ACI SPRING 2013
Convention Program Book

Responsibility in Concrete Construction

April 14-18, 2013
Hilton & Minneapolis Convention Center
Minneapolis, MN

Twin Cities
Spring 2013
Responsibility in Concrete Construction

View the Program Book on Your Smartphone or Tablet!

Download an ePub or interactive PDF version of the program book at **www.aciconvention.org**.

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April 14-18, 2013
Hilton & Minneapolis Convention Center
Minneapolis, MN

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ACI President's Welcome

ACI members and guests: Welcome to Minneapolis and the ACI Spring 2013 Convention!

Thank you for participating in the ACI Spring 2013 Convention in Minneapolis. Each and every attendee plays a vital role in the success of every convention by bringing together his or her questions, understanding, experience, and commitment to ACI.

The ACI convention offers members from around the world the opportunity to connect face to face and share innovative and interesting ideas on valuable industry information. Whether you are sitting in on technical sessions, attending multiple committee meetings, or networking with friends and colleagues, this convention will provide you with ample opportunity for professional growth.

ACI and the ACI Twin Cities Chapter have put a great deal of effort into developing a convention program that is both productive and memorable. Convention highlights include over 300 committee meetings, 30+ technical sessions, three student competitions (including the new ACI Mortar Workability Competition), the Opening Session & Awards Program, the Concrete Mixer, and much more.

Linda and I are honored and excited to be able to share this week with you, and we hope you will get to enjoy all that the great city of Minneapolis has to offer. I would also like to thank the ACI Twin Cities Chapter for its dedication in planning this convention. We hope you will gain valuable industry information and experience that will help you grow in your profession. Thank you for attending the convention and for your continued commitment to ACI.

Kind regards,

James K. Wight
ACI President

ACI Sustaining Members

ACS Manufacturing Corporation

Advanced Construction Technology Services

Ash Grove Cement Company

Ashford Formula

Barrier-1 Inc.

BASF Corporation

BCS

Buzzi Unicem USA

Cantera Concrete Company

CECO Concrete Construction

CHRYSO, Inc.

Concrete Reinforcing Steel Institute

CTLGroup

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ACI Sustaining Members

The Euclid Chemical Company

Fibercon International, Inc.

Future Tech Consultants

W.R. Grace & Co.

Headwaters Resources, Inc.

Holcim (US) Inc.

Keystone Structural Concrete, LLC

Kleinfelder

Lafarge North America, Inc.

Lithko Contracting, Inc.

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MTL

Municipal Testing

North S.Tarr Concrete Consulting PC

Oztec Industries, Inc.

ACI Sustaining Members

Pacific Structures

S.K. Ghosh Associates, Inc.

Portland Cement Association

Structural Services, Inc.

Precast/Prestressed Concrete Institute

Structural

Penetron International Ltd.

Triad Engineering, Inc.

PGESCo

TWC Concrete Services

Wacker Neuson

Schmitt Technical Services, Inc.

Westroc, Inc.

Sika Corporation

W.R. Meadows

ACI Convention Sponsors

Sponsors are listed as of 3/22/13.

Cement Sponsor

Baker Concrete Construction

Admixture Sponsors

American Engineering Testing, Inc.
BASF Corporation
The Euclid Chemical Company

Coarse Aggregate Sponsors

Grace Construction Products
Lafarge North America, Inc.
Van Sickle, Allen & Associates

Fine Aggregate Sponsors

ACI Carolinas Chapter
ACI Greater Michigan Chapter
ACI Iowa Chapter
ACI National Capital Chapter
ACI Northern California and Western Nevada Chapter
ACI South Texas Chapter
Adolfson & Peterson Construction
AMSYSCO, Inc.
Holcim (US) Inc.
Lehigh Cement Company LLC

Water Sponsors

ACI Arizona Chapter
ACI Arkansas Chapter
ACI Central Texas Chapter
ACI Eastern Pennsylvania and Delaware Chapter
ACI Georgia Chapter
ACI Greater Miami Valley Chapter
ACI Illinois Chapter
ACI Intermountain Chapter
ACI Kansas Chapter
ACI Las Vegas Chapter
ACI Louisiana Chapter
ACI Maryland Chapter
ACI Missouri Chapter
ACI New Jersey Chapter
ACI New Mexico Chapter
ACI Northeast Texas Chapter
ACI Ontario Chapter
ACI Pittsburgh Area Chapter
ACI San Diego International Chapter
ACI Southern California Chapter
Aggregate Industries
Cemstone Products Company
The Coleman Law Firm, LLC
Concrete Industry Board, An ACI New York City Chapter
Decorative Concrete Supply, Inc.
Essroc Italcementi Group
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Student Lunch Sponsor

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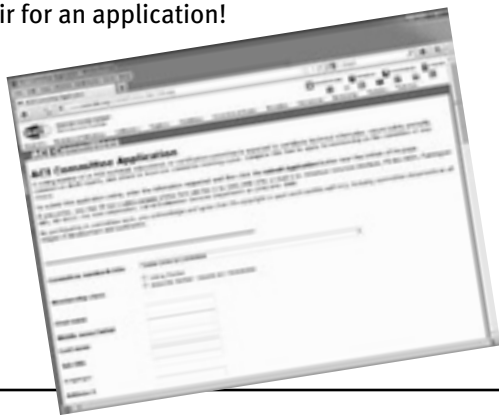
JOIN A COMMITTEE!

ACI committees are recognized for providing widely accepted standards of practice for nearly every facet of the concrete industry thanks to the participation of professionals across the concrete industry.

ACI's technical committees are classified as follows:
100's – General
200's – Materials
300's – Design and Construction
400's – Concrete Reinforcement and Structural Analysis
500's – Specialized Applications and Repair

Help shape the codes and standards of the concrete industry and JOIN A COMMITTEE!

If you are interested in joining a committee, visit http://www.concrete.org/COMMITTEES/COM_JOIN.asp and fill out the online application or ask the committee chair for an application!



General Information

ACI REGISTRATION—C-BALLROOM A&B
ACI staff is available to answer your convention questions at the ACI Registration Desk during the following hours:

Saturday	2:00 pm - 6:00 pm
Sunday-Tuesday	7:30 am - 5:00 pm
Wednesday	8:00 am - 12:00 pm

NAME BADGES
ACI uses color-coded name badges to identify attendees. Name badges are as follows:

Member:	Blue
Attendee:	Black
Fellow:	Green
Honorary Member:	Red
Staff:	Orange
Guest:	Tan
Student:	Green Ribbon

ATTENTION, ACI ATTENDEES!
First-time convention attendees have a "Convention #1" ribbon on their name badge. Please welcome them to the convention!

SCHEDULE CHANGES – ACI REGISTRATION—C-BALLROOM A&B
Cancellations, additions, and location changes to the convention schedule will be posted daily on a monitor in the exhibit area at the Minneapolis Convention Center.

EMERGENCIES
In the event of an emergency, we kindly request that you do NOT dial 9-1-1. Please go to the nearest house phone to contact the operator by dialing "0" or security at extension "66" at the Hilton Minneapolis. Please dial "6040" from the house phone to reach security at the Minneapolis Convention Center.

PHOTOGRAPHS/VIDEO
ACI will take photographs and video during the ACI Spring 2013 Convention and reproduce them in ACI educational, news, or promotional material—whether in print, electronic, or other media—including the ACI website. By participating in the ACI Spring 2013 Convention, you grant ACI the right to use your name, photograph, and biography for such purposes. Please note: Photographing, audio recording, and videotaping a presentation or speaker is prohibited without the presenter's prior written consent.

BREAKS—C-BALLROOM A&B

Beverages are available courtesy of ACI during the following hours:

Saturday	Soda:	2:00 pm - 6:00 pm
Sunday-Tuesday	Coffee:	7:00 am - 10:00 am
	Soda:	11:00 am - 2:00 pm
	Lunch Concession:	11:00 am - 2:00 pm
Wednesday	Coffee:	7:00 am - 10:00 am

WATER STATIONS

In an attempt to lessen the amount of bottled water thrown away during each convention, ACI has chosen not to provide bottled water to attendees. As a replacement, water stations will be placed throughout the meeting space for you to enjoy.

ALCOHOL POLICY

Nonalcoholic beer and soft drinks are available at all ACI-sponsored receptions. The legal drinking age in Minneapolis is 21.

ACI BOOKSTORE—C-BALLROOM A&B

Visit the ACI Bookstore to receive 10% off publications and the 2013 *Manual of Concrete Practice* CD-ROM will be available for sale. The Bookstore will also have a table with free ACI items! The ACI Bookstore is open during the following hours:

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

ACI CAREER CENTER—C-BALLROOM A&B

Looking for a job or an employee? Visit the ACI Bookstore to view ACI's Online Career Center. This job search engine is specifically targeted to the concrete industry. Job seekers, you'll have an opportunity to post your résumé and view, apply for, and save available jobs. Currently, there are approximately 150 jobs listed in the ACI Career Center. Employers, you'll have the opportunity to post job openings, post internships FREE of charge, and target the individuals you want to attract.

MEMBERSHIP INFORMATION – ACI Bookstore—C-BALLROOM A&B

To learn more about ACI membership benefits and how to become a member, visit the ACI Bookstore.

CYBER STATIONS & WIRELESS HOT SPOTS—C-BALLROOM A&B
Stay connected to home and work! Take advantage of the Cyber Stations and FREE wireless hot spots available in the exhibit area during the following hours:

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

To access the wireless connection, look for **ACI Cyber Café 1**, **ACI Cyber Café 2**, **ACI Cyber Café 3**, or **ACI Cyber Café 4** in your network connections.

MEETING SPOT—C-BALLROOM A&B
Convention attendees are encouraged to visit the meeting spot for coffee or lunch and to meet first-time attendees and other convention attendees Monday and Tuesday, 8:00 am - 8:30 am and 12:00 pm - 1:00 pm.

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** 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.

LOCAL INFORMATION
ACI Minnesota Chapter—C-BALLROOM A&B
ACI Minnesota Chapter members will be happy to answer general convention questions and provide information about the local area. Stop by their information desk during the following hours:

Saturday	2:00 pm - 6:00 pm
Sunday - Tuesday	8:00 am - 5:00 pm

Meet Minneapolis Information Desk—C-BALLROOM A&B
Stop by the Meet Minneapolis Information Desk to learn more about the local area, ask questions, and find a great resaurant to visit. The information desk will be open during the following hours:

Sunday	2:00 pm - 8:00 pm
Monday	2:00 pm - 6:00 pm

RESTAURANTS

Dunn Bros Coffee

Located in the entry hall of the Minneapolis Convention Center, Dunn Bros Coffee features a variety of fresh-brewed coffees, espresso drinks, and blended fruit and cream beverages. The café also offers breakfast pastries and assorted sandwiches. Dunn Bros Coffee is open for breakfast and lunch daily from 7:00 am to 5:00 pm.

SkyWater

SkyWater features local and international favorites sourced locally. Enjoy breakfast, lunch, dinner, nightly happy hour, cocktails, craft beers, and late-night dining in the SkyWater Lounge. SkyWater is located in the Hilton Minneapolis and is open Monday - Saturday, 6:00 am - 2:00 am, and Sunday, 6:00 am - 12:00 am.

Room Service

Room service is available at the Hilton Minneapolis Sunday through Thursday, 6:00 am - 12:00 am, and Friday and Saturday, 6:00 am - 1:00 am. Dial ext. 62 from your guest room.

TRANSPORTATION

Airport Shuttle

SuperShuttle offers a shared ride service from the Hilton Minneapolis to the airport for $15.00 each way or $24 round trip. Advance reservations are required for departures from the Hilton. Please call 800-827-7777 or 612-713-7488 or visit **groups.supershuttle.com/aci.html** to make a reservation. Please note that the SuperShuttle may make additional stops at other hotels, which may delay your anticipated arrival time.

Taxis

The approximate fare for a taxi to and from the Hilton & Minneapolis Convention Center is approximately $40 to $50 U.S. each way. Note: A $6.75 fare will be displayed on the taxi cab and meter at the onset of your trip. This fee includes a $2.50 flag drop and a $4.25 airport access fee.

Rental Cars

Hertz is the official car rental agency for the ACI Spring 2013 Convention. Receive discounts on upgrades, weekly rentals, and weekend rentals. To make advance reservations, call 800-654-3131 or visit **www.hertz.com**. Provide the **Group Code 1993380** when making your reservation.

Explore the City by Bike—Try Nice Ride
The Twin Cities of Minneapolis and Saint Paul are home to hundreds of miles of on-street bike lanes, boulevards, and dedicated paths. Simply take a bike when you need one and return it to any station in the system when you arrive at your destination. Visit **www.niceridemn.org** for pricing information and to learn more!

Light Rail Transit
Trains run every 10 minutes during peak hours and typically every 10 to 15 minutes at other times of the day.* From the airport, trains can take you to the Mall of America in about 12 minutes and to the Warehouse District in downtown Minneapolis in about 25 minutes. If you have a layover and plan to take the train away from the airport, please allow time to travel and return. The Hilton & Minneapolis Convention Center can be accessed from the Nicollet Mall Stop.

While trains run 24 hours a day between terminals, times between trains can be anywhere from 30 to 60 minutes between the hours of 10:30 pm and 5:00 am. Be sure to check the light rail schedule at* **www.metrotransit.org *if you plan to use this service during these hours.*

Fares
- Tickets are sold at ticket machines at the rail stations.
- Fares are between $1.75 and $2.25, depending on the time of day.
- Reduced fares are available for seniors, children, and persons with disabilities.
- For more information, visit the Metro Transit website at **www.metrotransit.org/light-rail**.
- No ticket is needed to travel between airport terminal stations.

Parking
In-and-out valet parking is available at the Hilton Minneapolis entrance for $23.00 per day. Self-parking is available for $13 per day at 11th St. and 2nd Avenue. In-and-out privileges are available in this lot.

Downtown Minneapolis Skyways
The Minneapolis Skyway system is a collection of interlinked enclosed pedestrian walkways that connect several buildings in downtown Minneapolis including the Minneapolis Convention Center and the Hilton Hotel.

Nicollet Mall Free Bus
Look for buses marked "FreeRide" and pay no fare when boarding along Nicollet Mall. You'll have an easy ride between the convention center and the Hiawatha light rail line. FreeRide buses are available seven days a week from 5:00 am to 1:00 am. Pay 50¢ if you ride within the Downtown Zone on any other bus along Nicollet Mall.

SESSION ATTENDANCE TRACKING FORM

The Session Attendance Tracking Form found at the back of the program book can be submitted to state boards that allow self-reporting of Continuing Education activities as evidence of participation. In most cases, one contact hour is equal to one Professional Development Hour (PDH). Check with your state board for acceptance criteria. Codes will be given out during each session to track your attendance.

SPEAKER READY ROOM—C-M101 A

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

Saturday	2:00 pm - 6:00 pm
Sunday and Monday	7:00 am - 7:00 pm
Tuesday	7:00 am - 6:00 pm

All speakers are requested to check in at the Speaker Ready Room one day prior to their session to ensure that:

- ACI has downloaded their presentation on the network in the session rooms; and
- Speakers' session handouts are downloaded onto the ACI website.

ACI FALL 2013 CONVENTION—C-BALLROOM A&B

Mark your calendars for the ACI Fall 2013 Convention in Phoenix, AZ, October 20-24, at the Hyatt Regency & Phoenix Convention Center. Stop by the ACI Arizona Chapter Desk Saturday through Tuesday to learn more about the convention and Phoenix.

Want the Latest Convention Updates?

ACI Mobile

Type mobile.concrete.org/convention into your mobile phone's Internet browser, and you will have convention information right at your fingertips. Access the Meeting Schedule, My Schedule, Program, Sessions, and Future Conventions from virtually anywhere.

Facebook and Twitter

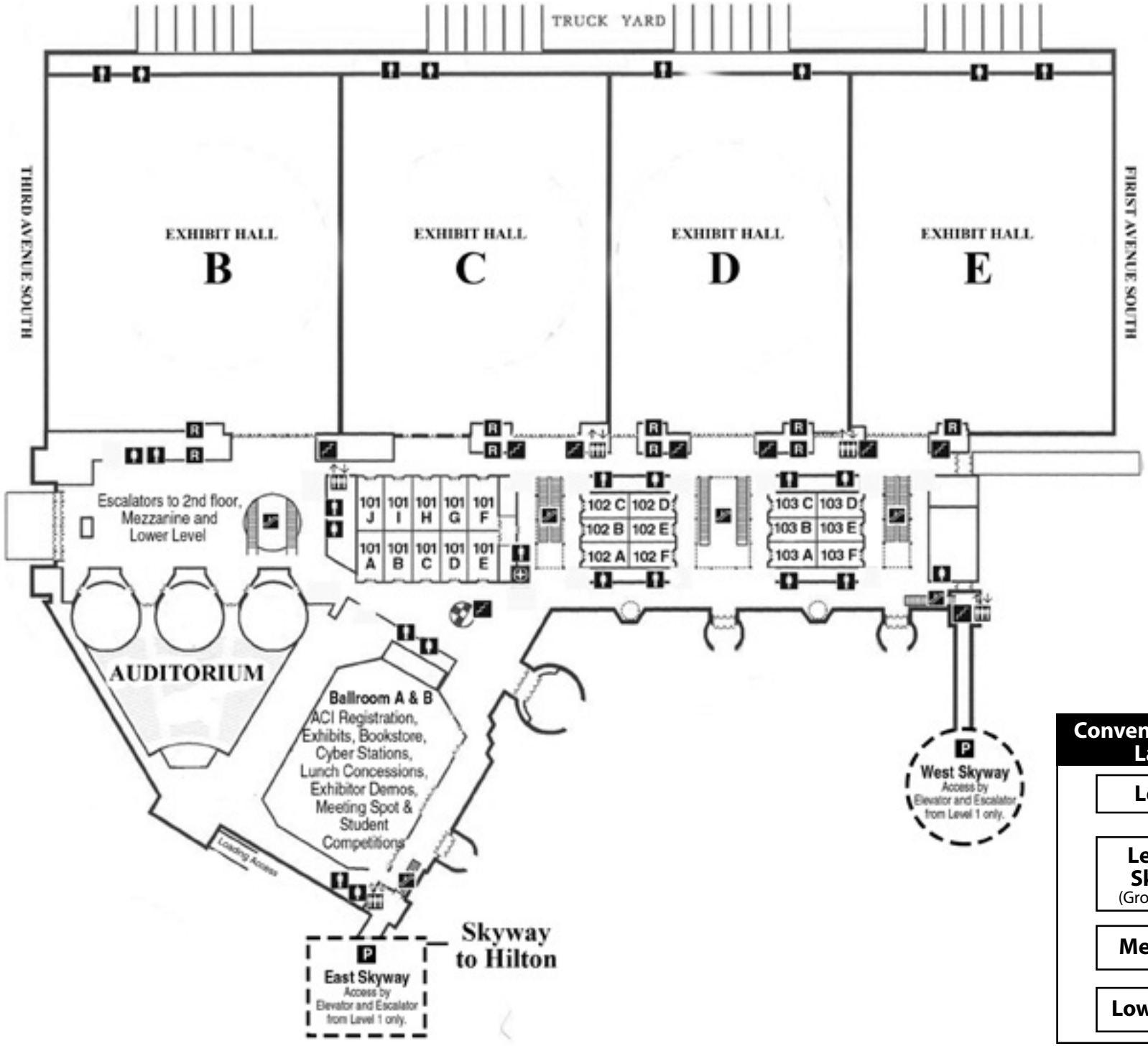
Follow the ACI Convention on Facebook at www.facebook.com/Americanconcreteinstitute and on Twitter at #aciconvention for the latest information.

Where's That Meeting Room?

C = Minneapolis Convention Center
H = Hilton Minneapolis Hotel

Room Name	Location
C-101 A, B, C, D, E, F, G, H, I, J	Level 1
C-102 A, B, C, D, E, F	Level 1
C-200 A, B, C, D, E, F, G, H, I, J	Level 2
C-201 A, B	Level 2
C-202 A, B	Level 2
C-203 A, B	Level 2
C-204 A, B	Level 2
C-205 A, B, C, D	Level 2
C-Auditorium	Level 1
C-Ballroom A&B	Level 1
C-Hall A	Lower Level
C-M100 A, B, C	Mezzanine Level
C-M100 H, I, J	Mezzanine Level
C-M101 B, C	Mezzanine Level
C-Seasons	Level 2
H-Duluth	3rd Floor
H-Director's Row IV	3rd Floor
H-The Gallery	Lobby Level
H-Symphony I	2nd Floor
H-Symphony II	2nd Floor
H-Symphony III	2nd Floor
H-Symphony IV	2nd Floor

Minneapolis Convention Center - Level 1

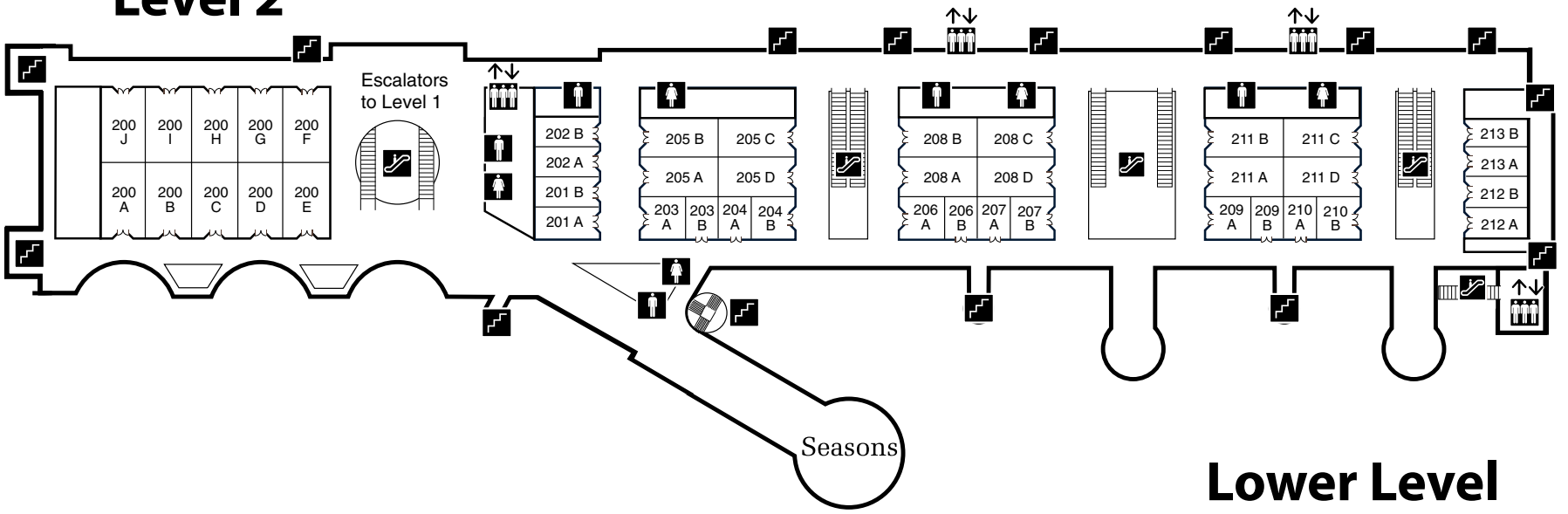


Convention Center Layout

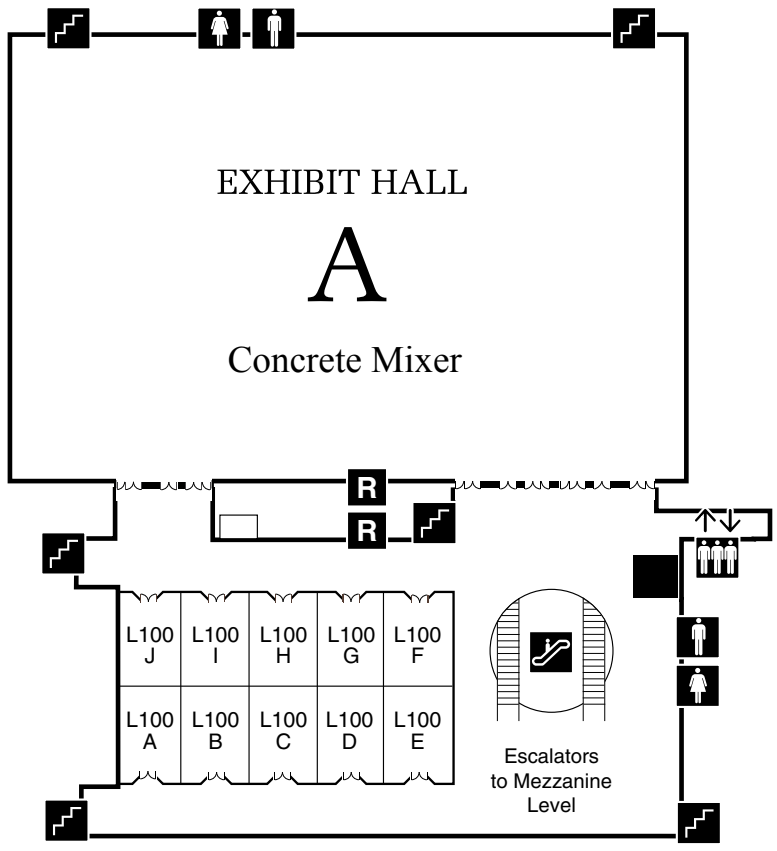
- Level 2
- Level 1 & Skywalk (Ground Level)
- Mezzanine
- Lower Level

Minneapolis Convention Center

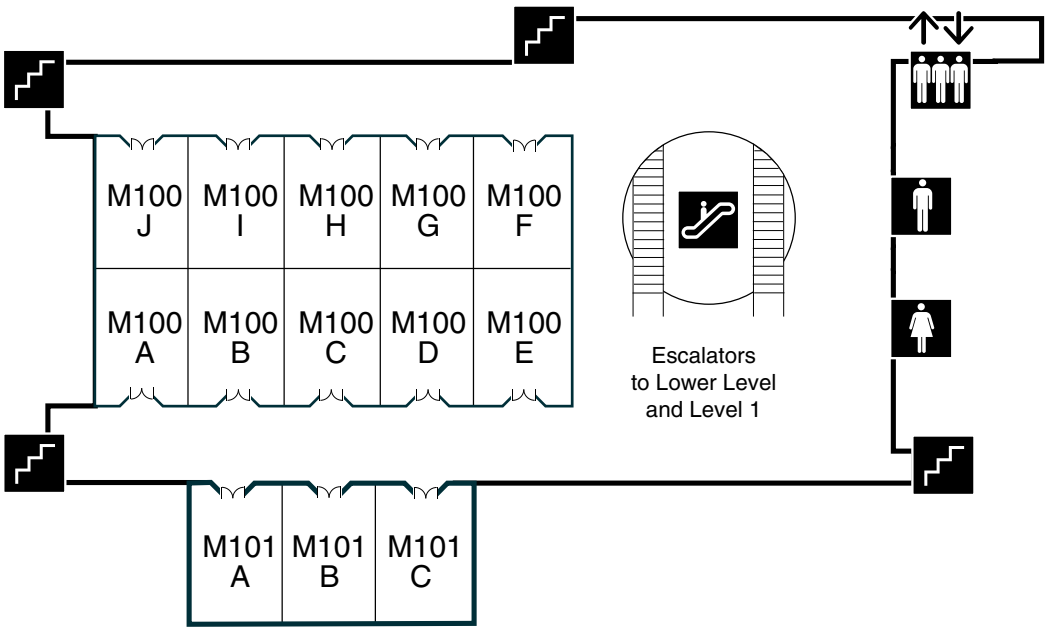
Level 2



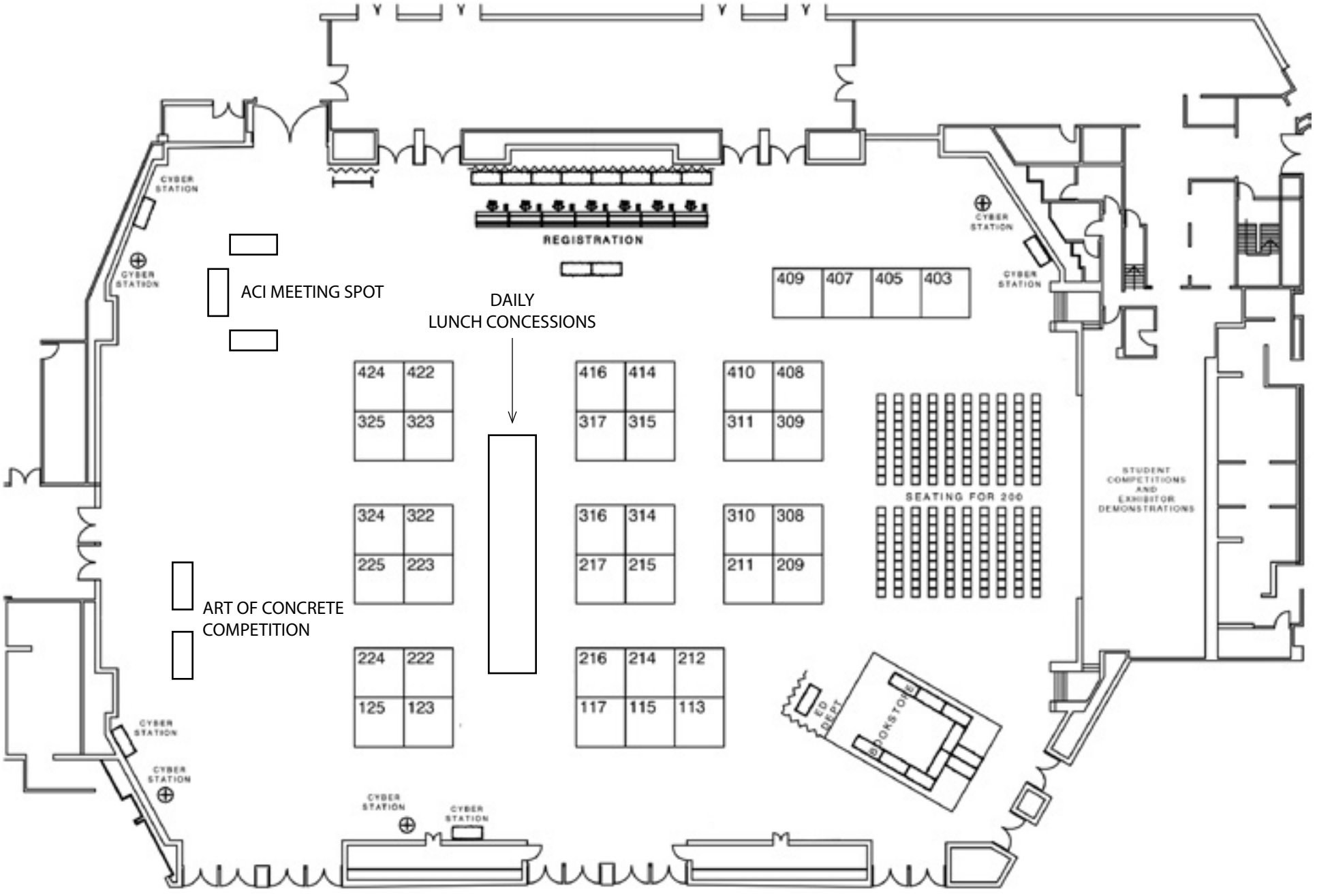
Lower Level



Mezzanine Level



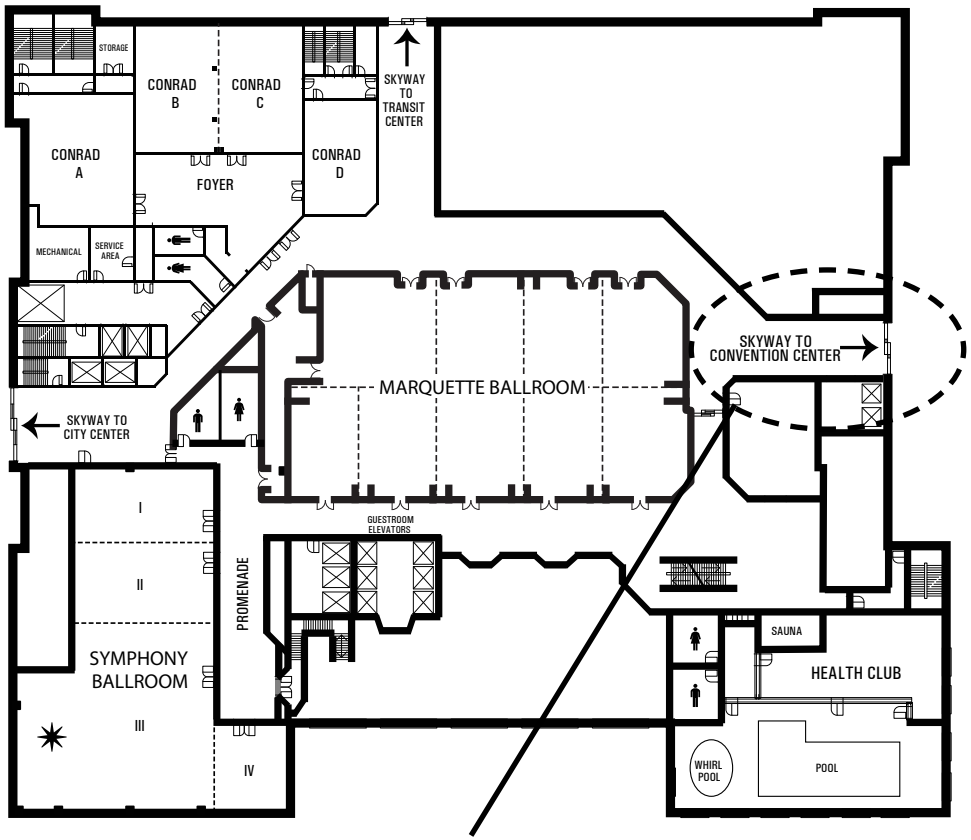
Exhibitor Floor Plan
Minneapolis Convention Center
Ballroom A&B



Hilton Minneapolis

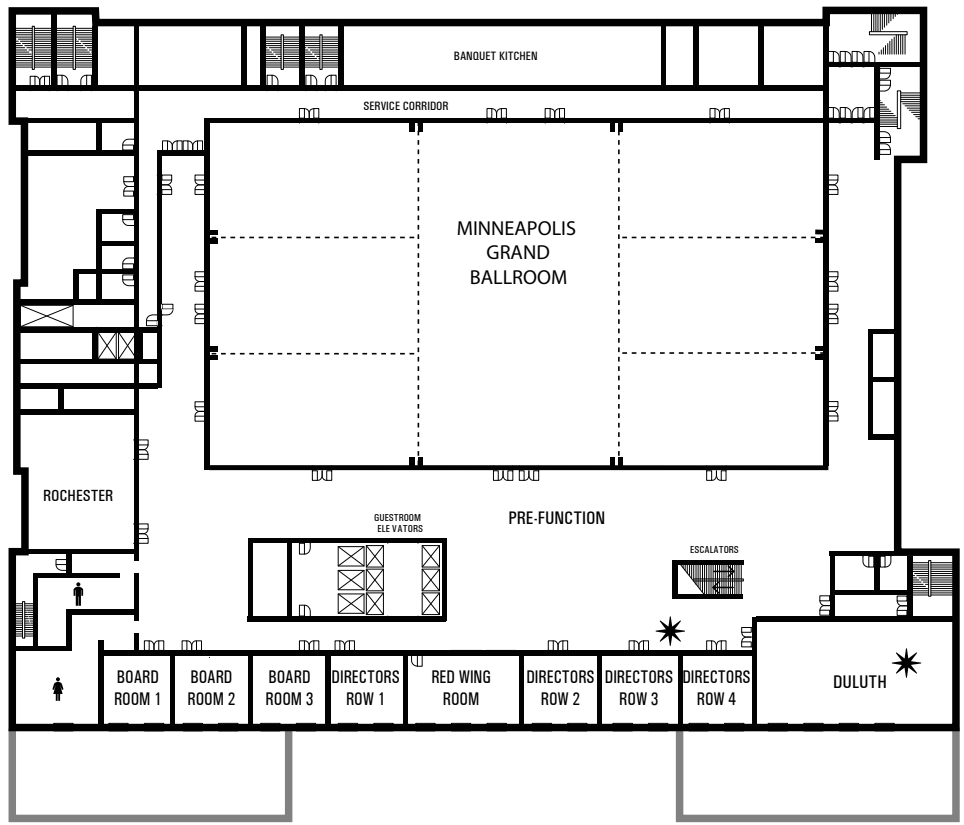
(Please note the Gallery is located on the Lobby Level)

Second Floor



Skyway to Convention Center

Third Floor



✶ = ACI Meeting Rooms

Exhibitors

Exhibitors are listed as of 3/22/2013

Exhibits—C-BALLROOM A&B
The American Concrete Institute would like to thank all exhibitors for their participation in and support of the ACI Spring 2013 Convention.

Exhibit Hours

Sunday-Tuesday 8:00 am - 5:00 pm

ADAPT Corporation—Booth #217
ADAPT Corporation is a leading provider worldwide of software and engineering services concerning concrete buildings and bridges. ADAPT Corporation's software offers an integrated solution for the design of post-tensioned or mild reinforced projects, including two-dimensional (2-D) and three-dimensional (3-D) multi-story modeling approaches. Their products, support, and services build on over 30 years of concrete expertise. For more information, visit **www.adaptsoft.com**.

Adhesive Systems Technology—Booth #316
Manufacturer of equipment used for saw and expansion joint sealing, doweling, and crack injection, used for applications of epoxies, urethanes, polyureas, silicones, and other single- and two-part fluid materials.To learn more, visit **www.ast-corp.net**.

American Engineering Testing, Inc. (AET)—Booth #314
AET is an employee-owned corporation. AET provides geotechnical, environmental, materials, and forensic engineering and laboratory services nationally. Public and private clients are served from offices throughout the Upper Midwest and in Florida, Idaho, Indiana, and Louisiana. To learn more, visit **www.amengtest.com**.

Exhibitors

Exhibitors are listed as of 3/22/2013

BASF Corporation—Booth #113
BASF's division is a worldwide supplier of chemical systems and formulations for the construction industry. The North American Construction Chemicals Division of BASF comprises four business lines that offer products and solutions primarily for commercial, residential, industrial, and infrastructure construction, improving durability, water resistance, energy efficiency, safety, and aesthetics. BASF's innovative products and solutions help make products better. For more information, contact BASF at 800-628-9990 or visit **www.masterbuilders.com**.

Big River Industries—Booth #407
Big River Industries, producer of Riverlite® structural lightweight aggregate, is a leading manufacturer of rotary kiln expanded aggregates in North America. Big River's distribution area extends from Texas to North Dakota and Florida to Ontario. In Minnesota, Wisconsin, and North Dakota, Riverlite is distributed by Lightweight Distributing, based in Minneapolis. To learn more, visit **www.RiverLite.com**.

Braun Intertec—Booth #222
For more than five decades, Braun Intertec has been working with clients in both the public and private sectors on a multitude of projects that range in size and complexity. You'll find there are few firms that are able to offer you the same broad scope of services at a paralleled level of accountability and personal attention. Practice areas include an analytical laboratory, building sciences, concrete consulting, construction materials testing, drilling, environmental consulting, geotechnical engineering, geothermal consulting, nondestructive testing, and pavement consulting. For more information, visit **www.braunintertec.com**.

Burgess Pigment Company—Booth #123
Burgess produces OPTIPOZZ highly reactive metakaolin, a white supplementary cementitious material that contributes to strength development and durability in concrete. The use of a small percentage of OPTIPOZZ in a mixture design will decrease ingress of harmful chemicals, improve finishability, reduce efflorescence, mitigate alkali-silica reaction, and assist in shrinkage resistance. To learn more visit **www.optipozz.com**.

Exhibitors

Exhibitors are listed as of 3/22/2013

Con-Cure/Nitto Construction—Booth #315
Monitoring and testing in-place concrete strength has never been easier and more convenient. The ZoneCure® Wireless Maturity System from Con-Cure Corp. remotely monitors the concrete and sends e-mails when target strengths have been reached. Also featured in the booth for the first time at ACI is the newest nondestructive testing system from Nitto Construction, the CTS-02 Concrete Tester. Using Impact Waveform technology, concrete strength can be assessed using a simple tap of the accelerometer-based tester with far greater accuracy than any rebound hammer. To learn more, visit **www.con-cure.com**.

CRC Press-Taylor & Francis—Booth #115
CRC Press-Taylor and Francis Group, LLC is a premier publisher of books, journals, and electronic databases in civil and structural engineering. They invite you to buy their latest books, pick up a free sample journal, and take advantage of special show discounts ranging from 15 to 50%. For more information, visit **www.crcpress.com**.

ELE International / Hoskin Scientific—Booth #225
ELE International is the world leader in concrete and soil testing equipment, providing products to educational facilities, concrete and cement and companies, and private testing laboratories. Hoskin Scientific is a distributor of testing equipment in Canada. To learn more, visit **www.eleusa.com**.

ERICO—Booth #117
ERICO is a leading global designer, manufacturer, and marketer of precision-engineered specialty metal products serving global niche product markets in a diverse range of electrical, construction, utility, and rail applications. ERICO's LENTON® is a line of reinforcing bar splicing systems and other reinforcing products used to connect steel reinforcement rods in concrete. For more information, visit **www.erico.com**.

Exhibitors

Exhibitors are listed as of 3/22/2013

The Euclid Chemical Company—Booth #409
The Euclid Chemical Company manufactures top-quality products that meet the demands of the concrete and masonry construction industry. The Euclid Chemical Company strives to be "demonstratively better" to its customers through cutting-edge research and development, technical support and service, product training, and an education-driven specification effort. To learn more, visit **www.euclidchemical.com**.

EWOC—Booth #403
Construction Midwest, Inc. offers the revolutionary and innovative EWOC — an environmentally friendly concrete washout container. The EWOC efficiently cleans concrete tools and equipment such as concrete truck chutes, power buggies, mortar mixers, screeds, and hand tools. The EWOC is innovative because of its size, versatility, and its ability to recycle concrete washout water. Visit **www.constructionmidwest.com** for more information.

Fleming Manufacturing—Booth #224
Fleming Manufacturing makes concrete steel paving forms and flip flop paving forms, concrete roller screeds, auger screeds, washout containers, and dowel baskets. They are an American Veteran owned company. When you buy from Fleming Manufacturing, you're buying Direct. They have over 40 years of experience manufacturing and designing any size highway and airport paving forms and screeds. To learn more, visit **www.flemingmfg.com.**

FORTA Corporation—Booth #310
FORTA Corporation has revolutionized the basic idea of using fibers in building materials. By combining space-age synthetic materials with unique designs and shapes, FORTA offers the international construction market a valuable fiber-reinforcement product that controls cracking and adds long-term durability to a wide variety of concrete applications. Coupled with a dedicated and knowledgeable management, staff, and workforce, FORTA Corporation will continue to lead the way in building a better concrete future. For more information, visit **www.forta-ferro.com**.

Gelmaxx Slurry Solutions—Booth #325
GELMAXX Slurry Solutions is an eco-friendly solution for slurry waste management. Their Eco-Quick Gel will absorb slurry into a dry

material that is EPA compliant and can be disposed of in any standard trash can. The AquaMaxx product will separate slurry solids from water, which can be recycled back into jobsite machinery. To learn more, visit **www.gelmaxxusa.com.**

Germann Instruments, Inc.—Booth #s 209 & 211
Germann Instruments, Inc., is the leader in nondestructive testing (NDT) of concrete structures. Their cutting-edge, innovative product line includes advanced NDT equipment for concrete testing. For structural integrity, they provide impact-echo, mash, and MIRA/ Eyecon three-dimensional (3-D) shear-wave systems. For durability, they provide service life, rheometer, PROOVEit, chloride, and profile. For freezing and thawing, they provide the EVA Analyzer and RapidAir. For fast-track construction, they produce the LOK-TEST and Coma-Meter. For corrosion surveys, they provide GalvaPulse and RapiCor. They also produce the Bond-Test and CorroEye for repair quality. For more information, visit **www.germann.org.**

Giatec Scientific Inc.—Booth #416
Giatec Scientific Inc. is a knowledge-based company that provides advanced concrete testing technologies to the construction industry. Giatec offers novel methods and devices for the performance-based quality control of concrete and accurate condition assessment of concrete infrastructure. These innovative tools are designed for various applications for concrete producers, consulting companies, and infrastructure owners and operators. To learn more, visit **www.giatec.ca**.

Grace Construction Products—Booth #215
Headquartered in Cambridge, MA, Grace Construction Products is a worldwide leading manufacturer of concrete admixtures and fibers, liquid pigments for colored concrete; cement processing additives; concrete masonry products; air and vapor barriers; roofing underlayments; self-adhered window, door, and deck flashings; structural waterproofing systems; and fire protection products. For more information, visit **www.grace.com**.

Headed Reinforcement Corp. (HRC)—Booth #405
HRC is known in the industry for delivering practical coupler and T-head solutions without reducing the capacity of the reinforcing steel for ultimate strength and ductility. HRC products are designed to exceed the tensile properties of the reinforcing steel used. Visit **www.hrc-usa.com** for more information.

Exhibitors

Exhibitors are listed as of 3/22/2013

Headwaters Resources—Booth #414
Headwaters Resources is America's largest manager and marketer of coal combustion products, including fly ash, which improves concrete performance even as it creates benefits for our environment. For more information, visit **www.flyash.com**.

Hughes Brothers, Inc.—Booth #214
Hughes Brothers, Inc., manufactures fiber-reinforced polymer (FRP) reinforcement under the trade name Aslan FRP. Aslan FRP products include FRP reinforcing bar for concrete reinforcement in corrosive or electrically sensitive environments, glass fiber-reinforced polymer dowel bars for load transfer between slabs, and structural strengthening materials for externally bonded and near-surface-mount strengthening of existing structures. To learn more, visit **www.aslanfrp.com**.

ITW Commercial Construction—Booth #408
As the company that invented concrete anchoring technology, ITW Commercial Construction holds a unique place in the history of construction and building. The ITW brand has become synonymous with the anchoring product category it invented. For more information, visit **www.itwredhead.com**.

Kryton International Inc.—Booth #308
Kryton International Inc. takes the risk out of concrete waterproofing. Waterproofing concrete structures since 1973, Kryton has the most complete system, which has undergone more testing and received more approvals than any other. Kryton is the leader in products for waterproofing, repairing, and protecting concrete and—most notably—the inventors of the Crystalline waterproofing admixture. For more information, visit **www.kryton.com**.

Meyers Associates—Booth #422
Myers Associates has been providing quality products and services throughout the United States since 1994. They specialize in the reselling of construction material testing equipment from all of the major manufacturers. Meyers offer the opportunity to make one call to find the equipment you want at the right price. Count on Myers Associates for all of your construction materials testing equipment needs. To learn more, visit **www.myerstest.com**.

Exhibitors

Exhibitors are listed as of 3/22/2013

Olson Engineering, Inc.—Booth #410
Olson Engineering, Inc., specializes in nondestructive evaluation (NDE), infrastructure condition assessment and repair, structural health monitoring, and geophysical and vibration engineering. Olson manufactures ultrasonic, sonic, and seismic instruments for pavements, foundations, and structures, as well as seismic surface wave, crosshole, downhold, reflection, and refraction tests, and distributes intrusion detection system (IDS) radar systems in the United States. For more information, visit **www.olsonengineering.com**.

Proceq USA, Inc.—Booth #223
Proceq USA, Inc., a global leader in portable nondestructive testing (NDT) instruments for concrete structures, will be displaying its latest innovations in NDT instruments. New products include the Resipod concrete surface resistivity meter and the new portable, handheld Handy Search ground-penetrating radar. Other instruments on display will include Proceq's range of reinforcing bar detection equipment, ultrasonic testing instruments, corrosion analysis instruments, pulloff adhesion testing equipment, and uniformity/ strength evaluations of structures with the complete range of Original Schmidt concrete test hammers. Visit **www.proceq.com** to learn more.

Sika Corporation—Booth #309
Sika Corporation, based out of Lyndhurst, NJ, is a global technology leader with over 100 years of experience in concrete materials and restoration technology. Sika has a long history of developing and producing a wide range of high-performance products and systems that cover, seal, bond, strengthen, reinforce, repair, and protect construction projects from roof to floor. For more information, visit **www.sika.com**.

Silica Fume Association—Booth #311
The Silica Fume Association provides high-performance concrete information to the construction industry, a valuable material for today's sustainable concrete mixtures. Silica fume is available waste material used in today's sustainable concrete mixtures. To learn more, visit **www.silicafume.org**.

Exhibitors

Exhibitors are listed as of 3/22/2013

STRUCTURAL TECHNOLOGIES—Booth #317
STRUCTURAL TECHNOLOGIES was created in the early 1980s as part of STRUCTURAL Group to develop proprietary products, processes, and systems. STRUCTURAL TECHNOLOGIES comprises product development, engineering, and technical service experts supporting specialized solutions groups such as strengthening, post-tensioning, cathodic protection, force protection, concrete repair, and waterproofing. For more information, visit **www.structuraltechnologies.com.**

Tekla, Inc.—Booth #216
Tekla, Inc. is a building information modeling (BIM) solution for concrete contractors, reinforcing bar detailers, and structural engineers. Tekla Structures provides a model-based solution where all construction details are stored in one central three-dimensional (3-D) model. Tekla offers detailed reports that provide a wide array of data in an instant. Tekla Structures can display, use, and export models generated by other BIM solutions. It can also be used for activities like site planning, scheduling, material tracking, and more. For more information, visit **www.tekla.com**.

THAWZALL—Booth #s 322 & 324
THAWZALL's advanced technology and unique design separate it from the competition. THAWZALL heat units are environmentally safe, providing flameless, clean, fume-free, dry heat to any interior space with our accessory unit heaters. The design ensures that you benefit from the most efficient heating system available. THAWZALL heat units are specifically designed for convenience and ease of operation. To learn more, visit **www.thawzall.com**.

Tourney Consulting Group, LLC—Booth #125
Tourney Consulting Group, LLC (TCG), is a consulting and laboratory company that focuses on durability and cost-effective service-life solutions for concrete structures. TCG conducts service-life engineering on new and existing structures. TCG's laboratory is AASHTO-approved, Army-Corps-validated, STADIUM-certified, and CCRL-compliant. For more information, visit **www.tourneyconsulting.com**.

Exhibitors

Exhibitors are listed as of 3/22/2013

Universal Construction Testing (UCT)-Radarview—Booth #323
As of 12/31/2012, Radarview acquired 100% of UCT stock. Radarview provides structural concrete as-built and condition testing, DOT and airport pavement surveys, core drilling, and underground utility/environmental investigations. UCT provides full structural and geotechnical field NDT, quality control, and laboratory services, including a wide array of mechanical, chemical, petrographic, and environmental testing of concrete, masonry, metals, wood, soil, coatings, and composites materials, as well as a full-scale structural testing laboratory and short- and long-term structural monitoring. The combined capabilities allow for better response with a single source for services. For a complete list of field and laboratory capabilities, visit **www.radarviewllc.com** or **www.uctgroup.com**.

Vector Corrosion Technologies—Booth #212
Vector Corrosion Technologies offers a portfolio of solutions for concrete corrosion repair and protection. Innovative solutions include electrochemical chloride extraction, cathodic protection, and an array of galvanic protection systems, including embedded galvanic anodes, galvanic jackets, and activated arc-spray zinc metalizing. Vector also provides evaluation, repair, and mitigation services for post-tension corrosion and temperature-resistant composite-strengthening systems. For more information, call 813-830-7566 or visit **www.vector-corrosion.com**.

Exhibitor Demonstration Schedule

Monday, April 15, 2013

Time	Exhibitor	Presentation/Demo Title
11:15 pm	Nitto Construction/ Con-Cure	Learn about the latest technology from Con-Cure for remotely tracking live concrete strengths and temperatures
12:00 pm	Special Presentation on Concrete Cares, an industry wide initiative to use decorative concrete as a means to raise cancer awareness 	
12:45 pm	Olson Engineering, Inc.	Short case histories on condition assessment of concrete structures, pavements, and foundations with NDE methods
1:30 pm	Vector Corrosion Technologies	Corrosion Mitigation of Reinforced Concrete Structures

Tuesday, April 16, 2013

Time	Exhibitor	Presentation/Demo Title
12:00 pm	Special Presentation on Concrete Cares, an industry wide initiative to use decorative concrete as a means to raise cancer awareness 	

*demos listed as of 3/22/13.

For the most up to date list of exhibitor demonstrations, please stop by the ACI Registration Desk or check the digital monitor in the exhibit hall.

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Friday, April 12, 2013		
6:30 pm - 9:00 pm		
TAC	Technical Activities M1	H-DULUTH
Saturday, April 13, 2013		
7:00 am - 6:00 pm		
TAC	Technical Activities M2	C-101 B
9:00 am - 6:00 pm		
347	Formwork M1	C-101 G
1:00 pm - 5:00 pm		
EAC	Educational Activities M1	C-101 F
301	Specifications M1	C-101 J
563	Specs for Repair of Struct Conc in Bldgs M1	C-101 C
2:00 pm - 6:00 pm		
	ACI Registration	C-BALLROOM A&B
	ACI Bookstore	C-BALLROOM A&B
	Afternoon Soda Break	C-BALLROOM A&B
	Speaker Ready Room	C-M101 A
7:00 pm - 9:00 pm		
347-A	Formwork - Specification	C-101 G
Sunday, April 14, 2013		
7:00 am - 8:15 am		
301-SC	Spec - Steering Committee	C-101 A
7:00 am -10:00 am		
	✶**Guest Hospitality**	H-THE GALLERY
	Coffee Break	C-BALLROOM A&B
7:00 am - 2:00 pm		
TAC	Technical Activities M3	C-101 B

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Sunday, April 14, 2013 (cont.)		
7:00 am - 7:00 pm		
	Speaker Ready Room	C-M101 A
7:30 am - 5:00 pm		
	ACI Registration	C-BALLROOM A&B
8:00 am - 8:30 am		
408-A	Mech Splices	C-200 E
8:00 am - 9:00 am		
	Convention Orientation Breakfast	C-205 A&B
	✶**Guest Overview**	H-THE GALLERY
8:00 am - 9:30 am		
341-D	Perf-Based Seismic Design	C-101 H
8:00 am - 10:00 am		
E706	Concrete Repair Education	C-M101 C
S801	Student Activities	C-101 G
445-B	Shear & Torsn - Seismic Shear	C-204 A
8:00 am - 10:30 am		
CLC	Construction Liaison	C-M100 A
8:00 am - 11:00 am		
TACRG1	TAC Review Group 1	C-201 A
TACRG2	TAC Review Group 2	C-201 B
TACRG3	TAC Review Group 3	C-202 A
TACRG4	TAC Review Group 4	C-202 B
8:00 am - 5:00 pm		
	ACI Bookstore	C-BALLROOM A&B
	Exhibits	C-BALLROOM A&B
8:30 am - 10:00 am		
342	Bridge Evaluation	C-101 I

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8:30 am - 11:30 am		
MEMC	Membership	C-M100 C
314	Simplified Design Buildings	C-200 G
315-B	Detailing - Constructability	C-M100 B
350-C	Env Str - Reinf & Devel	C-204 B
408	Development and Splicing	C-200 E
440-H	FRP - Reinforced Concrete	C-200 A&B
8:30 am - 12:00 pm		
301	Specifications M2	C-101 A
8:30 am - 12:30 pm		
347	Formwork M2	C-200 C&D
9:00 am - 12:00 pm		
551	Tilt Up M1	C-200 F
9:30 am - 11:00 am		
341-C	Equake Res Brdgs - Retrofit	C-101 H
9:30 am - 12:30 pm		
228	Nondestructive Testing	C-101 F
10:00 am - 11:00 am		
546-B	Materials Selection Guide	C-200 J
10:00 am - 11:30 am		
E701	Materials for Concrete Construction	C-200 I
10:00 am - 12:00 pm		
C660	Shotcrete Nozzleman Cert	C-204 A
10:00 am - 1:00 pm		
421	Reinf Slabs	C-101 G
549	Thin Reinforced	C-M101 C
	✓**Walk This Way! Walking Tour of Minneapolis**	H-DEPART MAIN LOBBY

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Sunday, April 14, 2013 (cont.)		
10:00 am - 5:00 pm		
	✶Guest Lounge	H-THE GALLERY
10:30 am - 11:30 pm		
IF	International Forum	C-101 I
10:30 am - 12:00 pm		
376-01	Steering Committee	C-M100 A
10:30 am - 1:30 pm		
445-A	Shear & Torsion - Strut & Tie	C-200 H
10:30 am - 4:30 pm		
	Student Fiber-Reinforced Concrete (FRP) Beam Competition	C-BALLROOM A&B
10:30 am - 5:00 pm		
	Art of Concrete Student Competition	C-BALLROOM A&B
11:00 am - 12:00 pm		
343-A	Design	C-203 B
546-C	Repair - Guide	C-200 J
11:00 am - 12:30 pm		
341-B	Equake Res Brdgs - Pier Walls	C-101 H
11:00 am - 1:00 pm		
C640	Craftsman Cert	C-M100 I
351-TG1	Spec for Cementitious Grouting Between Foundations & Equipment Bases	C-202 B
11:00 am - 2:00 pm		
	Afternoon Soda Break	C-BALLROOM A&B
	Lunch Concession	C-BALLROOM A&B

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11:30 am - 1:00 pm		
221	Aggregates	C-M100 B
335	Composite Hybrid	C-M100 C
350-SC	Env Str - Steering Comm	C-204 B
374-TG2	Protocol for Testing RC - Structural Elements	C-203 A
441-E	Columns with Multi-Spiral Reinforcement	C-201 A
11:30 am - 1:30 pm		
	✓**International Lunch**	C-205 A&B
12:00 pm - 2:00 pm		
237-TG1	Self-Consolidating Concrete Task Group	C-201 B
12:30 pm - 2:00 pm		
130-F	Social Issues	C-M100 H
445-E	Shear & Torsn - SOA Torsion	C-203 B
12:30 pm - 4:30 pm		
301-B	Spec - Formwork & Reinforcement	C-204 A
301-H	Spec - Tilt-Up Constr & Arch Conc	C-200 J
1:00 pm - 2:30 pm		
369	Seismic Rehab M1	C-M100 A
533	Precast Panels	C-M100 I
1:00 pm - 3:00 pm		
228-B	Visual Inspection	C-101 G
351-C	Equip Fdns - Dynamic Foundations	C-201 A
376-B	Materials Subcommittee	C-M100 B
445-C	Shear & Torsn - Punching Shear	C-M100 C
563	Specs for Repair of Struct Conc Bldgs M2	C-200 G

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Sunday, April 14, 2013 (cont.)		
1:00 pm - 3:00 pm - *Sessions*		
	In Honor of Dick Stehly: Increased Beneficial Use of Fly Ash—History, Accomplishments, and Challenges, Part 1 of 2	C-101 C
	Innovative Structural Slab Practices	C-101 E
	Monitoring Performance during Construction, Part 1 of 2	C-101 D
1:00 pm - 4:00 pm		
362-A	Updating Guide to Structural Maintenance of Parking Structures Document	C-200 E
423-E	Prestress - Losses	C-200 I
551	Tilt Up M2	C-101 A
1:00 pm - 5:00 pm		
301-C	Spec - Placing, Consolidating & Curing	C-101 I
301-D	Spec - Lightweight & Massive Concrete	C-203 A
301-G	Spec - Shrink Comp Conc & Ind Floor Slabs	C-204 B
336	Footings	C-M101 C
350-E	Env Str - Precast/Prestressed	C-101 J
1:00 pm - 5:15 pm		
	ACI Mortar Workability Competition	C-BALLROOM A&B
1:30 pm - 2:30 pm		
506-B	Shotcreting - Fiber-Reinforced	C-M100 J
1:30 pm - 3:00 pm		
341-A	Equake Res Brdgs - Columns	C-101 H
440-K	FRP - Material Characteristics	C-200 A&B
1:30 pm - 3:30 pm		
345	Bridge Construction	C-200 H

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1:30 pm - 5:00 pm		
355	Anchorage	C-200 C&D
2:00 pm - 3:00 pm		
310-TG1	Curing Decorative Concrete	C-202 B
2:00 pm - 3:30 pm		
C650	Tilt-Up Constructor Cert	C-203 B
236-B	Material Science - Transport Mechanism	C-200 F
2:00 pm - 4:00 pm		
215	Fatigue	C-201 B
305	Hot Weather	C-101 B
	✓**I-35W Bridge Tour**	H-DEPART MAIN LOBBY
2:00 pm - 5:00 pm		
132	Responsibility	C-M101 B
315	Detailing	C-101 F
352	Joints	C-M100 H
2:00 pm - 8:00 pm		
	Meet Minneapolis Information Desk	C-BALLROOM A&B
2:30 pm - 3:30 pm		
318-EA	318 Electronic Aids	C-M100 A
2:30 pm - 4:00 pm		
HTC	Hot Topic	C-M100 J
2:30 pm - 5:00 pm		
224	Cracking	C-M100 I

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Sunday, April 14, 2013 (cont.)		
3:00 pm - 5:00 pm		
121	Quality Assurance	C-M100 C
301-E	Spec - Post-Tensioned Concrete	C-202 B
309	Consolidation	C-201 A
341	Earthquake-Resistant Bridges	C-101 H
376-C	Analysis Subcommittee	C-M100 B
440-L	FRP - Durability	C-200 A&B
445-D	Shear & Torsn - Database	C-200 G
562	Eval, Repair & Rehab	C-101 G
3:00 pm - 5:30 pm		
310	Decorative Concrete	C-202 A
3:30 pm - 5:00 pm		
Intl-Cert	International Certification	C-M100 A
236-D	Material Science - Nanotechnology of Concrete M1	C-200 F
3:30 pm - 5:30 pm		
423/445	Adhoc Grp on Shear in Prestress Conc	C-200 H
550	Precast Structures	C-205 A
3:30 pm - 5:30 pm - *Sessions*		
	Field Measurements of Form Pressure Exerted by Self-Consolidating Concrete	C-101 E
	In Honor of Dick Stehly: Increased Beneficial Use of Fly Ash—History, Accomplishments, and Challenges, Part 2 of 2	C-101 C
	Monitoring Performance during Construction, Part 2 of 2	C-101 D
4:00 pm - 5:00 pm		
S805	Collegiate Concrete Council	C-200 I

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4:00 pm - 5:30 pm		
ACI/ ASCE-SEI	ACI/ASCE-SEI	C-101 A
123	Research	C-101 B
343-G	Editorial	C-204 A
439-A	Steel Reinforcement - Wire	C-M100 J
5:45 pm - 7:00 pm		
	Opening Session and Awards Program	C-AUDITORIUM
7:00 pm - 8:00 pm		
	Opening Reception	C-BALLROOM A&B
	Complimentary Professional Headshots	C-BALLROOM A&B
	ACI Tweet Up	C-BALLROOM A&B
8:00 pm - 10:00 pm - *Session*		
	Hot Topic Session: Responsibility in Concrete Construction	C-101 E
9:00 pm - 10:30 pm		
	Student and Young Professional Networking Event	Rock Bottom Brewery (9th and Hennepin)

Monday, April 15, 2013

6:30 am - 8:00 am		
	Workshop for Technical Committee Chairs	C-102 A-F
7:00 am - 8:30 am		
	Speaker Development Breakfast	C-200 F&G
7:00 am - 10:00 am		
	✶**Guest Hospitality**	H-THE GALLERY
	Coffee Break	C-BALLROOM A&B
7:00 am - 7:00 pm		
	Speaker Ready Room	C-M101 A

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Monday, April 15, 2013 (cont.)		
7:15 am - 8:30 am		
IC-Conf	International Conferences	C-M100 I
7:30 am - 5:00 pm		
	ACI Registration	C-BALLROOM A&B
8:00 am - 8:30 am		
	Meeting Spot	C-BALLROOM A&B
8:00 am - 9:00 am		
441-A	High-Strength Concrete	C-204 A
8:00 am - 10:00 am		
351-TG2	Specification for Epoxy Grouting Between Foundations & Equipment Bases	C-203 A
376-D	Design & Construction Subcommittee	C-M100 J
8:00 am - 11:00 am		
	Molin Concrete Plant Tour	H-DEPART MAIN LOBBY
8:00 am - 5:00 pm		
	ACI Bookstore	C-BALLROOM A&B
	Exhibits	C-BALLROOM A&B
8:15 am - 9:00 am		
343-B	Bridge Deck Design	C-M101 C
8:15 am - 11:00 am		
237	Self-Consolidating Concrete	C-200 D&E
349-C	Nuclear Str - Anchorage	C-101 F
548-A	Polymers - Overlays	C-202 B
8:15 am - 12:00 pm		
374	Seismic Design	C-101 A
8:30 am - 9:30 am		
S802	Teaching Methods and Educational Materials	C-205 D

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8:30 am - 10:00 am		
PUBC	Publications	C-M100 I
130-A	Materials	C-101 B
318-L	International Liaison	C-205 B
318/ ASCE7	ACI 318/ASCE7 Coordination Meeting	C-205 C
439	Steel Reinforcement	C-101 G
440-G	FRP - Student	C-M100 C
524	Plastering	C-101 J
544-SC	FRC - Steering Committee	C-205 A
8:30 am - 10:30 am		
506-C	Shotcreting - Guide	C-M100 B
	Complimentary Professional Headshots	C-BALLROOM A&B
8:30 am - 10:30 am - *Sessions*		
	Portland-Limestone Cements: A Technology to Improve the Sustainability of Concrete	C-101 E
	Proportioning Concrete Mixtures for Use in the 21st Century, Part 1 of 2	C-101 D
	Research in Progress, Part 1 of 2	C-101 C
8:30 am - 11:00 am		
C610	Field Technician Cert	C-101 H
355-TG	Anchorage TG	C-M100 A
8:30 am - 11:30 am		
209	Creep & Shrinkage	C-101 I
318-B	Reinforcement & Development M1	C-200 J
543	Piles	C-204 B
546	Repair	C-200 F&G
8:30 am - 12:00 pm		
301-A	Spec - Gen Req, Definitions, & Tolerances	C-201 B

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Monday, April 15, 2013 (cont.)		
8:30 am - 12:30 pm		
423	Prestressed	C-200 H&I
8:30 am - 1:00 pm		
302	Floor Construction	C-200 A-C
350-B	Env Str - Durability	C-203 B
8:30 am - 5:00 pm		
313	Bins & Silos	C-M101 B
8:30 am - 6:30 pm		
350-D	Env Str - Structural	C-201 A
9:00 am - 10:00 am		
441-B	Lateral Reinf	C-204 A
9:00 am - 11:00 am		
365	Service Life	C-M101 C
9:00 am - 12:00 pm		
301-F	Spec - Precast Concrete Panels	C-202 A
9:00 am - 1:00 pm		
	✓**Secrets of St. Paul Tour**	H-DEPART MAIN LOBBY
9:00 am - 4:30 pm		
	Exhibitor Demonstrations	C-BALLROOM A&B
9:30 am - 11:30 am		
370	Blast and Impact Load Effects	C-205 D
10:00 am - 11:30 am		
440-I	FRP - Prestressed Concrete	C-101 B

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10:00 am - 12:00 pm		
343	Bridge Design M2	C-101 J
351-D	Design Provisions for Heavy Industrial Equipment and Machinery Concrete Support Structures	C-M100 C
376-A	Code, Education & Publication Subcommittee	C-203 A
10:00 am - 12:30 pm		
377	Performance-Based Structural Integrity & Resilience of Concrete Structures	C-204 A
10:00 am - 1:00 pm		
207	Mass Concrete	C-205 C
216	Fire Resistance	C-205 A
232-A	Fly Ash - Use of Nat Pozzolans	C-M100 I
318-E	Shear and Torsion M1	C-M100 J
10:00 am - 5:00 pm		
	✶Guest Lounge	H-THE GALLERY
10:30 am - 12:30 pm		
437	Strength Evaluation	C-205 B
506-E	Shotcreting - Specifications	C-M100 B
11:00 am - 12:00 pm		
364-TG1	Rehabilitation Guide	C-M100 A
11:00 am - 12:30 pm		
548-C	Structural Polymer Design	C-202 B
11:00 am - 1:00 pm		
440-TG2	Repair Construction Specification	C-200 D&E

Daily Program

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Monday, April 15, 2013 (cont.)		
11:00 am - 1:00 pm - *Sessions*		
	Innovative Technologies in Blast-Resistant Design	C-101 E
	Proportioning Concrete Mixtures for Use in the 21st Century, Part 2 of 2	C-101 D
	Research in Progress, Part 2 of 2	C-101 C
11:00 am - 1:30 pm		
447	Finite Element Analysis M1	C-M101 C
11:00 am - 2:00 pm		
	Afternoon Soda Break	C-BALLROOM A&B
	Lunch Concession	C-BALLROOM A&B
11:30 am - 1:00 pm		
C601-A	Adhesive Anchor Installer	C-101 B
201-D	Durability - Oversight Committee	C-204 B
304	Measuring/Mix/Trans/Placing	C-101 I
346	CIP Pipe	C-205 D
544-A	FRC - Production & Applications	C-101 H
11:30 am - 1:30 pm		
	✓**Student Lunch**	C-102 A-F
11:30 am - 2:00 pm		
441	Columns	C-200 J
12:00 pm - 1:00 pm		
343-D	Loads	C-203 A
	Meeting Spot	C-BALLROOM A&B
12:00 pm - 2:00 pm		
214	Strength Tests M1	C-201 B

Daily Program

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12:30 pm - 2:00 pm		
124	Aesthetics	C-205 B
350-H	Env Str - Editorial	C-204 A
12:30 pm - 4:30 pm		
349-A&B	Nuclear Str - Design & Materials	C-200 H&I
1:00 pm - 2:00 pm		
130-B	Production/Transport/ Construction	C-101 F
	Chapter Forum: Facebook for Chapters	C-101 H
1:00 pm - 2:30 pm		
C631	Conc Transportation Const Insp	C-M100 J
1:00 pm - 3:00 pm		
C601-F	Nondestructive Testing Technician	C-204 B
122	Energy Efficiency	C-101 A
1:00 pm - 3:30 pm		
375	Design for Wind Loads	C-205 D
1:00 pm - 4:00 pm		
225	Hydraulic Cements	C-M100 H
232	Fly Ash & Natural Pozzolans	C-101 I
364	Rehabilitation	C-M100 C
376	RLG Containment Structures	C-M100 I
1:00 pm - 5:00 pm		
301	Specifications M3	C-101 G
362	Parking Structures	C-101 B
1:15 pm - 5:00 pm		
	Gerdau Rebar Mill Plant Tour	H-DEPART MAIN LOBBY
1:30 pm - 3:00 pm		
440-M	FRP - Repair of Masonry Str	C-200 F&G
506-A	Shotcreting - Evaluation	C-M101 C

Daily Program

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Monday, April 15, 2013 (cont.)		
1:30 pm - 3:30 pm - *Sessions*		
	Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 1 of 3	C-101 C
	Current Research in Concrete Pavements	C-101 E
	Responsibilities of the New Concrete Professional	C-101 D
2:00 pm - 3:00 pm		
SCO	Scholarship Council M2	C-202 B
2:00 pm - 3:30 pm		
S806	Young Professional Activities	C-203 A
231	Early Age	C-101 F
318-S	Spanish Translation	C-202 A
348	Safety	C-204 A
564-F&M	Evaluation, Repair & Rehabilitation of Nuclear Con	C-205 C
2:00 pm - 5:00 pm		
CAC	Chapter Activities	C-101 H
MKTC	Marketing	C-M100 A
130	Sustainability M1	C-200 D&E
212	Chemical Admixtures	C-200 J
307	Chimneys	C-203 B
2:00 pm - 6:00 pm		
369	Seismic Rehab M2	C-M100 B
445	Shear & Torsion	C-101 J
	Meet Minneapolis Information Desk	C-BALLROOM A&B
2:00 pm - 6:30 pm		
360	Slabs on Ground	C-200 A-C

Daily Program

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2:30 pm - 4:30 pm		
351	Equip Foundations	C-205 B
548-B	Polymers - Adhesives	C-205 A
3:00 pm - 4:30 pm		
506-G	Qualifications for Projects	C-M101 C
3:00 pm - 6:00 pm		
440-F	FRP - Repair Strengthening	C-200 F&G
3:30 pm - 5:00 pm		
	✶**Guest Social**	H-SYMPHONY III
211-P	Guide for Selecting Proportions for Pumpable Concrete	C-203 A
214	Strength Tests M2	C-205 C
435	Deflection	C-202 A
446	Fracture Mechanics	C-205 D
3:30 pm - 5:30 pm		
239	Ultra-High-Performance Concrete	C-M100 J
3:30 pm - 6:00 pm		
544-D	FRC - Structural Uses	C-101 F
3:30 pm - 6:30 pm		
350-J	Env Str - Education	C-204 A
4:00 pm - 6:00 pm		
423-F	Sustainable Prestressed Concrete	C-101 I
4:00 pm - 6:00 pm - *Sessions*		
	Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 2 of 3	C-101 C
	SCC in Repair Applications	C-101 E
	Validation of Long-Term Performance Predictions	C-101 D

Daily Program

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Monday, April 15, 2013 (cont.)		
4:30 pm - 5:30 pm		
236	Material Science	C-200 H&I
506-F	Shotcreting - Underground	C-205 A
5:00 pm - 6:00 pm		
334	Shells	C-203 A
5:00 pm - 6:30 pm		
E702	Designing Concrete Structures	C-205 D
447	Finite Element Analysis M2	C-202 A
544-E	FRC - Mechanical Properties	C-M100 A
555	Recycled	C-205 C
5:00 pm - 7:00 pm		
E703	Concrete Construction Practices	C-200 J
6:00 pm - 7:00 pm		
	Women in ACI Reception	C-SEASONS
6:30 pm - 8:30 pm - *Session*		
	123 Forum: What Is the Biggest Analytical Gap in the Analysis of Reinforced/Prestressed Concrete and What Are the Implications for Structural Design Codes?	C-101 C
7:30 pm - 8:30 pm		
	Hockey Game in Memory of Dick Stehly: The St. Paul Stehlys vs. The Minneapolis Richards (Registration is required)	H-DEPART MAIN LOBBY
Tuesday, April 16, 2013		
6:30 am - 8:30 am		
TTAG	Technology Transfer Advisory Group	C-M100 J

Daily Program

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7:00 am - 8:30 am		
TRRC	TAC Repair & Rehab	C-101 H
7:00 am - 10:00 am		
	✶**Guest Hospitality**	H-THE GALLERY
	Coffee Break	C-BALLROOM A&B
7:00 am - 6:00 pm		
	Speaker Ready Room	C-M101 A
7:30 am - 9:00 am		
130-G	Education/Certification	C-203 B
7:30 am - 5:00 pm		
	ACI Registration	C-BALLROOM A&B
8:00 am - 8:30 am		
	Meeting Spot	C-BALLROOM A&B
8:00 am - 9:00 am		
IJBRC	Intl Joints & Bearings Research	C-201 B
8:00 am - 9:30 am		
C601	New Certification Programs	C-101 G
230	Soil Cement	C-200 H
8:00 am - 10:00 am		
211-C	Proportioning - No Slump	C-202 A
238	Workability of Fresh Concrete	C-M101 B
444	Structural Health Monitoring and Instrumentation	C-200 F
8:00 am - 11:00 am		
201	Durability	C-200 D&E
440	Fiber-Reinforced Polymer	C-200 A-C
522	Pervious Concrete	C-101 B
8:00 am - 12:00 pm		
EAC	Educational Activities M2	C-204 B

Daily Program

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Tuesday, April 16, 2013 (cont.)		
8:00 am - 12:30 pm		
318-B	Reinforcement & Development M2	C-M100 A
318-D	Flexure & Axial Loads	C-M100 H
318-E	Shear & Torsion M2	C-M100 C
318-G	Prestressed Precast	C-M100 B
8:00 am - 5:00 pm		
	ACI Bookstore	C-BALLROOM A&B
	Exhibits	C-BALLROOM A&B
8:30 am - 10:00 am		
C620	Laboratory Tech Cert	C-200 J
544-B	FRC - Education	C-101 F
8:30 am - 10:30 am		
357	Offshore & Marine	C-203 A
523	Cellular Concrete	C-M100 J
8:30 am - 10:30 am - *Sessions*		
	Contractors' Day Session: High-Volume Fly Ash Concretes—Providing Constructability to Sustainability	C-101 D
	Fracture Mechanics Applications in Concrete, Part 1 of 2	C-101 C
	Not Your Father's Technology	C-101 E
8:30 am - 11:30 am		
117	Tolerances	C-200 G
306	Cold Weather	C-200 I
350-G&K	Env Str - Tightness Testing/ Haz Mat	C-204 A
506	Shotcreting	C-101 A
548	Polymers	C-M100 I

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8:30 am - 3:30 pm		
350-F	Env Str - Seismic	C-201 A
9:00 am - 10:00 am		
325-A	Pavements - Design	C-202 B
9:00 am - 10:30 am		
332-B	Conc Mtrls and Plcmnt	C-201 B
9:00 am - 11:00 am		
515	Protective Systems	C-203 B
PATG	Task Group on Project Awards	C-101 J
9:00 am - 11:30 am		
IAC	International Advisory Committee	C-101 I
9:00 am - 12:00 pm		
	✓**The Best of Minneapolis Tour**	H-DEPART MAIN LOBBY
9:00 am - 4:30 pm		
	Exhibitor Demonstrations	C-BALLROOM A&B
9:30 am - 11:00 am		
130-E	Design/Specifications/Codes/ Regulations	C-200 H
10:00 am - 11:30 am		
C630	Construction Inspector Cert	C-200 F
10:00 am - 12:00 pm		
211-A	Proportioning - Editorial	C-202 B
359-C	Working Group on Modernization	C-200 J
10:00 am - 5:00 pm		
	✶**Guest Lounge**	H-THE GALLERY

Daily Program

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Tuesday, April 16, 2013 (cont.)		
10:30 am - 12:00 pm		
120	History	C-M101 C
325-C	Pavements - Prestressed and Precast	C-203 A
332-D&E	Residential Concrete D&E	C-201 B
332-F	Residential Concrete - Slabs	C-202 A
544-F	FRC - Durability	C-101 F
10:30 am - 12:30 pm		
236-TG4	Modeling and Simulation Methods	C-M101 B
10:30 am - 1:00 pm		
526	Autoclaved Aerated Concrete	C-M100 J
11:00 am - 12:30 pm		
371	Elevated Tanks with Concrete Pedestals	C-200 H
11:00 am - 1:00 pm		
CRC	Concrete Research Council	C-101 H
130	Sustainability M2	C-200 A-C
327	RCC Pavements	C-101 J
11:00 am - 1:00 pm - *Sessions*		
	Chemical Effects	C-101 E
	Fracture Mechanics Application in Concrete, Part 2 of 2	C-101 C
	Green Cements - State of the Art, Part 1 of 2	C-101 D
11:00 am - 2:00 pm		
	Afternoon Soda Break	C-BALLROOM A&B
	Lunch Concession	C-BALLROOM A&B
11:30 am - 12:30 pm		
236-TG2	Sustainability Engineered by Material Science	C-101 A

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11:30 am - 1:00 pm		
E707	Specification Education	C-200 F
211-E	Proportioning - Evaluation	C-204 A
213-TG1	Lightweight - Editorial TG	C-200 I
11:30 am - 1:30 pm		
	✓**Contractors' Day Lunch**	C-205 A&B
11:30 am - 5:00 pm		
350-A	Env Str - General & Concrete	C-203 B
12:00 pm - 1:00 pm		
	Meeting Spot	C-BALLROOM A&B
12:30 pm - 2:00 pm		
C680	Adhesive Anchor Installer - Joint CRSI	C-M101 B
1:00 pm - 2:00 pm		
223-C	Shrinkage Compensating - Constr	C-M101 C
1:00 pm - 3:00 pm		
201-TG	Task Group on Chemical Attack	C-204 B
211-F	Proportioning - Submittal	C-204 A
211-I	Assessing Aggregate Gradation	C-202 A
236-D	Material Science - Nanotechnology of Concrete M2	C-200 F
325-D	Proportioning for Pavements	C-200 J
1:00 pm - 5:00 pm		
563	Specs for Repair of Sruct Conc in Bldgs M3	C-M100 J
1:30 pm - 3:00 pm		
544-C	FRC - Testing	C-101 F
1:30 pm - 3:30 pm		
213	Lightweight	C-M100 H

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Tuesday, April 16, 2013 (cont.)		
1:30 pm - 3:30 pm - *Sessions*		
	Concrete in Historic Structures	C-101 C
	Green Cements - State of the Art, Part 2 of 2	C-101 D
	Open Paper Session, Part 1 of 2	C-101 E
1:30 pm - 5:00 pm		
332	Residential Concrete	C-101 B
349	Nuclear Structures	C-200 A-C
1:30 pm - 6:00 pm		
318-A	General Concrete Constr	C-M100 C
318-C	Serviceability/Safety	C-M100 B
318-H	Seismic Provisions	C-200 D&E
318-R	Code Reorganization	C-M100 A
2:00 pm - 3:30 pm		
118	Computers	C-M101 B
325-E	Accelerated Paving	C-202 B
2:00 pm - 4:00 pm		
130-D	Rating Systems/Sustainability Tools	C-101 J
234	Silica Fume	C-203 A
	✓Shoreview Pervious Concrete Neighborhood Tour	H-DEPART MAIN LOBBY
2:00 pm - 5:00 pm		
CPC	Certification Programs	C-201 B
222	Corrosion	C-101 H
223	Shrinkage Compensating	C-M101 C
229	Controlled Low Strength	C-200 G
233	Slag Cement	C-200 H
235	Electronic Data Exchange	C-200 I

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3:00 pm - 4:00 pm		
236-TG1	Advanced Analysis Techniques for Concrete	C-200 F
3:00 pm - 5:00 pm		
CC	Convention Committee M2	C-101 I
131	BIM	C-101 G
211-N	Proportioning with Ground Limestone and Material Fillers	C-200 J
372	Tanks Wrapped Wire/Strand	C-204 B
3:00 pm - 5:30 pm		
544	Fiber-Reinforced Concrete	C-101 A
3:30 pm - 5:00 pm		
363-A	High-Strength Lightweight Concrete	C-M101 B
3:30 pm - 5:30 pm		
325	Pavements	C-101 F
4:00 pm - 5:30 pm		
308-B	Curing - Specifications	C-200 F
4:00 pm - 6:00 pm		
350-L	Env Str - Specification	C-204 A
4:00 pm - 6:00 pm - *Sessions*		
	Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 3 of 3	C-101 C
	Early-Age Properties of Repair Binders (Lab, Field, and Test Methods)	C-101 D
	Open Paper Session, Part 2 of 2	C-101 E
5:00 pm - 6:00 pm		
349-TG	ACI 349 and ACI 359 Joint Committee	C-200 A-C
359-TG	ACI 349 and ACI 359 Joint Committee	C-200 A-C

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Tuesday, April 16, 2013 (cont.)		
5:30 pm - 6:30 pm		
	Faculty Network Reception	C-SEASONS
6:30 pm - 8:30 pm		
	Concrete Mixer	C-HALL A

Wednesday, April 17, 2013		
7:00 am - 8:30 am		
359-B	Working Group on Materials, Fabrication, and Examination	C-M100 B
7:00 am - 9:00 am		
SYPAC	Student and Young Professional Activities Committee	C-205 B
7:00 am - 10:00 am		
	✶Guest Hospitality	H-THE GALLERY
	Coffee Break	C-BALLROOM A&B
7:30 am - 10:00 am		
TCSC	TAC Construction Standards Committee	C-M100 J
8:00 am - 9:30 am		
552	Cementitious Grouting	C-M100 C
8:00 am - 10:00 am		
308-A	Curing - Guide	C-101 G
359-A	Working Group on Design	C-M100 H
8:00 am - 12:00 pm		
	ACI Registration	C-BALLROOM A&B
	ACI Bookstore	C-BALLROOM A&B
8:00 am - 5:00 pm		
350	Environmental Structures	C-205 C&D

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8:30 am - 10:00 am		
C601-C	Masonry Testing Technician	C-M100 A
8:30 am - 10:30 am		
303	Architectural CIP	C-101 A
8:30 am - 11:30 am		
211	Proportioning	C-101 B
330-TG1	Parking Lots & Site Paving TG	C-M100 I
363	High Strength	C-101 F
9:00 am - 12:00 pm		
ACIFdn	ACI Foundation	C-205 B
9:00 am - 6:00 pm		
318	Building Code	C-101 H-J
10:00 am - 12:30 pm		
C601-B	Concrete Quality Technical Manager	C-M100 A
10:00 am - 1:00 pm		
308	Curing	C-101 G
10:00 am - 5:00 pm		
359	Nuclear Reactors	C-M100 H
	✶**Guest Lounge**	H-THE GALLERY
10:30 am - 12:30 pm		
329	Perf Ready Mixed	C-101 A
1:00 pm - 3:30 pm		
311	Inspection	C-101 G
1:00 pm - 4:00 pm		
330	Parking Lots & Site Paving	C-M100 A

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Thursday, April 18, 2013		
8:00 am - 5:00 pm		
	✓**NEW! ACI Adhesive Anchors Seminar**	H-SYMPHONY I
10:00 am - 5:00 pm		
BOD	Board of Direction	H-SYMPHONY III
12:00 pm - 1:00 pm		
	✓ACI Adhesive Anchors Seminar Lunch	H-SYMPHONY II

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
ACI/ ASCE-SEI	ACI/ASCE-SEI	Sun	4:00 pm - 5:30 pm	C-101 A
ACIFdn	ACI Foundation	Wed	9:00 am - 12:00 pm	C-205 B
BOD	Board of Direction	Thu	10:00 am - 5:00 pm	H-SYMPHONY III
C601	New Certification Programs	Tue	8:00 am - 9:30 am	C-101 G
C601-A	Adhesive Anchor Installer	Mon	11:30 am - 1:00 pm	C-101 B
C601-B	Concrete Quality Technical Manager	Wed	10:00 am - 12:30 pm	C-M100 A
C601-C	Masonry Testing Technician	Wed	8:30 am - 10:00 am	C-M100 A
C601-F	Nondestructive Testing Technician	Mon	1:00 pm - 3:00 pm	C-204 B
C610	Field Technician Cert	Mon	8:30 am - 11:00 am	C-101 H
C620	Laboratory Tech Cert	Tue	8:30 am - 10:00 am	C-200 J
C630	Construction Inspector Cert	Tue	10:00 am - 11:30 am	C-200 F
C631	Conc Transportation Const Insp	Mon	1:00 pm - 2:30 pm	C-M100 J
C640	Craftsman Cert	Sun	11:00 am - 1:00 pm	C-M100 I
C650	Tilt-Up Constructor Cert	Sun	2:00 pm - 3:30 pm	C-203 B
C660	Shotcrete Nozzleman Cert	Sun	10:00 am - 12:00 pm	C-204 A
C680	Adhesive Anchor Installer - Joint CRSI	Tue	12:30 pm - 2:00 pm	C-M101 B
CAC	Chapter Activities	Mon	2:00 pm - 5:00 pm	C-101 H
CC	Convention Committee M2	Tue	3:00 pm - 5:00 pm	C-101 I
CLC	Construction Liaison	Sun	8:00 am - 10:30 am	C-M100 A
CPC	Certification Programs	Tue	2:00 pm - 5:00 pm	C-201 B
CRC	Concrete Research Council	Tue	11:00 am - 1:00 pm	C-101 H
E701	Materials for Concrete Construction	Sun	10:00 am - 11:30 am	C-200 I

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
E702	Designing Concrete Structures	Mon	5:00 pm - 6:30 pm	C-205 D
E703	Concrete Construction Practices	Mon	5:00 pm - 7:00 pm	C-200 J
E706	Concrete Repair Education	Sun	8:00 am - 10:00 am	C-M101 C
E707	Specification Education	Tue	11:30 am - 1:00 pm	C-200 F
EAC	Educational Activities M1	Sat	1:00 pm - 5:00 pm	C-101 F
EAC	Educational Activities M2	Tue	8:00 am - 12:00 pm	C-204 B
HTC	Hot Topic	Sun	2:30 pm - 4:00 pm	C-M100 J
IAC	International Advisory Committee	Tue	9:00 am - 11:30 am	C-101 I
IC-Conf	International Conferences	Mon	7:15 am - 8:30 am	C-M100 I
IF	International Forum	Sun	10:30 am - 11:30 am	C-101 I
IJBRC	Intl Joints & Bearings Research	Tue	8:00 am - 9:00 am	C-201 B
Intl-Cert	International Certification	Sun	3:30 pm - 5:00 pm	C-M100 A
MEMC	Membership	Sun	8:30 am - 11:30 am	C-M100 C
MKTC	Marketing	Mon	2:00 pm - 5:00 pm	C-M100 A
PATG	Task Group on Project Awards	Tue	9:00 am - 11:00 am	C-101 J
PUBC	Publications	Mon	8:30 am - 10:00 am	C-M100 I
S801	Student Activities	Sun	8:00 am - 10:00 am	C-101 G
S802	Teaching Methods and Educational Materials	Mon	8:30 am - 9:30 am	C-205 D
S805	Collegiate Concrete Council	Sun	4:00 pm - 5:00 pm	C-200 I
S806	Young Professional Activities	Mon	2:00 pm - 3:30 pm	C-203 A

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
SCO	Scholarship Council M2	Mon	2:00 pm - 3:00 pm	C-202 B
SYPAC	Student and Young Professional Activities Committee	Wed	7:00 am - 9:00 am	C-205 B
TAC	Technical Activities M1	Fri	6:30 pm - 9:00 pm	H-DELUTH
TAC	Technical Activities M2	Sat	7:00 am - 6:00 pm	C-101 B
TAC	Technical Activities M3	Sun	7:00 am - 2:00 pm	C-101 B
TACRG1	TAC Review Group 1	Sun	8:00 am - 11:00 am	C-201 A
TACRG2	TAC Review Group 2	Sun	8:00 am - 11:00 am	C-201 B
TACRG3	TAC Review Group 3	Sun	8:00 am - 11:00 am	C-202 A
TACRG4	TAC Review Group 4	Sun	8:00 am - 11:00 am	C-202 B
TCSC	TAC Construction Standards Committee	Wed	7:30 am - 10:00 am	C-M100 J
TRRC	TAC Repair & Rehab	Tue	7:00 am - 8:30 am	C-101 H
TTAG	Technology Transfer Advisory Group	Tue	6:30 am - 8:30 am	C-M100 J
117	Tolerances	Tue	8:30 am - 11:30 am	C-200 G
118	Computers	Tue	2:00 pm - 3:30 pm	C-M101 B
120	History	Tue	10:30 am - 12:00 pm	C-M101 C
121	Quality Assurance	Sun	3:00 pm - 5:00 pm	C-M100 C
122	Energy Efficiency	Mon	1:00 pm - 3:00 pm	C-101 A
123	Research	Sun	4:00 pm - 5:30 pm	C-101 B
124	Aesthetics	Mon	12:30 pm - 2:00 pm	C-205 B
130	Sustainability M1	Mon	2:00 pm - 5:00 pm	C-200 D&E

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
130	Sustainability M2	Tue	11:00 am - 1:00 pm	C-200 A-C
130-A	Materials	Mon	8:30 am - 10:00 am	C-101 B
130-B	Production/ Transport/ Construction	Mon	1:00 pm - 2:00 pm	C-101 F
130-D	Rating Systems/ Sustainability Tools	Tue	2:00 pm - 4:00 pm	C-101 J
130-E	Design/ Specifications/ Codes/ Regulations	Tue	9:30 am - 11:00 am	C-200 H
130-F	Social Issues	Sun	12:30 pm - 2:00 pm	C-M100 H
130-G	Education/ Certification	Tue	7:30 am - 9:00 am	C-203 B
131	BIM	Tue	3:00 pm - 5:00 pm	C-101 G
132	Responsibility	Sun	2:00 pm - 5:00 pm	C-M101 B
201	Durability	Tue	8:00 am - 11:00 am	C-200 D&E
201-D	Durability - Oversight Committee	Mon	11:30 am - 1:00 pm	C-204 B
201-TG	Task Group on Chemical Attack	Tue	1:00 pm - 3:00 pm	C-204 B
207	Mass Concrete	Mon	10:00 am - 1:00 pm	C-205 C
209	Creep & Shrinkage	Mon	8:30 am - 11:30 am	C-101 I
211	Proportioning	Wed	8:30 am - 11:30 am	C-101 B
211-A	Proportioning - Editorial	Tue	10:00 am - 12:00 pm	C-202 B
211-C	Proportioning - No Slump	Tue	8:00 am - 10:00 am	C-202 A
211-E	Proportioning - Evaluation	Tue	11:30 am - 1:00 pm	C-204 A
211-F	Proportioning - Submittal	Tue	1:00 pm - 3:00 pm	C-204 A
211-I	Assessing Aggregate Gradation	Tue	1:00 pm - 3:00 pm	C-202 A

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
211-N	Proportioning with Ground Limestone and Material Fillers	Tue	3:00 pm - 5:00 pm	C-200 J
211-P	Guide for Selecting Proportions for Pumpable Concrete	Mon	3:30 pm - 5:00 pm	C-203 A
212	Chemical Admixtures	Mon	2:00 pm - 5:00 pm	C-200 J
213	Lightweight	Tue	1:30 pm - 3:30 pm	C-M100 H
213-TG1	Lightweight - Editorial TG	Tue	11:30 am - 1:00 pm	C-200 I
214	Strength Tests M1	Mon	12:00 pm - 2:00 pm	C-201 B
214	Strength Tests M2	Mon	3:30 pm - 5:00 pm	C-205 C
215	Fatigue	Sun	2:00 pm - 4:00 pm	C-201 B
216	Fire Resistance	Mon	10:00 am - 1:00 pm	C-205 A
221	Aggregates	Sun	11:30 am - 1:00 pm	C-M100 B
222	Corrosion	Tue	2:00 pm - 5:00 pm	C-101 H
223	Shrinkage Compensating	Tue	2:00 pm - 5:00 pm	C-M101 C
223-C	Shrinkage Compensating - Constr	Tue	1:00 pm - 2:00 pm	C-M101 C
224	Cracking	Sun	2:30 pm - 5:00 pm	C-M100 I
225	Hydraulic Cements	Mon	1:00 pm - 4:00 pm	C-M100 H
228	Nondestructive Testing	Sun	9:30 am - 12:30 pm	C-101 F
228-B	Visual Inspection	Sun	1:00 pm - 3:00 pm	C-101 G
229	Controlled Low Strength	Tue	2:00 pm - 5:00 pm	C-200 G
230	Soil Cement	Tue	8:00 am - 9:30 am	C-200 H
231	Early Age	Mon	2:00 pm - 3:30 pm	C-101 F

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
232	Fly Ash & Natural Pozzolans	Mon	1:00 pm - 4:00 pm	C-101 I
232-A	Fly Ash - Use of Nat Pozzolans	Mon	10:00 am - 1:00 pm	C-M100 I
233	Slag Cement	Tue	2:00 pm - 5:00 pm	C-200 H
234	Silica Fume	Tue	2:00 pm - 4:00 pm	C-203 A
235	Electronic Data Exchange	Tue	2:00 pm - 5:00 pm	C-200 I
236	Material Science	Mon	4:30 pm - 5:30 pm	C-200 H&I
236-B	Material Science - Transport Mechanism	Sun	2:00 pm - 3:30 pm	C-200 F
236-D	Material Science - Nanotechnology of Concrete M1	Sun	3:30 pm - 5:00 pm	C-200 F
236-D	Material Science - Nanotechnology of Concrete M2	Tue	1:00 pm - 3:00 pm	C-200 F
236-TG1	Advanced Analysis Techniques for Concrete	Tue	3:00 pm - 4:00 pm	C-200 F
236-TG2	Sustainability Engineered by Material Science	Tue	11:30 am - 12:30 pm	C-101 A
236-TG4	Modeling and Simulation Methods	Tue	10:30 am - 12:30 pm	C-M101 B
237	Self-Consolidating Concrete	Mon	8:15 am - 11:00 am	C-200 D&E
237-TG1	Self-Consolidating Concrete Task Group	Sun	12:00 pm - 2:00 pm	C-201 B
238	Workability of Fresh Concrete	Tue	8:00 am - 10:00 am	C-M101 B
239	Ultra-High-Performance Concrete	Mon	3:30 pm - 5:30 pm	C-M100 J
301	Specifications M1	Sat	1:00 pm - 5:00 pm	C-101 J
301	Specifications M2	Sun	8:30 am - 12:00 pm	C-101 A

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
301	Specifications M3	Mon	1:00 pm - 5:00 pm	C-101 G
301-A	Spec - Gen Req, Definitions, & Tolerances	Mon	8:30 am - 12:00 pm	C-201 B
301-B	Spec - Formwork & Reinforcement	Sun	12:30 pm - 4:30 pm	C-204 A
301-C	Spec - Placing, Consolidating & Curing	Sun	1:00 pm - 5:00 pm	C-101 I
301-D	Spec - Lightweight & Massive Concrete	Sun	1:00 pm - 5:00 pm	C-203 A
301-E	Spec - Post-Tensioned Concrete	Sun	3:00 pm - 5:00 pm	C-202 B
301-F	Spec - Precast Concrete Panels	Mon	9:00 am - 12:00 pm	C-202 A
301-G	Spec - Shrink Comp Conc & Ind Floor Slabs	Sun	1:00 pm - 5:00 pm	C-204 B
301-H	Spec - Tilt-Up Constr & Arch Conc	Sun	12:30 pm - 4:30 pm	C-200 J
301-SC	Spec - Steering Committee	Sun	7:00 am - 8:15 am	C-101 A
302	Floor Construction	Mon	8:30 am - 1:00 pm	C-200 A-C
303	Architectural CIP	Wed	8:30 am - 10:30 am	C-101 A
304	Measuring/Mix/ Trans/Placing	Mon	11:30 am - 1:00 pm	C-101 I
305	Hot Weather	Sun	2:00 pm - 4:00 pm	C-101 B
306	Cold Weather	Tue	8:30 am - 11:30 am	C-200 I
307	Chimneys	Mon	2:00 pm - 5:00 pm	C-203 B
308	Curing	Wed	10:00 am - 1:00 pm	C-101 G
308-A	Curing - Guide	Wed	8:00 am - 10:00 am	C-101 G
308-B	Curing - Specifications	Tue	4:00 pm - 5:30 pm	C-200 F
309	Consolidation	Sun	3:00 pm - 5:00 pm	C-201 A

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
310	Decorative Concrete	Sun	3:00 pm - 5:30 pm	C-202 A
310-TG1	Curing Decorative Concrete	Sun	2:00 pm - 3:00 pm	C-202 B
311	Inspection	Wed	1:00 pm - 3:30 pm	C-101 G
313	Bins & Silos	Mon	8:30 am - 5:00 pm	C-M101 B
314	Simplified Design Buildings	Sun	8:30 am - 11:30 am	C-200 G
315	Detailing	Sun	2:00 pm - 5:00 pm	C-101 F
315-B	Detailing - Constructability	Sun	8:30 am - 11:30 am	C-M100 B
318	Building Code	Wed	9:00 am - 6:00 pm	C-101 H-J
318/ASCE7	ACI 318/ASCE7 Coordination Meeting	Mon	8:30 am - 10:00 am	C-205 C
318-A	General Concrete Constr	Tue	1:30 pm - 6:00 pm	C-M100 C
318-B	Reinforcement & Development M1	Mon	8:30 am - 11:30 am	C-200 J
318-B	Reinforcement & Development M2	Tue	8:00 am - 12:30 pm	C-M100 A
318-C	Serviceability/ Safety	Tue	1:30 pm - 6:00 pm	C-M100 B
318-D	Flexure & Axial Loads	Tue	8:00 am - 12:30 pm	C-M100 H
318-E	Shear & Torsion M1	Mon	10:00 am - 1:00 pm	C-M100 J
318-E	Shear & Torsion M2	Tue	8:00 am - 12:30 pm	C-M100 C
318-EA	318 Electronic Aids	Sun	2:30 pm - 3:30 pm	C-M100 A
318-G	Prestressed Precast	Tue	8:00 am - 12:30 pm	C-M100 B
318-H	Seismic Provisions	Tue	1:30 pm - 6:00 pm	C-200 D&E
318-L	International Liaison	Mon	8:30 am - 10:00 am	C-205 B
318-R	Code Reorganization	Tue	1:30 pm - 6:00 pm	C-M100 A
318-S	Spanish Translation	Mon	2:00 pm - 3:30 pm	C-202 A

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
325	Pavements	Tue	3:30 pm - 5:30 pm	C-101 F
325-A	Pavements - Design	Tue	9:00 am - 10:00 am	C-202 B
325-C	Pavements - Prestressed and Precast	Tue	10:30 am - 12:00 pm	C-203 A
325-D	Proportioning for Pavements	Tue	1:00 pm - 3:00 pm	C-200 J
325-E	Accelerated Paving	Tue	2:00 pm - 3:30 pm	C-202 B
327	RCC Pavements	Tue	11:00 am - 1:00 pm	C-101 J
329	Perf Ready Mixed	Wed	10:30 am - 12:30 pm	C-101 A
330	Parking Lots & Site Paving	Wed	1:00 pm - 4:00 pm	C-M100 A
330-TG1	Parking Lots & Site Paving TG	Wed	8:30 am - 11:30 am	C-M100 I
332	Residential Concrete	Tue	1:30 pm - 5:00 pm	C-101 B
332-B	Conc Mtrls and Plcmnt	Tue	9:00 am - 10:30 am	C-201 B
332-D&E	Residential Concrete D&E	Tue	10:30 am - 12:00 pm	C-201 B
332-F	Residential Concrete - Slabs	Tue	10:30 am - 12:00 pm	C-202 A
334	Shells	Mon	5:00 pm - 6:00 pm	C-203 A
335	Composite Hybrid	Sun	11:30 am - 1:00 pm	C-M100 C
336	Footings	Sun	1:00 pm - 5:00 pm	C-M101 C
341	Earthquake-Resistant Bridges	Sun	3:00 pm - 5:00 pm	C-101 H
341-A	Equake Res Brdgs - Columns	Sun	1:30 pm - 3:00 pm	C-101 H
341-B	Equake Res Brdgs - Pier Walls	Sun	11:00 am - 12:30 pm	C-101 H
341-C	Equake Res Brdgs - Retrofit	Sun	9:30 am - 11:00 am	C-101 H
341-D	Perf-Based Seismic Design	Sun	8:00 am - 9:30 am	C-101 H
342	Bridge Evaluation	Sun	8:30 am - 10:00 am	C-101 I

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
343	Bridge Design	Mon	10:00 am - 12:00 pm	C-101 J
343-A	Design	Sun	11:00 am - 12:00 pm	C-203 B
343-B	Bridge Deck Design	Mon	8:15 am - 9:00 am	C-M101 C
343-D	Loads	Mon	12:00 pm - 1:00 pm	C-203 A
343-G	Editorial	Sun	4:30 pm - 5:30 pm	C-204 A
345	Bridge Construction	Sun	1:30 pm - 3:30 pm	C-200 H
346	CIP Pipe	Mon	11:30 am - 1:00 pm	C-205 D
347	Formwork M1	Sat	9:00 am - 6:00 pm	C-101 G
347	Formwork M2	Sun	8:30 am - 12:30 pm	C-200 C&D
347-A	Formwork - Specification	Sat	7:00 pm - 9:00 pm	C-101 G
348	Safety	Mon	2:00 pm - 3:30 pm	C-204 A
349	Nuclear Structures	Tue	1:30 pm - 5:00 pm	C-200 A-C
349-A&B	Nuclear Str - Design & Materials	Mon	12:30 pm - 4:30 pm	C-200 H&I
349-C	Nuclear Str - Anchorage	Mon	8:15 am - 11:00 am	C-101 F
349-TG	ACI 349 and ACI 359 Joint Committee	Tue	5:00 pm - 6:00 pm	C-200 A-C
350	Environmental Structures	Wed	8:00 am - 5:00 pm	C-205 C&D
350-A	Env Str - General & Concrete	Tue	11:30 am - 5:00 pm	C-203 B
350-B	Env Str - Durability	Mon	8:30 am - 1:00 pm	C-203 B
350-C	Env Str - Reinf & Devel	Sun	8:30 am - 11:30 am	C-204 B
350-D	Env Str - Structural	Mon	8:30 am - 6:30 pm	C-201 A
350-E	Env Str - Precast/ Prestressed	Sun	1:00 pm - 5:00 pm	C-101 J
350-F	Env Str - Seismic	Tue	8:30 am - 3:30 pm	C-201 A

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
350-G&K	Env Str - Tightness Testing/ Haz Mat	Tue	8:30 am - 11:30 am	C-204 A
350-H	Env Str - Editorial	Mon	12:30 pm - 2:00 pm	C-204 A
350-J	Env Str - Education	Mon	3:30 pm - 6:30 pm	C-204 A
350-L	Env Str - Specification	Tue	4:00 pm - 6:00 pm	C-204 A
350-SC	Env Str - Steering Comm	Sun	11:30 am - 1:00 pm	C-204 B
351	Equip Foundations	Mon	2:30 pm - 4:30 pm	C-205 B
351-C	Equip Fdns - Dynamic Foundations	Sun	1:00 pm - 3:00 pm	C-201 A
351-D	Design Provisions for Heavy Industrial Equipment and Machinery Concrete Support Structures	Mon	10:00 am - 12:00 pm	C-M100 C
351-TG1	Spec for Cementitious Grouting Between Foundations & Equipment Bases	Sun	11:00 am - 1:00 pm	C-202 B
351-TG2	Specification for Epoxy Grouting Between Foundations & Equipment Bases	Mon	8:00 am - 10:00 am	C-203 A
352	Joints	Sun	2:00 pm - 5:00 pm	C-M100 H
355	Anchorage	Sun	1:30 pm - 5:00 pm	C-200 C&D
355-TG	Anchorage TG	Mon	8:30 am - 11:00 am	C-M100 A
357	Offshore & Marine	Tue	8:30 am - 10:30 am	C-203 A
359	Nuclear Reactors	Wed	10:00 am - 5:00 pm	C-M100 H
359-A	Working Group on Design	Wed	8:00 am - 10:00 am	C-M100 H

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
359-B	Working Group on Materials, Fabrication, and Examination	Wed	7:00 am - 8:30 am	C-M100 B
359-C	Working Group on Modernization	Tue	10:00 am - 12:00 pm	C-200 J
359-TG	ACI 349 and ACI 359 Joint Committee	Tue	5:00 pm - 6:00 pm	C-200 A-C
360	Slabs on Ground	Mon	2:00 pm - 6:30 pm	C-200 A-C
362	Parking Structures	Mon	1:00 pm - 5:00 pm	C-101 B
362-A	Updating Guide to Structural Maintenance of Parking Structures Document	Sun	1:00 pm - 4:00 pm	C-200 E
363	High Strength	Wed	8:30 am - 11:30 am	C-101 F
363-A	High-Strength Lightweight Concrete	Tue	3:30 pm - 5:00 pm	C-M101 B
364	Rehabilitation	Mon	1:00 pm - 4:00 pm	C-M100 C
364-TG1	Rehabilitation Guide	Mon	11:00 am - 12:00 pm	C-M100 A
365	Service Life	Mon	9:00 am - 11:00 am	C-M101 C
369	Seismic Rehab M1	Sun	1:00 pm - 2:30 pm	C-M100 A
369	Seismic Rehab M2	Mon	2:00 pm - 6:00 pm	C-M100 B
370	Blast and Impact Load Effects	Mon	9:30 am - 11:30 am	C-205 D
371	Elevated Tanks with Concrete Pedestals	Tue	11:00 am - 12:30 pm	C-200 H
372	Tanks Wrapped Wire/Strand	Tue	3:00 pm - 5:00 pm	C-204 B
374	Seismic Design	Mon	8:15 am - 12:00 pm	C-101 A
374-TG2	Protocol for Testing RC - Structural Elements	Sun	11:30 am - 1:00 pm	C-203 A

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
375	Design for Wind Loads	Mon	1:00 pm - 3:30 pm	C-205 D
376	RLG Containment Structures	Mon	1:00 pm - 4:00 pm	C-M100 I
376-01	Steering Committee	Sun	10:30 am - 12:00 pm	C-M100 A
376-A	Code, Education & Publication Subcommittee	Mon	10:00 am - 12:00 pm	C-203 A
376-B	Materials Subcommittee	Sun	1:00 pm - 3:00 pm	C-M100 B
376-C	Analysis Subcommittee	Sun	3:00 pm - 5:00 pm	C-M100 B
376-D	Design & Construction Subcommittee	Mon	8:00 am - 10:00 am	C-M100 J
377	Performance-Based Structural Integrity & Resilience of Concrete Structures	Mon	10:00 am - 12:30 pm	C-204 A
408	Development and Splicing	Sun	8:30 am - 11:30 am	C-200 E
408-A	Mech Splices	Sun	8:00 am - 8:30 am	C-200 E
421	Reinf Slabs	Sun	10:00 am - 1:00 pm	C-101 G
423	Prestressed	Mon	8:30 am - 12:30 pm	C-200 H&I
423/445	Adhoc Grp on Shear in Prestress Conc	Sun	3:30 pm - 5:30 pm	C-200 H
423-E	Prestress - Losses	Sun	1:00 pm - 4:00 pm	C-200 I
423-F	Sustainable Prestressed Concrete	Mon	4:00 pm - 6:00 pm	C-101 I
435	Deflection	Mon	3:30 pm - 5:00 pm	C-202 A
437	Strength Evaluation	Mon	10:30 am - 12:30 pm	C-205 B
439	Steel Reinforcement	Mon	8:30 am - 10:00 am	C-101 G

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
439-A	Steel Reinforcement - Wire	Sun	4:00 pm - 5:30 pm	C-M100 J
440	Fiber-Reinforced Polymer	Tue	8:00 am - 11:00 am	C-200 A-C
440-F	FRP - Repair Strengthening	Mon	3:00 pm - 6:00 pm	C-200 F&G
440-G	FRP - Student	Mon	8:30 am - 10:00 am	C-M100 C
440-H	FRP - Reinforced Concrete	Sun	8:30 am - 11:30 am	C-200 A&B
440-I	FRP - Prestressed Concrete	Mon	10:00 am - 11:30 am	C-101 B
440-K	FRP - Material Characteristics	Sun	1:30 pm - 3:00 pm	C-200 A&B
440-L	FRP - Durability	Sun	3:00 pm - 5:00 pm	C-200 A&B
440-M	FRP - Repair of Masonry Str	Mon	1:30 pm - 3:00 pm	C-200 F&G
440-TG2	Repair Construction Specification	Mon	11:00 am - 1:00 pm	C-200 D&E
441	Columns	Mon	11:30 am - 2:00 pm	C-200 J
441-A	High-Strength Concrete	Mon	8:00 am - 9:00 am	C-204 A
441-B	Lateral Reinf	Mon	9:00 am - 10:00 am	C-204 A
441-E	Columns with Multi-Spiral Reinforcement	Sun	11:30 am - 1:00 pm	C-201 A
444	Structural Health Monitoring and Instrumentation	Tue	8:00 am - 10:00 am	C-200 F
445	Shear & Torsion	Mon	2:00 pm - 6:00 pm	C-101 J
445-A	Shear & Torsion - Strut & Tie	Sun	10:30 am - 1:30 pm	C-200 H
445-B	Shear & Torsn - Seismic Shear	Sun	8:00 am - 10:00 am	C-204 A
445-C	Shear & Torsn - Punching Shear	Sun	1:00 pm - 3:00 pm	C-M100 C
445-D	Shear & Torsn - Database	Sun	3:00 pm - 5:00 pm	C-200 G

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
445-E	Shear & Torsn - SOA Torsion	Sun	12:30 pm - 2:00 pm	C-203 B
446	Fracture Mechanics	Mon	3:30 pm - 5:00 pm	C-205 D
447	Finite Element Analysis M1	Mon	11:00 am - 1:30 pm	C-M101 C
447	Finite Element Analysis M2	Mon	5:00 pm - 6:30 pm	C-202 A
506	Shotcreting	Tue	8:30 am - 11:30 am	C-101 A
506-A	Shotcreting - Evaluation	Mon	1:30 pm - 3:00 pm	C-M101 C
506-B	Shotcreting - Fiber-Reinforced	Sun	1:30 pm - 2:30 pm	C-M100 J
506-C	Shotcreting - Guide	Mon	8:30 am - 10:30 am	C-M100 B
506-E	Shotcreting - Specifications	Mon	10:30 am - 12:30 pm	C-M100 B
506-F	Shotcreting - Underground	Mon	4:30 pm - 5:30 pm	C-205 A
506-G	Qualifications for Projects	Mon	3:00 pm - 4:30 pm	C-M101 C
515	Protective Systems	Tue	9:00 am - 11:00 am	C-203 B
522	Pervious Concrete	Tue	8:00 am - 11:00 am	C-101 B
523	Cellular Concrete	Tue	8:30 am - 10:30 am	C-M100 J
524	Plastering	Mon	8:30 am - 10:00 am	C-101 J
526	Autoclaved Aerated Concrete	Tue	10:30 am - 1:00 pm	C-M100 J
533	Precast Panels	Sun	1:00 pm - 2:30 pm	C-M100 I
543	Piles	Mon	8:30 am - 11:30 am	C-204 B
544	Fiber-Reinforced Concrete	Tue	3:00 pm - 5:30 pm	C-101 A
544-A	FRC - Production & Applications	Mon	11:30 am - 1:00 pm	C-101 H
544-B	FRC - Education	Tue	8:30 am - 10:00 am	C-101 F
544-C	FRC - Testing	Tue	1:30 pm - 3:00 pm	C-101 F

Numerical Committee Meeting Listing

Code	Committee	Day	Time	Room Name
544-D	FRC - Structural Uses	Mon	3:30 pm - 6:00 pm	C-101 F
544-E	FRC - Mechanical Properties	Mon	5:00 pm - 6:30 pm	C-M100 A
544-F	FRC - Durability	Tue	10:30 am - 12:00 pm	C-101 F
544-SC	FRC - Steering Committee	Mon	8:30 am - 10:00 am	C-205 A
546	Repair	Mon	8:30 am - 11:30 am	C-200 F&G
546-B	Materials Selection Guide	Sun	10:00 am - 11:00 am	C-200 J
546-C	Repair - Guide	Sun	9:00 am - 12:00 pm	C-200 J
548	Polymers	Tue	8:30 am - 11:30 am	C-M100 I
548-A	Polymers - Overlays	Mon	8:15 am - 11:00 am	C-202 B
548-B	Polymers - Adhesives	Mon	2:30 pm - 4:30 pm	C-205 A
548-C	Structural Polymer Design	Mon	11:00 am - 12:30 pm	C-202 B
549	Thin Reinforced	Sun	10:00 am - 1:00 pm	C-M101 C
550	Precast Structures	Sun	3:30 pm - 5:30 pm	C-205 A
551	Tilt Up M1	Sun	9:00 am - 12:00 pm	C-200 F
551	Tilt Up M2	Sun	1:00 pm - 4:00 pm	C-101 A
552	Cementitious Grouting	Wed	8:00 am - 9:30 am	C-M100 C
555	Recycled	Mon	5:00 pm - 6:30 pm	C-205 C
562	Eval, Repair & Rehab	Sun	3:00 pm - 5:00 pm	C-101 G
563	Specs for Repair Struct Conc in Bldgs M1	Sat	1:00 pm - 5:00 pm	C-101 C
563	Specs for Repair Struct Conc in Bldgs M2	Sun	1:00 pm - 3:00 pm	C-200 G
563	Specs for Repair Struct Conc in Bldgs M3	Tue	1:00 pm - 5:00 pm	C-M100 J
564-F&M	Evaluation, Repair & Rehabilitation of Nuclear Con	Mon	2:00 pm - 3:30 pm	C-205 C

Event Details

All changes will be posted daily in C-BALLROOM A&B.

✓ = Separate fee required ✶ = Guest-only event

C = Minneapolis Convention Center H = Hilton Minneapolis Hotel

Sunday, April 14, 2013

✶Guest Hospitality—H-THE GALLERY

7:00 am - 10:00 am

A continental breakfast will be available at the Hilton to registered guests each morning (Sunday-Wednesday). Use the ticket behind your name badge to gain entry in to the Guest Hospitality. You must be a registered guest to attend.

✶Guest Overview—H-THE GALLERY

8:00 am - 9:00 am

Acquaint yourself with the week ahead and get a preview of the guest program for the ACI Fall 2013 Convention in Phoenix, AZ, and the ACI Spring 2014 Convention in Reno, NV.

✶Guest Lounge—H-THE GALLERY

10:00 am - 5:00 pm

Stop by the Guest Lounge to relax and meet other ACI guests. Guests can enjoy the Guest Lounge Sunday-Wednesday.

Sunday, April 14, 2013
8:00 am - 9:00 am

Convention Orientation Breakfast—C-205 A&B

Sponsored by the ACI Convention Committee

Speaker: William J. Lyons III
National Business Development Manager – Northeast Region
The Euclid Chemical Company
New Windsor, NY

First-time convention attendees are invited to join William J. Lyons III, Chair of the ACI Convention Committee, for a continental breakfast and brief session to orient you to the week ahead. Attendees will have the opportunity to meet other convention attendees and learn about what an ACI convention has to offer.

Sunday, April 14, 2013
10:00 am - 1:00 pm

✓Walk This Way! Walking Tour of Minneapolis—H-DEPART MAIN LOBBY

$30.00 U.S. per person

Familiarize yourself with the city of Minneapolis as you walk to many of the city's must-see landmarks. The tour guide will bring some of the city's most fascinating sights to life with informative commentary. The tour will start at the convention center and take you by Nicollet Mall, Gaviidae Commons, the Skyway System, Mill City Museum, and much more.

Tour tickets may be purchased up to 24 hours prior to the event, based on availability. ***Tours are nonrefundable.*** *All tours depart from the 11th Street entrance in the main lobby of the Hilton Minneapolis.*

✓ = **Separate fee required**

Sunday, April 14, 2013
10:30 am - 11:30 pm

ACI International Forum—C-101 I

Chaired by ACI Vice President Anne Ellis

This first ACI International Forum (IF) is an opportunity for convention attendees to meet International Partner representatives. These Partners are some of the world's foremost concrete-related organizations, and this forum provides an opportunity to learn about other international organizations and their activities, upcoming publications and events, and how ACI is working with its International Partners in a common pursuit of advancing concrete knowledge. Previously known as the International Partners & Publications subcommittee of the International Advisory Committee, the IF is a revised meeting format to provide information sharing with and networking among ACI Members, Chapter Representatives, ACI Leaders, and ACI International Partners. All interested convention attendees welcome!

Sunday, April 14, 2013
10:30 am - 4:30 pm

Student Fiber-Reinforced Concrete (FRP) Beam Competition—C-BALLROOM A&B

Sponsored by ACI Committee S801, Student Activities

Competition Moderator:	Walter H. Flood IV Manager – Engineer Flood Testing Labs, Inc. Chicago, IL

Students will be challenged to design and construct a fiber-reinforced polymer (FRP) reinforcement to achieve the largest load-to-cost ratio. The intent of this competition is to equip students with first-hand knowledge of FRP products and how applications of FRP reinforcement can be advantageous in the concrete industry—including, but not limited to, sustainable design solutions. Prizes will be awarded to the top three teams.

Sunday, April 14, 2013
10:30 am - 5:00 pm

Art of Concrete Student Competition—C-BALLROOM A&B
Sponsored by the ACI Minnesota Chapter

The Art of Concrete Student Competition, sponsored by the ACI Minnesota Chapter, will be held for the third time during the ACI Spring 2013 Convention. The objective is to explore the artistic nature of concrete and display its many varieties of form, function, and beauty through a work of art. This competition is open to individual undergraduate or graduate students or those students on cooperative or internship assignments. Entries will be displayed in the exhibit area beginning at 10:00 am on Sunday. Convention attendees will have the opportunity to view the artwork and vote for their favorite by completing voting ballots in the competition area. Voting will be open from 10:00 am on Sunday, April 14, through 10:00 am on Monday, April 15. The winners will be announced during the Student Lunch on Monday, April 15. The top three entries will receive prizes.

Sunday, April 14, 2013
11:30 am - 1:30 pm

✓International Lunch—C-205 A&B
$30.00 U.S. per person
Sponsored by ACI International Advisory Committee

Speaker: Peter Richner
President
EMPA
Dübendorf, Switzerland

Topic: Analysis of Catastrophic Failures in Switzerland

Switzerland has a long tradition of exceptional structural engineers such as Robert Maillart (Salginatobel Bridge), Othmar Ammann (George Washington Bridge in New York), and Christian Menn (Leonard P. Zakim Bunker Hill Memorial Bridge in Boston). Throughout their careers in Switzerland and abroad, their achievements have contributed to a high quality of life. In recent years, however, there have been a number of catastrophic failures in concrete structures that question the quality of recent infrastructure

developments. This presentation by Peter Richner uses a few examples to illustrate the source of the failures in a systematic way and proposes measures to overcome the current problems. Richner currently serves as Deputy Director and Head of the Department for Civil and Mechanical Engineering for EMPA (Materials Science and Research). As an influential part of EMPA for over 17 years, Richner has also been responsible for research funding and continuing education programs in areas of environmental influences on corrosion, service-life prediction of organic coatings, and the assessment of safety-relevant structures. Richner is the Project Leader for EMPA's project NEST—a holistic, dynamic, and flexible research and technology transfer platform for sustainable construction. Richner served for 3 years as President of RILEM, working to advance scientific knowledge as it relates to construction materials, systems, and structures worldwide.

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.*

✓ = **Separate fee required**

Sunday, April 14, 2013
1:00 pm - 3:00 pm

In Honor of Dick Stehly: Increased Beneficial Use of Fly Ash—History, Accomplishments, and Challenges, Part 1 of 2—C-101 C

Sponsored by ACI Committees 130, Sustainability of Concrete, 232, Fly Ash and Natural Pozzolans in Concrete, and the ACI Minnesota Chapter.

Session Moderator: Lawrence L. Sutter
Professor
Michigan Technological University
Houghton, MI

This session is intended to honor the significant contributions of ACI Past President Dick Stehly with regard to increasing the beneficial use of fly ash in concrete in the United States. The session will provide a perspective on fly ash use from the vantage point of different stakeholders and will provide a historical and forward-looking perspective on issues related to increased beneficial use of coal fly ash in portland-cement concrete.

By attending this session, attendees will be able to:

1. Interpret the historical context for current practices associated with the beneficial use of fly ash;
2. Understand the positive sustainability impacts of increased beneficial use of fly ash;
3. Explain the benefits of increased beneficial use of fly ash with

respect to concrete performance; and
4. Identify the key technological and political challenges impacting increased beneficial use of fly ash.

The Legacy of Dick Stehly—
A Passion for Sustainability—1:00 pm
Jeffrey W. Coleman, Attorney at Law, The Coleman Law Firm LLC, Minneapolis, MN

Beneficial Use of Fly Ash—An Electric Utility Coal Ash Producers Perspective—1:30 pm
Bruce W. Ramme, Vice President Environmental, We Energies, Milwaukee, WI

Beneficial Use of Fly Ash—A Ready-Mix Producers Perspective—2:00 pm
Kevin MacDonald, Vice President of Engineering Services, Beton Consulting Engineers LLC, Prior Lake, MN

Beneficial Use of Fly Ash—A Historical Perspective from the Contractor That Was There When It Started—2:30 pm
Bill Collins, President, General Resource Technology, Eagan, MN

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Sunday, April 14, 2013
1:00 pm - 3:00 pm

Innovative Structural Slab Practices—C-101 E
Sponsored by ACI Committee 421, Design of Reinforced Concrete Slabs

Session Moderator: Michael C. Mota
Atlantic Regional Manager
CRSI
Williamstown, NJ

Innovative structural slab construction practices have taken the efficiency of traditional slab systems to new heights. This session discusses state-of-the-art practices in voided-slab technology construction. The concept centers on removing "concrete" from the middle of the slab where it is not structurally efficient, reducing the dead load by as much as 35% and thus allowing for large clear spans and efficient overall slab thicknesses. Several projects currently under construction in the United States will be discussed as case studies.

By attending this session, attendees will be able to:
1. Demonstrate two-way voided-slab systems;
2. Recognize shear modifications;

3. Explain stiffness modifications; and
4. Understand case studies and application.

Voided Slabs—Then and Now—1:00 pm
Michael C. Mota, Atlantic Regional Manager, CRSI, Williamstown, NJ

The Miami Art Museum: A Modern Application of Voided-Slab Flat-Plate Technology in the U.S.—1:25 pm
Mike Russillo, President, Cobiax USA, Dedham, MA

LaBahn Hockey Arena, University of Wisconsin—A Case Study—1:50 pm
Dan Windorski, Structural Engineer, GRAEF, Madison, WI

Guidelines for Design of Voided-Slab Systems—2:15 pm
Attila B. Beres, Senior Structural Engineering Consultant, CRSI, Los Angeles, CA

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Sunday, April 14, 2013
1:00 pm - 3:00 pm

Monitoring Performance during Construction, Part 1 of 2—C-101 D

Sponsored by ACI Committee 444, Structural Health Monitoring and Instrumentation

Session Co-Moderators:

Nakin Suksawang
Assistant Professor
Florida International University
Miami, FL

Branko Glisic
Assistant Professor
Princeton University
Princeton, NJ

Structural health monitoring (SHM) provides significant advantages in developing a comprehensive and realistic approach for the assessment of concrete structures. However, its usage is not only limited to monitoring long-term performance but can also help provide critical information during construction. For example, concrete maturity, early-age shrinkage performance, curing effects, environmental conditions, and other aspects can be measured using SHM technologies. This information can help the contractors, producers, and consulting engineers rapidly adjust their construction

practices, mixtures, and designs. This session will discuss current SHM systems and/or innovations for assessing the performance of concrete structures during construction and the need for improved techniques for performance monitoring of reinforced concrete structures. Innovative and effective SHM techniques for monitoring the performance during construction of concrete structures will be presented.

By attending this session, attendees will be able to:

1. Recognize the need for improved techniques for performance monitoring of reinforced concrete structures;
2. Identify SHM technologies for real-time performance monitoring of concrete structures during construction;
3. Examine how SHM technologies are applied to quality control/quality assurance; and
4. Analyze the cost benefits of SHM technologies for new construction.

Introduction—1:00 pm
Nakin Suksawang, Assistant Professor, Florida International University, Miami, FL

Monitoring the Construction of Concrete Bridges—1:25 pm
Hani H. Nassif, Associate Professor, Rutgers University, Piscataway, NJ; and **Nakin Suksawang,** Florida International University

Streicker Bridge in Its Early Years: Structural Identification and Damage Characterization—1:50 pm
Branko Glisic, Assistant Professor, Princeton University, Princeton, NJ; and **Dorotea Hoeg Sigurdardottir,** Princeton University

Wireless Acoustic Emission Monitoring of In-Situ Decommissioning of Nuclear Structures and Development of Acoustic Emission Imaging—2:15 pm
Aaron K. Larosche, PhD Candidate, University of South Carolina, Columbia, SC; and **Paul H. Ziehl, Mohamed El Botanouny,** and **Lingyu Yu,** University of South Carolina

Embedded Piezo-Ceramic Sensors for Early Concrete Strength Estimate—2:40 pm
Dan Hughi, Student, Ryerson University, Toronto, ON, Canada; and **Hesham Marzouk,** Ryerson University

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Sunday, April 14, 2013
1:00 pm - 5:15 pm

ACI Mortar Workability Competition—C-BALLROOM A&B

Sponsored by ACI Committees S801, Student Activities, and 238, Workability of Fresh Concrete

Competition Moderator: Walter H. Flood IV
Manager – Engineer
Flood Testing Labs, Inc.
Chicago, IL

In this new competition, students will focus on workability and rheological properties of concrete. Teams will create a mortar mixture with optimum flowability and stability. During the competition, students will mix their mortar and pour their mixture into a mold in the shape of "ACI" at the top of the letter "A."

Sunday, April 14, 2013
2:00 pm - 4:00 pm

✓I-35W Bridge Tour—H-DEPART MAIN LOBBY

$20 U.S. per person
This tour is SOLD OUT.

In the wake of the collapse on August 1, 2007, of the I-35W bridge over the Mississippi River near downtown Minneapolis, the I-35W St. Anthony Falls Bridge was built in record time, opening just 13 months later on September 18, 2008. The collapsed eight-lane steel-truss arch bridge was Minnesota's fifth busiest, being replaced with a 10-lane box-girder concrete bridge using high-performance concrete, including mass and high-strength concrete. The bridge is equipped with 323 sensors that regularly monitor bridge conditions, data which are analyzed by University of Minnesota personnel. Join us for a bridge tour guided by an MnDOT representative and be sure to take some time to view the multicolor lighting of the bridge at night. Buses will be scheduled for pickup at the convention hotel; the entire event will be 2 hours.

Tour tickets may be purchased up to 24 hours prior to the event, based on availability. ***Tours are nonrefundable.*** *All tours depart from the 11th Street entrance in the main lobby of the Hilton Minneapolis.*

✓ = **Separate fee required**

Sunday, April 14, 2013
3:30 pm - 5:30 pm

Field Measurements of Form Pressure Exerted by Self-Consolidating Concrete—C-101 E

Sponsored by ACI Committees 237, Self-Consolidating Concrete; 238, Workability of Fresh Concrete; and 347, Formwork for Concrete

Session Moderator: Kamal H. Khayat
Professor
Missouri S&T
Rolla, MO

These presentations will report on the latest information regarding the measurement of lateral pressure exerted by self-consolidating concrete (SCC). Examples include extensive field studies carried out on shear walls, column, and wall elements in building construction and infrastructure rehabilitation projects. Comparison between field measurements and various design models, including those proposed in ACI 347, CSA A23.1, and DIN, will be highlighted. Fresh concrete properties affecting formwork pressure and the decay in pressure until pressure cancelation are highlighted, and new test methods that can be used to evaluate these characteristics are illustrated.

By attending this session, attendees will be able to:

1. Demonstrate how to evaluate lateral pressure exerted by SCC on formwork systems;
2. Recognize examples of various prediction models to estimate lateral pressure exerted by SCC;
3. Explain the various methods to assess fresh concrete properties and concrete placement conditions affecting form pressure characteristics; and
4. Specify emerging technologies in civil infrastructures and building construction.

Thixotropy of SCC and Its Effects on Formwork Pressure—3:30 pm
Eric P. Koehler, Senior R&D Engineer, Verifi LLC, Cambridge, MA

Effect of Concrete Constituents and Mixture Parameters on Thixotropy and Formwork Pressure of SCC—3:55 pm
Ahmed F. Omran, Postdoctoral Fellow, University of Sherbrooke, Sherbrooke, QC, Canada; and **Kamal H. Khayat,** Missouri S&T

Comparison of Various Approaches to the Prediction of Formwork Pressure of SCC—4:20 pm
Peter H. Billberg, Senior Researcher, Strängbetong, Stockholm, Sweden

Test Methods to Evaluate Structural Build-Up of SCC and Influence on Formwork Pressure—4:45 pm
Kamal H. Khayat, Professor, Missouri S&T, Rolla, MO; and **Ahmed F. Omran,** University of Sherbrooke

Formwork Considerations and Cautions at the Job Site—5:10 pm
Ralph H. Tulis, Corporate Engineer, Structures Consulting, Willington, CT

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Sunday, April 14, 2013
3:30 pm - 5:30 pm

In Honor of Dick Stehly: Increased Beneficial Use of Fly Ash—History, Accomplishments, and Challenges, Part 2 of 2—C-101 C

Sponsored by ACI Committees 130, Sustainability of Concrete, 232, Fly Ash and Natural Pozzolans in Concrete, and the ACI Minnesota Chapter.

Session Moderator: Lawrence L. Sutter
Professor
Michigan Technological University
Houghton, MI

The session description and learning objectives for this session may be found in the Part 1 listing; see page 82.

Coal Ash Regulations Today and What Could Be Coming—3:30 pm
Thomas H. Adams, Executive Director, American Coal Ash Association, Farmington Hills, MI

International Trends in Beneficial Use—4:00 pm
R. Doug Hooton, Professor, University of Toronto, Toronto, ON, Canada

Specifications and Testing of Fly Ash in the U.S.—4:30 pm
Lawrence L. Sutter, Professor, Michigan Technological University, Houghton, MI; **R. Doug Hooton,** University of Toronto; and **Scott Schlorholtz,** Iowa State University

Research Needs for Increased Beneficial Use—5:00 pm
Chiara F. Ferraris, Physicist, National Institute of Standards & Technology, Gaithersburg, MD; and **Dale P. Bentz, Kenneth Snyder,** and **Paul Stutzman,** National Institute of Standards & Technology

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Sunday, April 14, 2013
3:30 pm - 5:30 pm

Monitoring Performance during Construction, Part 2 of 2—C-101 D

Sponsored by ACI Committee 444, Structural Health Monitoring and Instrumentation

Session Co-Moderators: Hani H. Nassif
Associate Professor
Rutgers University
Piscataway, NJ

Faris A. Malhas
Dean College of Engineering & Sciences
Bowling Green State University
Bowling Green, OH

The session description and learning objectives for this session may be found in the Part 1 listing; see page 84.

Introduction—3:30 pm
Hani H. Nassif, Associate Professor, Rutgers University, Piscataway, NJ

Field Monitoring and Construction Safety Assessment of a Prestressed Continuous Steel-Concrete Composite Bridge—3:55 pm
Wenliang Lu, Associate Professor, Beijing University of Transportation, Beijing, China; and **Ming Liu,** Waterfront Structure

Monitoring the Construction of Segmental Bridges—4:20 pm
Nakin Suksawang, Assistant Professor, Florida International University, Miami, FL; and **Hani H. Nassif,** Rutgers University

Remote Radar Monitoring of Stay Cable Forces for Bridges during Construction—4:45 pm
Larry D. Olson, President, Olson Engineering Inc., Manassas, VA; and **Yajai Tinkey** and **Patrick Miller,** Olson Engineering Inc.

Application of Conductive Surface Materials as a "Sensing Skin" for Damage Detection in Concrete Elements: An Electrical Resistance Tomography (ERT) Approach—5:10 pm
Milad Hallaji, Student, University of Tehran, Tehran, Iran; and **Mohammad Pour-Ghaz,** North Carolina State University

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Sunday, April 14, 2013
5:45 pm - 7:00 pm

Opening Session & Awards Program—C-AUDITORIUM

The ACI Spring 2013 Convention officially begins during the Opening Session and Awards Program. Over 100 individuals and groups will be recognized for their contributions to the concrete industry.

HONORARY MEMBERSHIP

Kenneth B. Bondy
Allen Face
Per Fidjestøl
Anthony E. Fiorato
Ward R. Malisch

FELLOWS

Corina Maria Aldea
Kim D. Basham
David T. Biggs
Karl Philip Brandt
Bruce W. Carter
James N. Cornell II
Peter A. Craig
Jeff Dragovich
Ashish Dubey
David A. Fanella
Lisa R. Feldman
Donato Figueroa-Gallo
John C. Glumb
Man-Yop Han
Bernard H. Hertlein
Wen-Chen Jau
Shih-Tang Lin
Hesham Marzouk
Warren E. McPherson
Fred Meyer
Robert E. Neal
Joseph F. Neuber Jr.
Giovanni A. Plizzari
Carin Roberts-Wollmann
Khaled Soudki
Richard S. Szecsy
Lawrence H. Taber
Scott M. Tarr

David Trejo
Miroslav F. Vejvoda
Wayne W. Walker
Kejin Wang
Michael A. Whisonant
David W. Whitmore
Andrew Whittaker
Peter T. Yen

PERSONAL AWARDS

ARTHUR R. ANDERSON MEDAL
Charles K. Nmai

ROGER H. CORBETTA CONCRETE CONSTRUCTOR AWARD
Dean A. Browning

JOE W. KELLY AWARD
Paul J. Tikalsky

HENRY L. KENNEDY AWARD
Thomas Otto Malerk

ALFRED E. LINDAU AWARD
William F. Baker

HENRY C. TURNER MEDAL
Colin L. Lobo

CHARLES S. WHITNEY MEDAL
ADAPT Corporation

CEDRIC WILLSON LIGHTWEIGHT AGGREGATE CONCRETE AWARD
George Michael Robinson

PAPER AWARDS

WASON MEDAL FOR MOST MERITORIOUS PAPER
W. Calvin McCall

WASON MEDAL FOR MATERIALS RESEARCH
Alessandro P. Fantilli, Hirozo Mihashi, Paolo Vallini, and Bernardino M. Chiaia

ACI CONSTRUCTION AWARD
Jeffrey St. John

CHESTER PAUL SIESS AWARD FOR EXCELLENCE IN STRUCTURAL RESEARCH
Jason Barrington, David Dickson, Luke A. Bisby, and Tim Stratford

ACI DESIGN AWARD
José Riobóo Martín

MISCELLANEOUS AWARDS

CHAPTER ACTIVITIES AWARD
Thomas J. Grisinger
Anthony I. Johnson
Bartley William Kanters
Ephraim Senbetta

ACI YOUNG MEMBER AWARD FOR PROFESSIONAL ACHIEVEMENT
Scott R. Cumming
John T. Kevern
Kyle A. Riding

DELMAR L. BLOEM DISTINGUISHED SERVICE AWARD
Neven Krstulovic-Opara
Kimberly E. Kurtis
Diane Throop

CERTIFICATION PROGRAMS AWARD
Keith Foster
Wally Rooke
Bruce Suprenant

WALTER P. MOORE, JR. FACULTY ACHIEVEMENT AWARD
Zachary C. Grasley

50-YEAR MEMBERS
Stuart C. Anderson
Arthur L. Andrew
Yukio Aoyagi
Joseph F. Artuso
Robert S. Barneyback Jr.
David Beal
Robert D. Botkin

Thomas W. Brockenbrough
M. Z. Cohn
Gerasimos Criticos
Oscar M. Gonzalez Cuevas
Earl Cutler
Robert M. Darvas
Jayant P. Desai
Robert G. Drysdale
Jose M. Espinal-Vazquez
E. A. Jack Gale
Jacob S. Grossman*
Eugene Harbour
Krishan (Kris) K. Jain
Sun Yong Kim
D. Stanton Korista
Douglas Dongwoo Lee
James Lefter
Donald R. Logan
Ward R. Malisch
James E. McDonald
Clyde C. Moore
Shigeyoshi Nagataki
Roger R. Nicolet
Hajime Okamura
Thomas J. Pasko Jr.
Donald R. Schultz
Surendra P. Shah
G. M. Singhvi
William Aurand Stuart II
William R. Thompson
Keith C. Thornton
Jairo Uribe

*deceased

Sunday, April 14, 2013
7:00 pm - 8:00 pm

Opening Reception—C-BALLROOM A&B
Sponsored by ACI

After the Opening Session, make your way through the exhibit area as you network with colleagues and friends. A cash bar and light refreshments will be available.

A photographer will be available to take complimentary professional headshots for attendees.

Look for the ACI Social Team at the ACI Tweet Up. Attendees are encouraged to network with fellow Tweeters and learn more about ACI's social media efforts.

Sunday, April 14, 2013
8:00 pm - 10:00 pm

Hot Topic Session: Responsibility in Concrete Construction—C-101 E
Sponsored by the Hot Topic Committee and ACI Minneasota Chapter

Session Moderator: Jeffrey W. Coleman
Attorney at Law
The Coleman Law Firm LLC
Minneapolis, MN

The responsibility and authority for concrete construction works is sometimes not as clear as we would like. ACI Committee 132, Responsibility in Concrete Construction, has prepared a session to discuss the duties and authorities of all parties on a construction project. Perspectives from many of the parties will be given in short presentations followed by a panel discussion with the attendees.

By attending this session, attendees will be able to:
1. Understand the new ACI 132 document, its predecessors, history, and origin, as the new document will soon be published;
2. Learn about the alignment (and misalignment) of authority and responsibility regarding problems that can arise;
3. Learn how the responsibility for a good project must pass between and among good parties; and
4. Identify key issues that arise when responsibilities are not clearly or appropriately defined.

Introduction, History and Overview of Committee 132 Document—8:00 pm
Jeffrey W. Coleman, Attorney at Law, The Coleman Law Firm LLC, Minneapolis, MN

Responsibility for Sustainability and What Happens if Goals Are Not Met: "Leed—i—gation"—8:20 pm
Julie K. Buffenbarger, Engineering & Architectural Specialist, Lafarge, Medina, OH

Responsibility and the Prescriptive vs. Performance Specification: What Can We Learn from the Canadian Model?—8:40 pm
Casimir Bognacki, Chief of Materials, The Port Authority of New York & New Jersey, Jersey City, NJ

Responsibility for Mix Design—9:00 pm
Kevin MacDonald, Vice President of Engineering Services, Beton Consulting Engineers LLC, Prior Lake, MN

Forensic Investigator/Testing Laboratory—9:20 pm
Boyd A. Clark, Technical Director, Construction Materials Services, CTLGroup, Skokie, IL

Panel Discussion—9:40 pm
Jeffrey W. Coleman, Attorney at Law, The Coleman Law Firm LLC, Minneapolis, MN

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Sunday, April 14, 2013
9:00 pm - 10:30 pm

Student and Young Professional Networking Event—ROCK BOTTOM BREWERY
Sponsored by the ACI Collegiate Concrete Council and the ACI Student and Young Professional Activities Committee

The ACI Collegiate Concrete Council and ACI Student and Young Professional Activities Committee invite all convention attendees to the Student and Young Professional Networking Event. Meet fellow students and young professionals while networking with ACI members in a fun and casual environment. Attendees to the event will be entered into a drawing for door prizes. In addition, attendees will be able to purchase food and beverages.

Rock Bottom Brewery is located at the corner of 9th Street South and Hennepin Avenue, approximately 10 minute walking distance.

Monday, April 15, 2013
6:30 am - 8:00 am

Workshop for Technical Committee Chairs—C-102 A-F
Sponsored by the ACI Technical Activities Committee (TAC)

Session Moderator: David A. Lange
Professor
University of Illinois
Urbana, IL

ACI technical committee Chairs are expected to attend this breakfast workshop to meet with fellow Chairs, TAC members, and ACI staff and 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.

Monday, April 15, 2013
7:00 am - 8:30 am

Speaker Development Breakfast—C-200 F&G
Sponsored by ACI Committee S802, Teaching Methods and Educational Materials

Session Moderator: Colonel Fred Meyer
Director, Civil Engineering Division
United States Military Academy
West Point, NY

Speaker: Will D. Lindquist
Assistant Professor
Trine University
Angola, IN

Topic: How to Give an Effective Online Presentation

This session provides an informal venue for attendees to learn how to become better presenters. The breakfast format promotes interaction among attendees and with the presenter, who models the skills he is teaching in the presentation.

With today's technology, meeting face-to-face is no longer a requirement. Presentations that were once impossible now take place daily between stakeholders from around the globe. In fact, some 87% of organizations use web conferencing or online presentations on a regular basis. These presentations require a slight redesign in planning, preparation, and execution when compared to their face-to-

face counterpart. This session will cover the top five tips for effective online presentations that will leave you feeling accomplished and your audience looking forward to your next presentation.

Monday, April 15, 2013
8:00 am - 11:00 am

Molin Concrete Plant Tour—H-DEPART MAIN LOBBY
Free; preregistration required

Tour the Molin Concrete Production Plant located in Lino Lakes, MN—Molin Concrete's state-of-the art PCI-certified production facility, which has been featured in *Concrete Producer* magazine. The 125,000 ft^2 plant produces wet-cast hollow core, dry-cast extruded hollow core plank, precast/prestressed beams, columns, wall panels, and stadia. The extruded hollow core facility has garnered acclaim as the first fully automated hollow core facility in the United States. Currently, Molin is capable of producing 20,000 ft^2/day of hollow core plank, 400 lineal feet/day of beams, 20 columns/day, 2000 ft^2/day of structural/foundation walls, and 100 lineal feet/day of stadia. Transportation and snacks will be provided.

All tours depart from the 11th Street entrance in the main lobby of the Hilton Minneapolis.

Monday, April 15, 2013
8:30 am - 10:30 am

Portland-Limestone Cements: A Technology to Improve the Sustainability of Concrete—C-101 E
Sponsored by ACI Committee 225, Hydraulic Cements

Session Co-Moderators:
Jay E. Whitt
Technical Service Area Manager
Essroc Cement
Bessemer, PA

James I. Turici
Technical Services Manager
Cemex USA
Sewickley, PA

The construction products of tomorrow will require not only durability but also sustainability. Buildings and infrastructure will be measured by cost, quality, and environmental impact.

Portland-limestone cements are products that can help the concrete industry achieve its goal of concrete being the product of choice. This session will cover the past, present, and future of limestone cements.

By attending this session, attendees will be able to:
1. Understand how portland-limestone cements have been used with great success in other parts of the U.S.;
2. Interpret the changes to newly revised ASTM C595, "Standard Specification for Blended Hydraulic Cements," which now includes portland-limestone cements;
3. Identify the use of portland-limestone cements in pavement and structural concrete projects; and
4. Recognize the environmental and sustainable benefits associated with the specification and use of portland-limestone cements.

Portland-Limestone Blended Cements in ASTM C595/AASHTO M240: Specification Requirements and Environmental Benefits—8:30 am
Paul D. Tennis, Manager, Product Standards & Technology, Portland Cement Association, Fort Mill, SC

Concretes Made Using Portland-Limestone Cement: Comments on Performance and the Impact on Sustainability—8:55 am
W. Jason Weiss, Professor, Purdue University, West Lafayette, IN

Evaluation of Portland-Limestone Performance Cements (ASTM C1157) in Colorado and Utah Transportation and Commercial Projects 2007 to Current—9:20 am
Brooke W. Smartz, Technical Service Engineer, Holcim (US) Inc., Parker, CO; and **Todd Laker,** Holcim (US) Inc.

Using Limestone Cement to Build a Future for a 100-Year-Old Cement Plant—9:45 am
Gary F. Knight, Technical Service Engineer, Lehigh Hanson, Doraville, GA

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
8:30 am - 10:30 am

Proportioning Concrete Mixtures for Use in the 21st Century, Part 1 of 2—C-101 D
Sponsored by ACI Committee 211, Proportioning Concrete Mixtures

Session Moderator: Kevin MacDonald
Vice President of Engineering Services
Beton Consulting Engineers LLC
Prior Lake, MN

This session will present the modern methods of mixture design currently in use. The absolute volume method, presented for almost

60 years, is little used in the industry. Designing mixtures using marginal and nontraditional materials for sustainable, performance, and economic reasons has led to the development of other mixture proportion techniques. The presentations will be made by practitioners who design and proportion mixtures on a daily basis to meet the needs of the designer, placer, and finisher.

By attending this session, attendees will be able to:
1. Learn to use materials and methods of mixture design that are not on the absolute volume method charts;
2. Adapt methods from other realms of practice to develop mixtures to meet the written and unwritten requirements of the designer, installer, and pumping contractor;
3. Manage the heat from high-strength mixtures and even use the heat development to design mixtures; and
4. Use limestone and other mineral fines, aggregate properties, pozzolans, and other materials in concrete mixture proportioning.

Off the Chart Concrete Mixture Proportioning—8:30 am
Teck L. Chua, President, Vulcan Materials Company, Springfield, VA

Concrete Proportioning in Hawaii—8:50 am
Timothy S. Folks, Manager Technical Services, Hawaiian Cement, Aiea, HI

Designing Concrete to Meet Both the Needs of the Specifier and Those of the Concrete Contractor—9:10 am
Warren E. McPherson, Regional Sales Manager, The Euclid Chemical Company, Howell, MI

Laboratory Paste Mixtures as a Concrete Mix Design Tool—9:30 am
Tim Cost, Senior Technical Service Engineer, Holcim (US) Inc, Canton, MS

Coarseness-Workability-Consolidation of Concrete Mixes / A New Approach—9:50 am
Tyler Ley, Assistant Professor, Oklahoma State University, Stillwater, OK

Do You Really Know about Moisture Adjustments?—10:10 am
Allyn C. Luke, Concrete Lab Director, New Jersey Institute of Technology, Newark, NJ

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

GBCI CMP

The Green Building Certification has approved this session for 2 GBCI CE hours. ACI is a provider of GBCI-approved courses for continuing education.

Monday, April 15, 2013
8:30 am - 10:30 am

Research in Progress, Part 1 of 2—C-101 C

Sponsored by ACI Committee 123, Research and Current Developments

Session Co-Moderators: Thomas Schumacher
Assistant Professor
University of Delaware
Newark, DE

Kerry S. Hall
Research and Teaching Assistant
University of Southern Indiana
Evansville, IN

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

By attending this session, attendees will be able to:

1. Recognize ongoing concrete research projects from a wide range of research topics;
2. Identify recent techniques, research methods, and procedures related to structural and material aspects of concrete research;
3. Describe emerging ideas in concrete research; and
4. Summarize recent technical information related to concrete structures and materials research.

ACI-James Instruments Student Awardee Presentation: A Technique for Improving the Damage Detection Ability of the Electro-Mechanical Impedance Method on Concrete Structures—8:30 am

Sam Na, Graduate Student, Korea Advanced Institute of Science & Technology, Daejeon, South Korea

Non-Contact Ultrasonic NDT of Concrete Using a Spark Source Focused by an Ellipsoidal Reflector—8:45 am

Jinying Zhu, Assistant Professor, The University of Texas at Austin, Austin, TX; **Xiaowei Dai,** and **Yi-Te Tsai,** The University of Texas at Austin; and **Michael R. Haberman,** Applied Research Laboratories

Nonlinear Analysis of Slab-Columns Building Systems under Seismic Loads—9:00 am

Dritan Topuzi, Graduate Student, University of Waterloo, Waterloo, ON, Canada; **Maria Anna Polak,** and **Sriram Narasimhan,** University of Waterloo

Repair of Earthquake-Damaged Reinforced Concrete Bridge Columns with Interlocking Spirals and Fractured Longitudinal Bars—9:15 am
Yang Yang, Graduate Student, Missouri S&T, Rolla, MO; **Lesley Sneed,** Missouri S&T; **M. Saiid Saiidi,** University of Nevada; and **Abdeldjelil Belarbi,** University of Houston

Precast Concrete Solutions for Tall Wind Towers—9:30 am
Somashekar Viswanath, Graduate Student, University of Illinois at Urbana-Champaign, Urbana, IL; and **Daniel A. Kuchma,** University of Illinois at Urbana-Champaign

Shear Strength of Sustainable Reinforced Concrete Beams—9:45 am
Mahdi Arezoumandi, Graduate Student, Missouri S&T, Rolla, MO; **Jeffery S. Volz,** and **John J. Myers,** Missouri S&T

Adjacent Box Beam Connections—10:00 am
Jiqiu Yuan, Project Engineer, Professional Service Industries, Turner-Fairbank Highway Research Center, McLean, VA; and **Benjamin Graybeal,** Turner-Fairbank Highway Research Center

Shear Transfer across an Interface of Lightweight Concretes Cast at Different Times—10:15 am
Dane Shaw, Graduate Student, Missouri S&T, Rolla, MO; and **Lesley Sneed,** Missouri S&T

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
9:00 am - 1:00 pm

✓Secrets of St. Paul Tour—H-DEPART MAIN LOBBY
$55.00 U.S. per person

This riding tour with a surprise twist will take you back in time to the era of Prohibition as you visit a former speakeasy and the locations of several gangster rivalries and battles. The next stop will take you to the Landmark Center, which was originally conceived as a post office, custom house, and courthouse. The building eventually became the headquarters for all federal offices in the Upper Midwest. You will also visit the Wabasha Street Caves that were dug in the early 1800s out of a layer of rock known as St. Peter Sandstone. Throughout the tour you will hear commentary on major Saint Paul landmarks, history, and more.

Tour tickets may be purchased up to 24 hours prior to the event, based on availability. ***Tours are nonrefundable.*** *All tours depart from the 11th Street entrance in the main lobby of the Hilton Minneapolis.*

✓ = Separate fee required

Monday, April 15, 2013
11:00 am - 1:00 pm

Innovative Technologies in Blast-Resistant Design—C-101 E
Sponsored by ACI Committee 370, Blast and Impact Load Effects

Session Moderator: Eric S. Musselman
Assistant Professor
Villanova University
Villanova, PA

The objective of the session is to provide details regarding the performance and use of innovative technologies in blast-resistant design. The innovative technologies may include innovative materials, designs, construction methods, and analysis/design techniques.

By attending this session, attendees will be able to:
1. Identify and describe multiple innovative technologies in blast-resistant design;
2. Describe the response of innovative materials under elevated strain rates;
3. Explain the difference in designing and evaluating a system for blast loading versus static loading; and
4. Specify emerging technologies for blast-resistant structures.

Response of Fiber-Reinforced UHPC under Elevated Strain Rates—11:00 am
Sukhoon Pyo, Graduate Student, the University of Michigan, Ann Arbor, MI; and **Antoine E. Naaman** and **Sherif ElTawil,** the University of Michigan

Innovative Micro-Reinforced Composite Concrete Systems for Protection of Structures against Close-Range Detonations—11:30 am
Khaled A. ElDomiaty, Structural Lead Supervisor, Baker Engineering & Risk Consultants, Arlington, VA

Overview of Fiber-Reinforced Polymer and Polyurea Systems for Blast Mitigation of Concrete and Masonry Systems—12:00 pm
Khaled A. ElDomiaty, Structural Lead Supervisor, Baker Engineering & Risk Consultants, Arlington, VA

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
11:00 am - 1:00 pm

Proportioning Concrete Mixtures for Use in the 21st Century, Part 2 of 2—C-101 D

Sponsored by ACI Committee 211, Proportioning Concrete Mixtures

Session Moderator: Kevin MacDonald
Vice President of Engineering Services
Beton Consulting Engineers LLC
Prior Lake, MN

The session description and learning objectives for this session may be found in the Part 1 listing; see page 98.

Proportioning Mixtures for Structural Mass Concrete—11:00 am
Darrell F. Elliot, Technical Service Manager, Buzzi Unicem USA, Metairie, LA

Mixture Proportioning to Satisfy Specifications—11:20 am
Bernard J. Eckholdt III, Manager of Quality Assurance, Lafarge, Metairie, LA

Mixture Proportioning with Ground Limestone (SCC to CLSM)—11:40 am
David A. Berg, Market Manager, Carmeuse Lime & Stone, Pittsburgh, PA

Aggregate Suspension Mixture Proportioning Method—12:00 pm
Eric P. Koehler, Senior R&D Engineer, Verifi LLC, Cambridge, MA

Reaction Kinetics as Applied to Concrete Mixtures—12:20 pm
Kevin A. MacDonald, Vice President of Engineering Services, Beton Consulting Engineers LLC, Prior Lake, MN

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
11:00 am - 1:00 pm

Research in Progress, Part 2 of 2—C-101 C

Sponsored by ACI Committee 123, Research and Current Developments

Session Co-Moderators: Thomas Schumacher
Assistant Professor
University of Delaware
Newark, DE

Kerry S. Hall
Research and Teaching Assistant
University of Southern Indiana
Evansville, IN

The session description and learning objectives for this session may be found in the Part 1 listing; see page 100.

Characterization of Cracking in Concrete Using a Fully Contactless Scanning Ultrasonic System—11:00 am
Suyun Ham, PhD Student, University of Illinois at Urbana-Champaign, Urbana, IL; and **John S. Popovics,** University of Illinois at Urbana-Champaign

Quality Control of Concrete Structures Using Automated Non-Destructive Evaluation—11:15 am
Jordan Nelson, Graduate Research Assistant, University of Florida, Gainesville, FL; and **Christopher Ferraro,** University of Florida

Application of Raman Spectroscopy in Research of Hydrating Cement in the Presence of Nano Materials—11:30 am
Xin Wang, Graduate Student, Iowa State University, Ames, IA; **Kejin Wang, Emily Smith,** and **Ny Nguyen,** Iowa State University

Bacterial Indicators of ASR-Related Damage in Concrete—11:45 am
Julia A. Maresca, Assistant Professor, University of Delaware, Newark, DE; **Mary Katherine Sutter, Paul Moser,** and **Thomas Schumacher,** University of Delaware; **Joel Moore,** Towson University; and **Farshad Rajabipour,** the Pennsylvania State University

Early-Age Volume Change and Hydration of Calcium Sulfoaluminate Cement with Mineral Admixtures—12:00 pm
Piyush Chaunsali, Graduate Student, University of Illinois at Urbana-Champaign, Urbana, IL; and **Paramita Mondal,** University of Illinois at Urbana-Champaign

Glass Cullet as a New Supplementary Cementitious Material (SCM); What Are the Effects of Size Distributions and Types on Glass Reactivity?—12:15 pm
Mohammadreza Mirzahosseini, Graduate Student, Kansas State University, Manhattan, KS; and **Kyle Austin Riding,** Kansas State University

Effect of Aqueous Aluminum on the Dissolution Rate of Reactive Silica and Its Implications for Alkali-Silica Reaction—12:30 pm
Farshad Rajabipour, Assistant Professor, the Pennsylvania State University, State College, PA; and **Seyed Shafaatian** and **Hamed Maraghechi,** the Pennsylvania State University

"Set-on-Demand" Concrete—12:45 pm
Sriramya D. Nair, Graduate Student, the University of Texas at Austin, Austin, TX; and **Raissa P. Ferron,** the University of Texas at Austin

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
11:30 am - 1:30 pm

✓***Student Lunch—C-102 A-F***
$29 U.S. per person
FREE to students who preregistered
Sponsored by Baker Concrete Construction Company, Inc.

BAKER CONCRETE CONSTRUCTION expect more

Coordinated by the ACI Minnesota Chapter and ACI Committee S801, Student Activities

Speaker: Mete A. Sozen
Kettlehut Distinguished Professor
Purdue University
West Lafayette, IN

Topic: To Know What One Knows or to Know What One Does Not Know, That is the Question

Join students and other ACI attendees for the Student Lunch. Mete Sozen, Kettlehut Distinguished Professor, Purdue University, will give a presentation titled "To Know What One Knows or to Know What One Does Not Know, That is the Question."

Mete A. Sozen, Structural Engineer (IL), graduated from Bogazici University, Istanbul, Turkey, with a BSc in civil engineering and continued his education at the University of Illinois, Urbana, IL. After completing his graduate work, he joined the faculty of the University of Illinois and taught there until 1993. Since 1993, he has been serving on the faculty of the School of Civil Engineering, Purdue University, West Lafayette, IN.

Following the lecture, the results of the student competitions, 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.*

✓ = Separate fee required

Monday, April 15, 2013
1:00 pm - 2:00 pm

Chapter Forum: Facebook for Chapters—C-101 H
Sponsored by the ACI Chapter Activities Committee

At every spring convention, the ACI Chapter Activities Committee (CAC) holds a Chapter Forum to explore topics of interest to chapter officers. This year, attendees will learn about the most important benefits of using social media platforms and how they can be used to connect with chapter members. The session will focus on how chapter leaders can use social media to enhance communication between members and other chapters. Specific social media campaigns, tips, and strategies will be highlighted, with a focus on Facebook.

Monday, April 15, 2013
1:15 pm - 5:00 pm

Gerdau Rebar Mill Plant Tour—H-DEPART MAIN LOBBY
Free; preregistration required
This tour is SOLD OUT.

Gerdau Longsteel North America manufactures a diverse and balanced mix of recycled steel products for use in a variety of industries including construction, cellular and electrical transmission, automotive, mining, and equipment manufacturing. Don't miss this opportunity to tour the steel mill of one of the largest concrete reinforcing steel fabricators in North America. Long pants and closed-toed shoes are required.

All tours depart from the 11th Street entrance in the main lobby of the Hilton Minneapolis.

Monday, April 15, 2013
1:30 pm - 3:30 pm

Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 1 of 3—C-101 C

Sponsored by ACI Committees 345, Concrete Bridge Construction, Maintenance, and Repair; and 440, Fiber-Reinforced Polymer Reinforcement

Session Moderator: Yail Jimmy Kim
Associate Professor
University of Colorado Denver
Denver, CO

The session focuses on the application of advanced materials and sensing technologies toward smart concrete bridges. The concept of "smart" is emerging in other disciplines, but is not yet broadly accepted in the bridge community. Presentations include the conceptual development of smart bridges with an emphasis on laboratory experiments, numerical modeling, and case studies; for example, smart composites for rehabilitation, state-of-the-art evaluation and inspection methods, wireless structural health monitoring, advanced repair systems, and an artificial intelligence approach for damage detection. The session integrates recent research findings concerning smart technologies and provides an opportunity to discuss present challenges and technical issues. Critical information is given to those who lead tomorrow's bridge design and construction, including practicing engineers, government officials, and academics.

By attending this session, attendees will be able to:
1. Learn state-of-the-art evaluation techniques;
2. Identify research needs to advance smart technologies for concrete bridges;
3. Recognize the effort to establish a new trend in rehabilitation methods; and
4. Link laboratory investigations with practical site applications.

Experimental Investigation of the FRCM-Concrete Interfacial Debonding—1:30 pm

Lesley H. Sneed, Assistant Professor, Missouri S&T, Rolla, MO; **Christian Carloni,** University of Hartford; and **Tommaso D'Antino,** University of Padova

A High-Fidelity Sensing System for Concrete and the Performance of Concrete Decks in Cold Regions—1:50 pm

Shahlaa A. Al Wakeel, PhD Student, University of Colorado Denver, Denver, CO; and **Yail Jimmy Kim,** University of Colorado Denver

Corrosion Monitoring of Prestressed Concrete Bridges Using Acoustic Emission—2:10 pm
William Velez, PhD Student, University of South Carolina, Columbia, SC; and **Fabio Matta, Jese Mangual, Mohamed ElBatanouny,** and **Paul Ziehl,** University of South Carolina

Evaluation of Concrete Bridge Decks Using Traditional Methods Versus NonDestructive Methods: Chain Dragging, Thermal Imaging, Impact Echo and Ground Penetrating Radar (GPR)—2:30 pm
Jennifer E. Tanner, Associate Professor, University of Wyoming, Laramie, WY

Load Rating of an Incompletely Documented Bridge at Cass County, ND—2:50 pm
Mike Telste, Masters Student, North Dakota State University, Fargo, ND; and **Mijia Yang,** North Dakota State University

A Novel Technique for Displacement Measurements in RC Beams Using Digital Image Correlation—3:10 pm
Amr El Ragaby, Assistant Professor, University of Windsor, Windsor, ON, Canada; **Faouzi Ghrib, Boubakeur Boufama, Li Li,** and **Sara Memar,** University of Windsor

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
1:30 pm - 3:30 pm

Current Research in Concrete Pavements—C-101 E
Sponsored by ACI Committee 325, Concrete Pavements

Session Moderator: Peter G. Bly
Research Civil Engineer
U.S. Army Engineer Research & Development Center
Vicksburg, MS

This session provides insight into current research regarding concrete paving. The intended audience includes decision makers, engineers, material suppliers, public agencies, and contractors. The session includes discussion of current issues and innovations related to concrete pavement design, construction techniques, environmental challenges, quality control equipment, and the use of new materials.

By attending this session, attendees will be to:
1. Understand current construction, material, and design issues regarding concrete pavements;

2. Understand how the issues discussed are repaired or mitigated when observed;
3. Understand how current techniques or methodologies are being improved for higher quality structures with longer service lives; and
4. Understand what the future of concrete pavements holds for all those in the industry.

A Review of Durability of Joints—1:30 pm
Peter C. Taylor, Engineer, National CP Tech Center, Ames, IA

Rigid Pavement Design: Past, Present, and Future—1:54 pm
Lev Khazanovich, Associate Professor, University of Minnesota, Minneapolis, MN

Evaluation of Concrete Curing Effectiveness—2:19 pm
Dan G. Zollinger, Professor, Texas A & M University, Bryan, TX

Current Considerations for Long-Life Concrete Pavements—2:43 pm
Shiraz D. Tayabji, Regional Manager, Fugro Consultants Inc., Ellicott City, MD

The Latest in Concrete Research at Mn/DOT—3:07 pm
Tom Burnham, Senior Road Research Engineer, Minnesota Department of Transportation, Maplewood, MN

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
1:30 pm - 3:30 pm

Responsibilities of the New Concrete Professional—C-101 D
Sponsored by ACI Committee S802, Teaching Methods and Educational Materials

Session Co-Moderators: Fred Meyer
Director, Civil Engineering Division
United States Military Academy
West Point, NY

Arsenio Caceres
Associate Professor
University of Puerto Rico Mayaguez
Mayaguez, PR

This session will provide students who are about to join the practice of engineering and young professionals just starting out with tools to help them meet their responsibilities as new professionals.

By attending this session, attendees will be able to:
1. Identify effective written and verbal communication techniques;
2. Understand the importance and need for a professional mentor;
3. Identify methods for presenting yourself effectively in a résumé; and
4. Understand the requirements expected of a new professional entering the job market.

Some Novel Techniques for Enhancing Student Learning—1:30 pm
Zachary C. Grasley, Assistant Professor, Virginia Tech, Blacksburg, VA

Make Your Résumé Pop!—1:50 pm
Frank Stephen Malits, Principal, Cagley and Associates, Silver Spring, MD

Role-Playing in the Classroom to Prepare the New Concrete Professional—2:10 pm
Luke M. Snell, Eminent Scholar, Western Technologies Inc., Tempe, AZ

When an Engineering Student Learns and the Role of College and Industry!—2:30 pm
Ramon L. Carrasquillo, President, Carrasquillo Associates Ltd., Austin, TX

Mastering the Knowledge You AREN'T Taught in School—2:50 pm
James J. Ernzen, Associate Professor, Arizona State University, Tempe, AZ

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
3:30 pm - 5:00 pm

Guest Social—H-SYMPHONY III

Mrs. Linda Wight invites all convention guests to join her for the Guest Social. You don't want to miss this opportunity to catch up with old friends, get to know other convention guests. and enjoy light refreshments. A guest name badge is required to attend this event.

= Guest-only event

Monday, April 15, 2013
4:00 pm - 6:00 pm

Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 2 of 3—C-101 C

Sponsored by ACI Committees 345, Concrete Bridge Construction, Maintenance, and Repair; and 440, Fiber-Reinforced Polymer Reinforcement

Session Moderator: Yail Jimmy Kim
Associate Professor
University of Colorado Denver
Denver, CO

The session description and learning objectives for this session may be found in the Part 1 listing; see page 107.

Experimental Investigations into the Behavior of Concrete Elements Retrofitted with NSM Composite Strips at Elevated Temperatures—4:00 pm
Abdul Namrou, Masters Student, University of Colorado Denver, Denver, CO; and **Yail Jimmy Kim,** University of Colorado Denver

Swedish Recommendations for Steel Fiber Concrete Overlays—4:24 pm
Johan L. Silfwerbrand, Professor, Swedish Cement & Concrete Research Institute, Stockholm, Sweden

Evaluation of the Impermeability of Bridge Deck Overlays Using Embedded Wireless Moisture Sensors—4:48 pm
Michael C. Brown, Research Scientist, VA Center for Trans Innovation & Research, Charlottesville, VA; **Andrew J. Foden,** Parsons Brinckerhoff; and **Brian M. Pailes** and **Nenad Gucunski,** Rutgers, the State University of New Jersey

Externally Bonded GFRP and NSM Steel Bars for Improved Strengthening of Rectangular Concrete Beams—5:12 pm
Hayder A. Rasheed, Associate Professor, Kansas State University, Manhattan, KS; and **Augustine Wuertz, Abdelbaset Traplsi,** and **Hani Melhem,** Kansas State University

Case Study: Preserving an Icon—The Sydney Harbour Bridge in Australia—5:36 pm
Timothy R. W. Gillespie, Product Marketing Manager, Sika Corporation, Lyndhurst, NJ

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
4:00 pm - 6:00 pm

SCC in Repair Applications—C-101 E
Sponsored by ACI Committees 237, Self-Consolidating Concrete; and 345, Concrete Bridge Construction, Maintenance, and Repair

Session Co-Moderators: Lloyd J. Keller
Director
EllisDon Corporation
Mississauga, ON Canada

H. Celik Ozyildirim
Principal Research Scientist
Virginia Center for Transportation Innovation and Research
Charlottesville, VA

This session will report on the use of SCC in repairing structures. The applications will include bridge substructures, high-density concrete repair, seismic joint retrofit, and reinforced concrete beams. Basic application information is intended to familiarize the audience with the use of SCC for successful repairs.

By attending this session, attendees will be able to:
1. Demonstrate a new approach to repairing structures;
2. Recognize new ways of extending the service-life of structures;
3. Explain the various methods of repairing structures; and
4. Specify emerging technologies in structures.

Prepackaged SCC for Repairs and Case Studies—4:00 pm
Aamer H. Syed, Senior Product Marketing Manager, Sika Corporation, Lyndhurst, NJ

Use of SCC for the Repair of Bridge Substructures—4:25 pm
H. Celik Ozyildirim, Principal Research Scientist, Virginia Center for Transportation Innovation and Research, Charlottesville, VA

Use of SCC in High-Density Concrete Repair—4:50 pm
Robert Quattrociocchi, R&D Engineer, EllisDon Corporation, Mississauga, ON, Canada

Use of SCC in Seismic Joint Retrofit—5:15 pm
Mike Cook, Quality Control Manager, Granite Rock Company, Redwood City, CA; **Venkatesh S. Iyer,** AMEC Environment & Infrastructure; and **Keith Hoffman,** California Department of Transportation

Use of Fiber-Reinforced SCC for the Repair of Reinforced Concrete Beams—5:40 pm
Kamal H. Khayat, Professor, Missouri S&T, Rolla, MO; and **Fodhil Kassimi,** University of Sherbrooke

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
4:00 pm - 6:00 pm

Validation of Long-Term Performance Predictions—C-101 D
Sponsored by ACI Committee 234, Silica Fume in Concrete

Session Moderator: Rachel J. Detwiler
Editor-in-Chief, *PCI Journal*
Precast/Prestressed Concrete Institute
Chicago, IL

Silica fume has been used for the purpose of enhancing durability since the early 1980s in the United States and for much longer in Norway. This session aims to compare the field performance of silica-fume concrete with predictions from models such as Life-365. Specifiers of bridges, parking structures, and marine structures are encouraged to attend.

By attending this session, attendees will be able to:
1. Compare the durability predictions of Life-365 and other models with actual field performance of silica-fume concrete in a variety of applications;
2. Understand where these models give reasonably conservative predictions and where they need improvement;
3. Recognize when the models make fair comparisons among proposed alternative concrete mixtures; and
4. Make more informed use of prediction models.

Predictive Model Validation from Long-Term Chloride Penetration Resistance of Bridge and Parking Decks Made with Silica Fume Concretes—4:00 pm
R. Doug Hooton, Professor, University of Toronto, Toronto, ON, Canada; **Anthony N. Kojundic,** Elkem Materials Inc.; and **Evan C. Bentz,** University of Toronto

Long-Term Experience with Silica Fume in Marine Structures—4:30 pm
Robert C. Lewis, Technical Marketing Manager, Elkem Materials, Reading, Berkshire, United Kingdom; and **Per Fidjestøl,** Elkem ASA Materials

Predicting Chloride Penetration for Concrete Exposed to a Marine Environment—5:00 pm
Huang Yi, Student, University of New Brunswick, Fredericton, NB, Canada; and **Michael D. A. Thomas,** University of New Brunswick

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
6:00 pm - 7:00 pm

Women in ACI Reception—C-SEASONS

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

Monday, April 15, 2013
6:30 pm - 8:30 pm

123 Forum: What is the Biggest Analytical Gap in the Analysis of Reinforced/Prestressed Concrete and What Are the Implications for Structural Design Codes?—C-101 C
Sponsored by ACI Committee 123, Research and Current Developments

Session Co-Moderators: Farshad Rajabipour
Assistant Professor
Pennsylvania State University
University Park, PA

Thomas Schumacher
Assistant Professor
University of Delaware
Newark, DE

This forum will discuss the theories used to predict the behavior of structural concrete members and their implementation in structural design codes. For example, strut-and-tie models allow consideration of all internal force effects simultaneously but rely on the designer's expertise to designate the load paths. With the more recent advent of unified theories that simultaneously consider axial force, shear

force, and flexure, a new set of models has been developed that can accurately describe the true behavior of concrete structures. However, these models are complex and may not be easily implemented in a design code.

As a result, and despite some very advanced theories, most design codes still rely on empirical relationships that treat each internal force effect separately. Here are some important questions to consider:

- What is the most accurate model to predict the behavior of structural concrete?
- What are the limits in predicting the behavior of structural concrete?
- What are the gaps in understanding the behavior of structural concrete?
- What are the differences between the ACI 318 Code and Eurocode 2?
- What are the strengths/weaknesses of the ACI 318 Code and how can the Code be improved?
- What will the structural concrete design code of the future look like?

A panel of experts will debate these questions and more to provide the audience with the current state of the theory and implementation in structural concrete design codes. The forum will include a short presentation by each panelist, followed by an interactive discussion with the audience.

By attending this session, attendees will be able to:

1. Restate limitations and knowledge gaps in predicting the behavior of structural concrete;
2. Identify the main differences between the ACI 318 Code and other codes;
3. Recognize the strengths and weaknesses of the ACI 318 Code; and
4. Identify areas of further research to improve current design codes.

Eye to Eye: The Building Law According to Hammurabi and Chester Paul Siess—6:30 pm
Mete Sozen, Kettlehut Distinguished Professor, Purdue University, West Lafayette, IN

Aggregate Interlock vs. Crack Interlock—6:42 pm
Thomas Hsu, Moores Professor, University of Houston, Houston, TX

Model Complexity and Prediction of Structural Behavior—6:54 pm
Gustavo Parra-Montesinos, Professor, University of Wisconsin-Madison, Madison, WI

The Evolution of Structural Engineering Design Practice—7:06 pm
Daniel Kuchma, Associate Professor, University of Illinois at Urbana-Champaign, Urbana, IL

Accounting for the Effects of Nonlinearity in Structural Analysis and Design—7:18 pm
Evan Bentz, Associate Professor, University of Toronto, Toronto, ON, Canada

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Monday, April 15, 2013
7:30 pm - 8:30 pm

Hockey Game in Memory of Dick Stehly — The St. Paul Stehlys vs. The Minneapolis Richards— H-DEPART MAIN LOBBY

In remembrance of 2010 ACI President Richard (Dick) D. Stehly, ACI members and staff will take the ice at Parade Stadium to participate in one of his favorite activities—hockey. Convention attendees are invited to watch the "Minneapolis Richards" take on the "St. Paul Stehlys." Transportation will be provided for those who preregister for this event. Attendees may also arrange for their own transportation.

Registration is required. You may preregister at the ACI Registration Desk up to 24 hours prior to the event, based on availability.

Tuesday, April 16, 2013
8:30 am - 10:30 am

Contractors' Day Session: High-Volume Fly Ash Concretes—Providing Constructability to Sustainability—C-101 D
Sponsored by the ACI Minnesota Chapter

Session Moderator: Joshua J. Edwards
Director of Engineering
AVR Inc.
Apple Valley, MN

It is now commonplace to be involved in a green building or sustainable design project that uses high-volume fly ash (HVFA) concrete. In high-volume mixture designs, the ash replacement is more than usual; and, in many cases, it exceeds a 50% weight replacement for cement. The motivation for this comes from the U.S. Green Building Council's LEED certification program.

When faced with a job using HVFA concrete, the contractor is usually less concerned with LEED certification and more concerned with what the concrete looks like and how it performs and finishes. These presentations will discuss how the sustainability benefits of HVFA concretes are often tempered by practical constructability limitations that may exist. These presentations will also explore how to alleviate these deficiencies in HVFA mixtures.

By attending this session, attendees will be able to:

1. Recognize that the environment regulations on fly ash are changing and gain an industry perspective on what the future holds for fly ash and HVFA concretes;
2. Explain why the sustainability benefits of HVFA concretes are often tempered by practical constructability limitations that may exist;
3. Specify emerging technologies that help to alleviate these deficiencies in HVFA mixtures; and
4. Demonstrate how projects using HVFA concretes need a teamwork approach to be completed on time and within budget.

A Futuristic Perspective on Fly Ash—8:30 am
Benjamin J. Franklin, Director of Technical Services, Headwaters Resources, Marthasville, OH

Cement/Fly Ash/Limestone Ternary Blends: Providing Constructability to Sustainability—9:00 am
W. Jason Weiss, Professor, Purdue University, West Lafayette, IN

Case Study University of Minnesota Recreation Center—9:30 am
Michael Ramerth, Principal, Meyer Borgman & Johnson, Minneapolis, MN, **Kenneth Andrew Styrlund,** JE Dunn Construction North Central; **Linda McCracken-Hunt,** Studio Five Architects; and **Galen Peterson,** Kelleher Construction, Inc.

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

GBCI CMP

The Green Building Certification has approved this session for 2 GBCI CE hours. ACI is a provider of GBCI-approved courses for continuing education.

Tuesday, April 16, 2013
8:30 am - 10:30 am

Fracture Mechanics Applications in Concrete, Part 1 of 2—C-101 C

Sponsored by Joint ACI-ASCE Committee 446, Fracture Mechanics of Concrete

Session Co-Moderators: Mario Cristian Gaedicke Hornung
Assistant Professor
California State University, East Bay
Hayward, CA

Amanda C. Bordelon
Assistant Professor
University of Utah
Salt Lake City, UT

This session will present recent developments in applications of fracture mechanics in concrete. The papers included in this session will particularly focus on the implementation of fracture mechanics techniques in fiber-reinforced concrete, fiber-reinforced polymers, bond, large structures, beam shear, pavements, and concrete deterioration. Where applicable, the papers will cover comparisons of modeling results with experimental tests. This session is oriented toward practitioners, faculty, and students who are using fracture mechanics to assess structural integrity and design of concrete structures.

By attending this session, attendees will be able to:

1. Recognize the importance of fracture mechanics in the design and structural performance evaluation of concrete structures;
2. Learn about recent developments in methods to model the fracture behavior of fiber-reinforced concrete, fiber-reinforced polymers, bond, large structures, beam shear, pavements, and concrete deterioration;
3. Learn about applications of fracture mechanics to design and evaluate the performance of sustainable concrete infrastructure and pavements; and
4. Identify areas of further research where the application of fracture mechanics could improve the design and performance of concrete structures.

Simulated Fracture in Concrete Composite Pavements Using Coupled Lattice and Finite Element Model—8:30 am

Lev Khazanovich, Educator, University of Minnesota, Minneapolis, MN; **John E. Bolander,** University Of California; and **Derek Tompkins** and **H. K. Stolarski,** University of Minnesota

Mode I Interface Fracture Property between a Portland Cement Concrete Overlay and Aged Asphalt—9:00 am
Feng Mu, Student, University of Pittsburgh, Pittsburgh, PA; and **Julie M. Vandenbossche,** University of Pittsburgh

Computational Modeling of the Fracture Behavior of Functionally Layered Concrete Materials with Fibers and Recycled Concrete Aggregates—9:30 am
Francisco Evangelista, Assistant Professor, California State University, Los Angeles, Los Angeles, CA; and **Jeffery R. Roesler,** University of Illinois

Effect of the Concrete Cohesive Softening Curve and Soil on the Predicted Flexural Capacity of Concrete Slabs on Soil—10:00 am
Mario Cristian Gaedicke Hornung, Assistant Professor, California State University, East Bay, Hayward, CA

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
8:30 am - 10:30 am

Not Your Father's Technology—C-101 E
Sponsored by the ACI Marketing Committee and ACI Committee 118, Use of Computers

Session Co-Moderators: Rita K. Oglesby
Bridge Key Product Manager
Bentley Systems, Inc.
St. Petersburg, FL

John F. Jakovich
Systems Manager
DYK Incorporated
El Cajon, CA

Attendees will gain knowledge of the various ways current technology improves efficiency and mobility in today's workplace. The technology includes applications available on mobile devices, such as cell phones and tablets. Various forms of social media will also be explored.

By attending this session, attendees will be able to:
1. Learn about concrete design applications currently available;
2. Learn about virtualization on mobile devices;
3. Recognize various forms of social media and how they affect your workplace; and
4. Learn about the different types of technology used on a construction job site by a contractor.

Introduction to Mobile Technology—8:30 am
Rita K. Oglesby, Bridge Key Product Manager, Bentley Systems, Inc., St. Petersburg, FL

Concrete Applications on Mobile Devices—8:35 am
Ronald L. O'Kane, Partner, Leigh & O'Kane LLC, Kansas City, MO

Mobile Technology in the Workplace—8:55 am
John F. Jakovich, Systems Manager, DYK Incorporated, El Cajon, CA

Social Media Applications in the Workplace—9:15 am
Danielle R. Harris, Marketing Assistant, American Concrete Institute, Farmington Hills, MI

Taking Technology to the Field: The Use of Mobile Technology on a Construction Jobsite—9:35 am
Joseph C. Sanders, Consultant, Charles Pankow Builders Ltd., Pasadena, CA

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
9:00 am - 12:00 pm

✓The Best of Minneapolis Tour—H-DEPART MAIN LOBBY
$39.00 U.S. per person

Visit all of the must-see destinations in Minneapolis on this informational riding tour. Highlights of this tour include stops at Minnehaha Falls, the city's oldest tourist attraction; Minneapolis Sculpture Garden, 11 acres of urban sculpture gardens; Guthrie Theatre, famed for its professional standards and impressive architecture; and the historical Stone Arch Bridge, the only bridge of its kind over the Mississippi River.

All tours depart from the 11th Street entrance in the main lobby of the Hilton Minneapolis.

✓ = Separate fee required

Tuesday, April 16, 2013
11:00 am - 1:00 pm

Chemical Effects—C-101 E

Sponsored by ACI Committee 201, Durability of Concrete

Session Moderator: Thomas J. Van Dam
Program Director
CTLGroup
Skokie, IL

This session presents the latest research on how chemical deicers affect the durability of concrete. The focus is on chemical degradation mechanisms induced by brine solutions of calcium and magnesium chloride and potassium acetate. Researchers and practitioners working in freezing-and-thawing environments will find this of interest.

By attending this session, attendees will be able to:

1. Describe how modern deicers differ from those commonly used in the past;
2. Understand the chemical reactions responsible for concrete degradation due to calcium and magnesium chloride brine solutions and potassium acetate;
3. Learn what is and is not known regarding the mechanisms affecting concrete subjected to chemical deicers; and
4. Understand strategies available to improve the durability of concrete in this increasingly hostile environment.

The Interactions of Deicing Salts with Cementing Compounds—11:00 am

Paul W. Brown, Professor, Pennsylvania State University, University Park, PA

Effects of Calcium and Magnesium Chloride Deicing Chemicals on Cement-Based Materials: Part I—Concentration and Temperature Dependence—11:20 am

R. Doug Hooton, Professor, University of Toronto, Toronto, ON, Canada; and **Gustavo JulioBetancourt,** QC & Laboratories for Holcim Canada

Effects of Calcium and Magnesium Chloride Deicing Chemicals on Cement-Based Materials: Part 2—Petrographic Evidence and Field Performance—11:40 am

Lawrence L. Sutter, Professor and Director, Michigan Technological University, Houghton, MI; and **Karl W. Peterson,** University of Toronto

Interaction between Potassium Acetate and Concrete—12:00 pm
Sean Hayman, Student, University of New Brunswick, Fredericton, NB, Canada; **Kevin J. Folliard** and **Thano Drimalas,** University of Texas at Austin; and **Michael D. A. Thomas,** University of New Brunswick

An Overview of Agency- and Industry-Sponsored Research into Potassium Acetate Effects on Concrete Durability—12:20 pm
Paul D. Tennis, Manager, Product Standards & Technology, Portland Cement Association, Fort Mill, SC

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
11:00 am - 1:00 pm

Fracture Mechanics Applications in Concrete, Part 2 of 2—C-101 C
Sponsored by Joint ACI-ASCE Committee 446, Fracture Mechanics of Concrete

Session Co-Moderators: Mario Cristian Gaedicke Hornung
Assistant Professor
California State University, East Bay
Hayward, CA

Amanda C. Bordelon
Assistant Professor
University of Utah
Salt Lake City, UT

The session description and learning objectives for this session may be found in the Part 1 listing; see page 118.

Determination of Total Fracture Energy for Fiber-Reinforced Concrete—11:00 am
Min Ook Kim, Graduate Research Assistant, University of Utah, Salt Lake City, UT; and **Amanda C. Bordelon,** University of Utah

Shear Strength of Reinforced Concrete Beams: Size Effect and Its Fracture-Mechanics—11:30 am
Qiang Yu, Assistant Professor, University of Pittsburgh, Pittsburgh, PA; and **Zdeněk P. Bažant,** Northwestern University

Fracture Behavior of Reinforced Concrete Deep Beams: Numerical Investigation of Strength and Beam Size—12:00 pm
Guillermo Alberto Riveros, Civil Engineer, U.S. Army Corps of Engineers, Vicksburg, MS; and **Vellore S. Gopalaratnam,** University of Missouri-Columbia

Development of Models for Deep Beams Using Strut-and-Tie Model—12:30 pm
Appa Rao, Associate Professor, Indian Institute of Technology, Chennai, India

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
11:00 am - 1:00 pm

Green Cements—State of the Art, Part 1 of 2—C-101 D
Sponsored by ACI Committees 130, Sustainability of Concrete; 232, Fly Ash and Natural Pozzolans in Concrete; 236, Material Science of Concrete; and 363, High-Strength Concrete

Session Co-Moderators: Narayanan Neithalath
Assistant Professor
Arizona State University
Tempe, AZ

James K. Hicks
Executive Vice President,
Engineering and Development
CeraTech, Inc.
Montgomery, TX

The benefits of binders produced with significantly reduced, little, or no process energy that have a small carbon footprint, are composed of recycled and/or renewable resources, and have minimal environmental impact will be discussed.

By attending this session, attendees will be able to:
1. Recognize the several advantages of green materials with high-volume cement replacement;
2. Appreciate choices for materials-related sustainability in concrete construction;
3. Understand the choice of materials and proportioning methods for sustainable concretes; and
4. Specify high-volume cement replacement and cementless binder systems for civil infrastructure.

Activation of Fly Ash through Nanomodification—11:00 am
Shiho Kawashima, Student, Northwestern University, Evanston, IL; **Kejin Wang,** Iowa State University; **Surendra P. Shah,** Northwestern University; and **Pengkun Hou,** Chongqing University

Portland Limestone Cement—Lessons Learned—11:20 am
Gary F. Knight, Technical Service Engineer, Lehigh Hanson, Doraville, GA

Waste Glass for Use in Geopolymer Cement—11:40 am
Mary Christiansen, Student, Michigan Technological University, Houghton, MI; and **Lawrence L. Sutter,** Michigan Technological University

Identifying Compositional Factors of Fly Ash Reactivity in Geopolymer Cements—12:00 pm
Katherine Aughenbaugh, Student, University of Texas at Austin, Austin, TX; **Maria G. Juenger,** University of Texas; and **Paul Stutzman,** National Institute of Standards and Technology

Reactivity Analysis of High Calcium Fly Ash as Raw Material for Non-Traditional, Fly Ash-Based Binders—12:20 pm
Ivan Diaz-Loya, Research Engineer, CeraTech Inc., Baltimore, MD; **Frederick D. Kinney,** CeraTech Inc; and **Carlos Augusto Orozco Rios,** Cementos Argos

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

GBCI CMP

The Green Building Certification has approved this session for 2 GBCI CE hours. ACI is a provider of GBCI-approved courses for continuing education.

Tuesday, April 16, 2013
11:30 am - 1:30 pm

✓Contractors' Day Lunch—C-205 A&B
$31 U.S. per person
Coordinated by the ACI Minnesota Chapter and the Construction Liaison Committee

Speaker: Linda Figg
President and CEO
FIGG
Tallahassee, FL

Join other ACI attendees and contractors for the Contractors' Day Lunch. Enjoy a special

presentation by Linda Figg, President and CEO of FIGG. Linda Figg will speak about the I-35W Bridge Reconstruction Project and the impact it has on how contractors view responsibility in concrete construction.

Linda Figg is President/CEO of FIGG, an international firm founded in 1978 that exclusively specializes in bridges. Linda has over 30 years of experience in leadership and management of world-class bridges from concept through construction. She was named one of *Engineering News Record's* Top 22 Newsmakers in 1998, and *Concrete Construction* magazine named Linda as one of the thirteen most influential people in the concrete industry in 2007. Recently in 2011, Linda was elected io the National Academy of Construction (NAC). The NAC noted her vision behind new technologies in bridges that are important to the long-term viability of our nation's infrastructure." FIGG bridges have received over 344 awards from customers, recognizing economy, innovation, sustainability, and aesthetics, including three Presidential Awards through the National Endowment for the Arts.

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.*

✓ **= Separate fee required**

Tuesday, April 16, 2013
1:30 pm - 3:30 pm

Concrete in Historic Structures—C-101 C

Sponsored by ACI Committee 120, History of Concrete; Construction Liaison Committee; and ACI Minnesota Chapter

Session Co-Moderators: Michael E. Murray
President
Murray Decorative Concrete Supply
Shawnee, KS

Kimberly Waggle Kramer
Director of Graduate Studies
Kansas State University
Manhattan, KS

Papers are welcome in the following areas: historical concrete structures, significant people who impacted the concrete industry, and notable achievements of concrete organizations. The main objective of this session is to present a broad perspective on the important issues related to historical structures.

By attending this session, attendees will be able to:

1. Recognize and/or identify some of the historical concrete structures;
2. Recognize and/or identify some of the significant people in the concrete industry;
3. Recognize some of the notable achievements of the concrete organizations; and
4. Identify three antiquated structural systems and their historical significance.

History of Concrete in the Twin Cities—1:30 pm
Meghan Elliot, Founder, Preservation Design Works and Associate, Minneapolis, MN; and **Greg Donofrio,** University of Minnesota School of Architecture

A Lifetime of Finishing Concrete with Uncle Joe—1:50 pm
Daniel M. Vruno, Principal Engineer, American Engineering & Testing, Saint Paul, MN

Restoration of Historic Concrete and Masonry Structure at Lee County Courthouse—2:10 pm
Gabriel Carrera, Senior Associate, Wiss, Janney, Elstner Associates, Inc., Austin, TX; and **Stephen Foster,** Wiss, Janney, Elstner Associates, Inc.

Concrete Grain Elevators: Their Early Design, Construction, Successes, and Failures—2:30 pm
Chris Hartnett, Structural Engineer, Meyer Borgman Johnson Structural Design Engineers, Minneapolis, MN

"We Want Concrete!" The Outcry of Spokane—2:50 pm
Laurel M. Dovich, Private Consultant, Marshall, WA

Concrete Floating Bridges—3:10 pm
Neil M. Hawkins, Professor Emeritus, University of Illinois at Urbana-Champaign, Clyde Hill, WA; and **M. Myint Lwin,** Federal Highway Administration

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
1:30 pm - 3:30 pm

Green Cements—State of the Art, Part 2 of 2 —C-101 D

Sponsored by ACI Committees 130, Sustainability of Concrete; 232, Fly Ash and Natural Pozzolans in Concrete; 236, Material Science of Concrete; and 363, High-Strength Concrete

Session Co-Moderators: Narayanan Neithalath
Assistant Professor
Arizona State University
Tempe, AZ

James K. Hicks
Executive Vice President,
Engineering and Development
CeraTech, Inc.
Montgomery, TX

The session description and learning objectives for this session may be found in the Part 1 listing; see page 123.

Design and Mix Proportioning of Green Concrete Using 100% Fly Ash Based Hydraulic Binder—1:30 pm
Rajesh D. Patel, Senior Engineer, CeraTech Inc., Baltimore, MD; and **Frederick D. Kinney** and **Glenn Schumacher,** CeraTech Inc.

Chemically-Induced Morphological Transformation of Rice 1 Husk Ash-Cementitious Systems: Early-Age Characteristics—1:50 pm
Lapyote Prasittisopin, PhD Student, Oregon State University, Corvallis, OR; and **David Trejo,** Oregon State University

Enhancing the Performance of High Volume Fly Ash Concretes Using Fine Limestone Powder—2:10 pm
Dale P. Bentz, Chemical Engineer, National Institute of Standards and Technology, Gaithersburg, MD; **Jussara Tanesi,** FHWASES & Associates; and **Ahmad A. Ardani,** FHWA

Sodium Silicate-Activated Slag: Influence of Activator Loading on Reaction Kinetics, Strength and Durability—2:30 pm
Deepak Ravikumar, Student, Clarkson University, Potsdam, NY; and **Narayanan Neithalath,** Arizona State University

Properties of Phosphate-Based Cements with High Fly Ash Content—2:50 pm
Samson Tassew, Student, University of Alberta, Edmonton, AB, Canada; and **Adam S. Lubell,** Read Jones Christoffersen Ltd

Activation of Fly Ash through Nanomodification—3:10 pm
Shiho Kawashima, Student, Northwestern University, Evanston, IL; **David J. Corr** and **Surendra P. Shah,** Northwestern University; **Kejin Wang,** Iowa State University; and **Pengkun Hou,** Chongqing University

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

GBCI CMP

The Green Building Certification has approved this session for 2 GBCI CE hours. ACI is a provider of GBCI-approved courses for continuing education.

Tuesday, April 16, 2013
1:30 pm - 3:30 pm

Open Paper Session, Part 1 of 2—C-101 E
Sponsored by ACI Committee 123, Research and Current Developments

Session Co-Moderators: Eric R. Giannini
Assistant Professor
The University of Alabama
Tuscaloosa, AL

Piotr Paczkowski
Structural Engineer
Parsons Brinckerhoff
Tampa, FL

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

By attending this session, attendees will be able to:
1. Recognize new and emerging materials for civil infrastructures;
2. Demonstrate the various methods to assess the current conditions of structures and how to repair them;
3. Discuss recent techniques, research methods, and procedures related to the structural and material aspects of concrete; and
4. Explain the behavior of various high-performance cementitious composites.

Development of Long Carbon Fibers and Their Application as Concrete Reinforcing Fibers—1:30 pm
Zahra S. Tabatabaei, PD Candidate, Missouri S&T, Rolla, MO; and **Jeffery S. Volz,** Missouri S&T

Effect of Slag Cement on the Drying Shrinkage of Concrete—1:50 pm
Jiqiu Yuan, Project Engineer, Professional Service Industries, McLean, VA; **Heather A. McLeod,** Kansas Department of Transportation**; David Darwin,** University of Kansas Infrastructure Research Institute; **JoAnn P. Browning,** University of Kansas; and **Will D. Lindquist,** Trine University

Conventionally vs. Diagonally Reinforced Shallow Coupling Beams Using High-Performance Fiber-Reinforced Cement Composites—2:10 pm
Myoungsu Shin, Assistant Professor, Ulsan National Institute of Science and Technology, Ulsan Metropolitan City, Republic of Korea; **Sang Whan Han,** Hanyang University; and **Kihak Lee,** Sejong University

Torsional Repair of a Severely Damaged Column Using CFRP—2:30 pm
Ruili He, Graduate Student, Missouri University S&T, Rolla, MO; **Lesley H. Sneed,** Missouri University S&T; and **Abdeldjelil Belarbi,** University of Houston

Quantitative Acoustic Emission Techniques for Structural Health Monitoring of Concrete Structures—2:50 pm
Lassaad Mhamdi, Graduate Student, University of Delaware, Newark, DE; **Thomas Schumacher,** University of Delaware; and **Lindsay Linzer,** University of the Witwatersrand

In-Plane Shear Behavior of Fiber-Reinforced Concrete Composite Metal Deck Slabs—3:10 pm
Hussein Ousman, Lecturer, Department of Architectural Engineering, University of Sharjah-UAE, Sharjah, United Arab Emirates; and **Salah Al Toubat,** University of Sharjah

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
2:00 pm - 4:00 pm

✓ ***Shoreview Pervious Concrete Neighborhood Tour—H-DEPART MAIN LOBBY***
$20 U.S. per person

When the city of Shoreview rebuilt approximately 3800 ft of streets and alleys with pervious concrete in 2009, it was considered the largest global example of the use of permeable pavement as public

infrastructure. Learn about the construction process, maintenance, and more during this informative technical tour.

Tour tickets may be purchased up to 24 hours prior to the event, based on availability. ***Tours are nonrefundable.*** *All tours depart from the 11th Street entrance in the main lobby of the Hilton Minneapolis.*

✓ **= Separate fee required**

Tuesday, April 16, 2013
4:00 pm - 6:00 pm

Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 3 of 3—C-101 C

Sponsored by ACI Committees 345, Concrete Bridge Construction, Maintenance, and Repair; and 440, Fiber-Reinforced Polymer Reinforcement

Session Moderator: Yail Jimmy Kim
Associate Professor
University of Colorado Denver
Denver, CO

The session description and learning objectives for this session may be found in the Part 1 listing; see page 107.

An Artificial Intelligence Approach to Objective Health Monitoring and Damage Detection in Concrete Bridge Girders—4:00 pm
Ahmed Al-Rahmani, Student, Kansas State University, Manhattan, KS; **Hayder A. Rasheed,** Kansas State University; and **Yacoub Najjar,** University of Mississippi

Non-Contract Strain Measurements of Steel Reinforcement in Concrete Structures—4:24 pm
Joshua Jackson, Chief Executive Officer, Generation 2 Materials Technology, LLC, Houston, TX; and **Angelique Lasseigne** and **Kamalu Koenig,** Generation 2 Materials Technology, LLC.; and **Eric R. Giannini,** The University of Alabama

Evaluation of RC Arch Bridges and Main Parameters in Performance Assessment—4:48 pm
Andrea Prota, Professor, University of Naples, Napoli, Italy; **Gaetano Manfredi** and **Gian Piero Lignola,** University of Naples; and **Francesca da Porto**, University of Padua

Fiber-Reinforced Polymer Composites in Retrofitting of Concrete Structures: Polyurethane Systems Versus Epoxy Systems—5:12 pm
Elie A. El Zghayar, Student, University of Central Florida, Altamonte Springs, FL; and **Kevin R. Mackie,** University of Central Florida

Feasibility of Osmos FOS to Assess Corrosion Damage in RC Structures—5:36 pm
Noran Wahab, Postdoctorate, University of Waterloo, on leave from Cairo University, Waterloo, ON, Canada; and **Khaled A. Soudki,** University of Waterloo

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
4:00 pm - 6:00 pm

Early-Age Properties of Repair Binders (Lab, Field, and Test Methods)—C-101 D
Sponsored by ACI Committees 231, Properties of Concrete at Early Ages

Session Co-Moderators: Matthew Dominick D'Ambrosia
Materials Consulting
CTLGroup
Skokie, IL

Kyle Austin Riding
Assistant Professor
Kansas State University
Manhattan, KS

The success and durability of many concrete repair projects depend on the early-age bond, strength development, modulus development, and dimensional stability of repair binders. Common repair methods that use these materials include concrete patching, overlays, and sprayed concrete. This session will focus on the early-age properties of new and innovative repair binders as determined by laboratory evaluation, field tests, and experience. New test methods for early-age properties of repair material will also be discussed.

By attending this session, attendees will be able to:
1. Explain the performance demands placed at an early age on repair materials;
2. Specify properties required for repair materials at early ages;
3. Evaluate repair materials for compatibility with concrete substrates; and
4. Explain early-age properties of some common repair materials.

Mechanical Properties of CeraTech's Rapid Repair Materials—4:00 pm
Ivan Diaz-Loya, Research Engineer, CeraTech Inc, Baltimore, MD

Evaluating Compatibility between Repair Materials and Substrate Concrete Using a Composite Beam Test—4:20 pm
Rashmi Ranjan Pattnaik, Structural Engineer, Jacobs Engineering Group, Inc., Goose Creek, SC; and **Prasad R. Rangaraju,** Clemson University

Hydration and Early-Age Volume Deformation of Calcium Aluminate Cement-Based Systems—4:40 pm
Anthony F. Bentivegna, Materials Consultant, CTLGroup, Skokie, IL

Improving the Crack Resistance of High Early-Strength Repair Concrete for Bridge Decks and Pavements—5:00 pm
Matthew Dominick D'Ambrosia, Materials Consulting, CTLGroup, Skokie, IL

Early-Age Repair Material Properties—5:20 pm
Fred R. Goodwin, Fellow Scientist, BASF Construction Systems, Beachwood, OH

Early-Age Restrained Stress Development in Repair Materials—5:40 pm
Kyle Austin Riding, Assistant Professor, Kansas State University, Manhattan, KS

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
4:00 pm - 6:00 pm

Open Paper Session, Part 2 of 2—C-101 E
Sponsored by ACI Committee 123, Research and Current Developments

Session Co-Moderators: Eric R. Giannini
Assistant Professor
The University of Alabama
Tuscaloosa, AL

Piotr Paczkowski
Structural Engineer
Parsons Brinckerhoff
Tampa, FL

The session description and learning objectives for this session may be found in the Part 1 listing; see page 128.

Three Methods for Evaluating the Change in Tensile Strength of Sulfate-Degraded Concrete—4:00 pm
Julie Ann Hartell, PhD Candidate, McGill University, Pierrefonds, QC, Canada

Study on the Corrosion Activity of Carbon Steel in Concrete Simulate Pore Solution under Static Tensile and Compressive Stresses—4:20 pm
Amir Poursaee, Assistant Professor, Clemson University, Clemson, SC; and **Yujie Zhang,** Clemson University

Fracture Properties of Concrete Containing Expanded Polystyrene Aggregate Replacement—4:40 pm
Matthew Trussoni, Assistant Professor, Milwaukee School of Engineering, Milwaukee, WI; **Carol D. Hays** and **Ronald F. Zollo,** University of Miami

Effect of Temperature Control on Match-Cured Cylinder Strength—5:00 pm
Suyun Ham, PhD Student, University of Illinois at Urbana-Champaign, Savoy, IL; and **John S. Popovics,** University of Illinois at Urbana-Champaign

Pozzolanic Material Production from Bioethanol Byproduct—5:20 pm
Feraidon Ataie, PhD Candidate, Kansas State University, Manhattan, KS; and **Kyle Austin Riding,** Kansas State University

Durability of Concrete Incorporating Crushed Waste Brick as Coarse Aggregate—5:40 pm
Amir Poursaee, Assistant Professor, Clemson University, Clemson, SC; and **Matthew Adamson,** Clemson University

The American Institute of Architects (AIA) has approved this session for 2 Learning Units. ACI is an AIA/CES Registered Provider.

Tuesday, April 16, 2013
5:30 pm - 6:30 pm

Faculty Network Reception—C-SEASONS

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

Tuesday, April 16, 2013
6:30 pm - 8:30 pm

Concrete Mixer—C-HALL A

This "Land of 10,000 Lakes" is well known as an outstanding destination for outdoor fun. Minnesota has fine fishing waters, great golf, a bounty of hiking trails, and some of the best paved bike trails in the country. The ACI Concrete Mixer will transport you to the Northwoods, an area of the state where Minnesotans vacation each year. Experience cuisine indicative of Minnesota and the culture of the Northwoods. Challenge colleagues to a round of miniature golf, test your strength at the classic "country fair" game Hammerschlagen, and most importantly, network with fellow ACI convention attendees.

Thursday, April 18, 2013
8:00 am - 5:00 pm

✓New! ACI Adhesive Anchors Seminar—H-SYMPHONY I

7:45 am Registration; coffee and pastries available

$597 Nonmember registration fee
$457 ACI National Member registration fee
$125 Full-time students (with proof of enrollment)

Speakers:

Donald Melnheit
Affiliated Consultant
Wiss Janney Elstner Associates
Chicago, IL

John Pearson
Structural Engineer
Wiss Janney Elstner Associates
Northbrook, IL

This is a one-day seminar for structural engineers, contractors, inspectors, code enforcement personnel, and specifiers. This new seminar will cover the design requirements for adhesive anchors that were first introduced in the 2011 version of ACI 318. A complimentary copy of the newly published Volume 2 of SP-17(11), *ACI Design Handbook*, containing 19 worked-anchor design example problems, is included with your registration. In addition to the design equations and their application, topics covered include material properties of common adhesives, tension and shear failure modes, capacity reduction factors, design of supplemental reinforcement, and tension and shear interaction. Also covered are anchor qualification requirements, certification of anchor installers, and several design examples. Additional complimentary publications include Appendix D of ACI 318, ACI 355.4, ACI SP-283, and seminar lecture notes.

✓ = Separate fee required

Session Attendance Tracking Form for the ACI Spring 2013 Convention

Minneapolis, MN • April 14-18, 2013

Use this form to track your attendance at ACI sessions. This form may be accepted by state boards that allow self-reporting of continuing education activities as evidence of participation. In most cases, 1 contact hour is equal to 1 Professional Development Hour (PDH). Check with your state board for acceptance criteria.

Instructions: Fill in your name, e-mail address, and telephone number below. Check off each session you attend. If a state where you are licensed requires a certificate of attendance, please record the three PDH codes given throughout each session in the boxes provided. You must attend the entire session and sign this form to receive your certificate(s). After you have attended your final session, submit this form to the registration desk located in Ballroom A&B at the Minneapolis Convention Center. You may also fax this form to ACI at 248-848-3792, or e-mail it to Mike Tholen (mike.tholen@concrete.org). You must attend the entire session and sign this form to receive your certificate(s). Total the number of PDH credits you earned for each day at the end of this form.

Name (please print): _____

By my signature, I attest that I have attended the entire duration of each of the sessions indicated on this form: _____
(signature)

E-mail address (please print): _____

Telephone number: _____

If you are a licensed Professional Engineer in Florida and would like ACI to report your hours to the Florida state board or you are an Architect and would like ACI to report your hours to AIA, please provide your license number below.

Florida PE No.: _____

Architecture license No.: _____

	Three PDH Codes for selected session:
Sunday, April 14, 2013	
1:00 PM-3:00 PM (Select one session) ..... **2 PDH**	_____
❑ In Honor of Dick Stehly: Increased Beneficial Use of Fly Ash – History, Accomplishments, and Challenges, Part 1 of 2 (130/232/Minnesota Chapter)	_____
❑ Innovative Structural Slab Practices (421)	_____
❑ Monitoring Performance during Construction, Part 1 of 2 (444)	
3:30 PM-5:30 PM (Select one session) ..... **2 PDH**	_____
❑ Field Measurements of Form Pressure Exerted by Self-Consolidating Concrete (237/238/347)	_____
❑ In Honor of Dick Stehly: Increased Beneficial Use of Fly Ash – History, Accomplishments, and Challenges, Part 2 of 2 (130/232/Minnesota Chapter)	_____
❑ Monitoring Performance during Construction, Part 2 of 2 (444)	
	_____
8:00 PM-10:00 PM ..... **2 PDH**	_____
❑ Hot Topic Session: Responsibility in Concrete Construction (HTC/Minnesota Chapter)	_____
Monday, April 15, 2013	
8:30 AM-10:30 AM (Select one session) ..... **2 PDH**	_____
❑ Portland-Limestone Cements: A Technology to Improve the Sustainability of Concrete (225)	_____
❑ Proportioning Concrete Mixtures for Use in the 21st Century, Part 1 of 2 (211)	_____
❑ Research in Progress, Part 1 of 2 (123)	
	_____
11:00 AM-1:00 PM (Select one session) ..... **2 PDH**	_____
❑ Innovative Technologies in Blast-Resistant Design (370)	_____
❑ Proportioning Concrete Mixtures for Use in the 21st Century, Part 2 of 2 (211)	
❑ Research in Progress, Part 2 of 2 (123)	

Session Attendance Tracking Form for the ACI Spring 2013 Convention

Minneapolis, MN • April 14-18, 2013

Monday, April 15, 2013

	Three PDH Codes for selected session:
1:30 PM-3:30 PM (Select one session) ..... 2 PDH	
❑ Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 1 of 3 (345/444)	_____
❑ Current Research in Concrete Pavements (325)	_____
❑ Responsibilities of the New Concrete Professional (S802)	_____
4:00 PM-6:00 PM (Select one session) ..... 2 PDH	_____
❑ Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 2 of 3 (345/444)	_____
❑ SCC in Repair Applications (237/345)	_____
❑ Validation of Long-Term Performance Predictions (234)	
	_____
6:30 PM-8:30 PM ..... 2 PDH	_____
❑ 123 Forum: What is the Biggest Analytical Gap in the Analysis of Reinforced/Prestressed Concrete and What Are the Implications for Structural Design Codes? (123)	_____

Tuesday, April 16, 2013

8:30 AM-10:30 AM (Select one session) ..... 2 PDH	_____
❑ Contractors' Day Session: High-Volume Fly Ash Concretes—Providing Constructability to Sustainability (Minnesota Chapter)	_____
❑ Fracture Mechanics Applications in Concrete, Part 1 of 2 (446)	_____
❑ Not Your Father's Technology (118)	
11:00 AM-1:00 PM (Select one session) ..... 2 PDH	_____
❑ Chemical Effects (201)	_____
❑ Fracture Mechanics Applications in Concrete, Part 2 of 2 (446)	_____
❑ Green Cements – State of the Art, Part 1 of 2 (130/232/236/363)	
1:30 PM-3:30 PM (Select one session) ..... 2 PDH	_____
❑ Concrete in Historic Structures (120/CLC/Minnesota Chapter)	_____
❑ Green Cements – State of the Art, Part 2 of 2 (130/232/236/363)	_____
❑ Open Paper Session, Part 1 of 2 (123)	_____

	PDH Codes for selected session:
4:00 PM-6:00 PM (Select one session) ..... 2 PDH	
❑ Advanced Materials and Sensors Toward Smart Concrete Bridges: Concept, Performance, Evaluation, and Repair, Part 3 of 3 (345/444)	_____
❑ Early-Age Properties of Repair Binders (Lab, Field and Test Methods) (231)	_____
❑ Open Paper Session, Part 2 of 2 (123)	_____

Daily PDH Totals:

Total Completed on Sunday, 4/14/13 _____

Total Completed on Monday, 4/15/13 _____

Total Completed on Tuesday, 4/16/13 _____

Total Number of PDHs Completed _____

Please submit this form to the registration desk, located in Ballroom A&B at the Minneapolis Convention Center, at the conclusion of the final session you attend. You may also fax this form to ACI at 248-848-3792, or e-mail to Mike Tholen (mike.tholen@concrete.org)

The deadline to submit this form to ACI is May 6, 2013. You will receive your certificate(s) by May 20, 2013. Please ensure you have filled out the correct e-mail address on this form, as that is where your certificate(s) will be sent.

SAVE THE DATE

ACI Fall 2013 Convention

OCTOBER 20-24, 2013

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Spring 2014
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Spanning the Globe
October 26-30, 2014
Hilton Washington
Washington, DC

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