



24 HOURS OF
**CONCRETE
KNOWLEDGE**

Hosted by the American Concrete Institute • July 7-8, 2026



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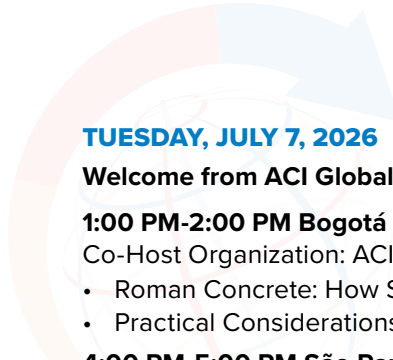
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24 HOURS OF CONCRETE KNOWLEDGE

TUESDAY, JULY 7, 2026

Welcome from ACI Global Moderators Scott Anderson and Matthew Sherman

1:00 PM-2:00 PM Bogotá Time / 2:00 PM-3:00 PM EDT (New York Time)

Co-Host Organization: ACI Colombia Chapter

- Roman Concrete: How Sustainable Was It, and What Can We Learn Today?
- Practical Considerations for the Seismic-Resistant Design of Marine Infrastructure

4:00 PM-5:00 PM São Paulo Time / 3:00 PM-4:00 PM EDT (New York Time)

Co-Host Organization: Instituto Brasileiro do Concreto (IBRACON)

- Bridges in Brazil: An Overview
- Advances in Concrete Technologies toward Sustainability and Longer Service Life for Civil Structures

2:00 PM-3:00 PM Guatemala City Time / 4:00 PM-5:00 PM EDT (New York Time)

Co-Host Organization: ACI Guatemala Chapter and ICCG

- Strategies for the Seismic Design of Buildings, Beyond Code Compliance
- Design and Construction of a Double Cantilever Concrete Structure in Chitomax, Guatemala

3:00 PM-4:00 PM Merida Time / 5:00 PM-6:00 PM EDT (New York Time)

Co-Host Organization: ALCONPAT International

- ALCONPAT International—Past, Present, and Future
- Characterization of Cement-Based Materials via NMR: From Early-Age Hydration to Deterioration Processes

4:00 PM-5:00 PM Mexico City Time / 6:00 PM-7:00 PM EDT (New York Time)

Co-Host Organization: ACI Central & Southern Mexico Chapter

- Seismic Rehabilitation of Nonductile Reinforced Concrete Columns
- Synthetic FRC: Then and Now

WEDNESDAY, JULY 8, 2026

11:00 AM-12:00 PM Auckland Time / 7:00 PM-8:00 PM EDT (New York Time)

Co-Host Organization: Concrete New Zealand – Learned Society

- Pragmatism Over Platitudes: Decarbonizing New Zealand's Concrete Sector
- Dynamic Tests on a Five-Story Reinforced-Concrete Structural Steel Hybrid Building

10:00 AM-11:00 AM Sydney Time / 8:00 PM-9:00 PM EDT (New York Time)

Co-Host Organization: Concrete Institute of Australia (CIA)

- Pump-Less 3-D Concrete Printing Enabled by Quick Nozzle Mixing: From Concept to Scalable Construction
- Practice Feasibility of Limestone Calcined Clay Cement in Australia

10:00 AM-11:00 AM Tokyo Time / 9:00 PM-10:00 PM EDT (New York Time)

Co-Host Organization: Japan Concrete Institute (JCI)

- Technologies for Mitigating Tsunami Damage to Reinforced Concrete Structures
- Field Implementation of Self-Healing Concrete and Non-Destructive Evaluation

11:00 AM-12:00 PM Seoul Time / 10:00 PM-11:00 PM EDT (New York Time)

Co-Host Organization: Korea Concrete Institute (KCI)

- Mineral Carbonation of Basic Oxygen Furnace Slag and Its Potential Applicability as a Supplementary Cementitious Material and Source of Aggregate
- Non-Contact Ultrasonic Monitoring for Predicting Concrete Hardening

11:00 AM-12:00 PM Singapore Time / 11:00 PM-12:00 AM EDT (New York Time)

Co-Host Organization: ACI Singapore Chapter

- Development of a Low-Carbon (Low-Cement Content) Fiber Concrete for Underground Infrastructures in Singapore
- Zero-Cement Technology—Why and How It Exists

11:00 AM-12:00 PM Indonesia Time / 12:00 AM-1:00 AM EDT (New York Time)

Co-Host Organization: ACI Western Indonesia Chapter

- Lesson Learned from Concrete Construction in Indonesia
- Intelligent Multi-Proportion Mix Design of Geopolymer Concrete Using AI-Assisted Reverse Modeling

12:00 PM-1:00 PM Bangkok Time / 1:00 AM-2:00 AM EDT (New York Time)

Co-Host Organization: Thailand Concrete Association (TCA)

- Enhancing Thailand's Infrastructure: Practical Applications of UHPC Structures
- Bridging Innovation and Market Adoption: Driving UHPC Implementation Through the Growth of Thailand's Premium Residential Sector

WEDNESDAY, JULY 8, 2026, CONTD.

12:00 PM-1:00 PM Bangladesh Time / 2:00 AM-3:00 AM EDT (New York Time)

Co-Host Organization: ACI Bangladesh Chapter and ACI IUT Student Chapter

- Sustainability of Construction Materials: Bangladesh Perspective
- Experience from the Recent Earthquake in Bangladesh: Durability, Retrofitting, and Resilient Construction

11:00 AM-12:00 PM Dubai Time / 3:00 AM-4:00 AM EDT (New York Time)

Co-Host Organization: ACI UAE Chapter

- Valorizing Desalination Brine: Brucite-Activated Slag Binders for Low-Embodied-Carbon Construction
- 3-D Printable 24-Hour Geopolymer Composite — A Conceptual Approach

11:00 AM-12:00 PM Amman Time / 4:00 AM-5:00 AM EDT (New York Time)

Co-Host Organization: Jordan Concrete Association (JCA)

- Beyond Portland Cement: The Future of Concrete with Alkali-Activated Materials
- Investigating Chloride-Induced Damages of the Old Jetty of the Industrial Terminal in the South Port of Aqaba, Jordan

12:00 PM-1:00 PM Beirut Time / 5:00 AM-6:00 AM EDT (New York Time)

Co-Host Organization: ACI Lebanon Chapter

- SFRSSC Floor Design: Linking Project Experience, Testing, and Methodology
- Structural Health Monitoring, 3-D Scan, and Finite Element Simulations of Beirut Port Silos after the 2020 Explosion

1:00 PM-2:00 PM Local Time / 6:00 AM-7:00 AM EDT (New York Time)

Co-Host Organization: ACI Egypt Chapter

- The Elevated Obelisk
- Post Tensioned Structures: Some Construction Issues
- “The View” Building in Cairo – Case Study of Daring Structural Modifications

1:00 PM-2:00 PM Warsaw Time / 7:00 AM-8:00 AM (EDT) New York Time

Co-Host Organization: Polish Academy of Sciences (KILIW PAN)

- Evaluation of a Novel Test Method for Autogenous and Total Strain of Cementitious Materials
- Properties of Autoclaved Reactive Powder Concrete with Wollastonite Micro-Inclusion

2:00 PM-3:00 PM Lausanne Time / 8:00 AM-9:00 AM EDT (New York Time)

Co-Host Organization: International Federation for Structural Concrete (*fib*)

- Fiber-Reinforced Sprayed Concrete in Tunnels and Underground Spaces
- Sustainability of Structures with Precast Elements: *fib* Bulletin 121 and the work of *fib* Commission 6

2:00 PM-3:00 PM London Time / 9:00 AM-10:00 AM EDT (New York Time)

Co-Host Organization: Institute of Concrete Technology (ICT)

- Long-term Asset Insights and Management Strategies Using Investigation Methods Supported by Modern Technology
- Thin Overlays to Replace the Need for Conventional Reinforcement in Additively Manufactured Concrete Structures

3:00 PM-4:00 PM Algiers Time / 10:00 AM-11:00 AM EDT (New York Time)

Co-Host Organization: Algerian Concrete Society (ALCOS)

- Use of Algerian Calcined Clays and Recycled Wastes for Developing ECO-Self-Compacting Concrete
- Effect of Supplementary Cementitious Materials and Temperature on Rheological Behavior of Ecofriendly Concrete and Mortar

3:00 PM-4:00 PM Italy Time / 9:00 AM-10:00 AM EDT (New York Time)

Co-Host Organization: ACI Italy Chapter

- Beyond Conventional Reinforcement: Hybrid Steel-GFRP Solutions for Seismic Concrete Structures
- Low Carbon Concretes for Reinforced and Prestressed Precast Elements

6:00 PM -7:00 PM Paris Time / 12:00 Noon-1:00 PM EDT (New York Time)

Co-Host Organization: RILEM

- Advancing Electrochemical Testing of Steel Corrosion in Concrete: New RILEM TC ECS Recommendations for Reliable Laboratory Research
- Applications of Thin Section Textile-Reinforced Concrete (TRC) in Sustainable Construction

12:00 Noon-1:00 PM Lima Time / 1:00 PM-2:00 PM EDT (New York Time)

Co-Host Organization: ACI Peru Chapter

- Ecofriendly Concrete Using Rice Husk Ashes as Cement Replacement
- Sustainable Mixture Design for 3-D Printing Concrete Using Rice Husk Ash and Recycled PET

Closing remarks



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American Concrete Institute
Always advancing

ACI Global Moderators



Scott Anderson, ACI President, Keystone Structural Concrete



Matthew Sherman, ACI Vice President, Baker Construction

Tuesday, July 7, 2026

1:00 PM-2:00 PM Bogotá Time / 2:00 PM-3:00 PM EDT (New York Time)

Co-Host Organization: ACI Colombia Chapter



Website: <https://acicolombia.org.co/>

The ACI Republic of Colombia Chapter is a technical and educational society dedicated to promoting the design, construction, manufacture, and maintenance of concrete structures. The Chapter was created in 1977, and since then, it has published quarterly newsletters and held seminars to promote knowledge among its members and professionals or students interested in expanding their research. The Chapter promotes the objectives of ACI, which are to encourage education, technical practice, and scientific research for the development of new techniques.

Local Moderator: Gonzalo Gallo, Independent Consultant



Civil Engineer Gonzalo Gallo, PhD, graduated from Universidad San Francisco de Quito, Quito, Ecuador, and received both his MSc and PhD from the University of Illinois, with postdoctoral studies completed at the University of Florida. Gallo is a highly motivated professional with extensive experience in designing and consulting on infrastructure projects. He is recognized for successfully managing interdisciplinary teams on complex assignments while maintaining a strong understanding of client needs and project objectives. Gallo is known for his technical expertise supported by advanced academic research, publications in peer-reviewed journals and conference proceedings, as well as presentations on academic- and industry-related topics. He is strongly committed to quality assurance, quality control, internal auditing, management, and innovation. Gallo actively participates in conferences, professional organizations, and educational working groups focused on continuous learning and industry development. He is a member of ACI Committee 207, Mass Concrete. Gallo currently works as an Independent Consultant.

1st Speaker: Daniela M. Martinez, Assistant Professor, Universidad del Norte - Colombia



Daniela M. Martinez is an Assistant Professor in the Department of Civil and Environmental Engineering at Universidad del Norte, Barranquilla, Colombia. She received her PhD and Master of Science in Civil Engineering from University of California, Berkeley, and her bachelor's degree in civil engineering from Universidad del Norte. Martinez's research focuses on sustainable construction materials, combining concrete technology, durability, and life-cycle assessment to develop lower-carbon cementitious systems with improved environmental performance. Her research seeks to optimize cementitious systems to reduce the environmental impact of concrete while maintaining long-term performance and durability. Martinez is also actively involved in academic and industry collaborations related to decarbonization, innovation in cement and concrete, and resilient infrastructure development.

Presentation Title: Roman Concrete: How Sustainable Was It, and What Can We Learn Today?

The remarkable longevity of Roman concrete has long fascinated researchers and hinted at its potential as a sustainable alternative to modern concrete formulations. However, rigorous assessment of its environmental impact—particularly in the context of modern production technologies—has been lacking. Here, we follow the life cycle assessment methodology to systematically quantify the impacts of various Roman concrete formulations relative to modern technologies. Our findings reveal nuanced insights into the

sustainability prospects of Roman concrete, shedding light on its greenhouse gas emissions, energy demand, particulate matter emissions, and water utilization. Contrary to initial expectations, adopting Roman formulations with current technology may not yield substantial reductions in emissions or energy demand unless used in conjunction with other decarbonization advancements. Nonetheless, our findings underscore the importance of Roman practices, particularly the reliance on biomass as a fuel source, which presents opportunities for decarbonizing modern cement production.

2nd Speaker: Carlos E. Ospina, Vice President, Ports Director, LATAM, Moffatt & Nichol



Carlos E. Ospina, PhD, PE, FACI, is Vice President and Ports Director for Latin America at Moffatt & Nichol, a renowned international consulting firm specializing in marine and coastal engineering. Based in Houston, Texas, USA, Ospina has 34 years of professional experience, including 24 years as a consultant and designer of port projects in more than 30 countries. He is directly responsible for the development of seismic design provisions for port structures within the ASCE 61 and PIANC 225 committees. He is also a Fellow of ACI and the second Colombian engineer after Luis Enrique García to obtain voting rights as a member of ACI Committee 318, Structural

Concrete Building Code .

Presentation Title: Practical Considerations for the Seismic-Resistant Design of Marine Infrastructure

This presentation covers practical considerations for the seismic design of pile-supported piers and wharves in regions of moderate to high seismicity. Considerations include selection of the pier layout and its components (piling and deck), characterization and treatment of seismic actions and implementation of seismic capacity protection principles in design and detailing. The differences between conventional cast-in-place concrete construction versus precast concrete construction are also explored and discussed.

Tuesday, July 7, 2026

4:00 PM-5:00 PM São Paulo Time / 3:00 PM-4:00 PM EDT (New York Time)

Co-Host Organization: Instituto Brasileiro do Concreto (IBRACON)



NOSSO FUTURO É CONCRETO!

Website: <https://site.ibracon.org.br/>

The Instituto Brasileiro do Concreto (IBRACON) is a technical-scientific organization for the defense and enhancement of civil engineering—nationwide, associative, nonprofit, and with unlimited duration. It was founded in 1972 by professionals and stakeholders in the concrete production chain. Its objective is to provide professionals and stakeholders in the national construction sector with information and knowledge on research, development, and innovation in concrete technology and its construction systems. To this end, IBRACON promotes specialization courses, edits technical publications, encourages and supports the formation of technical committees, offers certification programs, and organizes technical events. Every year, IBRACON organizes the Brazilian Concrete Congress, the largest national technical-scientific event on concrete technology and its construction systems, which aims to bring together the national and foreign technical and scientific community to debate and learn more about research, developments, and innovations related to concrete and its constituent materials, structural analysis and design, construction methodologies, management and technical standardization, and other related topics.

Local Moderator and 1st Speaker: Rafael Timerman, Director, Engeti Consultoria e Engenharia S/S Ltda



Rafael Timerman is a Civil Engineer, Director of Engeti Consultoria e Engenharia S/S Ltda, São Paulo, Brazil, and Professor of postgraduate courses for rehabilitation, reinforcement, and inspection of structures of bridges and viaducts. He has been the Coordinator of the Technical Division of Structures and Materials of the Institute of Engineering since May 2019 and a member of the Deliberative Council of the Institute of Engineering since April 2020. He was the Director of Events for IBRACON from 2019 to 2023. Timerman is a member of ACI Committee 364, Rehabilitation. He graduated from the School of Engineering of Universidade Presbiteriana Mackenzie, São Paulo, SP, Brazil, in 2008.

Presentation Title: Bridges in Brazil: An Overview

Brazil's vast territorial expansion and complex geography have historically demanded highly specialized engineering solutions to connect its regions and support economic growth. This presentation provides a comprehensive overview of the evolution, status, and future perspectives of bridge engineering in Brazil. It traces the historical development of major structural milestones, highlighting the country's prominent tradition in reinforced and prestressed concrete design.

2nd Speaker: Bernardo Tutikian, Professor, University of Vale do Rio dos Sinos - RS (UNISINOS)



Bernardo Tutikian, PhD, is a Professor at the University of Vale do Rio dos Sinos - RS (UNISINOS), São Leopoldo, Brazil, and a researcher at the Technological Institute for Performance and Civil Construction - it Performance, São Leopoldo, Brazil. He is a civil engineer with a master's and doctorate degree in engineering. He completed a post-doctorate at CUJAE, Marianao, Havana, Cuba, in 2013, was a visiting professor at the Missouri S&T, Rolla, MO, USA, a visiting professor at the Université de Cergy-Pontoise, Cergy, France, and a researcher at the Universidad de la Costa – CUC, Barranquilla, Atlántico, Colombia. Tutikian is the author of technical books such as

“Self-Compacting Concrete,” “Pathology of Concrete, Steel and Wood Structures,” “Ultra-High-Performance Concrete (UHPC),” and “Fiber-Reinforced Concrete – ECC.” He is a permanent member of the Steering Board of CONSEC and an elected advisor of IBRACON, former Vice President, and current Director of Publications. He was formerly President of Alconpat Brazil for two terms and a Vice President of Alconpat International. Tutikian has published over 450 papers in journals and at conferences.

Presentation Title: Advances in Concrete Technologies toward Sustainability and Longer Service Life for Civil Structures

The construction sector faces a dual challenge: reducing its massive carbon footprint while ensuring that modern infrastructure can withstand increasingly harsh environmental conditions. Concrete, as the world's most consumed man-made material, sits at the center of this paradigm shift. This presentation explores the latest breakthroughs in concrete technologies designed to reconcile eco-efficiency with structural resilience.

Tuesday, July 7, 2026

2:00 PM-3:00 PM Guatemala City Time / 4:00 PM-5:00 PM EDT (New York Time)

Co-Host Organizations: ACI Guatemala Chapter and Instituto del Cemento y del Concreto de Guatemala (ICCG)



American Concrete Institute
Guatemala Chapter



INSTITUTO DEL CEMENTO Y DEL CONCRETO DE GUATEMALA

Websites: [ACI Guatemala Chapter](#) and <https://www.iccg.org.gt/>

The ACI Guatemala Chapter was founded in 2006 and currently has 31 international members, 30 local members, and 1600 student members. Within their main activities, the Chapter sponsors events targeted to the 28 active Student Chapters in Guatemala—for example, seminars, ACI Certifications (reduced price), and competitions (National Competition of Concrete Cylinders since 2012, Research Award since 2015, and Concrete Soccer Ball Competition since 2019). Chapter members have also been active participants in the National Standardization Technical Committees of Cement and Concrete. The ACI Guatemala Chapter conducts seminars aimed at professionals and technicians and is also a Local Sponsoring Group (LSG) that currently develops six ACI Certification programs. Most of the Chapter activities are developed with the support of the Cement and Concrete Institute from Guatemala (ICCG), an ACI International Partner with whom ACI has a Memorandum of Understanding.

ICCG was founded on the initiative of the country's cement and concrete industry in November 2006. ICCG is an autonomous, private, civil, nonprofit, nonreligious, and nonpolitical association formed by companies from the cement and concrete industry in Guatemala. ICCG has relationships with entities and associations at a national and international level whose objectives are similar to theirs, including ACI, the Inter-American Cement Federation (FICEM), the Ibero-American Federation of Ready Mixed Concrete (FIHP), ASTM International, and others. ICCG's Mission is to promote and develop the cement and concrete industry in Guatemala. ICCG's Vision is to develop Guatemala as a country with a culture of cement and concrete use and a sustainable future in construction, consistent with the conservation of the environment, safety, performance, durability, and social responsibility.

Local Moderator: Plinio E. Herrera, FACI, Concrete R&D Manager, Cementos Progreso, and President, ACI Guatemala Chapter



Plinio E. Herrera is the Concrete Research and Development (R&D) Manager at Cementos Progreso in Guatemala City, Guatemala. During his more than 35 years of experience in concrete materials, he has promoted the research and development of products and solutions related to concrete and its applications and has worked on knowledge transfer to the construction industry and academia in subjects like cement, concrete, aggregates, concrete pavements, housing, and three-dimensional (3-D) printing. He has reviewed and sponsored several theses and experimental projects with students from state and private universities in Guatemala. He has participated in proposing, reviewing, and translating national standards related to cement, concrete, and their applications. He has been a speaker in international seminars and meetings related to cement, aggregates, concrete technology, concrete roads, housing, and 3-D printing. Herrera is an ACI Fellow and President of the ACI Guatemala Chapter. He is also a member of ACI Committees E701, Materials for Concrete Construction; 130, Sustainability of Concrete; 211, Proportioning Concrete Mixtures; 225, Hydraulic Cements; and 237, Self-Consolidating Concrete, and ACI Subcommittees C601-E, Concrete Construction Sustainability Assessor; 130-G, Education; and 211-N, Proportioning with Ground Limestone and Mineral Fillers. He has participated in translation reviews for ACI International Affairs and ACI University. He is also a member of ASTM International and the American Society of Civil Engineers (ASCE). His research interests include self-consolidating concrete, fiber-reinforced concrete, high-strength/high-performance concrete, ultra-high-performance concrete, and 3-D printing materials and processes. He received his degree in civil engineering from the

Universidad de San Carlos de Guatemala (USAC), Guatemala City, Guatemala, in 1994, and his MBA from the Pontificia Universidad Católica de Chile (PUC), Santiago, Chile, in 2008. He is a licensed civil engineer in Guatemala. Recently, he received the distinction of 25 years of professional service as a civil engineer in Guatemala.

Co-Moderator: Xiomara Sapón Roldán, FACI, Knowledge and Quality Manager, Cement and Concrete Institute from Guatemala–ICCG, and Vice President, ACI Guatemala Chapter



Xiomara Sapón Roldán is the Knowledge and Quality Manager at the Cement and Concrete Institute from Guatemala–ICCG. Her local and international involvement also includes ASTM International, National Guatemalan Standards Organization (COGUANOR), the Guatemala ALCONPAT (Latin American Association for the Quality Control, Pathology, and Rehabilitation of Buildings) Chapter, Building Commission for the Guatemalan National Council for Science and Technology, the Iberoamerican Ready Mixed Concrete Association (FIHP), and the Housing and Sustainability Committees of the Inter-American Cement Federation (FICEM). She is an ACI Board Member, Chair of ACI Subcommittee 13-1, International Certification, and is a member of the Educational Activities Committee and ACI Committees 130, Sustainability of Concrete, and C602, International Standards Certification Programs Oversight Committee. In 2026 she received the ACI Impact Award, in 2021 the ACI Certification Award, and in 2016 the ACI Chapter Activities Award. She received her civil engineering degree from San Carlos University, Guatemala, Guatemala, and her master's in engineering and industrial management from Rafael Landívar University, Guatemala, Guatemala. She also completed studies in organizational strategy at the Massachusetts Institute of Technology, Cambridge, Massachusetts, USA.

1st Speaker: Enrique de León B., Partner and Director of Business Development, PERFORM



Enrique de León B. is a civil engineer with 15 years of professional experience and serves as Partner and Director of Business Development at PERFORM, a structural and civil engineering consulting firm based in Guatemala. He received his civil engineering degree from Rafael Landívar University, Guatemala City, and his MBA from EAFIT University, Medellín, Colombia. His advanced training also includes graduate-level studies in structural engineering, specialization studies in maritime engineering at the Andalusian Demarcation of the Spanish Association of Civil Engineers (Colegio de Ingenieros de Caminos, Canales y Puertos), and specialization studies in timber structures, among others. He served as Director of Civil Engineering (2018-2020) and Vice Dean (2021-2023) of the Faculty of Engineering at Rafael Landívar University. De León has been a Board Member (2020-2022 and 2022-2024) of the Guatemalan Association for Structural and Seismic Engineering (AGIES), where he coordinates the technical committee for the Guatemalan timber structural design standard. He is a member of several technical committees within the Guatemalan National Standards Body (COGUANOR) and served as representative of the Guatemalan Forum of University Rectors before the National Standardization Council from 2022 to 2025. In 2023 he was a member of the Mexican Society of Seismic Engineering (SMIS) reconnaissance brigade for the assessment of damages caused by the Türkiye earthquakes. He is an international speaker on structural and seismic engineering topics.

Presentation Title: Strategies for the Seismic Design of Buildings, Beyond Code Compliance

Building planning under a hybrid (adaptive/predictive) approach, combined with the early involvement of structural engineering, makes it possible to resolve—or at least identify—structural behaviors that in most cases can be addressed through configuration strategies. As is well known, a sound structural configuration enables the use of moderate seismic loads, which, when paired with appropriate detailing, can drive the structure toward a performance level that goes beyond mere code compliance.

The presentation will introduce, as a starting point, the seismicity of Guatemala as a reference for similar cases in other countries. It will then cover fundamental structural analysis concepts as proposed by ASCE 7. Finally, it will establish the relationship between code expectations regarding design and procedures for the design of reinforced concrete elements aimed at controlling damage, going beyond simply meeting strength requirements.

2nd Speaker: Fóscolo Liano, General Manager, Muratori Group



Foscolo Liano is a civil engineer and is currently the General Manager of Grupo Muratori, a leading Guatemalan company in bridge and infrastructure construction. Liano studied at the University of San Carlos of Guatemala and received his master's degree in structures from The George Washington University, Washington, DC, USA, awarded as a Fulbright scholar. Liano is a member of the Guatemalan College of Engineers; the Guatemalan Chamber of Construction's Association of Construction Contractors where he founded the Bridge Association which drafted the national regulations now incorporated into local standards; the Guatemalan Association of Structural Engineers (AGIES); the ACI Guatemala Chapter; and ALCONPAT. His experience includes work at the General Direction of Roads as a bridge design engineer, where he also served as a counterpart for the Japanese Cooperation Agency (JICA). Later, he was a Senior Engineer for the seismic reinforcement work at the American Embassy building in Guatemala. He directed engineering projects for the Central American region of the Mormon Church before founding his company, Grupo Muratori, where he has designed and built several important bridges for the country. In addition to his formal undergraduate and master's studies, he participated in a seismic engineering course at the National Autonomous University of Mexico (UNAM) in Mexico City; a bridge engineering course in Tokyo, Japan, sponsored by JICA; several seismic engineering seminars in San Francisco, California, Salt Lake City, Utah, and St. Louis, Missouri; and a post-tensioning course at the MK4 headquarters in Barcelona, Spain. He has taught structural design courses at various universities in the country and given lectures at several seminars related to the topic.

Presentation Title: Design and Construction of a Double Cantilever Concrete Structure in Chitomax, Guatemala

The scope of this presentation is as follows:

1. Initial design of the bridge structure over the Chixoy River;
2. Social importance of the bridge's construction to the country;
3. Challenges encountered during the construction process due to the site's location;
4. Use of new technologies in the country for its operation; and
5. Importance of in-situ concrete production, its design, and quality control.

Tuesday, July 7, 2026

3:00 PM-4:00 PM Merida Time / 5:00 PM-6:00 PM EDT (New York Time)

Co-Host Organization: ALCONPAT International



Website: <https://alconpat.org/>

ALCONPAT International is a non-profit association of professionals dedicated to the construction industry in all its areas, who jointly help to solve the problems that arise in the structures from the planning, design, and project to the execution, construction, maintenance, and repair of the same, promoting professional updating and education as fundamental tools to safeguard the quality and integrity of the services of its professionals.

Local Moderator: Margareth Dugarte Coll, Associate Professor, Universidad del Norte



Margareth Dugarte Coll, PhD, is a Civil Engineer from the Universidad del Norte, Barranquilla, Colombia. She received her PhD in civil and environmental engineering from the University of South Florida, Tampa, Florida, USA. She is currently an Associate Professor in the Department of Civil and Environmental Engineering at the Universidad del Norte and coordinator of the Master's and Doctorate programs in civil engineering. Her areas of work include concrete durability, steel-concrete systems, and corrosion prevention in reinforced concrete structures. She is a delegate for Colombia at the Ibero-American Network on Climate Change Prevention in Ibero-America (PREVECCII), and of Alconpat International (Latin American Association of Quality Control, Pathology and Recovery of Construction).

1st Speaker: José Manuel Mendoza Rangel, Research Professor, Autonomous University of Nuevo León, and President, ALCONPAT International



José Manuel Mendoza-Rangel, PhD, is a full-time Research Professor in the Civil Engineering School at the Autonomous University of Nuevo León (UANL), San Nicolás de los Garza, Mexico, specializing in concrete technology and construction materials. He currently serves as President of ALCONPAT International and is an active member of ACI, RILEM, and ICRI. He has authored numerous peer-reviewed publications and received several academic distinctions.

Presentation Title: ALCONPAT International—Past, Present, and Future

ALCONPAT International is a non-profit association that brings together professionals from all areas of the construction industry. Its main focus is to promote and develop quality, pathology, and recovery in construction. The association organizes notable events such as the CONPAT congresses, held internationally every two years, which address key issues in the sector. Additionally, it offers a wide range of products and services, including specialized publications like its scientific journal, technical recommendations, and informative bulletins that keep professionals updated on the latest advances and discoveries in the industry. The Education Department of ALCONPAT International provides continuous training programs, including courses, workshops, and seminars, offering learning and professional development opportunities. ALCONPAT International also promotes research and development through collaborative projects, research seminars, refresher courses, and webinars with internationally renowned specialists, fostering excellence, knowledge exchange, and continuous progress in the sector.

Speaker Name: Prisciliano F. de J. Cano-Barrita, Researcher, Instituto Politécnico Nacional, and President, Alconpat Mexico



Prisciliano F. de J. Cano-Barrita received his PhD in civil engineering from the University of New Brunswick, Fredericton, New Brunswick, Canada. He is a Researcher at the CIIDIR Oaxaca Unit of the Instituto Politécnico Nacional (IPN), Mexico City, Mexico, and a Level II member of the National System of Researchers (SNII). His research focuses on the use of mineral additives, industrial byproducts, and recycled materials in construction, as well as the use of natural polymers in cementitious systems. Additionally, he specializes in the application of nondestructive techniques—including magnetic resonance, electrical resistivity, and ultrasound—for materials characterization. Cano-Barrita currently serves as the President of Alconpat Mexico (2024-2026) and is Treasurer of Alconpat.

Presentation Title: Characterization of Cement-Based Materials via NMR: From Early-Age Hydration to Deterioration Processes

The service life of concrete structures is governed by the complex interplay between microstructural evolution and water-mediated transport phenomena. Understanding these processes requires nondestructive techniques capable of probing the pore network across multiple scales. This presentation demonstrates the versatility of nuclear magnetic resonance (NMR) and magnetic resonance imaging (MRI) as robust tools for characterizing cement-based materials, from early age to structural degradation. Using low-field NMR relaxometry and spatially resolved imaging, the cement hydration kinetics and the effectiveness of internal curing agents were evaluated. Furthermore, these techniques are applied to monitor moisture ingress via capillary absorption, detect carbonation, and the relationship between crack width and the T2 relaxation time were explored. The integration of magnetic resonance techniques provides a comprehensive framework for assessing the durability of cementitious systems. These insights are essential for predicting performance in aggressive environments and developing more resilient, sustainable construction materials.

Tuesday, July 7, 2026

4:00 PM-5:00 PM Mexico City Time / 6:00 PM-7:00 PM EDT (New York Time)

Co-Host Organization: ACI Central & Southern Mexico Chapter



Sección Centro y Sur de México

American Concrete Institute

Website: <https://acimexico-centro.org/>

The first American Concrete Institute (ACI) chapter in Mexico was legally established on August 17, 1990, under the name of the ACI Mexico City Chapter. Beginning on February 3, 1994, the chapter expanded its territorial operations, achieving official recognition as the ACI Central and Southern Mexico Chapter. Thanks to teamwork, characterized by the quality performance of the Institute's members and directors, they have achieved the distinction of being recognized, among the 99 existing chapters in the world (including the USA), as an "ACI Outstanding Chapter" in 1992, 1993, 1996, 1997, 2007, 2009, 2015, 2020, 2021 and 2023; and an "ACI Excellent Chapter" in 1995, from 1998 to 2006, and in 2008, 2010, 2011, 2012 2013, 2014, 2016, 2017, 2018, 2022, 2024 and 2025. The Chapter's activities extend through Aguascalientes, Morelos, Colima, Guanajuato, Guerrero, Hidalgo, Jalisco, Mexico City, Mexico State, Michoacan, Nayarit, Oaxaca, Puebla, Queretaro, Tlaxcala, and Veracruz, Mexico.

Local Moderator: Esteban Astudillo de la Vega, Managing Director, MAISE



Esteban Astudillo de la Vega graduated from the Escuela Superior de Ingeniería y Arquitectura (ESIA – IPN) in Mexico. He received his master's degree from the École Normale Supérieure Paris-Saclay, Gif-sur-Yvette, France, and his doctorate from the École Normale Supérieure Paris-Saclay and the Université Paris 6, Paris, France. He has worked as a structural engineer for over 25 years, designing concrete structures throughout the country. Among these are the "University Tower," a concrete structure built in the former lake area of Mexico City, the area with the highest seismic coefficient in the center of the country, a 200 m tall structure with 45 m deep basements, as well as the "Torre T.OP" in Monterrey, Mexico, a 305 m tall concrete building, currently the tallest in Latin America. Recently, in collaboration with Colaco Engineers Inc., he worked on the structural design of the "RISE Tower," a 400 m tall concrete building also in Monterrey, Mexico, currently under construction. His professional practice has been characterized by the implementation and optimization of innovative structural systems and solutions with architectural quality using high-performance concrete. He received the 2024 Best Engineering Practice Award from the Mexican Society of Structural Engineering (SMIE). In collaboration with MSc Arturo Gaytán, he worked on the winning project of the 2024 ACI Excellence in Concrete Construction for Low-Rise Concrete Structures. He served as President of the Mexican Society of Structural Engineering (SMIE) from 2019 to 2020. He is Member of the Review Subcommittee of the Complementary Technical Standard for the Design and Construction of Concrete Structures for Mexico City; a member of the French Association of Civil Engineering (AFGC) and ACI; and a member of the ACI Mexico Central-South Chapter Board of Directors (2023 to 2026).

1st Speaker: Dr. Sergio M. Alcocer, Professor, National Autonomous University of Mexico and University of Texas at San Antonio

Sergio M. Alcocer is a Professor in the Institute of Engineering of the National Autonomous University of Mexico (UNAM) and part-time Professor at the University of Texas at San Antonio. He is Chair of ACI Committee 352, Joints and Connections in Monolithic Concrete Structures, and Subcommittee 318-H, Seismic Provisions. He is member of the Advisory Committee on Structural Safety of the Mexico City Government and



chairs the committee in charge of the 2029 version of the 14 design and construction standards of the Mexico City Building Code. Alcocer is an International Member of the U.S. National Academy of Engineering and Past-President of the Academy of Engineering of Mexico. Alcocer was awarded an Honorary Degree of Doctor of Science from The University of Arizona. He is a Distinguished Engineering Alumni of the Cockrell School of Engineering of the University of Texas at Austin and a recipient of the Charles S. Whitney Medal of the American Concrete Institute. Alcocer received his BSc in Civil Engineering from UNAM and his PhD in Structures from The University of Texas at Austin.

Presentation Title: Seismic Rehabilitation of Nonductile Reinforced Concrete Columns

Common seismic vulnerabilities in existing reinforced-concrete (RC) frames include weak-column-strong-beam configurations, slender columns, non-ductile reinforcement detailing, insufficient transverse reinforcement for shear resistance, and short lap splices in beams, columns, and beam-column joints. RC frames have been rehabilitated through several techniques; one of the most common techniques is column jacketing. In this presentation, concrete jacketing of columns and steel jacketing, made of structural steel angles and flat bars, will be discussed. The strength, modeling parameters and acceptance criteria of concrete jacketed columns in the framework of ACI CODE-369.1 will be introduced. The experimental behavior of steel jacketed columns and the proposed lateral strength mechanism will be presented.

2nd Speaker: Alma Reyes, Principal, AURAC Consulting & Construction



Alma Reyes is a civil engineer, graduating with honors from the National University Autonomous of Mexico. She received her master's degree in civil engineering in applied science from the University of Sherbrooke, Quebec, Canada, where she received the Leonard Da Vinci merit medal. Reyes is an international specialist in concrete and cement advanced technology, high performance, microstructure, pathology, repair, and durability of concrete structures. She has broad experience in the development, implementation, and specifications of avant-garde technologies in the United States, Canada, Mexico, and Latin America. Reyes is Principal of AURAC Consulting & Construction where she has collaborated in multiple projects in Mexico, Latin America, and the United States. She actively participates in various Mexican civil engineering and construction-related organizations such as the Society of Structural Engineers (SMIE), where she is Past President, being the first woman to occupy such position and also the first materials-related specialist to collaborate as President. SMIE is one of the most prestigious civil engineering organizations in Mexico with close to 50 years of service. Reyes has actively participated in ACI technical committees such as ACI Committee 212, Chemical Admixtures; 223, Shrinkage-Compensated Concrete; 237, Self-Consolidating Concrete; and 544, Fiber-Reinforced Concrete. She has also participated in the selection for ACI awards for outstanding papers and young professionals. Reyes was also President of the ACI Central-South Mexico Chapter; Vice President of Technology Development of the National Precast and Pre-stress Association of Mexico (ANIPPAC); and lead the elaboration of concrete-related standards at the Mexican Standard Organism (ONNCCE).

Presentation Title: Synthetic FRC: The and Now

This presentation describes one of the pioneering real-world applications of synthetic fiber-reinforced concrete in rigid pavement construction in Mexico. Two pavement systems were directly compared: conventional steel-reinforced concrete and synthetic macrofiber-reinforced concrete. Both systems were built under identical traffic, subgrade, and environmental conditions to evaluate differences in structural behavior and long-term durability. Service life demonstrates that the synthetic fiber-reinforced section exhibits superior crack control, reduced crack widths, and enhanced post-cracking performance compared to the steel-reinforced section, resulting in better overall durability and lower projected maintenance. The results confirm that synthetic fiber reinforcement provides equivalent or better structural performance than conventional steel reinforcement while extending service life. This pioneering comparative application in Mexico validates synthetic fibers as a technically and economically viable alternative to steel reinforcement for durable rigid pavements.

Wednesday, July 8, 2026

11:00 AM-12:00 PM Auckland Time / 7:00 PM-8:00 PM EDT (New York Time)

Co-Host Organization: Concrete New Zealand – Learned Society



Website: https://concretenz.org.nz/page/learned_society_home

The Concrete New Zealand (NZ) – Learned Society is a professional society that sits under the umbrella of Concrete NZ. The Learned Society facilitates the sharing of industry knowledge, participates in the development of concrete and construction, and provides a foundation for building valuable business networks in New Zealand and overseas. The Learned Society aims to encapsulate the wealth of expertise of its membership and to output this in the form of seminars, technical publications, and conferences for the betterment of the concrete and construction industry at large. With an emphasis on 'Learned', the Society is focused on technical excellence and is not influenced by any external commercial interests. The Concrete NZ Learned Society maintains strong relationships with affiliated organizations internationally, including the American Concrete Institute (ACI), the Concrete Institute of Australia (CIA), and the Federation Internationale du Beton (*fib*).

Local Moderator: Rick Henry, Associate Professor, University of Auckland



ACI member Rick Henry is an Associate Professor in the Department of Civil and Environmental Engineering at the University of Auckland, Auckland, New Zealand, where he teaches the design of concrete structures. His research interests include the seismic design and assessment of reinforced concrete structures and in particular precast concrete construction and low-damage design. Henry is immediate Past President of the Concrete NZ – Learned Society. He has served as a member of the technical committee for the NZ Concrete Structures Standard (NZS 3101:2006) and is a current member of ACI Subcommittee 318-H, Seismic Provisions.

1st Speaker: Tim Kleier, Sustainability and Policy Director, Concrete New Zealand



As Sustainability and Policy Director for Concrete New Zealand, Tim Kleier champions the evidence-based case for concrete's role in a net-zero and resilient future. He brings two decades of international industrial experience, previously serving as the Global Head of Green Steel for a large German engineering firm. With a diversified background in engineering, psychology, and business, Kleier specializes in the strategic pathways toward industrial sustainability.

Presentation Title: Pragmatism Over Platitudes: Decarbonizing New Zealand's Concrete Sector

New Zealand's approach to decarbonizing concrete relies on consequent pragmatism rather than endless committee meetings. Concrete NZ's Net Zero Carbon Roadmap targets a 44% emissions reduction by 2030 from a 2020 baseline and net zero by 2050. Our follow-up Transformation Project is the mechanism to actually execute this, implementing decarbonization levers across the supply chain. Compared to the sprawling United States industry, our market is a rounding error: just 1.5 million tons of cement and 4.5 million cubic meters of ready-mixed concrete annually. Yet this scale is our primary advantage. We do not have the luxury, or the headache, of fifty different state codes. Instead, backed by a heavily renewable electricity grid, we can push supplementary cementitious materials and alternative fuels at a national scale with speed. This session unpacks our execution strategy, offering a blunt assessment of what works, what fails and why a compact market is the ideal test bed for rapid industrial overhaul.

2nd Speaker: Alejandro Saenz Calad, Student, University of Canterbury



Alejandro Saenz Calad is a PhD student at the University of Canterbury, New Zealand. His research focuses on the overall performance of metal, hybrid, and irregular structures subjected to earthquake demands.

Presentation Title: Dynamic Tests on a Five-Story Reinforced-Concrete Structural Steel Hybrid Building

Hybrid structures that combine reinforced-concrete (RC) walls and structural steel frames have become increasingly common in mid- to high-rise buildings. This preference has been driven by the stiffness and strength of RC walls and the construction efficiency, availability, and high strength-to-weight ratio of steel framing. Nevertheless, limited experimental data exists regarding the response of these structures to earthquake demands. This presentation summarizes the design of the test specimen and the results of 42 simulated earthquake tests on a 12.6 m (41.3 ft) tall, five-story, reinforced-concrete structural steel hybrid building with horizontal irregularities. The specimen included two coupled RC walls forming a core offset from the center of mass. In 16 dynamic tests, buckling-restrained braces were installed in a steel frame located opposite the core. The structure exhibited a stable structural response up to roof-drift ratios of approximately 3%. Building torsion generated drift demands in the more flexible façade up to 4 times larger than in the stiffer façade.

Wednesday, July 8, 2026

10:00 AM-11:00 AM Sydney Time / 8:00 PM-9:00 PM EDT (New York Time)

Co-Host Organization: Concrete Institute of Australia (CIA)



Website: <https://concreteinstitute.com.au/>

The Concrete Institute of Australia (CIA) is an independent, not-for-profit professional association made up of members who share a common interest in staying at the forefront of concrete research, technology, application, design, construction, and sustainability in Australia. The Concrete Institute of Australia's vision is for excellence in concrete.

Local Moderator: Andrew Sarkady, National President, Concrete Institute of Australia



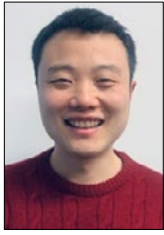
Andrew Sarkady is a Civil/Structural Engineer holding the position of National Industry Advocate – Civil, Construction and Renewables at Master Builders Solutions. Sarkady has over 38 years of construction industry experience, including 7 years as a Design Engineer with a leading international consultant (now Aurecon). Sarkady has worked on new and refurbishment solutions for major infrastructure projects with an intimate knowledge of the full range of construction materials, for durable and sustainable solutions. These include concrete admixtures, repair and protection, structural strengthening with FRP, performance flooring, engineered grouts and waterproofing. With 26 years of experience involving carbon fiber and other FRP materials, Sarkady chaired the working group for Appendix A “FRP Strengthening” for the Australian Standards’ bridge design code AS 5100.8, published in March 2017. As an active member of the Australasian Concrete Repair and Remedial Building Association (ACRA) and the Australasian Corrosion Association (ACA), Sarkady has delivered many seminars and presented papers on topics relevant to concrete within transport infrastructure, marine structures, and the water industry. Sarkady has been actively involved for over 14 years with the Concrete Institute of Australia (CIA) as a Victorian President/committee member, a member of National Council, and currently holds the position of National President of the CIA.

Local Contact: David Millar, Chief Executive Director, Concrete Institute of Australia



ACI member David Millar is the Chief Executive Officer of the CIA. As a civil engineering graduate from the University of Sydney, Sydney, Australia, Millar began his career in the concrete aggregates industry, before expanding into precast concrete, construction chemicals, and concrete materials. With a great appreciation of what industry and professional associations can provide to the concrete industry, Millar has been, and is still, an active member on a number of concrete-related committees as a volunteer. He was also the Executive Director of the Concrete Pipe Association of Australasia from 2005 to 2013 before commencing his current role with the CIA in 2014. In his time as CEO with the CIA, Millar has convened six major conferences for the Institute, been at the forefront of the transition to online education products, introduced focus groups related to NEXGen and Women in Concrete, and has overseen significant growth in membership, particularly with Young Professionals. He has had numerous positions on standards and technical committees and currently is the CIA representative on BD10 Portland and Blended Cements, as well as being an elected member of the Standards Australia Membership Committee. Millar is also a graduate of the Australian Institute of Company Directors and a member of the Australasian Society for Association Executives. Millar's 30 years in the construction industry, including 20 years as an association executive, has revolved entirely around concrete, and through this experience he understands the importance this most traditional, but ever-evolving material has on society and the environment.

1st Speaker: Dr. Nan Zhang, Research Fellow, Swinburne University of Technology, Australia



Nan Zhang is a Research Fellow at Swinburne University of Technology, Melbourne, Australia. He has 14 years of experience spanning both industry and academia in concrete materials and construction automation. He received his PhD from Swinburne and was awarded the 2025 Concrete PhD Research Award by the CIA. His research focuses on 3-D concrete printing, sustainable construction materials, and advanced mixing technologies, with publications in flagship journals and patented innovations. Zhang is a member of ASTM Committee F42 on Additive Manufacturing Technologies. In recognition of his contributions to 3D concrete printing, he received the 2023 Award of Excellence in Concrete (Technology & Innovation) from the CIA and the 2025 Young Professional Award from the International Society for Smart Construction and Production. His work aims to bridge fundamental materials science and digital construction technologies, translating research innovations into practical, industry-ready solutions.

Presentation Title: Pump-Less 3-D Concrete Printing Enabled by Quick Nozzle Mixing: From Concept to Scalable Construction

This presentation introduces recent advances in 3-D concrete printing (3DCP), focusing on quick nozzle mixing as a novel approach to improve process efficiency and automation. Conventional 3DCP systems are constrained by the need to balance pumpability and buildability, while long-distance pumping introduces risks such as blockage, cleaning complexity, and operational inefficiency. Quick nozzle mixing addresses these challenges by enabling in-situ mixing and direct extrusion at the printhead, eliminating the need for pumping. This pump-less approach simplifies the printing process into a single step, improving reliability and reducing operational constraints. It also supports lower-carbon mixture designs. A proof-of-concept demonstration is presented to validate the feasibility of this method. The talk further discusses the underlying mechanisms, material requirements, and its potential as a scalable solution for next-generation digital construction.

2nd Speaker: Dr. Emily Canda, Project Engineer, CPB and Lecturer, University of Technology, Sydney, Australia



Emily Canda is a Civil Engineer, Project Manager, and Lecturer with a focus on sustainable concrete. Canda's research specializes in limestone calcined clay cement (LC3), exploring how it can significantly reduce the carbon footprint of concrete while maintaining performance. Canda focuses on hydration behaviour, shrinkage, and the practical implications of LC3 for real construction projects. With over a decade of experience across industry and academia, Canda brings a practice informed research perspective to sustainable materials. Canda is passionate about translating research into solutions that engineers can actually use on site and in design.

Presentation Title: Practice Feasibility of Limestone Calcined Clay Cement in Australia

Limestone calcined clay cement (LC3) is an emerging low-carbon cement technology that has gained significant attention over the past decade due to its potential to substantially reduce CO₂ emissions. This reduction is achieved by partially replacing clinker with calcined clay and limestone, which require lower calcination temperatures and generate less CO₂ during production. This presentation explores the feasibility of LC3 in the Australian context. It draws on research investigating locally sourced overburden waste clays from quarries and mines along the East Coast of Australia. The findings demonstrate that LC3 produced at a low calcination temperature of 650°C (1202°F) can achieve compressive strengths comparable to conventional Portland cement-based systems. The results also show that optimizing the particle size distribution of the calcined clay improves both workability and compressive strength.

Wednesday, July 8, 2026

10:00 AM-11:00 AM Tokyo Time / 9:00 PM-10:00 PM EDT (New York Time)

Co-Host Organization: Japan Concrete Institute (JCI)



Japan Concrete Institute

Website: <https://www.jci-net.or.jp/index-e.shtml>

The Japan Concrete Institute (JCI) has been striving to develop the science and technology of concrete in Japan. As of 2025, the number of members is approximately 7000. Since 1979, JCI has been holding an annual convention once a year (over 3 days), which concrete researchers and engineers from various fields attend. The 47th Annual Convention was held in Morioka, Iwate, in July 2025. JCI publishes the monthly *Concrete Journal* and presents a multifaceted range of information, including commentaries, technical reports, construction records, and international information regularly. *Concrete Research and Technology* and *Journal of Advanced Concrete Technology (JACT)* are posted on the Japan Science and Technology Information Aggregator, Electronic (J-STAGE) website at the same time they are published for uncharged access. JCI awards include the Honorary Membership Award, Lifetime Membership Award, JCI Fellow, the JCI Awards (Meritorious Deed Award, Best Paper Award, Technology Award, Encouragement Award, and Work Award), as well as other awards bestowed under the independent award schemes of JCI chapters. To raise concrete engineers' technical skills and ability, JCI has been administering Authorized Concrete Engineer qualification examinations since 1970 and Authorized Chief Concrete Engineer qualification tests since 1971, certifying approximately 61,862 people thus far. JCI has been holding Concrete Diagnosis & Maintenance workshops and Authorized Concrete Diagnosis & Maintenance Engineer qualification examinations every year since 2001, certifying approximately 15,380 people.

Local Moderator: Koichi Kusunoki, Vice-Director, Earthquake Research Institute, and Professor, University of Tokyo



1997-2000, Assistant Professor, Institute of Industrial Science, University of Tokyo, Tokyo, Japan; 2000-2001, Researcher, Building Research Institute, Ministry of Construction, 2001-2006, Senior Researcher, Building Research Institute, Ministry of Construction; 2006-2014, Associate Professor, Yokohama National University, Yokohama, Japan; 2014-2018, Associate Professor, Earthquake Research Institute, the University of Tokyo; 2018-present, Professor, Earthquake Research Institute, the University of Tokyo; 2025-Present, Vice-Director, Earthquake Research Institute, the University of Tokyo.

1st Speaker: Toshikazu Kabeyasawa, Associate Professor, Tokyo Metropolitan University



2008-2009, Postdoctoral Fellow, Tokyo Institute of Technology; 2009-2010, Project Assistant Professor, The University of Tokyo; 2010-2012, Researcher, Building Research Institute; 2012-2016, Senior Researcher, National Institute for Land and Infrastructural Management, MLIT; 2016, Associate Professor, Tokyo Metropolitan University; 2019, Visiting Researcher, Building Research Institute.

Presentation Title: Technologies for Mitigating Tsunami Damage to Reinforced Concrete Structures

JCI's technical research committee TC244A (Technical Research Committee on Tsunami Damage Mitigation Technologies for Reinforced Concrete Structures) has been collecting literature on structural design methods for reinforced concrete structures and members against tsunami loads, particularly research and case studies on localized failure, conducted at the researcher level since the 2011 Tohoku earthquake and tsunami. The committee summarized a wide range of topics, including tsunami loads considering

building location and wave direction; design methods for reinforced concrete wall members subjected to out-of-plane loading; the use of breakaway wall materials in design; impact loads and damming loads caused by tsunami-borne debris; the effects of tsunami wave forces acting from two directions; design approaches for foundation piles; strengthening of existing building members against impact loads; design considerations for base-isolated structures; and design approaches for civil engineering structures subjected to tsunami loads. In addition, impact loading tests were conducted using scaled models representing reinforced concrete columns in existing buildings. Through these impact tests, the strengthening effect of steel plate jacketing for reinforced concrete columns was experimentally verified.

2nd Speaker: Keiyu Kawaai, Professor, Ehime University



2013-2019, Assistant Professor; 2019-2014, Associate Professor; 2024-present, Professor in Civil and Environmental Engineering, Graduate School of Science and Engineering, Ehime University, Ehime, Japan. He received his PhD at National University of Singapore in 2013. He was a visiting researcher at Delft University of Technology, Delft, Netherlands in 2015. Since 2025, he has served as Vice Director of Center for Disaster Management Informatics Research in Ehime University. Kawaai's research focuses on corrosion resistance of reinforced concrete and self-healing concrete using bio-based materials. He has developed bio-smart concrete using alkali-resistant bacteria and bio-degradable plastic for enhancing corrosion resistance and crack repair. A key focus of his recent work is the development and field implementation of self-healing concrete, especially using bio-based materials. He chaired the Technical Committee on Self-Healing Concrete at JCI (2024–2025).

Presentation Title: Field Implementation of Self-Healing Concrete and Non-Destructive Evaluation

This presentation highlights recent advancements of self-healing concrete in Japan, with a particular focus on bio-based self-healing materials from research to field implementation. JCI's technical research committee TC241A (Technical Research Committee on Performance Evaluation of Self-Healing Materials for Concrete and Application in Practice) has conducted literature review on self-healing materials for concrete, particularly bio-based materials including various types of micro-organism with respect to positive and/or negative impacts on cementitious mixtures. The committee summarized an interaction between cementitious materials and micro-organism, which includes not only self-healing efficiency but also detrimental effects of microbial induced corrosion, and so on. Environmental factors such as temperature, relative humidity, pH, salinity which are likely to trigger the activities of micro-organism in concrete are also central to this research. In addition, non-destructive tests were conducted using elastic and electromagnetic waves, and electrochemical measurements for assessing the effect of crack repair by bio-based self-healing materials in existing marine structures. The research committee proposes non-destructive techniques applicable to the evaluation on the onset and duration of self-healing action for cracked concrete structures with an emphasis on corrosion-induced cracking.

Wednesday, July 8, 2026

11:00 AM-12:00 PM Seoul Time / 10:00 PM-11:00 PM EDT (New York Time)

Co-Host Organization: Korea Concrete Institute (KCI)



Website: <https://www.kci.or.kr/eng/>

The Korea Concrete Institute (KCI) is an institution composed of professionals from all fields of concrete research, education, industry, and applications in the areas of concrete material, structural analysis and design, construction, repair and strengthening, and concrete-related manufacturing and production. In the past century, rapidly advanced concrete knowledge and technology have greatly contributed in the construction of various buildings, roads, bridges, offshore structures, dams, and other civil infrastructures. Especially, in the past two decades, technology associated with concrete quality and production have seen incredible growth and transformation all over the world in the areas of material, design, construction, repair and strengthening, manufacturing, and so on. The advancement of concrete technology will only gain momentum for achieving better and newer concrete technology in the future. Therefore, to maintain Korea's concrete technology at the world-class level, everyone associated with the field of concrete, ranging from businessmen to professors and from practicing engineers to researchers, must cooperate and collaborate. To achieve this endeavoring task, KCI was found to develop, supply, and advance concrete-related technology. KCI is an association of professionals working in the field of concrete. The institution's main goal is to advance knowledge, technology, applications of concrete materials, structural analysis and design, construction, repair and strengthening, and manufacturing. The goal can be made possible by active participation in KCI by academic institutions, industries, research laboratories, and government branches on fundamental research, international collaborations, technical instructions, and other programs. By everyone in the concrete field working together as one and as partners, we can surely advance concrete technology, research, applications, and industry-academia collaborations in Korea.

Local Moderator: Dr. Hyeon-Jong Hwang, Associate Professor, Seoul National University



Hyeon-Jong Hwang is an Associate Professor in the Department of Architecture and Architectural Engineering at Seoul National University (SNU), Seoul, Korea. Before that, he was an Associate Professor in the College of Architecture at Konkuk University, Korea, and the College of Civil Engineering at Hunan University, China. He received his BE, MS, and PhD from the Department of Architecture and Architectural Engineering of Seoul National University in 2008, 2010, and 2014, respectively. His research interests include reinforced concrete and precast concrete structure, steel-concrete composite structure, inelastic analysis and design of building structures under static and extreme loads, and machine learning. He has published 140 international journal papers, including 24 in the ACI Structural Journal, with an h-index of 31 and a total of 3,450 citations. He has published 12 textbooks and registered 7 patents. He has worked as a member of ACI Committees 352, Joints and Connections in Monolithic Concrete Structures; 369, Seismic Repair and Rehabilitation; and 408, Bond and Development of Steel Reinforcement, as well as ACI Subcommittees 318-0I, International Subcommittee; and 369-0A, General Provisions, Frames, and Diaphragms.

1st Speaker: Dr. Chul-Woo Chung, Professor, Pukyong National University



Chul-Woo Chung is a Professor in Department of Architectural Engineering at Pukyong National University, Busan, South Korea. He received his BE and ME degrees in Architectural Engineering from Pusan National University, Busan, South Korea, and received his MS degree and PhD in Civil Engineering at the University of Illinois–Urbana Champaign, Champaign, IL, USA. Before joining Pukyong National University, he worked as a cement chemist/scientist at Pacific Northwest National Laboratory, Richland, WA, USA, where he conducted research on immobilization of radioactive waste using cementitious materials. His current research focuses on low carbon cement, CO₂ mineralization and sequestration, use of carbon nanomaterial, and nuclear related projects

including waste immobilization and concrete decommissioning. He has been selected by National Academy of Engineering of Korea as one of 100 technological leaders in nuclear power plant decommissioning. He received a commendation from the Korea Cement Association (2021) and received excellent paper awards by Korean Federation of Science and Technology Societies in 2022 and 2023.

Presentation Title: Mineral Carbonation of Basic Oxygen Furnace Slag and Its Potential Applicability as a Supplementary Cementitious Material and Source of Aggregate

Basic oxygen furnace (BOF) slag is a by-product of the steelmaking process. The use of BOF slag as an aggregate source has been limited due to its expansive behavior, which arises from the hydration of free lime and periclase. However, BOF slag possesses a high mineral carbonation capacity because of its abundant CaO/MgO content in its oxide and aluminosilicate structure. Mineral carbonation can modify the microstructure of BOF slag, increasing its specific surface area and thereby enhancing its reactivity as a supplementary cementitious material (SCM). Moreover, the formation of CaCO₃ and MgCO₃ during carbonation consumes free CaO and MgO, mitigating the potential for expansion when the material is used as an aggregate. In this study, the effect of mineral carbonation on BOF slag will be systematically investigated using quantitative X-ray diffraction (QXRD), thermogravimetric analysis (TGA), BET surface area, and the modified R³ test. To demonstrate the potential applicability of carbonated BOF slag as SCM, its influence on cement hydration will be evaluated through isothermal calorimetry and compressive strength. In addition, the effect of mineral carbonation in controlling the expansion of BOF slag aggregate will be demonstrated by the results from mortar bar expansion test (ASTM C1260).

2nd Speaker: Dr. Hajin Choi, Associate Professor, Soongsil University



Hajin Choi is an Associate Professor in the School of Architecture at Soongsil University, Seoul, South Korea. He received his PhD in Civil Engineering from the University of Illinois at Urbana-Champaign in 2016. Following his doctoral studies, he worked as a Research Associate at the Federal Highway Administration (FHWA), where he conducted research on nondestructive evaluation technologies for civil infrastructure. In 2018, he joined Soongsil University as a faculty member and currently serves as Associate Professor while also acting as the Head of Liberal Studies. His research focuses on nondestructive testing of concrete infrastructure using ultrasonic and electromagnetic sensing techniques. His recent work explores non-contact ultrasonic sensing, AI-assisted signal interpretation, and data-driven approaches for monitoring early-age concrete behavior. He is also interested in applying NDT technologies to mobile platforms such as drones and robotics, as well as developing physical AI-based sensing and inspection systems for smart construction environments.

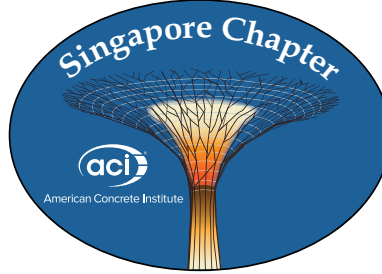
Presentation Title: Non-Contact Ultrasonic Monitoring for Predicting Concrete Hardening

Monitoring the hardening behavior of early-age concrete is essential for ensuring structural safety and optimizing construction operations. This seminar presents a non-contact ultrasonic monitoring approach that enables non-destructive, no-sampling, and continuous evaluation of concrete hardening. Airborne ultrasonic sensing is used to track the evolution of material properties during hydration without direct contact with the concrete surface. The proposed method allows the evaluation of final setting time, and its performance is compared with conventional approaches such as the pin penetration test and maturity method. To enhance practical applicability, a wireless sensing system and ultrasonic sensing array were developed for automated and distributed monitoring. The system also demonstrates the capability to detect abnormal hardening behavior. Furthermore, the technique is extended to the evaluation of concrete inside metallic formwork, where conventional sensing approaches are difficult to apply. AI-assisted signal processing is explored to interpret complex ultrasonic responses, supporting robust analysis and enabling future field applications in smart construction environments.

Wednesday, July 8, 2026

11:00 AM-12:00 PM Singapore Time / 11:00 PM-12:00 AM EDT (New York Time)

Co-Host Organization: ACI Singapore Chapter



Website: <https://www.concrete.org.sg/>

The ACI Singapore Chapter (ACI-SC) was founded in 1985. The purpose of this chapter is to further the chartered objectives for which ACI was organized: to further education and technical practice, scientific investigation, and research by organizing the efforts of its members for a nonprofit, public service in gathering, correlating, and disseminating information for the improvement of the design, construction, manufacture, use, and maintenance of concrete products and structures. The chapter continues to support the National University of Singapore's Endowment Fund and proceeds are used for an annual medal and book prize to be awarded to the best civil engineering graduate in concrete technology-related subjects leading to the degree of civil engineering. Every year, the chapter organizes the Performance-Controlled Concrete Competition, where ready-mixed concrete companies, concrete admixture suppliers, universities, and polytechnics are invited to produce and send their best concrete cubes for testing under the various criteria.

Local Moderator: Dr. Tao Nengfu, Senior Specialist, Singapore Polytechnic



Tao Nengfu received his BSc, Master of Engineering, and PhD in earthquake engineering from Tongji University, China. He also received his Master of Computing (Computer Science) from the National University of Singapore (NUS) in 2007 and a Specialist Diploma in Building Information Modelling (BIM) from the Building and Construction Authority (BCA) Singapore in 2019. Since 2000, he has served as a Senior Specialist (Sustainable Design) at the School of Architecture and the Built Environment, Singapore Polytechnic, where he teaches Steel Design and CAD, Structural Inspection and Repair, and BIM. Nengfu previously held academic and industry roles at Tongji University, Hehai University, Nanyang Technological University, and SembCorp Construction. His expertise spans structural engineering, BIM, and sustainable green building materials. He is the President of the ACI Singapore Chapter and a member of the Singapore Concrete Institute (SCI). A prolific researcher, he has published over 30 journal and conference papers, contributed to a book on engineering failure case studies, and received over a dozen awards for teaching and research excellence during his 25 years at Singapore Polytechnic.

1st Speaker: Gan Cheng Chian, Technical Manager, NV BEKAERT SA



Gan Cheng Chian received his BEng (civil) from National University of Singapore in 1989. To date, he has 37 years of civil engineering experience. He works for NV Bekaert SA as Technical Manager, Underground Solutions since 1998 and has been involved in many prestigious underground and construction projects around Asia—including Qinling Railway & Highway Tunnel Xian, China; Mandai Underground Cavern, Singapore; BMW Shenyang, China; Daimler Chrysler Beijing, China; Busan International Exhibition & Convention Center, South Korea; Jurong Rock Cavern, Singapore; and Cross Island Line, Singapore. In 28 years, he has been involved in over 22 sprayed-fiber concrete tunnel linings and over 20 fiber concrete precast segmental and cast concrete tunnel lining projects. Since 2019, he has been a member of the Working Group on SS674-2021 Design of Fiber Concrete Structures and Domain Expert for Sprayed Concrete and Fiber-Reinforced Concrete under Intelligent National Productivity and Quality Specification Singapore.

Presentation Title: Development of a Low-Carbon (Low-Cement Content) Fiber Concrete for Underground Infrastructures in Singapore

Fiber concrete (FRC) has been used in Singapore in underground infrastructure since the 1990s. With the publication of Singapore Standard SS 674: 2021 Fibre concrete – Design of Fibre Concrete Structures in late 2021, the adoption of fiber concrete in Singapore has increased exponentially. In 2025, all precast segmental tunnel linings for mass rapid transit (MRT) tunnels are built using fiber concrete. Clients of infrastructure projects are encouraging contractors to adopt fiber concrete in other underground infrastructures via project specifications. Concrete used in Singapore underground infrastructure has been limited to 400 kg of ordinary Portland cement (OPC). With the mindset of sustainability and low-carbon solutions gaining importance, more clients are encouraging the use of supplementary cementitious materials (SCMs) to partially or completely replace OPC. Today in Singapore, pulverized fly ash (PFA), ground granulated blast furnace slag (GGBS), and silica fume are the commonly used SCMs. This presentation discusses the beginning of a multi-year initiative by the five contributors to develop a high-performing low-carbon fiber concrete with low-cement content for use in underground infrastructures.

2nd Speaker: Dr. Tan Leng Ee, Assistant Professor, Tunku Abdul Rahman University of Management and Technology (TAR UMT)



Tan Leng Ee received her bachelor's degree in building technology, Master of Science in Building Technology, and Doctor of Philosophy in Sustainable Construction Materials and Technology from Universiti Sains Malaysia (USM), George Town, Malaysia. She began her research journey as a research assistant when she enrolled as an undergraduate at USM. Throughout the journey, she gained experience in partial cement-replacement and zero-cement technologies. During her 10 years of academic life in USM, she successfully published her research in high-impact journals, filed 2 patents of zero-cement technology, and won several international competitions, such as Gold Awards for Pecipta 2017 and Pecipta 2022, Silver Award for ITEX 2019, and Gold Award & Special Awards for MTE 2020. Currently, she is serving as an Assistant Professor at Tunku Abdul Rahman University of Management and Technology (TAR UMT), Malaysia. She is teaching Construction Technology, Building Maintenance Technology, Environmental Science and Building Services, and BIM&IT. She is a Professional Technologist (PT25010067), on the Board of Technologists, and Secretary of the ACI Malaysia Chapter.

Presentation Title: Zero-Cement Technology—Why and How It Exists

Zero-cement concrete is emerging as one of the most promising alternatives to conventional Portland cement systems, particularly in the context of global decarbonization efforts within the construction industry. In recent years, increasing pressure from governments, industry stakeholders, and environmental targets has driven the need to reduce the carbon footprint associated with cement production. As a result, alternative binder systems—such as alkali-activated and geopolymers—have gained significant attention. This presentation introduces the concept of zero-cement concrete, focusing on why it is necessary, how it is developed, and where it can be applied in practice. The session will cover the use of industrial by-products as binder materials, the role of alternative activators, and the performance of zero-cement systems in terms of strength and durability. In addition, practical challenges—including material variability, mixture design complexity, and industry adoption barriers—will be discussed, along with potential solutions to bridge the gap between research and real-world implementation.

Wednesday, July 8, 2026

11:00 AM-12:00 PM Indonesia Time / 12:00 AM-1:00 AM EDT (New York Time)

Co-Host Organization: ACI Western Indonesia Chapter



WESTERN INDONESIA CHAPTER

Website: <https://concrete.or.id/>

ACI Western Indonesia Chapter was established by 31 members of HAKI (the Indonesian Society of Civil and Structural Engineers) and officially approved on September 8, 2023. Since its establishment, the Chapter has been committed to advancing concrete technology knowledge and professional competency in Indonesia through certification programs, student engagement, and technical activities. The Chapter currently administers seven ACI certification programs, including: Concrete Field-Testing Technician—Grade; I; Aggregate Testing Technician—Level 1; Concrete Strength Testing Technician; Concrete Laboratory Testing Technician - Level 1; Adhesive Anchor Installer; Concrete Construction Special Inspector; Post-Installed Concrete Anchor Installation Inspector. To date, after nearly three years of implementation, these certification programs have been attended by more than 300 participants. In addition, the Chapter actively supports the development of future engineers by organizing 13 student chapters across Indonesia and regularly conducting seminars and technical events for its members and the broader engineering community.

Local Moderator: Dr. Nuraziz Handika, Associate Professor, Universitas Indonesia



ACI member Nuraziz Handika is an Associate Professor in the Department of Civil and Environmental Engineering at Universitas Indonesia, Jakarta, Indonesia. He received his degrees from Universitas Indonesia, École Centrale Nantes, National Taiwan University of Science and Technology, and earned his doctorate from INSA Toulouse, France. His expertise includes fracture mechanics, structural assessment, reinforced concrete, concrete materials, finite element modeling, and experimental laboratory work. In 2025, he served as a Visiting Researcher at the University of California, Berkeley, CA, USA.

1st Speaker: Ir. Iswandi Imran, Professor, Institut Teknologi Bandung



Iswandi Imran, MSc, PhD, is a Professor of Structural Engineering in the Structural Engineering Research Group, Faculty of Civil and Environmental Engineering, Institut Teknologi Bandung, Indonesia. He received his undergraduate degree in civil engineering from Institut Teknologi Bandung and his master's and doctoral degrees from the University of Toronto, Canada. His expertise includes reinforced concrete structures, seismic performance, structural assessment, retrofitting, and earthquake-resistant infrastructure. Through his academic leadership, research, and professional contributions, Imran has played an important role in advancing structural engineering practice and the development of safe, resilient, and code-compliant concrete infrastructure in Indonesia.

Presentation Title: Lessons Learned from Concrete Construction in Indonesia

Concrete construction plays a vital role in the development of infrastructure and buildings in Indonesia. However, various quality-related problems are still frequently encountered during construction activities in the field. This presentation will discuss lessons learned from concrete construction practices in Indonesia by highlighting common defects and failures observed in concrete works, such as low concrete strength, honeycombs, cracks,

cold joints, segregation, and other workmanship-related issues. These problems often lead to reduced structural performance, increased repair costs, project delays, and long-term durability concerns.

The presentation will also discuss the root causes associated with these concrete defects. Factors such as inadequate material control, improper mix design, poor workmanship, insufficient supervision, unfavourable environmental conditions, lack of proper curing, inadequate compaction, and non-compliance with construction procedures are identified as major contributors to the occurrence of defects in concrete structures in Indonesia.

Several initiatives to improve the competency of the Indonesian construction industry will also be discussed in this presentation to prevent similar problems from recurring in future projects. These efforts include enhancing workforce training and certification and adopting more advanced construction technologies and methods.

These lessons learned are expected to contribute to better quality control practices, enhanced durability of concrete structures, and more sustainable construction implementation in Indonesia.

2nd Speakers: Dr. Han Ay Lie, Professor, Diponegoro University, and Malik Mushthofa, Research Fellow and Lecturer, Islamic University of Indonesia



Han Ay Lie is a Professor of Structural and Material Engineering at the Diponegoro University, Central Java, Indonesia. Her expertise includes sustainable cementitious materials, retrofitting and external reinforcement, structural modeling, and green concrete. She is a member of the American Concrete Institute since 1990 and currently serves as Secretary of the ACI Indonesia Chapter. Aylie is a serve as Board of HAKI and team member of the National Indonesian Concrete Standard (SNI). In addition to her academic and research contributions, she is a reviewer and editor for several civil engineering journals, including the ACI Structural Journal and ACI Materials Journal. Her work has contributed to the advancement of concrete technology, structural strengthening, and sustainable infrastructure in Indonesia and beyond.



Malik Mushthofa, MEng, is a Research Fellow and Lecturer at the Islamic University of Indonesia (UII), Yogyakarta, Indonesia, and a Researcher in civil engineering specializing in sustainable concrete materials and artificial intelligence applications in concrete technology. His research is focused on fly ash-based geopolymer concrete (FABGC), intelligent mixture design, machine learning modeling, explainable AI (XAI), and optimization techniques for sustainable concrete development. His current work emphasizes AI-assisted reverse modeling and intelligent multi-proportion mixture design for geopolymer concrete applications.

Presentation Title: Intelligent Multi-Proportion Mix Design of Geopolymer Concrete Using AI-Assisted Reverse Modeling

The increasing use of Portland cement has raised environmental concerns, emphasizing the need for sustainable alternatives in concrete production. Fly ash-based geopolymer concrete (FABGC), in which fly ash combined with alkaline activator serves as the binder, offers a promising eco-friendly substitute. This approach reduces carbon emissions and repurposes industrial waste (particularly fly ash), which availability is expected to increase through 2050. However, a universally accepted mixture design formula for FABGC has not yet been developed and the method applied is by trial-and-error. This study aims to establish a multi-proportion mixture design framework for FABGC that allows users to obtain customizable proportions for specific target strengths.

Several hybrid artificial intelligence (AI) models with hyperparameter tuning were developed and evaluated using multiple error metrics. The models were trained and validated using 10-fold cross-validation with an 80:20 train-test data split. The Particle Swarm Optimization (PSO) algorithm was employed to reverse the trained AI model, to generate multiple feasible mix proportions corresponding to a desired target strength.

Among the developed models, the Gradient Boosting (GB) model demonstrated stable and consistent performance during training, validation, and testing, achieving R² values of 0.975, 0.877, and 0.900, respectively. The reversed AI model successfully generated multiple feasible mixture proportions for a certain target strength with varying alkaline activator solutions-to-fly ash ratio (AAS/FA) at different NaOH molarities. By providing multiple proportions of a given target strength, the proposed system offers greater flexibility to the users. Furthermore, it supports sustainable construction practices by incorporating the embodied carbon footprint calculations and ensuring the workability through slump value estimates for each generated mixture proportion.

Wednesday, July 8, 2026

8:00 AM-9:00 AM Bangkok Time / 7:00 PM-8:00 PM EDT (New York Time)

Co-Host Organization: Thailand Concrete Association (TCA)



Website: <https://thaitca.or.th>

Thailand Concrete Association (TCA) was founded in January 2004. TCA has been recognized as one of the leading professional organizations in Thailand. TCA has focused on three groups of work in the field of concrete and related materials: structural concrete engineering; concrete and mortar materials; and repairing and maintenance. Our objective is to strengthen the advanced research, practice, and innovation in cement, mortar, and concrete technology in Thailand. Our tasks include organizing the Annual Concrete Conference; international conference; conducting training and seminars; writing manuals, standards and books; and hosting the award programs for promoting the advancement of knowledge and the use of concrete for professionals and students. TCA has been associated with several international cement and concrete organizations including American Concrete Institute (ACI), Asian Concrete Federation (ACF), International Congress on the Chemistry of Cement (ICCC) Permanent steering committee, and Global cement and concrete association (GCCA).

Local Moderator: Pasu Loung-Alarm, Engineering Design Assistant Manager, CPAC Smart Structure Business



Pasu Loung-Alarm is the Engineering Design Assistant Manager at CPAC Smart Structure Business. He specializes in advanced structural engineering technology, with a strong focus on the research, design, and practical application of precast concrete systems, ultra-high-performance concrete (UHPC), and precast prefinished volumetric construction (PPVC) systems. At CPAC, Loung-Alarm plays a pivotal role in driving product innovation for new product development, as well as conducting technical market analyses for precast and modular concrete systems. His technical proficiency encompasses rigorous structural design validation to ensure compliance with international standards, such as ACI code. Furthermore, he actively manages engineering teams to deliver key residential and commercial projects from the design phase through successful operational execution. Holding a Professional Civil Engineer License, Loung-Alarm is frequently invited as a guest speaker to lecture on earthquake-resistant precast structures and hybrid precast design methodologies. Loung-Alarm received his bachelor's degree in civil engineering from Kasetsart University, Bangkok, Thailand. His broader career focus includes expanding the adoption of advanced precast and UHPC technologies across the construction industry, with an emphasis on engineering innovation, operational efficiency, and creating resilient, scalable construction solutions.

1st Speaker: Dr. Kritsada Sisomphon, Director of New SCMs and CCUS Technology, Siam Cement Group



Kritsada Sisomphon, PhD, is a Director of New Supplementary Cementitious Materials (SCMs) and Carbon Capture, Utilization, and Storage (CCUS) Technology at Siam Cement Group (SCG), the largest cement and construction materials company in Thailand and Southeast Asia. He specializes in low-carbon cement and concrete technologies, with a strong focus on CCUS, as well as the development and implementation of alternative SCMs to support decarbonization of the cement industry. He received his Dr.-Ing. degree in civil engineering from the Hamburg University of Technology, Germany, and has international research experience at the National University of Singapore and Delft University of Technology, Delft, Netherlands. His academic and professional

expertise spans cement chemistry, hydration mechanisms, concrete technology, ultra-high-performance concrete (UHPC), and advanced construction methods. His work integrates materials innovation, structural engineering, and industrial implementation, including pioneering UHPC applications such as Thailand's first post-tensioned UHPC bridge at SCG Headquarters—recognized internationally through the ACI Excellence in Concrete Construction Awards program and nationally by the Thailand Concrete Association—as well as the adoption of UHPC link slab systems to enhance durability and reduce maintenance in infrastructure. Currently, Sisomphon is actively involved in industry collaboration, policy engagement, and technology commercialization, working closely with government agencies, research institutions, and international partners. His current interests include carbonation curing, CO₂ use in cementitious systems, activation of alternative SCMs, and digital approaches to concrete mix design and optimization.

Presentation Title: Enhancing Thailand's Infrastructure: Practical Applications of UHPC Structures

Thailand's construction sector is faced with ongoing challenges, particularly the growing demand for structural durability and reduced maintenance. To address these issues and elevate engineering standard for Thailand's infrastructure, Siam Cement Group (SCG) focuses its applied research on the use of ultra-high-performance concrete (UHPC) as the core material for advanced prestressed concrete structures. This approach offers a transformative solution beyond the limits of conventional concrete.

In the early phase, SCG successfully formulated specific UHPC mixture designs. These formulations were tailored to suit various structural applications, with essential properties such as compressive strength and durability optimized to meet strict engineering requirements. In addition, efforts have been made to ensure that the development aligns with low-carbon objectives. To bridge the gap between laboratory research and practical application, emphasis has been placed on real-world implementation. The developed UHPC formulations are being actively applied in the production of various structural components, including bridge girders, UHPC link slabs, and manhole covers, and other related application. From site implementation, significant improvements in overall structural efficiency have been demonstrated. Lighter structural systems and enhanced load resistance have been achieved, enabling accelerated construction and reduced maintenance requirements. Ultimately, this innovation provides a highly effective foundation for sustainably elevating engineering standards across Thailand's infrastructure.

2nd Speaker Name: Nuttapon Toosumran, New Product Development & Innovation Engineer, Siam Cement Group



Nuttapon Toosumran, is a New Product Development & Innovation Engineer at Siam Cement Group (SCG), one of Southeast Asia's leading construction materials companies. He specializes in advanced precast concrete systems and ultra-high-performance concrete (UHPC), with a focus on translating material innovation into practical, scalable solutions for infrastructure and building applications. At SCG, Toosumran has played a key role in developing core precast products, serving as a Product Owner for prestressed systems including hollow core slabs, precast structural frame systems, and prestressed piles. His work spans across design, manufacturing, and on-site construction. Currently, he leads the development of UHPC precast applications, including bridge girders and sheet pile systems, aimed at enhancing structural performance, durability, and construction efficiency in Thailand. He also contributes to sustainability initiatives as a Technical Subcommittee member of the Thailand Environment Institute, supporting the development of green label standards for precast concrete products. Toosumran received his bachelor's degree in civil engineering from King Mongkut's University of Technology North Bangkok, his Master of Science degree in structural engineering from Delft University of Technology, and his Master of Business Administration from Thammasat Business School, Bangkok, Thailand. During his study at Delft, he co-authored and published research on 3-D printing in construction, focusing on the use of desalination brine to control stiffness and early-age hydration in cementitious materials. This research explored the implementation potential of 3-D construction technologies in water-scarce regions, such as the Middle East. His broader focus includes expanding the adoption of advanced precast and UHPC technologies across both infrastructure and residential applications, with an emphasis on scalable implementation, engineering innovation, and sustainable construction.

Presentation Title: Bridging Innovation and Market Adoption: Driving UHPC Implementation Through the Growth of Thailand's Premium Residential Sector

Thailand's construction industry is entering a new era—one driven not only by the demand for stronger and more durable structures, but also by the ambition to create infrastructure and living environments that are more sustainable, efficient, and architecturally inspiring. As Thailand's premium residential market continues to expand, particularly in key destinations such as Phuket, Samui, Pattaya, and Bangkok, new opportunities are emerging for advanced construction technologies that can redefine the limits of conventional concrete construction. In this transformation, ultra-high-performance concrete (UHPC) is positioned not merely as a new material, but as a strategic enabler for the future of high-performance construction in Thailand.

The premium housing segment presents a strategic market entry platform for UHPC adoption in Thailand. Compared with conventional construction markets, high-end residential projects tend to be more receptive to innovation, architectural differentiation, and lifecycle value, making them suitable for the early implementation of advanced structural technologies. Beyond superior structural performance and durability, UHPC also unlocks new architectural possibilities through longer spans, slimmer structural elements, larger open spaces, and more expressive architectural forms that are difficult to achieve with conventional concrete systems. Such an approach not only supports the practical deployment of UHPC precast systems but also enhances business feasibility by targeting projects where performance, aesthetics, and construction efficiency create tangible value for developers and owners.

Practical implementation perspectives from this case study demonstrate how UHPC precast applications can bridge advanced material innovation with market-driven construction needs. Ultimately, UHPC represents not only a next-generation construction material, but also a transformative platform for advancing structural efficiency, architectural freedom, and sustainable construction in Thailand.

Wednesday, July 8, 2026

12:00 PM-1:00 PM Bangladesh Time / 2:00 AM-3:00 AM EDT (New York Time)

Co-Host Organization:

ACI Bangladesh Chapter and ACI IUT Student Chapter



Website: [ACI Bangladesh Chapter](#) and [ACI IUT Student Chapter](#)

ACI Bangladesh Chapter was established in October 2023 with a vision for sustainability of construction materials in Bangladesh. Currently, global consumption of cement is 520 kg/capita/year. In Bangladesh, the rate of cement consumption is 220 kg/capita/year. Based on the cement consumption, it can be estimated that concrete at the rate of 12 kg/capita/day is produced globally, however in Bangladesh the rate is 4.5 kg/capita/day. The rate of consumption of construction materials in Bangladesh is much lower than that of the global rate of consumption. Therefore, it is expected that more construction works will be implemented in future in Bangladesh. If we can develop our infrastructure with long-term durable concrete, it will eventually help us to make a strong foundation of our economy. Moreover, it will reduce carbon dioxide emission and ensure availability of construction materials for the future generations. For sustainability of our construction materials, we also need to focus on recycling of materials, reduction of waste, durability-based design of our structures, and life-cycle management of our structures. We are looking forward to your participation with us.

Local Moderator and 1st Speaker: Professor Dr. Md. Tarek Uddin, PEng., Islamic University of Technology



American Concrete Institute (ACI) member Md. Tarek Uddin is a Professor in the Department of Civil and Environmental Engineering at Islamic University of Technology (IUT), Gazipur, Bangladesh. He received his BSc from Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, in 1989; MEng from Asian Institute of Technology (AIT), Khlong Nueng, Thailand, in 1994; and PhD from Tokyo Institute of Technology (TIT), Meguro, Japan, in 1997. His doctoral research focused on the corrosion of steel in concrete. With more than three decades of experience in teaching, research, and consultancy across Bangladesh, Thailand, and Japan, he has held several academic leadership positions, including Dean and Head of Department at IUT and University of Asia Pacific (UAP), Dhaka, Bangladesh. His research interests encompass corrosion of steel in concrete, durability, sustainability, and recycling of concrete. Uddin has published over 160 research papers in reputed journals and conference proceedings. He received the Young Researcher's Award from Japan Concrete Institute in 2001 and the Best Paper Award at SCMT3 Kyoto in 2013. He is a registered Professional Engineer in Bangladesh, a Fellow of Institution of Engineers Bangladesh, and an active member of several professional organizations, including ACI. Uddin currently serves as Chair of the Sectoral Committee for Civil Engineering Programs under Board of Accreditation for Engineering and Technical Education and as President of the ACI Bangladesh Chapter. He is also involved in several ACI committees, including ACI Committee 201, Durability of Concrete; 222, Corrosion of Metals in Concrete; 318, Structural Concrete Building Code; 555, Concrete with Recycled Materials, as well as the Faculty Network. In addition, he serves as Faculty Advisor to the ACI IUT Student Chapter in Bangladesh.

Presentation Title: Sustainability of Construction Materials: Bangladesh Perspective

To promote the sustainable development of construction materials in Bangladesh, a research project was initiated in 2004. The project investigated several key issues, including the causes of early deterioration of concrete structures, the use of mineral admixtures to enhance long-term durability, the potential

of alternative materials as fine and coarse aggregates, the durability of concrete produced with locally available aggregates, and the recycling of concrete made with brick aggregates.

The findings indicate that the primary cause of deterioration of concrete structures in Bangladesh is the corrosion of embedded steel, mainly due to chloride ingress and carbonation. Higher rates of carbonation and chloride ingress were observed in concrete incorporating both recycled and virgin brick aggregates. However, the use of slag-rich cement was found to significantly reduce chloride ingress. The study also demonstrated that recycled brick aggregates can be used as both coarse and fine aggregates without compromising the strength and durability of concrete. Additionally, several alternative materials, such as recycled brick fine aggregate, ladle furnace slag, stone dust, and construction and demolition waste were identified as viable substitutes for natural fine aggregates in concrete production.

2nd Speaker: Professor Dr. Raquib Ahsan, Bangladesh University of Engineering



Raquib Ahsan is a Professor of Civil Engineering at the Bangladesh University of Engineering and Technology (BUET). He received his PhD in civil engineering from the University of Tokyo and has over 30 years of experience in teaching, research, and professional practice in structural and earthquake engineering, disaster risk reduction, and infrastructure resilience. Ahsan has served as Director of the BUET-Japan Institute of Disaster Prevention and Urban Safety (JIDPUS) and has been closely involved in national initiatives related to seismic safety, including the updating and enforcement of the Bangladesh National Building Code (BNBC). He is currently Vice President of the ACI Bangladesh Chapter and General Secretary of the Bangladesh Building Code Foundation.

Presentation Title: Experience from the Recent Earthquake in Bangladesh: Durability, Retrofitting, and Resilient Construction

The recent moderate earthquake in Bangladesh provided important insights into the vulnerability and resilience of existing structures in the country. Post-earthquake reconnaissance in areas near the epicenter, as well as in Dhaka, Bangladesh, revealed extensive damage in unreinforced masonry (URM) buildings and distress concentrated in already corroded members of reinforced concrete structures.

The observations demonstrated that even moderate earthquakes can expose hidden structural vulnerabilities associated with poor durability, inadequate construction practices, and material deterioration. The presentation will discuss field observations from the earthquake together with research and practical experience on retrofitting vulnerable structures in Bangladesh, particularly the strengthening of URM buildings using ferrocement and concrete jacketing techniques. A real-world case study of retrofitting and vertical extension of a masonry building that performed well during the recent earthquake will also be presented.

The presentation will further highlight challenges in construction practices in Bangladesh. Emphasis will be placed on the importance of durable construction, effective retrofitting, and improved construction quality for achieving sustainable and earthquake-resilient infrastructure in developing countries.

Wednesday, July 8, 2026

11:00 AM-12:00 PM Dubai Time / 3:00 AM-4:00 AM EDT (New York Time)

Co-Host Organization: ACI UAE Chapter



UAE CHAPTER

Website: www.aci-uae.com

The ACI UAE Chapter is a professional organization serving individuals and companies involved in the concrete and construction industry across the United Arab Emirates. The Chapter's mission aligns with that of the American Concrete Institute (ACI): to develop, disseminate, and advance the adoption of consensus-based knowledge on concrete and its applications.

Through seminars, conferences, technical sessions, and networking events, the ACI UAE Chapter supports students, engineers, contractors, consultants, material suppliers, and industry professionals by promoting knowledge-sharing, professional development, best practices, and innovation within the built environment.

Local Moderator: Nizar Marjaba, Director of Business Development Middle East, Brickeye



Nizar Marjaba is the Director of Business Development – Middle East at Brickeye, where he focuses on digital construction technologies and real-time risk monitoring solutions for concrete and infrastructure projects across the region. A civil engineer by background, Marjaba holds a master's degree in engineering management and brings more than 15 years of experience across the construction, infrastructure, and industrial sectors in the Middle East. His expertise is rooted in concrete durability, corrosion management, and extending the service life of structures and assets. Throughout his career, he has worked closely with authorities, owners, consultants, contractors, ready mix companies, and testing laboratories, across the GCC, supporting the adoption of innovative technologies and engineering solutions for the built environment. Marjaba is actively involved in industry knowledge-sharing and professional engagement initiatives and currently serves as Secretary/Treasurer and Board Member of the ACI UAE Chapter.

1st Speaker: Dr. Omar Najm, Professor, Al Ain University



Omar Najm is an Assistant Professor of Civil Engineering at Al Ain University (AAU), United Arab Emirates, and serves as the ACI AAU Student Chapter Advisor. He holds a PhD in Civil Engineering from the United Arab Emirates University (UAEU), with a concentration in construction materials. His research focuses on sustainable concrete, alkali-activated and geopolymer binders, microstructural characterization of cementitious composites, fiber-reinforced concrete, and the application of statistical optimization methods to mixture design. Najm has authored more than 30 publications in peer-reviewed journals and conference proceedings, including *Journal of Cleaner Production*, *Construction and Building Materials*, *Results in Engineering*, and *Cleaner Materials*. His work aligns with the United Nations Sustainable Development Goals 9, 11, 12, and 13, contributing to the development of low-carbon construction materials and the valorization of industrial and desalination by-products.

Presentation Title: Valorizing Desalination Brine: Brucite-Activated Slag Binders for Low-Embodied-Carbon Construction

This study examines the use of brucite slurry recovered from desalination reject brine, in combination with sodium silicate, as a two-part alkaline activator for ground-granulated blast-furnace slag (GGBFS). Three mixture-design factors were examined at three levels using a Taguchi L9 orthogonal array: the

sodium silicate-to-brucite slurry ratio (S/B), the brucite slurry molarity, and the curing temperature. The 7-day compressive strength served as the quality response, and analysis of variance (ANOVA) was used to quantify the contribution of each factor. The results revealed that the S/B ratio was by far the most influential factor, accounting for 65%, while brucite molarity and curing temperature contributed 20% and 15%, respectively. The mixture was subsequently optimized using the mean-of-levels method, yielding an optimal composition with an S/B ratio of 0.5, a brucite molarity of 8 M, and a curing temperature of 50°C (122°F). The optimum mix was verified under both heat-cured and ambient-cured regimes, attaining 28-day compressive strengths of 35.5 MPa and 29.5 MPa, respectively. The reaction mechanism and microstructure of the optimum mix were interrogated using isothermal calorimetry, X-ray diffraction (XRD), Fourier-transform infrared spectroscopy (FTIR), and scanning electron microscopy with energy-dispersive X-ray spectroscopy (SEM-EDX). The results confirmed the formation of a hybrid phase assemblage of C-S-H (tobermorite) and C-(Mg)-A-S-H type gels (akermanite and merwinite), with brucite acting as both a slow-release hydroxide source and a supplier of Mg^{2+} ions. The findings establish desalination-derived brucite as a viable, low-embodied-carbon component of the alkaline activator system and extend the methodological framework for the design of waste-valorized alkali-activated binders.

2nd Speaker: Dr. Shaik Numan Mahdi, Consultant-Principal Technician, Al Futtaim Elements Materials Technology

Shaik Numan Mahdi is a researcher and academician specializing in sustainable construction materials, concrete technology and geopolymers systems. With over 7 years of experience in research, teaching, and industrial consultancy, he has contributed extensively to the development of eco-friendly and net-zero carbon cementitious materials. He is currently working as a Consultant-Principal Technician at Al Futtaim Elements Materials Technology in Dubai, UAE, where he is involved in durability evaluation and quality assessment of concrete materials. Mahdi received his PhD in Civil Engineering from Jain University, India, with research focused on supplementary cementitious matrix composites under elevated temperatures. He has also worked as a Postdoctoral Researcher at Chulalongkorn University and Walailak University, Thailand, contributing to advanced studies on geopolymer concrete, flexible pavements and life cycle cost analysis. He has authored numerous peer-reviewed publications in reputed international journals and has received several recognitions, including the Young Researcher Award and Best Presentation Award. His research interests include geopolymer concrete, alkali-activated materials, sustainable infrastructure, durability studies, and circular economy solutions in civil engineering.

Presentation Title: 3-D Printable 24-Hour Geopolymer Composite — a Conceptual Approach

This sustainable concept proposes the development of a 24-hour 3-D printable geopolymer concrete intended for sustainable and automated construction applications. The concept suggests the use of industrial by-products as alternative binder materials to minimize the environmental impact associated with ordinary Portland cement. The proposed material is expected to achieve rapid early-age strength while maintaining the pumpability, extrudability, and buildability required for additive manufacturing processes. The concept further recommends optimizing rheological properties and structural stability to ensure efficient robotic printing performance. The inclusion of fiber reinforcement and suitable alkaline activators is suggested to improve interlayer bonding and enhance overall mechanical characteristics. In addition, the study explores the potential application of this material in rapid construction projects, including disaster-relief housing and smart infrastructure systems. Special emphasis is placed on evaluating the durability and thermal performance of the material under hot climatic and aggressive environmental conditions. By reducing construction waste, eliminating conventional formwork and encouraging automation, the proposed approach is expected to contribute significantly to sustainable construction practices. Overall, this concept supports the advancement of digital construction technologies and environmentally friendly concrete materials for future infrastructure development.

Wednesday, July 8, 2026

11:00 AM-12:00 PM Amman Time / 4:00 AM-5:00 AM EDT (New York Time)

Co-Host Organization: Jordan Concrete Association (JCA)



Website: <https://jca-concrete.com/>

The Jordanian Concrete Association was established on January 14, 1981. The signatories to its Constitution and those who may be elected to join them in the Hashemite Kingdom of Jordan established an association named "The Jordanian Concrete Association." Its headquarters are in Amman and the field of its activities covers the Hashemite Kingdom of Jordan and it may establish offices and branches in other cities. The association carries out its activities with the aim of achieving the following goals: 1) Advancing the standards of the concrete industry and its applications in the Hashemite Kingdom of Jordan; 2) Establishing connections between professionals in the concrete sector and relevant regional and international institutions to enhance the competencies of engineers and technicians; 3) Developing effective solutions to address the technical and practical challenges facing the concrete industry in its various forms; 5) Fostering collaboration with key engineering stakeholders, including the Jordan Engineers Association, the Contractors Union, the Ministry of Public Works, the Royal Scientific Society, and the Jordan Standards and Metrology Organization; 6) Organizing and conducting specialized conferences, lectures, and workshops with a focus on critical topics such as green concrete, concrete quality and its components, natural pozzolana, pozzolanic cement, and environmentally friendly green building materials; and 7) Supervising graduation projects for civil engineering students in the field of sustainable concrete, in alignment with the mission of the Joint Concrete Association to support innovation and sustainable development.

Local Moderator: Reham Al Sharef, Deputy Technical Manager, CORINTHI Testing



Reham Al Sharef, a civil engineering graduate from the University of Jordan, Amman, Jordan, has more than 17 years of experience in materials testing, quality control, and lab management. She currently serves as Deputy Technical Manager at CORINTHI Testing. Engineering. Consulting Company, where she leads the evaluation and analysis of materials performance for large-scale projects. Al Sharef holds a master's degree in quality management in business, which complements her engineering expertise with a strong foundation in systematic process improvement. She is certified by ACI as a Concrete Field-Testing Technician – Grade I, and serves as an official examiner, supporting the advancement of professional capabilities in the field. In addition to her industry role, Al Sharef is a technical auditor for ISO/IEC 17025 with the Jordanian Accreditation System (JAS), where she evaluates laboratory competence and compliance with international standards. Her expertise ensures the reliability and accuracy of testing procedures critical to construction quality. Al Sharef is also a Board member of the Jordanian Concrete Association, which partners with ACI to promote best practices and technical development across the region. Her commitment to training and industry collaboration reflects her dedication to raising the awareness and performance of construction engineering.

1st Speaker: Faris Matalkah, Professor of Civil Engineering, Yarmouk University, Jordan



Dr. Faris Matalkah is a Full Professor of Civil Engineering at Yarmouk University, Jordan, and an Associate Editor of the *Journal of Emergent Materials*. He earned his PhD in civil engineering from Michigan State University, East Lansing, Michigan, USA, with specialization in construction materials and sustainable cement technologies. Matalkah's research focuses on the development of advanced and sustainable concrete materials, with particular emphasis on alkali-activated binders and geopolymer systems. His work integrates locally available resources such as Jordanian kaolin, volcanic tuff, and industrial by-products to develop low-carbon, high-performance

construction materials. He has published over 50 peer-reviewed journal papers, holds a U.S. patent, and has secured multiple national and international research grants. His contributions have been recognized through several prestigious awards in research excellence and sustainability. Matalkah is actively engaged with the global concrete community through his involvement in ACI, where he serves as the advisor of the ACI Yarmouk University Student Chapter. His work aims to bridge the gap between scientific innovation and practical implementation in sustainable construction.

Presentation Title: Beyond Portland Cement: The Future of Concrete with Alkali-Activated Materials

The construction industry is under increasing pressure to reduce its carbon footprint while maintaining high performance and durability standards. Alkali-activated materials (AAMs), also known as geopolymers, have emerged as a promising alternative to conventional Portland cement-based systems due to their significantly lower CO₂ emissions and ability to utilize industrial by-products and natural resources. This presentation discusses recent advances in the development and application of alkali-activated concrete, with a focus on the use of locally available materials such as kaolin, volcanic tuff, and industrial waste streams. Key aspects including mixture design, activation mechanisms, mechanical performance, durability, and long-term behavior are addressed. Case studies from recent research projects demonstrate the feasibility of producing high-performance, sustainable concrete using regionally available resources. The presentation concludes with a discussion on the practical challenges, standardization needs, and future directions for large-scale implementation of alkali-activated concrete in the construction industry.

2nd Speaker: Sami Habahbeh, Consultant, member of the Jordan Engineers Association



Sami Habahbeh is a Consultant in Structural Engineering (CE) and a member of the Jordan Engineers Association (JEA), Highest Professional Rank. He received his Master of Science in Civil Engineering (Structures) from the University of Jordan, Amman, Jordan, in 1992, followed by 30 years as a Structural Designer and Expert/Specialist at the Royal Scientific Society (RSS) in Assessment & Rehabilitation/Retrofitting of Existing Buildings & Structural Forensic Investigations. Habahbeh is a member of the current JEA Civil Engineering Board; a member of the Higher Structural Engineering Committee of the National Building Council – Ministry of Public Works and Housing, Jordan; a former member of Jordanian Concrete Association (JCA) Board of Directors; a former member of ACI Committee 364, Rehabilitation Committee and Subcommittee 364 L, Rehabilitation Liaison; and a member of Advisory Committees for Civil Engineering Faculties at some Jordanian universities.

Presentation Title: Investigating Chloride-Induced Damages of the Old Jetty of the Industrial Terminal in the South Port of Aqaba, Jordan

Over the past decade, Aqaba's southern port has experienced rapid construction growth. Developed by ADC and operated by the Aqaba Company for Ports Operation and Management, the new port is now fully operational. As part of this expansion, two leading Spanish contractors (UTE TR-PHB JV) initiated a JPMC lump-sum EPC turnkey project, "Rehabilitation and Extension of the Industrial Terminal in the South Port of Aqaba, Jordan." A key objective was to retrofit the South Port jetty and restore its structural capacity and durability, which had deteriorated significantly. To support the design of repairs, an extensive condition assessment was undertaken to verify the jetty's adequacy and to evaluate the mechanical and durability properties of the in-situ materials, supplemented by a laboratory testing program. UTE TR-PHB (the contractor) appointed the Royal Scientific Society (RSS), selected from multiple national and international bidders, to conduct inspections, sampling, and field and laboratory testing, using both destructive and non-destructive methods. As the investigation progressed over one year, the scope expanded to include more rigorous chemical sampling, testing, and analysis—specifically, measuring chloride-to-cement content and determining chloride penetration profiles in the concrete. In addition, a comparative study of two representative jetty bays was completed to inform decisions on rehabilitation options and the most effective repair approaches for the affected elements.

Wednesday, July 8, 2026

12:00 Noon-1:00 PM Beirut Time / 5:00 AM-6:00 AM EDT (New York Time)

Co-Host Organization: ACI Lebanon Chapter



Website: <https://acts-int.com/>

The ACI Lebanon Chapter consists of a group of professional contractors, consultants, suppliers, and others. This chapter is a non-profit organization. The chapter activities consist of local and regional conferences, regular training courses accompanied by ACI certificates, networking, university lectures, technical assistance to its members, and much more. Student competitions are held regularly, encouraging the participation of different universities and parties.

Local Moderator: Dr. Faten Abi Farraj, Head of R&D and Technical Services, ACTS, and Secretary, ACI Lebanon Chapter



Faten Abi Farraj is the Head of Research and Development and Technical Services at Advanced Construction Technology Services (ACTS). She is currently managing the research and development department of the group by keeping up with the latest innovations in the construction field and by creating innovative methods to upgrade ACTS' business functions and the services provided to its clients. She is able to initiate and lead advanced research related to concrete technologies, materials, innovative concrete mixtures, and sustainability. Additionally, she manages the consultancy department in Lebanon and provides technical services for ACTS clients in different branches. Her work focuses on providing condition assessment for existing buildings and supporting the whole group with consultancy services. Moreover, as an ACI examiner, she provides training and ACI certifications for construction professionals on aggregate and concrete testing throughout the Middle East and supervises Masters and PhD theses for students at the Lebanese University, Beirut, Lebanon, in a joint program with French universities.

1st Speaker: Eng. Atis Kļaviņš, Structural Engineer, SIA Primekss



Atis Kļaviņš is a Structural Engineer specializing in steel fiber-reinforced concrete (SFRC) floor design. In recent years, he has worked on large-scale projects across Europe, with a main focus on Scandinavia. His main expertise is in industrial flooring systems, particularly slab-on-ground and slabs-on-piles solutions. As an engineer at SIA Primekss, Kļaviņš designs SFRC structures, reviews construction drawings, and provides technical support to contractors, project teams, and company representatives. His work combines structural engineering principles with practical construction knowledge, allowing him to develop efficient project-specific flooring solutions. Before focusing on SFRC design, Kļaviņš gained hands-on construction site experience as a site manager on a complex energy infrastructure project. This role involved coordinating subcontractors, monitoring quality and schedules, preparing site documentation, and solving practical construction issues with designers, contractors, and client representatives, giving him a strong understanding of how structural design decisions affect execution on site and overall quality of the floor. Kļaviņš received his bachelor's and master's degrees in civil engineering from Latvia University of Life Sciences and Technology, Jelgava, Latvia, with additional international study experience at the Technical University of Ostrava in the Czech Republic.

Presentation Title: SFRSSC Floor Design: Linking Project Experience, Testing, and Methodology

This presentation covers practical experience from executed PrīmX steel fiber reinforced self-stressing concrete flooring projects in the Middle East, showing how floor solutions are developed taking into account imposed loads, project-specific conditions, and construction constraints.

The key aspect is the relationship between structural demand, concrete technology, and floor performance. The presentation discusses how load assumptions are evaluated during the design stage, and how concrete mixture design, fiber dosage, and workability are considered to achieve a reliable and buildable SFRC solution.

From practical application, the presentation moves into the design approach behind these solutions. The methodology is based on structural theory, laboratory testing, and full-scale testing. Together, these elements form a practical and evidence-based design framework, where theoretical models are continuously checked against laboratory results, full-scale testing, and measured floor performance.

The presentation highlights how project experience, material evaluation, joint layout, site execution, quality control, and registered site data are used together to update the company's design methodology and guidelines for flooring applications.

2nd Speaker: Dr. Sahar Ismail, Assistant Professor, Faculty of Engineering – ESIB, Saint-Joseph University of Beirut



Sahar Ismail is a Civil Engineer, Assistant Professor, and Researcher with extensive experience in structural and geotechnical engineering. She holds a PhD in civil engineering and has collaborated with several universities on multidisciplinary research projects. Her work focuses on accidental loadings, structural health monitoring, seismic soil-structure interaction, offshore pipelines, and advanced numerical modeling. Ismail has been actively involved in the assessment and monitoring of the Beirut Port Silos following the 2020 Beirut explosion, contributing to studies on their structural performance and resilience. She has authored and presented numerous scientific publications at international conferences and in peer-reviewed journals. In addition to her research activities, she is dedicated to teaching and mentoring engineering students. Ismail is passionate about promoting innovation in engineering and encouraging women to pursue careers in STEM fields.

Presentation Title: Structural Health Monitoring, 3-D Scan, and Finite Element Simulations of Beirut Port Silos after the 2020 Explosion

The August 4, 2020, Beirut port explosion caused catastrophic damage to the reinforced concrete Beirut port grain silos and left only a few tilted silos standing. Since the event, a comprehensive structural health monitoring (SHM) program has been implemented by the School of Engineering at Saint Joseph University of Beirut to track the evolution of damage and assess structural stability. This program combined periodic high-resolution 3-D laser scanning with continuous measurements from ultraprecise triaxial inclinometers installed on both North and South block silos. The monitoring data revealed progressive tilting of the North block, which ultimately collapsed in August 2022 following accelerated degradation due to fire, while the South block showed relative stabilization but remains structurally vulnerable. In parallel, detailed three-dimensional finite element models were developed in Abaqus, incorporating blast effects, nonlinear material response, soil structure interaction, as well as seismic silos' performance. Model calibration against SHM data enabled reliable simulation of damage progression and confirmed that both the silos and their pile foundation exceeded design limits after the blast. Earlier analyses also highlighted the influence of soil foundation interaction and prior strengthening measures on the structural response. Moreover, recent investigations focused on the seismic performance of the six remaining South block silos. Numerical simulations under representative earthquake records indicated a high risk of severe damage and potential collapse under moderate seismic events. Accordingly, several rehabilitation strategies were examined, including pile cap thickening, foundation enlargement with additional piles, and structural strengthening.

Wednesday, July 8, 2026

1:00 PM-2:00 PM Egypt Time / 6:00 AM-7:00 AM EDT (New York Time)

Co-Host Organization: ACI Egypt Chapter



Website: [ACI Egypt Chapter](#)

The ACI Egypt chapter was founded in 1989. The chapter has held several technical events nationally and internationally and has received several awards from ACI. The ACI Egypt Chapter co-hosted and shared in the first 24 Hours of Concrete Knowledge conference in 2021 and subsequent conferences and other ACI events, and works in close collaboration with similar local and international organizations and the Egyptian Concrete Society.

Local Moderator: Dr. M. Nasser Darwish, Professor, ACI Egypt Chapter Organizing Chair



ACI Fellow M. Nasser Darwish is a Professor of Concrete Structures and Bridges at Alexandria University, Alexandria, Egypt. He is Chair of the ACI Egypt Chapter; Chairman of the Egyptian Concrete Society; member of the Egyptian Concrete Permanent Code Committee, Egyptian Repair & Strengthening Code Committee, Egyptian FRP Code Committee, and Egyptian High-Rise Buildings Code Committee; member of ACI Committee 325, Concrete Pavements; and a Structural Consultant with vast experience and Arbitrator and registered Real Estate Appraiser.

1st Speaker: Dr. Sherif Mourad, Professor, Cairo University



Sherif Mourad is a Professor of Structural Engineering, Faculty of Engineering, Cairo University, Egypt, and its former Dean. He received his BSc from Cairo University and his PhD from the University of California Irvine, USA, both in civil engineering. He is Vice Chair of the Egyptian Code Committee for High-Rise Buildings, Member of the Permanent Egyptian Code Committee for Concrete Structures, Chair of Subcommittees for Updating the Egyptian Code for Loads and Forces and Seismic Loading, and Chair, Committee for updating the Egyptian Code for Structural Steel Design. Moreover, he is a registered Structural Consultant with vast experience.

Presentation Title: The Elevated Obelisk

Obelisks represent important elements in architecture in ancient Egypt. This presentation addresses the restoration of an obelisk that belongs to the famous Pharaoh Ramses II. It was discovered broken and was transported to the Grand Egyptian Museum in Giza for restoration and display. A Cartouche of Ramses II was visible at the bottom side of the obelisk base. An innovative design was required to display the Cartouche by elevating the obelisk. The supporting structure was designed to allow visitors to walk underneath the obelisk and observe Ramses II's signature. The idea of elevating the obelisk represented several challenges including evaluating the obelisk's current condition, restoration and fixation methodology, structural stability, and uncertainties of material characteristics, amongst others. To control the obelisk deformations under lateral loading, base isolators were introduced. A multidisciplinary team, including engineers with different specialties and archaeologists, performed the task successfully. Currently, the obelisk stands at the entrance piazza of the Grand Egyptian Museum representing the world's first elevated obelisk.

2nd Speaker: Dr. Ayman Hussein Hosny Khalil, Professor, Ain Shams University



Ayman Hussein Hosny Khalil is a Professor of Reinforced Concrete (RC) Structures, Faculty of Engineering, Ain Shams University, Egypt, and the Head of its Structural Department and RC Research Unit. He received his BSc from Ain Shams University and his PhD from Iowa State University, Ames, Iowa, USA, both in civil engineering. He is a member of several engineering committees including the Egyptian Code Committees for RC Structures, Bridges, and Strengthening, as well as a Member of the Saudi Road Code Committee. He is a professional registered Structural Consultant with vast experience and heads a prominent consulting office working in Egypt and the Middle East.

Presentation Title: Post-Tensioned Structures: Some Construction Issues

Some critical issues in the construction of post-tensioned structures, namely floors and bridge girders, will be discussed, along with methods to examine such effects. In relation to floors, these include: deviation in elongation from theoretical values; openings in post-tensioned slabs; and removal of formworks before casting stressing strips. In addition, for bridge girders, construction issues reported include pre-camber values due to prestressing and failures during erection and transportation. Case studies are reported and remedial actions presented and discussed.

3rd Speaker: Dr. Alaa Sherif, Professor, Helwan University



Alaa Sherif is a Professor of Reinforced Concrete Structures, Faculty of Engineering, Helwan University, Cairo, Egypt, and its former Vice Dean. He received his BSc from Cairo University, Egypt, and his PhD from the University of Calgary Alberta, Canada, both in civil engineering. He is a member of ACI and serves on ACI Committee 352, Joints and Connections in Monolithic Concrete Structures; a member of the Egyptian Code Committee for Concrete Structures; the Canadian Society for Civil Engineering; and IABSE. He is a Structural Consultant with vast experience.

Presentation Title: “The View” Building in Cairo – Case Study of Daring Structural Modifications

This presentation deals with the structural challenges encountered and typical measures taken to add 12 floors to an existing reinforced concrete (RC) building, originally designed to sustain only 12 floors in a prime location in Cairo, Egypt, doubling the number of floors to 24. The structural analysis and strengthening measures are discussed including strengthening the foundations and columns, adding an RC core to resist seismic loads, and modifications to satisfy the updated Egyptian Codes. Added difficulties include the removal of 2 existing columns along the building height, mandated by architectural modifications. A daring structural system was implemented and is discussed. After successful major structural works and architectural finishings, the building stands now as one of the prominent buildings along the Nile.

Wednesday, July 8, 2026

1:00 PM-2:00 PM Warsaw Time / 7:00 AM-8:00 AM (EDT) New York Time
Co-Host Organization: Polish Academy of Sciences (KILIW PAN)



Website address: <https://pan.pl/en/>

The Polish Academy of Sciences Committee on Civil and Water Engineering is a leading scientific body representing the Polish civil engineering community. Established in 1952, the Committee brings together top experts from academia and practice to advance research, innovation, and knowledge transfer in the built environment. The Committee is led by Professor Maria Kaszyńska, a recognized expert in civil engineering and construction technologies.

Its activities cover a wide range of fields essential to modern concrete and infrastructure engineering, including structural behavior, construction materials, geotechnics, hydrotechnics, transportation infrastructure, and urban technical systems. The Committee plays an active role in shaping scientific debate, providing expert opinions, and fostering collaboration between science and industry.

Through conferences, publications, and international cooperation, the Committee supports the development of durable, safe, and sustainable construction technologies, contributing to the global advancement of civil engineering and concrete science in Poland.

Local Moderator: Izabela Hager, BEng, PhD, DSc, Professor, Cracow University of Technology



Izabela Hager is a Professor at the Cracow University of Technology (CUT), Kraków, Poland, specializing in construction materials and concrete technology. She serves as Head of the Chair of Building Materials Engineering and leads the Section of Building Materials Engineering within the Polish Academy of Sciences. Her research focuses on advanced cement-based materials, durability of concrete, fire behaviour of concrete and geopolymers, as well as innovative solutions for sustainable construction. She is actively involved in international scientific collaboration, including her work within RILEM committees, contributing to the development of knowledge and testing recommendation in materials engineering.

1st Speaker: Adam Zieliński, BEng, PhD, DSc, Professor, West Pomeranian University of Technology



Adam Zieliński is a Professor at the West Pomeranian University of Technology, Szczecin, Poland, specializing in construction materials and concrete technology. His research focuses on shrinkage and durability of cement-based composites, as well as innovative testing methods. He is the author and developer of the innovative Plastic-Sleeve Test/Polish Shrinkage Test (PST) method for measuring autogenous and drying shrinkage in cementitious materials. His work includes a patented solutions, a high-impact international publications, and successful implementation and commercialization at both national and international levels. Notably, the PST method is currently being evaluated for standardization within AASHTO under a research project funded by the Texas Department of Transportation (USA). Zieliński actively collaborates with industry, contributing to the development and practical application of advanced material testing methods in modern concrete engineering.

Presentation Title: Evaluation of a Novel Test Method for Autogenous and Total Strain of Cementitious Materials

This study presents the evaluation of a novel Plastic-Sleeve Test (PST) method for measuring autogenous and total strain in cementitious materials. This method enables continuous, reliable monitoring of deformation from early to later stages of hydration. Experimental results demonstrate its applicability across paste, mortar, and concrete, with improved accuracy compared to conventional techniques. The findings support the potential of PST for standardization and practical implementation in concrete performance assessment.

2nd Speaker: Tomasz Zdeb, BEng, PhD, DSc, Professor, Cracow University of Technology



Tomasz Zdeb is a researcher at the Cracow University of Technology, affiliated with the Chair of Building Materials Engineering. His scientific activity focuses on cement-based composites, including reactive powder concretes, soil-cements, and advanced sustainable construction materials. He is actively engaged in research related to the circular economy in construction, with particular emphasis on the recycling and reuse of industrial by-products and alternative binders. His work contributes to the development of low-impact, resource-efficient building materials and technologies supporting sustainable construction practices.

Presentation Title: Properties of Autoclaved Reactive Powder Concrete with Wollastonite Micro-Inclusion

Reactive powder concrete (RPC) is a class of ultra-high-performance cement-based composites characterized by compressive strengths reaching several hundred MPa, achieved through optimized particle packing and advanced processing techniques. This study evaluates autoclaved RPC incorporating coarse wollastonite with fibrous morphology as a patented mineral micro-inclusion. The wollastonite addition enhances the microstructure through fiber-like reinforcement effects, improving overall composite performance. The proposed modification demonstrates strong potential for producing high-performance cementitious materials with improved mechanical and durability characteristics.

Wednesday, July 8, 2026

2:00 PM-3:00 PM Lausanne Time / 8:00 AM-9:00 AM EDT (New York Time)

**Co-Host Organization:
International Federation for Structural Concrete (*fib*)**



Website: <https://www.fib-international.org/>

The International Federation for Structural Concrete (*fib*) is a not-for-profit association formed by 40 national member groups in more than 100 countries and approximately 2500 corporate and individual members. The *fib*'s mission is to develop at an international level the study of scientific and practical matters capable of advancing the technical, economic, aesthetic, and environmental performance of concrete construction. The knowledge developed and shared by the *fib* (*fib* Model Code, *fib* Bulletins, *fib* events, *fib* workshops, *fib* courses, and so on) is entirely the result of the volunteer work provided by *fib* members.

**Local Moderator: Dr.ir. Agnieszka Bigaj-van Vliet, Principal Scientist, Netherlands
Organisation for Applied Scientific Research**



Agnieszka Bigaj-van Vliet is a Principal Scientist at the Netherlands Organisation for Applied Scientific Research (TNO), The Hague, Netherlands, specializing in sustainable and resilient concrete structures and the future-proof built environment. She is Deputy President and a member of the Technical Council of the International Federation for Structural Concrete (*fib*), and head of the Dutch National Delegation to the *fib*. She is also Convener of the *fib* Task Group on Model Code Updating, leading the development of the *fib* Model Code for Structural Concrete, which is a global reference framework guiding the design, assessment and life-cycle management of concrete structures. Her research work focuses on integrating low-carbon solutions and circularity into the design, assessment and management of concrete structures, and on enhancing the resilience of critical infrastructure networks. Through her work, she actively bridges research, practice, and standardization.

1st Speaker: Professor Alberto Meda, Professor, University of Rome Tor Vergata



Alberto Meda is a Professor in the Civil Engineering and Computer Science Department, University of Rome Tor Vergata, Rome, Italy. He teaches Theory of Structures, Bridge, and Tunnelling courses. He is the coordinator of Tunnelling Engineering Research Centre (TERC) at University of Rome Tor Vergata. Meda is Deputy Chair of the *fib* Technica Council, Chairman of *fib* Commission 1 "Structures," and Convener of *fib* Task Group 1.4 "Tunnels." He is a leading expert in the structural aspect in tunnels, existing bridges, and degraded existing reinforced concrete structures.

Presentation Title: Fiber-Reinforced Sprayed Concrete in Tunnels and Underground Spaces

The use of structural fiber-reinforced concrete (FRC) in tunnels and underground spaces, constructed using sprayed concrete lining methods is a technology that has been widely adopted in recent years. Recently published *fib* Bulletin 116, "Fiber-Reinforced Sprayed Concrete in Tunnels and Underground Spaces," is intended to complement the *fib* Model Code 2010 (MC 2010), which includes provisions for the design of FRC, and extends them to the design of sprayed FRC linings. It applies to tunnels constructed in both soft ground and rock and is relevant to temporary and permanent linings and primary and secondary linings. The document primarily addresses permanent FRC used as the primary lining, but the design philosophy can also be applied to secondary FRC lining. The guidance given in this document is based on the extensive experience of the authors from several sprayed concrete tunnelling projects and is intended to support the practical implementation of steel fiber reinforced lining design. The use of FRC in tunnels is one of

the most promising applications of this material, with many tunnels constructed using FRC lining. The presentation will also highlight several advantages of FRC, compared with traditional steel mesh or steel bar reinforcement including (i) safer construction process by facilitate remote working from the face and reducing or eliminating the need for traditional reinforcement, (ii) improved crack control and a small enhancement of the concrete's tensile properties, (iii) reduced cost and construction time, and (iv) lower material consumption through reduced amount of steel reinforcement and concrete cover requirements.

2nd Speaker: Dr. Irene Josa, Lecturer, Bartlett School of Sustainable Construction, University College London



Irene Josa is a Lecturer in Construction Engineering and Technology at the Bartlett School of Sustainable Construction, University College London, London, England, and an expert in the sustainability assessment of concrete structures. Her research examines the environmental and social performance of construction technologies and urban systems, with a focus on circularity, deconstruction and reuse, low-carbon materials, and decision-support tools for industry and cities. She works across environmental and social life-cycle assessment and multi-criteria decision-making to support more sustainable construction. Within the *fib*, she serves as Deputy Chair of Commission 6: Prefabrication, as Co-Convener of Task Group 6.3, “Sustainability of structures with precast elements,” for which she co-authored the *fib* Bulletin 121, and as Convener of Task Group 6.11 “Social impact of precast concrete.”

Presentation Title: Sustainability of Structures with Precast Elements: *fib* Bulletin 121 and the work of *fib* Commission 6

This presentation will introduce the recently published *fib* Bulletin 121, “Sustainability of Structures with Precast Elements: Assessment using a Multi Criteria Decision Making Tool,” and place it within the broader work of *fib* Commission 6: Prefabrication. The bulletin presents a MIVES-based multi-criteria decision-making tool for assessing structures with precast elements across economic, environmental and social requirements, covering costs and time, environmental impacts and material efficiency, and social aspects such as safety, effects on third parties and construction disturbance. The model is applied to a five-story reinforced concrete commercial building comparing prefabricated and cast-in-place solutions. The results show the prefabricated option to be more sustainable overall, with stronger environmental and social performance, while being slightly less cost-effective; sensitivity analysis shows the conclusion remains robust across different weighting scenarios. The presentation will also highlight how Bulletin 121 fits within Commission 6’s wider agenda on precast systems, elements, connections, production, assembly, demounting, sustainable development and community impact.

Wednesday, July 8, 2026

2:00 PM-3:00 PM London Time / 9:00 AM-10:00 AM EDT (New York Time)

Co-Host Organization: Institute of Concrete Technology (ICT)



Website: www.theict.org.uk

Established in 1972, the Institute of Concrete Technology is the qualifications and professional development body for the concrete technology sector, promoting concrete technology as a recognized discipline and advancing the professional status of practicing technologist worldwide.

Local Moderator: Veronika Elfmarkova, Group Head of Commercial RMX (Holcim)



Veronika Elfmarkova is Group Head of RMX Commercial at Holcim, where she leads global initiatives to drive sustainable growth, commercial excellence, and market performance across ready-mix concrete operations. A civil and materials engineer by background, she specializes in low-carbon concrete, circular materials, concrete durability, and the commercialization of sustainable construction solutions. Her career bridges research, innovation, technical leadership, and commercial strategy. Elfmarkova has led work on low-carbon concrete, alternative binders, calcined clay, reclaimed fly ash, carbon capture and utilization, and recycled construction materials. Earlier in her career, she contributed to the development and commercialization of a cement-free alkali-activated binder, and published research on blended cement mortars, chloride diffusion, and concrete microstructure. Elfmarkova is a Chartered Engineer, Chartered Environmentalist, and member of the Institute of Concrete Technology, RILEM committees and various construction industry bodies. She is recognized for connecting material science, sustainability, and commercial performance to accelerate the transition to a net-zero built environment.

1st Speaker: Holly Crabb, Senior Engineer, Arcadis' Structures

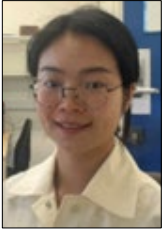


Holly Crabb is a Senior Engineer within Arcadis' Structures team and is currently on secondment as a Concrete Specialist and Technical Lead. She has over ten years of experience in civil engineering and holds a master's degree in advanced concrete technology. Her work has primarily focused on the assessment, investigation, and management of civil structures within an asset management context.

Presentation Title: Long-Term Asset Insights and Management Strategies Using Investigation Methods Supported by Modern Technology

Aging reinforced concrete infrastructure is an increasing concern for asset owners. Emerging technologies are improving the quality and resolution of data available for these assets, enabling more informed and targeted investigation strategies that recognize the unique characteristics of individual structures. This presentation explores how modern, non-intrusive investigation techniques can be used to generate meaningful insights, supporting more proactive asset management, and better-informed investigation, maintenance, and repair decisions.

2nd Speaker: Min Zhou, PhD student, University of Sheffield



Min Zhou is a PhD researcher in Civil Engineering at the University of Sheffield, Sheffield, UK. Her research focuses on three-dimensional printed concrete (3DPC), cementitious composites, and post-printing reinforcement strategies for improving the structural performance of 3-D-printed concrete elements. Her work involves experimental investigation of sprayed strain-hardening cementitious composite overlays, textile-reinforced mortar systems, interfacial behavior, printing-induced anisotropy, and flexural performance. She has extensive experience in mechanical testing, digital image correlation, crack analysis, and interface characterization of cement-based composites. Her current research aims to develop mechanically robust and practically applicable reinforcement solutions for additively manufactured concrete structures.

Presentation Title: Thin Overlays to Replace the Need for Conventional Reinforcement in Additively Manufactured Concrete Structures

Three-dimensional printed concrete (3DPC) eliminates formwork requirements but exhibits directional anisotropy, weak interlayer bonds, and reduced mechanical performance. Compressive strengths can be 25% lower than conventionally cast concrete, and the absence of continuous reinforcement results in insufficient flexural and tensile capacities. Sprayed strain-hardening cementitious composite, combining high tensile ductility with shotcrete technology, has emerged as a promising strengthening solution, enabling thinner overlays and reduced rebound compared to conventional shotcrete. However, its structural effectiveness is fundamentally governed by interfacial bond quality between the overlay and substrate, as inadequate adhesion causes premature debonding while overly strong bonding may constrain the strain-hardening capacity of the overlay.

Wednesday, July 8, 2026

3:00 PM-4:00 PM Algiers Time / 10:00 AM-11:00 AM EDT (New York Time)

Co-Host Organization: Algerian Concrete Society (ALCOS)



Algerian Concrete Society (ALCOS) is a scientific non-profit organization created in 2020 by some researchers in collaboration with the main construction and ready-mixed concrete contractors as well as cement and admixtures manufacturers to enhance the quality of concrete in construction sites in Algeria. It constitutes a bridge between academia and the construction and building materials industries. It aims to promote the use of innovative materials in concrete and low-carbon concrete materials. Training programs for technicians for onsite testing and workmanship will be developed.

Local Moderator: Professor Said Kenai, Université Saad Dahlab – Blida 1



Said Kenai is currently a distinguished Professor of Concrete Technology and Building Materials in the Civil Engineering department, Université Saad Dahlab – Blida 1, Ouled Yaïch, Algeria. He received his PhD from the University of Leeds, Leeds, West Yorkshire, England, in 1988. He has been a member of ACI since 2008 and a founding member of the African Materials Research Society (MRS-Africa). He chairs RILEM-TC on Agro-Waste in Cementitious Materials (2018-2024) and serves as the convenor of the Middle East and North Africa region since January 2024. Kenai has supervised 37 PhD theses and is ranked in the top 2% worldwide scientists in building and construction (2021-2023). His research focuses on concrete durability, waste reuse, self-compacting concrete, structural strengthening, and earth construction. He has published over 150 papers, co-authored six book chapters, and is member of the editorial board of many reputable journals such as *Advances in Concrete Construction*, Techno Press; *Materials and Structures*, RILEM; *Chemistry Africa*, SPRINGER; *The Open Civil Engineering Journal*, Bentham Open; and others.

1st Speaker: Professor Benchaa Benabed, Amar Telidji University of Laghouat



Benchaa Benabed is currently a Professor at the Department of Civil Engineering, Amar Telidji University of Laghouat, Laghouat, Algeria, specializing in sustainable construction materials. He received his PhD in civil engineering structures and materials from Amar Telidji University of Laghouat. His research interests include self-compacting concrete made with waste materials, use of industrial by-products in cement-based materials, durability of concrete and concrete repair, and strengthening of masonry walls with CFRP composite. He is an editorial Board member of *Journal of Building Materials and Structures*, *Építőanyag – Journal of Silicate Based and Composite Materials*, *Journal of Sustainable Construction Materials and Technologies*, and *Journal of Construction of Unique Buildings and Structures*. He has served as guest-editor in journals covering building, sustainability, and polymers (MDPI), and has published over 40 papers.

Presentation Title: Use of Algerian Calcined Clays and Recycled Wastes for Developing ECO-Self-Compacting Concrete

With the current emphasis on sustainable development in the civil engineering field, it is necessary to develop construction and building materials with reasonable cost and low environmental impact to reduce CO₂ from emissions in the concrete manufacturing and the cement industries. Nowadays, by-products and wastes are increasing at the same time as public requirements are expanding, which increases the

environmental burden. Thus, this presentation summarizes some case studies on the incorporation of calcined clays and recycled wastes as cement or aggregate replacements for developing self-compacting concrete (SCC). The performance of SCC at both fresh and hardened states as well as the durability properties are discussed. Based on the main findings, the use of calcined clay and recycled waste can provide an alternative material for building greener infrastructure with low environmental impact and low cost.

2nd Speaker: Professor Hamza Soualhi, Amar Telidji University of Laghouat



Hamza Soualhi is a Professor in the Department of Civil Engineering, Amar Telidji University of Laghouat, specializing in rheology and tribology of cementitious materials. He received his PhD in civil engineering from the CY Cergy Paris University, Cergy, France, in 2014. He developed a rheometer for mortar and concrete at the L2MGC laboratory in collaboration with Vinci Construction France. His research focuses on rheology of cementitious materials, use of waste materials in concrete and mortar, and mechanical behaviour of concrete. He is an editorial Board member of *Journal of Building Materials and Structures*, *Civil Engineering Research Journal*, and *World Journal of Civil Engineering and Architecture*. He has published 32 papers and co-authored three book chapters.

Presentation Title: Effect of Supplementary Cementitious Materials and Temperature on Rheological Behavior of Ecofriendly Concrete and Mortar

The cement industry is responsible for a significant proportion of global carbon dioxide emissions, which is driving the development of more sustainable building materials, particularly eco-friendly concretes and mortars incorporating natural or industrial by-products such as limestone, fly ash, granulated blast furnace slag, and silica fume as supplementary cementitious materials. This approach reduces the environmental footprint while improving some properties of fresh and hardened concrete. The rheological behavior of eco-friendly concrete and mortar is a key parameter for their workability, pumpability, and stability. Mineral admixtures strongly influence these parameters depending on their fineness, particle shape, specific surface area, and chemical reactivity. Temperature also plays a decisive role in the rheology of cementitious materials. The interaction between mineral additions and temperature is therefore a key consideration in optimizing eco-friendly formulations. Effective control of these parameters permits the production of concrete and mortar that combine suitable workability, good mechanical performance, and a low environmental impact. Consequently, the rheological study of these materials represents a strategic focus for sustainable development in the construction sector.

Wednesday, July 8, 2026

5:00 PM-6:00 PM Italy Time / 11:00 AM-Noon EDT (New York Time)

Co-Host Organization: ACI Italy Chapter



Website: www.aciitaly.com

The ACI Italy Chapter is the Italian chapter of ACI, one of the most important associations in the world in developing knowledge and practice in concrete materials and structures. The chapter pursues many objectives, among which are dissemination of scientific research and organization of educational events promoting useful relationships between academic and industrial representatives. The scientific divulgation takes place through publications, conferences and conventions, workshops, educational courses, awards, and any other suitable initiatives. These activities aim at collecting, developing, and promoting knowledge to improve design, development of new construction cementitious-based materials and techniques, conservation, and maintenance tools for existing reinforced and prestressed concrete buildings and infrastructures. The ACI Italy Chapter was founded in 2003 by some eminent personalities of academic and industrial institutions. The first President was Professor Mario Alberto Chiorino, Professor Emeritus of the Polytechnic University of Turin, Honorary President of the Chapter. Professor Luigi Coppola (University of Bergamo) has been the President since January 1, 2019. The ACI Italy Chapter has about seventy individual members and 43 students/young members.

Local Moderator: Gennaro Magliulo, Associate Professor, University of Naples Federico II



Gennaro Magliulo is an Associate Professor at the Department of Structures for Engineering and Architecture at University of Naples Federico II, Naples, Italy, since 2018, where he teaches two master's degree courses: Precast Structures and Healthcare Facilities. He is currently a tutor of three PhD students and has been a tutor of another 10 PhD students. He also taught the course of Seismic Analysis of Buildings within the doctorate in Seismic Risk. Since 2019 he has also been in charge of the quality certification of the master's course in Structural and Geotechnical Engineering at the University of Naples Federico II. In the frame of this master's course, he has been a tutor of more than 90 internships and has overseen about 130 theses. Since 2025, Magliulo has been an Affiliate Researcher at the Construction Technologies Institute of the National Research Council. He is currently a member of the Board of doctorate professors of the doctorate in Biology and Applied Sciences at the University of Molise, Campobasso, Italy. Magliulo graduated in civil engineering, branch structures, in 1997 with laude and received his PhD in Engineering of the Structures in 2001. He is an author of 7 patents and more than 250 articles, 70 of them published by international peer reviewed journals. Magliulo's research concerns earthquake engineering and dynamics of structures, nonstructural components, r/c structures and precast structures, in the fields of theoretical modelling, numerical analysis, experimental research and code activity. He has been principal investigator of 36 international and national research projects, funded by either public or private entities. He is founder and member of the board of ACI Italy Chapter, founder and President of the Seismic Performance of Non-structural Element association, and member of the fib committee TG 6.17, Retrofitting and Repairing of Precast Structures in Seismic Areas. Magliulo is also a member of ACI and the European Association of Earthquake Engineering (EAEE).

1st Speaker: Federico Tuozzo

Presentation Title: Beyond Conventional Reinforcement: Hybrid Steel-GFRP Solutions for Seismic Concrete Structures

2nd Speaker: Denny Coffetti

Presentation Title: Low Carbon Concretes for Reinforced and Prestressed Precast Elements

Wednesday, July 8, 2026

6:00 PM -7:00 PM Paris Time / 12:00 Noon-1:00 PM EDT (New York Time)

Co-Host Organization: RILEM



Website: <https://www.rilem.net/>

The International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM, from the name in French) was founded in June 1947, with the aim to promote scientific cooperation in the area of construction materials and structures. Today, the new meaning of the acronym RILEM (Réunion Internationale des Laboratoires et Experts des Matériaux, systèmes de construction et ouvrages) emphasizes its dominant focus on people as well as its worldwide activities, covering 90 countries.

Local Moderator: Dimitri Feys, Associate Professor, Missouri S&T



ACI member Dimitri Feys is an Associate Professor at the Missouri University of Science and Technology (Missouri S&T), Rolla, MO, USA. He has been the Regional Convenor for RILEM for North America and the Caribbean since 2018 and has facilitated a strong collaboration between ACI and RILEM. He is member of ACI's International Speakers Committee (ISC) and of ACI Committees 237, Self-Consolidating Concrete; 238, Workability of Fresh Concrete; and 309, Consolidation of Concrete. He has been a RILEM member since 2004 and is active on several technical committees. He serves as Chair of RILEM Technical Committee 305-PCC, Pumping of Concrete. This RILEM committee will have a co-sponsored technical session (with ACI Committees 238, Workability of Fresh Concrete; 304, Measuring, Mixing, Transporting, and Placing Concrete; and Subcommittee 211P, Guide for Selecting Proportions for Pumpable Concrete) on pumping of concrete during the fall 2026 ACI Concrete Convention in Atlanta, GA, USA. Feys' research interests include the mixture design, rheology, and placement of cement-based materials, and the consequences of placement on the performance of concrete. He received his combined BSc and MSc from Ghent University, Ghent, Belgium, in 2004, and his PhD from the same university in 2009.

1st Speaker: Sylvia Kessler, Professor, Helmut-Schmidt-University/University of the Federal Armed Forces Hamburg



Sylvia Kessler holds the Professorship for Engineering Materials and Building Preservation at the Helmut Schmidt University/University of the Federal Armed Forces Hamburg (HSU/UniBw H), Hamburg, Germany. Her research focuses on service-life design and methods for estimating the remaining service life, integrating nondestructive testing and monitoring techniques for condition assessment. A key aspect of her work is evaluating the reliability of these testing methods to enhance their practical application. Additionally, she investigates the role of digitalization and building information modeling (BIM) in optimizing maintenance strategies. Her research also extends to sustainability assessment, considering the entire life cycle of reinforced concrete structures to support more efficient and environmentally responsible construction and maintenance practices. Kessler is a member of the *fib* Presidium and serves as the Convenor of the *fib* Task Group "Existing Concrete Structures: Life Management, Testing, and Structural Health Monitoring." She is also a member of the RILEM Bureau and Chair of the RILEM Technical Committee "Assessment of Electrochemical Methods to Study Corrosion of Steel in Concrete," among various other national and international professional engagements.

Presentation Title: Advancing Electrochemical Testing of Steel Corrosion in Concrete: New RILEM TC ECS Recommendations for Reliable Laboratory Research

Electrochemical methods are essential tools for investigating the corrosion behavior of steel in concrete and other cement-based materials. However, the reliability and comparability of experimental results strongly depend on appropriate test design, specimen preparation, and correct application of measurement techniques. To address these challenges, RILEM TC ECS has prepared two new recommendations.

The first recommendation addresses the design of laboratory test set-ups for electrochemical measurements, covering specimen preparation, electrode configuration, pre-conditioning, and key factors influencing reproducibility. The second recommendation focuses on the use of electrochemical impedance spectroscopy (EIS) for steel in concrete, providing guidance on experimental procedures, data analysis, interpretation, and common pitfalls.

This presentation introduces the scope, motivation, and key messages of both documents. It highlights how these recommendations can support researchers in designing robust experiments, avoiding artifacts, and improving the quality and consistency of corrosion studies in cementitious systems.

2nd Speaker: Dr. Barzin Mobasher, Professor, Arizona State University



Barzin Mobasher received his PhD in civil engineering from Northwestern University, Evanston, IL, USA. He joined Arizona State University, Tempe, AZ, USA, in 1991 as an Assistant Professor of Structural Materials and has been a Professor since 2004. Mobasher has led programs in the design, analysis, materials and full-scale structural testing of construction, structural, and aerospace materials. His publications include two books on fiber- and textile-reinforced concrete, five edited books, and more than 220 research papers in leading professional journals. He has served as the Chair of ACI Committee 544, Fiber Reinforced Concrete; and a member of

ACI Committee 549, Thin Reinforced Cementitious Products and Ferrocement; and Subcommittee 239C, Structural Design on UHPC. He served as the Chair of RILEM Committee of Mechanical Properties of TRC (292-MCC), as well as serving as a convener and Technical Activities Committee member and a Fellow of both ACI and RILEM.

Presentation Title: Applications of Thin Section Textile-Reinforced Concrete (TRC) in Sustainable Construction

The emergence of textile-reinforced concrete (TRC) over the past three decades represents a paradigm shift in cementitious composites, evolving from the legacy of ferrocement into a new class of strain hardening cement composites (SHCC). Development of TRC is attributed to understanding the materials science and aspects of mechanics of composites. By focusing on microstructural reinforcement, textile-based cement composites offer unique opportunities for structural design that are unsurpassed in terms of specific strength, specific stiffness, and ductility. TRC promises to be the benchmark material for sustainable designs, a durable infrastructure, while significantly reducing the carbon footprint in the construction industry.

Defined by the embedding of multi-directional textile fabrics within a fine-grained concrete matrix, TRC offers a mechanical response characterized by significant increase in tensile and flexural strength as well as ductility levels up to two orders of magnitude higher than conventional concrete. The work of RILEM Committee 292-MCC was recently reported in a book titled "Textile Reinforced Concrete: Mechanical Properties and Design Methodology," as a comprehensive synthesis of twenty years of international research, providing the foundational knowledge and advanced design.

The material constituents are defined through the selection of high-modulus fibers—such as AR-glass, carbon, basalt, polymeric and aramid—is balanced against the rheological requirements of matrices to ensure total penetration of textile mesh openings. Modern advances in 3-D textiles (spacer fabrics) and innovative polymeric coating formulations have further optimized the internal bonding and anchorage mechanisms, steering manufacturing toward industrial-scale precast production.

Areas of structural applications are introduced by focusing on the area of direct uniaxial tension and flexural response as the primary protocol for capturing the characteristic three-stage response of TRC

that allows for significant strain capacity. The multiple cracking phase is an essential tool for monitoring full-field strain and localization zones under both monotonic and high-strain-rate dynamic loads. TRC enables material-appropriate designs such as sandwich panels, precast thin section structural shapes, Hypar Shells, and pedestrian bridges. Furthermore, the application of textile reinforced mortar (TRM/FRCM) is established as a critical technology for the retrofitting of masonry structures, enhancing in-plane shear and out-of-plane overturning resistance while ensuring compatibility and reversibility for heritage conservation. Procedures for design and application in the area of special actions and environmental resilience are addressed. Fire behavior through thermal damage functions, as well as the accumulation of plastic strain during unloading-reloading cycles, are addressed. Longevity is evaluated through rigorous durability assessment, focusing on accelerated ageing, freezing-and-thawing cycles, and the promising potential of self-healing to maintain structural integrity in aggressive environments.

Wednesday, July 8, 2026

12:00 Noon-1:00 PM Lima Time / 1:00 PM-2:00 PM EDT (New York Time)

Co-Host Organization: ACI Peru Chapter



Website: <https://aci-peru.org/>

The ACI Peru Chapter was founded in 1979. Today, the chapter has about 300 members and 700 student members. The ACI Peru Chapter is very active on both a local and international level. There are about 40 student chapters in Peru. For the last 40 years, the ACI Peru Chapter has earned ACI's Outstanding Chapter Award several times.

Local Moderator: Dr. Gustavo Tumialan, Associate Principal, Simpson Gumpertz and Heger



Gustavo Tumialan is the Vice President of the ACI Peru Chapter. He is an Associate Principal with Simpson Gumpertz and Heger in Boston, MA, USA. He received his Bachelor of Science in civil engineering from the Pontificia Universidad Católica del Perú, Lima, Peru, and his Master of Science and Doctor of Philosophy degrees in civil engineering from Missouri S&T, Rolla, Missouri. Tumialan specializes in the evaluation, rehabilitation, and strengthening of existing structures. He is an ACI Fellow and member of ACI Committees 437, Strength Evaluation of Concrete Structures; 440, FRP Composites; and 562, Evaluation, Repair, and Rehabilitation of Concrete Structures.

1st Speaker: Dr. Julio Christian Quesada Llanto, Civil Engineer, Researcher, Universidad Privada del Norte



Julio Christian Quesada Llanto is a Researcher specializing in civil engineering and higher education, currently recognized within the national scientific system. As of March 2026, he is registered as an active RENACYT researcher under the Level VII classification, with his official registration available on the CTI Vitae platform of National Council of Science, Technology and Technological Innovation (CONCYTEC). His academic background includes doctoral studies in two programs: a Doctorate in Education at Universidad César Vallejo, Trujillo city, Peru, and a Doctorate in Strategic Business Administration at CENTRUM PUCP Business School. He also received his master's degree in civil engineering and a master's degree in teaching for higher education. At the undergraduate level, he received his degree in civil engineering from Universidad Privada del Norte (UPN), Peru, and a degree in mathematics from Universidad Nacional Mayor de San Marcos (UNMSM), Lima, Peru. Professionally, he serves as the Coordinator of the Civil Engineering Program at Universidad Privada del Norte and has 18 years of experience in higher education, along with 10 years of experience in the construction sector. Throughout his career, he has also participated in consultancy projects for both public and private organizations, particularly in the areas of management and structural engineering.

Presentation Title: Ecofriendly Concrete Using Rice Husk Ashes as Cement Replacement

This presentation presents the development of an eco-friendly concrete incorporating rice husk ash (RHA) as a partial replacement for Portland cement, aiming to reduce the carbon footprint associated with the construction industry and promote sustainable practices in cementitious material production. RHA, obtained as an agro-industrial byproduct, exhibits pozzolanic properties that can enhance the mechanical performance and durability of concrete when incorporated at appropriate replacement levels. The research evaluates different percentages of cement replacement with RHA and analyzes the behavior of both

fresh and hardened concrete through workability, compressive strength, and mechanical performance tests. Additionally, the study examines the influence of RHA on the microstructure of the material and its potential to decrease the consumption of conventional cement, which is the primary source of carbon dioxide emissions in concrete production. Preliminary results indicate that the controlled incorporation of rice husk ash can maintain or even improve certain mechanical properties of concrete while significantly contributing to environmental sustainability through the utilization of agricultural waste and the reduction of industrial residues. This study demonstrates the potential of RHA as a viable supplementary cementitious material for sustainable construction applications and circular economy practices in rice-producing countries such as Peru.

2nd Speaker: Camila Celeste Sulen Kano, Civil Engineer, Researcher, Peruvian University of Applied Sciences



Camila Celeste Sulen Kano is a Civil Engineer and Researcher specializing in sustainable materials for the construction industry, mixture design and 3-D printing technologies, advanced robotics applied to construction, machine learning, and mechatronic systems, with a strong focus on the development of innovative solutions aligned with the sustainable development goals (SDGs). Her research experience focuses on the development of innovative construction materials through the incorporation of agro-industrial residues such as rice husk ash, eggshell ash, sugarcane bagasse ash, and recycled materials including PET plastic. These investigations have been made possible through strategic collaborations with Costeño, part of the Brazilian group CAMIL, as well as OVOSUR and La Calera, whose support enabled access to agro-industrial byproducts for the development of research focused on sustainability and circular economy practices within the construction industry. In addition, she has conducted research in construction robotics and mechatronics, presenting her work at international conferences held in Canada, Hong Kong, Japan, Kazakhstan, and the United Kingdom. Sulen received the Best Student Paper Award at Waseda University in Tokyo, Japan, (2025) for her research titled “Design of Eco-Friendly Bricks with the Incorporation of Eggshell Ash.” Furthermore, she received the Best Oral Presentation Award at the International Conference on Civil Engineering and Architecture held in Hong Kong in 2026. She is a member of the Civil Engineering Chapters Association (AGEIC), the Structural Engineering Student Chapter, and the Self-Construction Improvement Student Chapter at the Peruvian University of Applied Sciences (UPC).

Presentation Title: Sustainable Mix Design for 3-D Printing Concrete Using Rice Husk Ash and Recycled PET

This study proposes the development of a sustainable mixture design for 3-D printing concrete by incorporating rice husk ash (RHA) as a partial replacement for cement and recycled PET plastic as a partial substitute for fine aggregate. The research aims to reduce the environmental impact associated with conventional construction materials by promoting the reuse of agro-industrial and plastic waste within a circular economy and sustainable construction framework. The mixture design was developed considering the specific requirements of concrete for 3-D printing applications, including extrudability, pumpability, dimensional stability, and buildability through layered construction. Different proportions of RHA and recycled PET were evaluated through fresh-state tests, including workability and performance during the printing process. The incorporation of rice husk ash improved the cementitious matrix due to its pozzolanic properties, while recycled PET contributed to reducing the consumption of natural aggregates and promoting the reutilization of plastic waste. The results demonstrate the feasibility of developing printable concrete mixtures with adequate performance and potential application in automated construction systems. This research highlights the viability of the combined use of RHA and recycled PET in 3-D printing concrete as an innovative and eco-friendly alternative for the construction industry, contributing to carbon emission reduction and the advancement of sustainable construction technologies.