 pm: 100% Fly Ash Concrete**

Mohamed El-Gawady, Missouri S&T

#### **12:04 pm: Cracking and Stress Development in Recycled Concrete Aggregate Concrete Systems**

Anuruddha Jayasuriya, New Jersey Institute of Technology; Matthew Adams, New Jersey Institute of Technology; and Matthew Bandelt, New Jersey Institute of Technology

#### **12:21 pm: Consequential Life Cycle Assessment for Recycling Concrete Waste**

Ardavan Yazdanbakhsh, City College

#### **12:38 pm: Mechanical Properties of LWA Rubberized Concrete Using Tire-Derived Aggregates**

Fariborz Tehrani, California State University, Fresno

#### **12:55 pm: Innovative Polymer Modified Concrete Using Recycled Waste Latex Paint**

Aly Said, The Pennsylvania State University

#### **1:12 pm: Use of Recycled Aggregate Concrete in Flowable Fill**

Mohab Hussein, New Jersey Institute of Technology; Mohamed Mahgoub, New Jersey Institute of Technology; and David Washington, New Jersey Institute of Technology



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PDH Codes: \_\_\_\_\_

## 1:30 pm – 3:30 pm

### **Emerging Concepts and Technologies in Fiber-Reinforced Concrete, Part 2 of 2—Amazon I-J**

Sponsored by ACI Committees 241 and 544

Moderated by Liberato Ferrara, Politecnico di Milano; and Nemkumar Banthia, University of British Columbia

The session description for this session may be found in the Part 1 listing; refer to page 47.

#### **1:30 pm: Development and Characterization of 3-D-Printable Strain-Hardening Cement-Based Composites (PSHCC)**

Venkatesh Nerella, Dresden University of Technology; Viktor Mechtcherine, Dresden University of Technology; Hiroki Ogura, Shimizu Corporation

#### **1:50 pm: Serviceability-Based Flexural Design of Hybrid FRC Beams**

Barzin Mobasher, Arizona State University; Yiming Yao, Nanjing University; and Farok Kianmofrad, Arizona State University

#### **2:10 pm: Structural Aspects Related with FRC Creep in Tension**

Giovanni Plizzari, University of Brescia; and Pedro Serna, Polytechnic University of Valencia

#### **2:30 pm: FRC Tunnel Segment Design in Case of Internal Explosion**

Matteo Colombo, Politecnico di Milano; Paolo Martinelli, Politecnico di Milano; and Marco di Prisco, Politecnico di Milano

#### **2:50 pm: Fiber-Reinforced Concrete and Earthquake Strengthening: A Match Made in Heaven**

Nemkumar Banthia, University of British Columbia; Salman Soleimani, University of British Columbia; and Carlos Ventura, University of British Columbia

#### **3:10 pm: Rethinking Coastal Defense and Green-Energy Service Infrastructures through Enhanced Durability High-Performance Fiber-Reinforced Cement-Based Materials**

Liberato Ferrara, Politecnico di Milano



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PDH Codes: \_\_\_\_\_

## 1:30 pm – 3:30 pm

### **Seismic Rehabilitation—From Analysis to Practical Application, Part 2 of 2—Amazon S-T**

Sponsored by ACI Committee 369

Moderated by Sergio Brena, University of Massachusetts; and Nancy Varney, Simpson Gumpertz & Heger

The session description for this session may be found in the Part 1 listing; refer to page 47.

#### **1:30 pm: Assessing the Post-Earthquake Residual Capacity of Plastic Hinges in Reinforced Concrete Moment Frames**

Kai Marder, University of Auckland; Kenneth Elwood, University of Auckland; Christopher Motter, Washington State University; and Charles Clifton, University of Auckland

#### **1:50 pm: Seismic Evaluation of Beam-Column Assemblages Strengthened with FRP and Anchored with Spike Anchors**

Elias Saqan, American University in Dubai; Hayder Rasheed, Kansas State University; and Tarek Alkhrdaji, Structural Technologies

#### **2:10 pm: Seismic Performance of Repaired Reinforced Concrete Walls**

Christopher Motter, Washington State University

#### **2:30 pm: Repaired Reinforced Concrete Wall Buildings in Chile after 2010 Earthquake**

Matias Hube, Pontifical Catholic University of Chile

#### **2:50 pm: Quantifying Benefits of Seismic Retrofitting Gravity Columns Using CFRP Jackets Based on Nonlinear Modeling Parameters per ACI 369.1**

Saeed Fathali, Structural Technologies; Bill Graft, ImageCat; and Mohammad Jalalpour, Structural Technologies



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## 6:30 pm – 8:00 pm

### **President's Reception—Miranda 1-4**

ACI President David Lange invites all convention attendees to the President's Reception, where you'll have the opportunity to network with committee Chairs, chapter Presidents, and international attendees. An assortment of food and beverages will be available.





# THANK YOU FOR JOINING US!

Welcome to The ACI Concrete Convention and Exposition in fabulous Las Vegas, Nevada. This is where we Dream Big and Build Bigger! Las Vegas offers ACI convention attendees the opportunity to see the variety, beauty, and diversity of structural, architectural, and decorative concrete on a grand scale.

Las Vegas has something for everybody, whether it's a healthy dose of the area's natural rugged beauty or a night on the town with fine dining and entertainment. We hope you explore our city that never sleeps and take the opportunity to experience some of the attractions like the High Roller, the Neon Museum, the Smith Center, or visit the Container Park downtown. It is only a short trip to visit Red Rock Canyon, Mt. Charleston, or the Seven Magic Mountains. Want some advice on how to enjoy your stay? Make a quick stop by the Las Vegas Chapter – ACI booth and we will provide you with some local suggestions.

We are certain that you'll enjoy your time in Las Vegas and at the convention. Get the most out of your convention experience by attending industry expert presentations, committee meetings, networking events, daily program sessions, and the Excellence in Concrete Construction Awards and Gala. Be safe, have fun, and make memories with your fellow concrete ambassadors in our great industry!



Werner Hellmer and James Bristow  
*Las Vegas Chapter Convention Co-Chairs*



# SAVE the DATE



Spring 2019 | Québec City

## The Concrete Convention and Exposition

March 24-28, 2019

Québec City Convention Centre and Hilton Québec  
Québec City, Québec, Canada

Be sure to visit the Québec City Information Desk in the exhibit hall.  
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