



**Concrete Conference
on Materials & Design**

PROGRAM BOOK

17-18 November 2019

Royal Scientific Society | Amman, Jordan



American Concrete Institute
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Jordan Concrete Association



نقابة المهندسين الأردنيين
Jordan Engineers Association



DAY 1 EDUCATION SCHEDULE

Time	Main Hall	
8:30 AM – 9:00 AM	Registration	
9:00 AM – 9:45 AM	Opening Session	
9:45 AM – 10:15 AM	Coffee Break	
Time	Hall A	Hall B
10:15 AM – 11:30 AM	ACI 318-19 Building Code (Poston and Nahlawi)	Troubleshooting Concrete Construction (Nmai)
11:30 AM – 11:45 AM	Break	Break
11:45 AM – 1:15 PM	ACI 318-19 Building Code (Poston and Nahlawi)	Troubleshooting Concrete Construction (Nmai)
1:15 PM – 1:30 PM	Case Study	Case Study
1:30 PM – 2:30 PM	Lunch	
2:30 PM – 4:00 PM	ACI 318-19 Building Code (Poston and Nahlawi)	Troubleshooting Concrete Construction (Nmai)
4:00 PM – 4:15 PM	Coffee Break	
4:15 PM – 5:30 PM	ACI 318-19 Building Code (Poston and Nahlawi)	Troubleshooting Concrete Construction (Nmai)

DAY 2 EDUCATION SCHEDULE

Time	Hall A	Hall B
9:00 AM – 10:30 AM	FRP Reinforcement of Concrete Structures (Gold)	Supplementary Cementitious Materials in the Middle East: Availability, Properties, and Case Studies (Yazbek)
10:30 AM – 11:00 AM	Coffee Break	
11:00 AM – 1:00 PM	FRP Reinforcement of Concrete Structures (Gold)	Fiber-Reinforced Concrete: Benefits and Applications (Nmai)
1:00 PM – 2:00 PM	Lunch	
2:00 PM – 3:30 PM	FRP Reinforcement of Concrete Structures (Gold)	Chemical Admixtures – Durability, Admixtures, and New ACI Admixture Resources (Yuers)
3:30 PM – 3:45 PM	Case Study	Case Study
3:45 PM – 4:00 PM	Coffee Break	
4:00 PM – 5:00 PM	Cracking (Nahlawi)	What is Mass Concrete? (Mhanna)
5:00 PM – 5:30 PM	Closing Session	

CONFERENCE SPEAKERS

Randall W. Poston, PhD, PE



Randall W. Poston is a Sr. Principal at Pivot Engineers, a structural engineering consulting firm in Austin, TX. He is also a Neil Armstrong Distinguished Visiting Fellow at the College of Engineering at Purdue University, West Lafayette, IN. For the past 35 years, Poston has been engaged in the evaluation, repair, strengthening, and design of more than 700 structures. His expertise includes investigation of structural failures, evaluation of corrosion of steel in concrete, structural concrete repair and strengthening design, and nondestructive testing of concrete structures. He has been elected a Fellow of ACI, ASCE, PTI, and IABSE and is an active member of numerous national and international technical committees, including being a current member of ACI Committee 318, Structural Concrete Building Code. He was the Chair of ACI Committee 318 during the 2014 Code cycle. Poston currently serves as the ACI President. Poston was elected to the U.S. National Academy of Engineering in 2017.

William J. Gold, PE, FACI



William (Will) Gold is the Engineering Services Manager for BASF Corporation – Construction Systems in Cleveland, OH. Gold has over 20 years of experience in concrete repair and protection and the use of advanced composite materials in the concrete industry. He has had extensive involvement in the design and installation of fiber-reinforced polymer systems for concrete structures including seismic retrofit of the Amazon.com headquarters building in Seattle, WA; the protection of the Noden Causeway in Ontario; and reinforcing the West Gate Bridge in Melbourne, Australia. Gold received his bachelor's degree in architectural engineering from the University of Kansas, Lawrence, KS, and his master's degree in structural engineering from the Pennsylvania State University, State College, PA. He is a Fellow of ACI and actively involved in the International Concrete Repair Institute, ASTM International, and the Canadian Standards Association, where he has served on numerous technical committees including CSA S806, ASTM D30, and ICRI 330. Currently, he is the Chair of ACI Committee 440, Fiber-Reinforced Polymer Reinforcement. He is a licensed professional engineer in Ohio.

Ahmad Mhanna



Ahmad Mhanna is the ACI Middle East Regional Director. Mhanna received his bachelor's degree in civil engineering from University of Jordan, Amman, Jordan, and his MS in emerging technologies for construction from University of Naples Federico II, Naples, Italy. He also obtained an Infrastructure Renewal Engineering Certificate from Missouri University of Science and Technology, Rolla, MO. Mhanna holds multiple ACI certifications and has served as an ACI Certification Examiner. Mhanna has wide-ranging experience in concrete and construction materials testing, analysis, and applications. He has been involved in product development, construction chemicals production quality control, cement and concrete research projects, inspection, and technical support while serving in different positions for 15 years. Prior to joining ACI, Mhanna was the Technical Marketing Chief at Qatrana cement company of Jordan. Previously, he has served as member of ACI Subcommittee 364-L, Liaison Subcommittee (Rehabilitation), and has been a Board member of the Jordan Concrete Association since 2012.

Khaled Nahlawi, PhD, PE



Khaled Nahlawi is a Distinguished Engineer at the American Concrete Institute, Farmington Hills, MI. His role at ACI is to provide technical and administrative support to ACI's Technical Committees and communicate the work of these committees to other Standards Developing Organizations and Regulatory Agencies. He received his PhD from the University of Michigan, Ann Arbor, MI. Has over 20 years of experience in the design and strengthening of structures. He joined ACI in 2009 as a Senior Engineer and has supported, among other duties, the reorganization effort of ACI 318. He is a licensed engineer in California and Michigan.

Charles Nmai, PhD, PE, FACI



Charles Nmai is the Manager of Engineering services in the Admixture Systems Division of BASF Corporation, based in Cleveland, OH. Nmai has been with BASF for over 30 years and is responsible for providing technical leadership and strategic guidance in the marketing of admixtures and high-performance concrete technologies. Nmai is a Fellow of ACI and served on the Institute's Board of Direction from 2003 to 2006. He is also an Honorary Member of ASTM Committee C09, Concrete and Concrete Aggregates, and immediate Past Chair of ASTM Subcommittee C09.23 on Chemical Admixtures. Currently, he is President of the Fiber-Reinforced Concrete Association (FRCA) and a Board member of the ACI Strategic Development Council (SDC). A recognized industry expert and sought-out speaker in admixtures, fibers, high-performance concretes, concrete durability, and troubleshooting, he has received honors including the Purdue University Civil Engineering Alumni Achievement Award in 2012 and, in 2013, the ACI Arthur R. Anderson Medal for outstanding contributions to the advancement of knowledge of concrete as a construction material in the areas of corrosion and chemical admixtures. Nmai is a licensed engineer in Ohio.

Fouad Yazbeck, CE, MBA



Fouad Yazbeck is the Technical & Commercial Director of Unimix, the leading quality concrete producer in Dubai, UAE. He is currently involved in some of the largest infrastructure and construction projects in the region. Yazbeck started his career as Area Sales Manager for BASF Construction Chemicals in Lebanon, where he established the company's presence. He then moved to Abu Dhabi, where he was responsible for the concrete admixtures market. In 2000, Yazbeck joined Readymix Abu Dhabi as Assistant Technical Manager and was promoted to Technical Manager in 2004 and Chief Technical Officer in 2015. During this period, he grew the department into a fully fledged research and development hub with central and satellite concrete laboratories. He has presented his work in multiple local and international conferences. Yazbeck has over 20 years of experience in the concrete industry and is a member of the Beirut Order of Engineers and ACI, as well as the Founding member of the Lebanon Chapter – ACI and Dubai Chapter – ACI.

Kari L. Yuers, FACI



Kari L. Yuers, FACI, is the President and Chief Executive Officer of Kryton International Inc. based out of Vancouver, BC, Canada. Yuers joined Kryton in 1991 in the position of Vice President, Technical Services. Since taking the reins at Kryton, Yuers has focused on developing award-winning products that create dry and durable concrete structures. Her research interests are concrete admixtures related to permeability, durability, and sustainability of concrete structures, as well as materials for concrete repair and protection. Yuers is Chair of ACI Committee 212, Chemical Admixtures, and a member of ACI Committees E701, Materials for Concrete Construction; E702, Designing Concrete Structures; and 362, Parking Structures. Yuers is the immediate past Chair of the ACI International Advisory Committee (IAC) and was appointed ACI Director on the ACI Board of Direction from 2007 to 2010. She was the recipient of the ACI Young Member Award in 2005 and the ACI Educational Committee Member of the Year in 2014.

SESSION DESCRIPTIONS

DAY 1

HALL A

ACI 318-19: Changes to the Concrete Design Standard

Speaker: Randall W. Poston, PhD, PE, and Khaled Nahlawi, PhD, PE

This full-day session covers the major changes in the 2019 edition of ACI 318, “Building Code Requirements for Structural Concrete (ACI 318-19) and Commentary.” This edition is the first edition of ACI 318 in 5 years and the first update since the reorganization of the code in the 2014 edition.

All major changes in this edition of the code will be presented and discussed. This includes major changes centered around the topics of higher reinforcing steel yield strengths for many applications and the associated design provision changes; the addition of shotcrete provisions; deep foundation provisions; seismic requirements for deep foundations and other applications; vertical seismic motions; nonlinear analysis for seismic design; modification to development length equations; and updated shear design provisions and equations.

HALL B

Troubleshooting Concrete Construction

Speaker: Charles Nmai, PhD, PE, FACI

During this full-day session, attendees will learn the steps involved in concrete troubleshooting, including identifying symptoms that may affect the appearance or structural integrity of the material, collecting information, developing a preliminary diagnosis, conducting testing of the material properties, and confirming the diagnosis. The causes and solutions of common concrete problems will be examined.

DAY 2

HALL A

FRP Reinforcement of Concrete Structures

Speaker: William Gold, PE, FACI

The fiber-reinforced polymer (FRP) composite materials used for decades in the aerospace industry are now being used as reinforcement in new concrete construction and to strengthen existing concrete structures. The use of these materials as reinforcement for concrete structures has become much more commonplace due to the noncorrosive, lightweight, and high-strength properties of these materials. Whether used to increase the load-bearing capacity of a structure, to restore loss of capacity from damage or deterioration, or as a noncorrosive replacement for steel reinforcement in new construction, FRP reinforcement offers a simple, cost-effective alternative to traditional construction materials. This presentation will introduce the unique characteristics of FRP materials, the forms typically used in concrete construction applications, and general design considerations and limitations. In addition, case studies will be used to illustrate the use of this technology in typical applications.

Cracking

Speaker: Khaled Nahlawi, PhD, PE

This presentation will cover various aspects related to concrete cracking. This topic is both a contentious and unfortunately, a common issue nationally. Often, the key to addressing cracking issues is learning how to properly determine the cause of the crack so it can be mitigated and prevented in future projects. Topics covered in this presentation will include:

- Causes and control of cracking;
- Evaluation methods;
- Mitigation; and
- Crack repair.

DAY 2, continued

HALL B

Supplementary Cementitious Materials in the Middle East: Availability, Properties, and Case Studies

Speaker: Fouad Yazbek, CE, MBA

Description to come.

Fiber-Reinforced Concrete: Benefits and Applications

Speaker: Charles Nmai, PhD, PE, FACI

The use of fiber reinforcement in concrete construction continues to increase raising the need for a better understanding of this technology. This concise but detailed presentation will cover the fundamentals of fiber-reinforced concrete, its benefits, and applications in concrete construction.

Chemical Admixtures – Durability, Admixtures, and New ACI Admixture Resources

Speaker: Kari L. Yuers, FACI

Chemical admixture technology continues to advance with increased adoption around the globe. New innovations for improving concrete durability and constructability are being specified and used in building and infrastructure, saving time and providing beneficial concrete properties in some of the harshest environments. This presentation will focus on permeability-reducing admixtures (PRAs) and durability admixtures for concrete construction as well as new categories, content, and tools provided in the ACI 212.3R-16, chemical admixtures document and new content development for the next revision.

What is Mass Concrete?

Speaker: Ahmad Mhanna

What is mass concrete? ACI 207.1R defines mass concrete as any volume of concrete with dimensions large enough to require that measures be taken to cope with the generation of heat from hydration of the cement and attendant volume change to minimize cracking. But how does one predict whether mass concrete problems will occur and what steps should be taken? This presentation will discuss how to identify mass concrete, ACI 301 requirements pertaining to it, and good construction practices. Topics covered in this presentation will include:

- Examples of mass concrete structures;
- Identifying mass concrete in the field;
- Specification requirements;
- Factors influencing mass concrete; and
- Mitigation or design.



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