FINAL PROGRAM



CONSTRUCTION INSTITUTE SUMMIT 2023

St. Louis, MO | March 1–4

Creating Connections — Building Our Infrastructure Together



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Committee and Board Meeting Schedule

Thursday, March 2

8:00-10:00 a.m.

Temporary Works Committee Meeting

Construction Safety Committee

10:00 a.m.-12:00 p.m.

Claims Avoidance and Resolution (CAR) Committee Meeting

CI Specifications Committee

CI YPC Committee Meeting

LADR Editorial Board Meeting

7:00-9:00 p.m.

CI Board and Invited Guests Dinner – by invitation only

Friday, March 3

12:00-1:30 p.m.

Tunnel and Underground Construction (TUC) Committee Meeting

Construction Engineering Education Committee Meeting

MPIC Committee Meeting

Saturday, March 4

1:45-3:30 p.m.

BMC Committee Meeting

Digital Project Delivery Committee Meeting

SCHEDULE-AT-A-GLANCE

Wednesday, March 1

2:00-5:00 p.m. Pre-Conference Technical Tour*

Thursday, March 2

7:00–7:45 a.m. Outdoor Stretch and Flex Activity at the Arch

Steps

7:30 a.m.-1:00 p.m. Exhibitor Move-in 7:30 a.m.-6:00 p.m. Registration

(Closed for lunch 1:15-2:00 p.m.)

8:00 a.m.-12:00 p.m.. Committee Meetings

1:00–2:00 p.m. Technical Session 1: Track A, B, C, and D

2:00-2:30 p.m. Networking Break in Exhibit Hall

2:30–3:30 p.m. Technical Session 2: Track A, B, C, and D

3:30–4:00 p.m. Networking Break in Exhibit Hall 4:00–5:30 p.m. Young Professionals Forum

5:30–7:00 p.m. Welcome Reception in Exhibit Hall

Friday, March 3

7:00 a.m.-5:00 p.m. Registration

(Closed for lunch 12:00-1:30 p.m.)

7:15-9:15 a.m. Plenary Breakfast

9:30–10:30 a.m. Technical Session 4: Track A, B, C, and D

10:30–11:00 a.m. Networking Break in Exhibit Hall

11:00 a.m.-12:00 p.m. Technical Session 5: Track A, B, C, and D

12:00-1:30 p.m. Exhibit Hall Lunch

1:30–2:30 p.m. Technical Session 6: Track A, B, C, and D

2:30–2:45 p.m. Networking Break in Exhibit Hall

2:45–3:45 p.m. Technical Session 7: Track A, B, C, and D

3:45–4:15 p.m. Networking Break in Exhibit Hall
4:15–5:15 p.m. Technical Session 8: Track A and D
5:30–7:00 p.m. Off-site Reception at Shark Bar

Saturday, March 4

6:45–7:15 a.m. Indoor Mindfulness Activity

7:30–8:00 a.m. Continental Breakfast in Exhibit Hall

7:30-11:00 a.m. Registration

8:00–9:00 a.m. Technical Session 9: Track A, B, C, and D

9:00–9:30 a.m. Networking Break in Exhibit Hall

9:30–10:30 a.m. Technical Session 10: Track A, B, C, and D

10:30–11:00 a.m. Networking Break in Exhibit Hall

11:00 a.m.-12:00 p.m. Technical Session 11: Track A, B, C, and D

11:15 a.m.-4:00 p.m. Exhibitor Move-out
12:00-1:30 p.m. Closing Plenary Luncheon
1:45-3:30 p.m. Committee Meetings

^{*}Additional Ticket Purchase Required

Welcome to St. Louis

On behalf of the Construction Institute (CI) of the American Society of Civil Engineers, we would like to welcome you to CI Summit 2023. The theme of this year's CI Summit is Creating Connections—Building Our Infrastructure Together. Many of the challenging issues for our infrastructure will be explored, along with innovative strategies in the engineering and construction industries. This year's technical program includes sessions that focus on project delivery, temporary works, project case studies, safety, design, and recent technologies. The four-trackformat summit includes a track devoted to highlighting CI's Journal of Legal Affairs

and Dispute Resolution in Engineering and Construction. The Summit will commence with a tour of the I-270 North Design-Build Project. MoDOT is modernizing 8 miles of I-270, including replacing 7 interchanges with new innovative designs. The technical and industry presentations will begin on Thursday afternoon, March 2 and continue through Saturday morning, March 4, and will explore a wide range of topics. Cl's technical committees will meet on Thursday morning and on Saturday afternoon; if you are interested in attending (everyone is welcome), please see page 2 for dates, times, and locations for each meeting. Additionally, our Young Professionals Forum is scheduled for Thursday afternoon, featuring round table discussions on career advancement in the construction industry.

We are honored to have MoDOT's Assistant District Engineer, Tom Evers, P.E., and Project Director for the I-270 corridor project and Justin Wolf, P.E., as our keynote speakers for the Opening Plenary Breakfast on Friday, March 3rd. The MoDOT team will share a few local projects, and will describe unique construction techniques. This candid conversation will offer the opportunity to learn about MoDOT's safety and services, program delivery and project management.

Our Closing Plenary Lunch will include the Merchants Bridge Truss Planning & Construction presentation. Our plenary speakers, Daniel Sieve, Senior Project Manager, Walsh Construction Company II, LLC., and Eric Fields P.E., Esq, Chief Engineer, Terminal Railroad Association (TRRA) of St. Louis, will provide insights on the rehabilitation of the historic rail bridge. All conference attendees will learn how the construction engineering team implemented this heavy civil and marine construction project and how the effective collaboration between owners, contractors, and engineers resulted in a successful project.

We would like to thank the many people who helped make this year's summit a success, including our local **program collaborators from ASCE St. Louis**:

John L Weiland, P.E., M.ASCE, Wade Trim; Anne M. Werner, P.E., M.ASCE, Southern Illinois University Edwardsville; and WTS St. Louis: Jennifer Pangborn, WSP, Crystal Allen Dallas, MSHSA, IOM, and Excel Business Concepts.

Special thanks to the **Plenary Sessions Coordinator**, Zach Pucel, P.E., M.ASCE, Transystems Corp., and to all **LADR Track Editors:** Amarjit Singh, P.E., Ph.D., F.ASCE, University of Hawaii at Manoa, Department of Civil Engineering; Leah A. Rochwarg, Esq., LEED AP, Seyfarth Shaw LLP; Brian J. O'Rourke Jr., P.E., Esq., LEED AP, Verrill Dana LLP; Mohammed-Asem Abdul Malak, Ph.D., R.Eng, A.M.ASCE, University of Beirut; and Wendy Wendrowski, Esq., A.M.ASCE, Seyfarth Shaw LLP.

Thank you for joining us at CI Summit 2023. We hope you will enjoy the sights of the St. Louis area, while we deliver you an exciting and engaging conference.

CI President 2022-2023

Ryan Sauer, A.M.ASCE, Vice President, PC Construction Company

2023 CI Summit Co-Chairs

Hossein Ataei, Ph.D., M.C.M., M.B.A., P.E., P.Eng., F.ASCE, University of Illinois at Chicago (UIC)

Dan Becker, M.ASCE, CCM, PMP, CCP, ENV SP, D. Becker Consulting, LLC.

Conference Steering Committee

Dan Becker, M.ASCE, CCM, PMP, CCP, ENV SP, D. Becker Consulting, LLC | Co-Chair Hossein Ataei, Ph.D., M.C.M., M.B.A., P.E., P.Eng., F.ASCE, University of Illinois at Chicago (UIC) | Co-Chair

Zach Pucel, P.E., M.ASCE, Transystems Corp. | Coordinator, Plenary Sessions

John L. Weiland, P.E., M.ASCE, Wade Trim | LOC Member

Anne M. Werner, P.E., M.ASCE, Southern Illinois
University Edwardsville | LOC Member
Jennifer Pangborn, WSP | LOC Member
Crystal Allen Dallas, MSHSA, IOM, Excel
Business Concepts | LOC Member
Amarjit Singh, P.E., Ph.D., F.ASCE, University
of Hawaii at Manoa, Department of Civil
Engineering | LADR Track Chair
Leah A. Rochwarg, Esq., LEED AP, Seyfarth Shaw

LLP | LADR Track Editor

Brian J. O'Rourke Jr., P.E., Esq., LEED AP, Verrill

Dana LLP | LADR Track Editor

Mohammed-Asem Abdul Malak, Ph.D., R.Eng,
A.M.ASCE, University of Beirut | LADR Track Editor

Wendy Wendrowski, Esq, A.M.ASCE, Seyfarth
Shaw LLP | LADR Track Editor

ASCE Staff

Katerina Lachinova, CI Director Rachel Settle, CMP, CI Manager Monica Bradford, CI Sr. Coordinator, Conferences & Marketing Tom Sours, Sr. Manager, Sponsorship, and Exhibit Sales

Conference Agenda

Wednesday | March 1

Pre-Conference Technical Tour—I-270 North. Build. Progress. Together

2:00 - 5:00 p.m. (1 PDH)

The I-270 North Design-Build Project is modernizing 8 miles of I-270, and is replacing 7 interchanges with new innovative designs. Highlights of the tour will include several of the recently completed interchanges, along with several interchanges under construction. Outdated designs from the original 1960s construction will also be shown and compared with new innovative designs that have transformed an interstate system that was a barrier to nonmotorized users into an interstate system that links all users to the communities along I-270 North.

Thursday | March 2

Outdoor Stretch and Flex Activity at the Arch Steps

7:00 - 7:45 a.m.

Start your day with CI Director, Katerina, getting your blood pumping, by walking or running the steps below the Gateway Arch. All are welcome.

Technical Session 1: Industry Tracks 1A, 1B, 1C, and 1D

1:00 - 2:00 p.m. (1 PDH)



Track 1A – Strategy and Best Practices to Expand Construction Engineering Programs

Join Cl's Construction Engineering Education Committee members in a discussion about strategy and best practices to expand construction engineering programs to meet the industry demand in the United States. Since ABET accredited the first Construction Engineering program in 1958, the number of Construction Engineering programs has increased to 18. However, the program number and enrollments, in some cases, are relatively small. Panelists from academia, government agencies, and the construction industry will discuss ways to expand the program number and enrollment and, in turn, develop the much-needed workforce for the construction industry.

Speaker: Dr. David Johnston, Edward I. Weisiger Distinguished Professor Emeritus, North Carolina State University

Panelists: Susan Bogus Halter, Ph.D., P.E., F.ASCE, University of New Mexico; Ed Jaselskis, Ph.D., P.E., M.ASCE, North Carolina State University; Sam Ariaratnam, Ph.D., P.E., NAC, Dist.M.ASCE, Arizona State University; Hani Alzraiee, Ph.D., P.Eng, M.ASCE, Cal Poly, San Luis Obispo

Track 1B - The Safety of Rebar Cages by Using Innovative Connectors—Ongoing Research Update and Future Research Needs

This session will present an update to the ongoing state-of-the-art research and innovation in analysis and design of rebar cages that is currently being performed at University of Nevada, Reno. The primary objective of this research project is to ensure safety during lifting and handling of belowground rebar cages. Investigations of several recent above grade rebar cage collapses exposed the shortcomings of current design procedures and the vulnerability of the construction methods used to support these cages. The essential role of industry guidance and experimental studies for development of design procedures and safe methods will be examined.

Moderator: Vincent Arthur Siefert, P.E., M.ASCE, Siefert Associates,

Speaker: Masood Vahedi, S.M.ASCE, University of Nevada–Reno

Track 1C – Issues with Existing Utilities during Project Development as a Differing Site Condition

Utilities of all kinds occupy space that is often needed for other infrastructure needs such as foundations, retaining walls, drainage, sewage, and areas of cut and fill. When existing utilities conflict with new infrastructure development, there are only four potential solutions: moving the existing utility; redesigning the new infrastructure so there is no conflict; designing safeguards to allow the utility to remain safely in place; or requesting a policy exemption. Session attendees will learn how the nature and timing of solutions are critical to the success of existing utilities projects.

Speaker: James H. Anspach, P.G. (r), Dist.M.ASCE, NAC, lowa State University

Track 1D - Building Resiliency into Projects... with **Specifications!**

This session will help you to learn how others in the industry address supply disruptions resulting from the recent pandemic and how companies are balancing risks.

Moderator: Rusty Sprouse, P.E., CFM, M.ASCE, Jefferson Lab Speakers: David Siegler, P.E., M.ASCE, New Jersey Turnpike Authority; Theresa Jablonski, P.E., M.ASCE., Nova Consulting, Hyun Jeong Koo, Ph.D., A.M.ASCE, Wayne State University

Networking Break in Exhibit Hall

Sponsored by **HNTB**

Technical Session 2: Industry Tracks 2A, 2B, **2C**, and **2D**

2:30 - 3:30 p.m. (1 PDH)

Track 2A - DEI Issues on Engineering and **Construction Curricula and Decision-Making**

This panel discussion organized by the members of Cl's Management Practices in Construction Committee will focus on the DEI-related issues in engineering and construction decisionmaking. Panelists will discuss the importance of DEI training during college education as well as for onboarding, internships, and career progression, so that engineers can incorporate DEI considerations into their decision-making. Panelists will also identify the most prominent DEI issues in the industry and present a path forward to address those issues.

Moderator: Mehmet E. Ozbek, Ph.D., A.M.ASCE, Colorado State University

Panelists: Becki Atadero, Ph.D., PE, M.ASCE, Colorado State University; Beth Duyvejonck, P.E., M.A., Opus Design Build, L.L.C.; Gloria J Jeff, AICP, MnDOT Metro District

Track 2B - Temporary Works in Steel Truss Bridge **Dismantling**

This presentation will survey temporary works used to dismantle steel truss bridge structures, referencing multiple signature truss bridge dismantling projects. In addition, examples and references are given from iconic projects such as the San Francisco-Oakland Bay Bridge, the Carquinez Bridge, the Goethals Bridge, and the Tappan Zee Bridge.

Moderator: Reuben Zylstra, P.E., M.ASCE, Foothills Bridge Co. **Speakers: Chris Tollefson, P.E., M.ASCE, Foothills Bridge Co.**; Nathan Miller, S.E., P.E., M.ASCE, Foothills Bridge Co.



Track 2C - Shaping Geotechnical Reports to Reduce **Claims at All Tiers**

Claims, at any level, negatively affect projects. This session will address ways to mitigate lower-tier site condition-related claims. Session attendees will learn the impact of lower-tier claims and steps to reduce them.

Speakers: Zach Jones, J.D., M.ASCE, Jones Law, PLLC; Nick Utter, J.D., Jones Law, PLLC

Track 2D - Common Challenges of Historical **Building Renovation Projects**

Renovation and restoration of cultural heritage buildings for adaptive reuse face challenges. This session will examine strategies to mitigate such challenges through project specifications for better construction management.

Moderator: Rusty Sprouse, P.E., CFM, M.ASCE, Jefferson Lab Speaker: Hyun Jeong Koo, Ph.D., A.M.ASCE, Wayne State University

Networking Break in Exhibit Hall

Technical Session 3: All Industry Tracks/ Plenary-Advance Your Career in Construction - Connect-Learn-Get Inspired

4:00 - 5:30 p.m. (1.5 PDH)

Outstanding Young engineers do not just come to the Cl Young Professionals Forum to exchange business cards. They come to create opportunities for learning and development, as well as to support future construction industry leaders. This forum has the objectives of empowering young professionals to discover their "why" and providing them with the tools to make a lasting, positive impact in the industry. Traditionally, ASCE-Cl's younger members are between 22 and 35 years old, but all professionals who are "young at heart," and from all construction industry backgrounds are welcome.

Speakers: Members of CI Young Professionals Council

Outstanding Young Professional or Student Award:

In 2019, the American Society of Civil Engineers (ASCE) and Construction Institute (CI), established the Outstanding Young Professional or Student Award to facilitate engagement in their communities. We are proud to announce that during the YP Forum we will present an award to our young professional, **Justin Paik, A.M.ASCE**. Congratulations, Justin! We appreciate all of your hard work.

Welcome Reception in Exhibit Hall

Kick off your conference experience by enjoying hors d'oeuvres and meeting new friends while reconnecting with former colleagues.

Friday | March 3

Plenary Breakfast

7:15 - 9:15 a.m. (1.5 PDH)

Call to Order: Hossein Ataei, Ph.D., M.C.M., M.B.A., P.E., P.Eng., F.ASCE, 2023 CI Summit Co-Chair: University of Illinois at Chicago

Welcome Remarks: Ryan Sauer, A.M.ASCE, CI President 2022–2023, Vice President at PC Construction Company

LADR Welcome Remarks: Amarjit Singh, P.E., Ph.D., F.ASCE, University of Hawaii at Manoa, Department of Civil Engineering

Plenary Project Presentation—A Look Behind the MoDOT Curtain

This session will explore some of the history and inner workings of MoDOT and how the department has advanced throughout the years. A few local projects will be highlighted, with a description of their unique construction techniques. Some of the innovations that MoDOT is putting into practice in the St. Louis region will be detailed. This candid conversation will also focus on MoDOT's safety, service, and program delivery, as well as project management that brings the best possible value to Missouri taxpayers and uses existing resources wisely.

Speakers: Tom Evers, P.E., Assistant District Engineer, MoDOT; **Justin Wolf, P.E.,** Project Director for the I-270 corridor project, MoDOT

Sponsored by



Break

9:15 - 9:30 a.m.

Technical Session 4: Industry Tracks 4A, 4B, 4C, and 4D

9:30 - 10:30 a.m. (1 PDH)

Track 4A – Connections to the Field Transforms 4D Planning to Near Real-Time Construction Progress Tracking

4D plans and a construction digital twin enable agile PM based on timely data inputs across project stakeholders and datasets will be explored. Presenters will discuss how to integrate digital technologies to improve operations and add value, and how to use digital construction ecosystems for reducing delays when changes are required.

Moderator: Melissa Rohland, PMP, P.E., M.ASCE, Digital Construction Works

Speakers: Chuck Hixon, Business Development Manager, Digital Construction Works; **Vincent Rohland**, Lehigh University

Track 4B – Challenges with Movable Bridge Demolition

This presentation will focus on the challenges associated with demolition of movable bridges from the perspective of a construction engineer, through the demolition case studies of two bridges—a bascule bridge and a vertical lift bridge. Attendees will learn general movable bridge demolition practices and see the need for guidance in contract plan sets, as well as benefits in constructability studies.

Moderator: Vincent Arthur Siefert, P.E., M.ASCE, Siefert Associates,

Speakers: Nicholas Venuti, P.E., Siefert Associates, LLC; **Thomas Rabinko, P.E.,** Siefert Associates, LLC



Track 4C - Claims Management Case Studies

Using real-world case studies, members of Cl's Claims Avoidance and Resolution Committee will discuss common construction claims and their resolution. This presentation will review claims for differing site conditions, force majeure, and design errors. Attendees will gain knowledge on change management in construction projects, delay analysis using the critical path method, and the importance of notification in the claim process.

Moderator: Joseph Hellenbrand, P.E. PSP, M.ASCE, Capital Project Management, Inc.

Speakers: Jennifer R. Budd, J.D., Cohen Seglias; Dave Ponte, P.E. CCM, CFCC, M.ASCE, Ankura; Gerry H. Williams, Jr., Ph.D., P.E., F.ASCE; Hossein Atei, Ph.D., MBA, P.E., P.Eng, FASCE, University of Illinois, Chicago

Track 4D - LADR Workshop

This session will include multiple paper presentations from *Journal* of Legal Affairs and Dispute Resolution. See the separate LADR Book of Abstracts for details.

Moderator: Sharareh Kermanshachi

LADR-918 A Path to Establishing Delay and Disruption Claims for Contracts Entered Into Prior to the Start of the COVID-19 Pandemic

Speaker: Michele Hermann, Mississippi State University

LADR-930 Experts Involved in Claims and Disputes Resolution: Mapping and Classification of Engagement Possibilities

Speaker: Mohamed-Asem Uthman Abdul-Malak, American University of Beirut

LADR-910 Dispute Classification in Construction Projects Based on Litigation Cases

Speaker: Khaled Al-Rasheed, Kuwait University

LADR-884 Uncertainty Analysis of Key Schedule Performance Indicators in Design, Procurement, and Construction Phases of Heavy Industrial Projects

Speaker: Apurva Pamidimukkala, University of Texas at Arlington



Networking Break

10:30 - 11:00 a.m.

Technical Session 5: Industry Tracks 5A, 5B, 5C, and 5D

11:00 a.m.-12:00 p.m. (1 PDH)

Track 5A – Accelerated Bridge Construction Techniques for the Long Island Rail Road Expansion Project

An innovative construction technique that was used on the Long Island Rail Road (LIRR) Expansion Project will be presented. Details are given on how complete bridges were laterally pushed into place with hydraulic jacks in a quick and accurate manner during a weekend outage with minimal impacts to LIRR operations.

Speakers: Pak So, P.E., M.ASCE, Stantec; Nick Almeter, Halmar International; Dave Beyers, Halmar International; Christian Wiederholz, Stantec

Track 5B – Innovation in Rebar Cage Design and Analysis

This session will present the innovative confined cage as an alternative to the rebar cage and will discuss the results of independent research and "out of the box" ideas to build rebar cages. The confined cage incorporates a perforated steel plate that is rolled into a rebar cage. This concept mitigates several deficiencies of regular rebar cages and has several other advantages such as stability, additional confinement to the drilled shaft, and fewer moving parts; it also supports the safety

Moderator: Vincent Arthur Siefert, P.E., M.ASCE, Siefert Associates,

Speaker: Mantu C Baishya

Track 5C – Death by a Thousand Cuts: Cumulative Impact Claims

Change orders on a project are commonplace and should be expected by all parties. This presentation will explain the effects of the number of change orders issued on the "unchanged" work of a project. The key elements of a cumulative claim will be detailed, as well as how to identify and analyze the "Impacts" The cause-and-effect linkage will be explained.

Moderator: David M. Ponte, P.E., CCM, CFCC, M.ASCE, Ankura

Speakers: Colleen Lenz, PMP, Ankura



CI STUDENT DAYS 2023

Apply Now!

Student Days is an annual student competition that is held by the Construction Institute (CI) of the American Society of Civil Engineers (ASCE). CI recruits top civil engineering students who have a passion for the construction industry, from across the country, to participate in the program.

CI creates a "real-world" scenario, which students will work together to solve. Student teams will develop a top-notch written proposal for a construction project. The program concludes with a final presentation in front of a panel of judges, who are industry professionals (who by the way are) looking for new talent – bonus!

The student competition will be hosted in **Downtown Denver**, **August 4–8**, **2023**. To apply, visit: studentdays.asce.org. **Application deadline is April 19**, **2023**.

Become A Supporter

We have opportunities for everyone! Help support our student program by donating today. Visit studentdays.asce.org for details.







Contract Documents for America's Infrastructure - Release of the NEW 2023 CMAR Documents

The EJCDC Construction Manager at Risk (CMAR) document series is intended for projects in which the owner retains a construction manager at risk (CMAR) to provide preconstruction services and then construct the project. The Construction Manager at Risk method of delivering projects evolved from traditional design-bid-build by involving the construction contractor early in the project.

The new EJCDC CMAR Series is suitable for both public and private work. The series features several documents used for the project owner's selection of the CMAR, such as a model Request for Qualifications, Statement of Qualifications, and Request for Proposals. The CMAR Series is offered for those projects in which an alternative is appropriate—most notably, when construction expertise is needed during the design phase, and fast-tracking of work packages will allow for early completion and cost-effective construction. The 2023 CMAR documents are modeled after their industry-standard counterparts in the EJCDC 2018 Construction Series documents but have been customized to address the nuances of a CMAR project.

About EJCDC — Since 1975, the Engineers Joint Contract Documents Committee (EJCDC) has developed and updated fair and objective standard documents, representing the latest and best thinking in contractual relations between all parties involved in engineering design and construction projects. EJCDC documents are the first choice for infrastructure improvement and development nationwide and internationally.

VISIT ASCE-EJCDC STORE



Track 5D - LADR Workshop

This session will include multiple paper presentations from *Journal* of *Legal Affairs and Dispute Resolution*. See the separate LADR Book of Abstracts for details.

Moderator: Brian O'Rourke

LADR-916 Role Of BIM Contract Practices in Stakeholder BIM Implementation on AEC Projects

Speakers: Amelia Celoza, University of Texas at Austin

LADR-919 Analysis of the Six Preliminary Injunctions Granted in Legal Challenges to COVID-19 Vaccine Mandates for Federal Contractors

Speaker: Michele Hermann, Mississippi State University

LADR-940 Identification of Key Safety Factors Influencing Safety Management of Elevated Corridor of Metro Constructions

Speaker: Dilip A Patel, Sardar Vallabhbhai National Institute of Technology

LADR-883 Ranking and Weighting of Effective Project-Based Communication Indicators (EPCIS) for Primary and Secondary Stakeholders in Construction Projects

Speaker: Apurva Pamidimukkala

Exhibit Hall Lunch

12:00 - 1:30 p.m.

Technical Session 6: Industry Tracks 6A, 6B, 6C, and 6D

1:30 - 2:30 p.m. (1 PDH)

Track 6A – Visual Progress Monitoring for Owners: See More through Actionable Insight and Complete Work Faster

Tracking the progress of a project against scheduling tasks in real time is one of the biggest challenges for most owners and project managers. Most projects still rely on spreadsheets and phone calls in order to manage their construction schedule, but these tools do not provide the transparency that is desired to align owners with architects and constructors. This session will introduce the Reconstruct \$1B+ BCCCH Project, in which Reconstruct compares real-time as-builts for design and scheduling, empowering project teams to collaborate and keep projects on schedule.

Moderator: Mani Golparvar, CTO, Reconstruct, Inc., and Professor at University of Illinois at Urbana-Champaign

Speakers: Zachary MacRunnels, Reconstruct, Inc.; **Cindy Baldwin,** VDCO Tech

Track 6B - HWY 417 Rapid Bridge Replacement

This session will review the evolving engineering methods, applications of new technologies, and innovative contract models used at the HWY 417 Rapid Bridge Replacements (RBR) Project in Ottawa, Canada. This project demonstrates Canada's first rapid rigid frame replacement during a full-weekend highway closure. Emerging technologies will be presented for heavy lifting and movement; these include SPMT systems with high-capacity jacking towers, as well as innovative design and construction methods for the realization of RBRs during this brief time frame

Moderator: Owen Berg, P.E., S.E., P. Eng., Kiewit

Speakers: Michael Rakowski P.E., P. Eng., Kiewit, Stephan

Ptatschek P. Eng., Kiewit

Track 6C - Project Delivery Methods/ Owner Panel

Project delivery methods used by agencies to deliver capital projects will be evaluated. The panel will share best practices and challenges associated with New York State DOT, Denver International Airport, Tampa International Airport, IDOT and MoDOT.

Moderator: Zach Pucel, P.E., M.ASCE, TranSystems Corp.

Speakers: Tom Evers, P.E., MoDOT; **Joel Cumby, P.E.,** IDOT District 8 – Collinsville; **Michael Kamprath, A.M.ASCE,** Tampa International Airport; **Craig Ruyle, P.E., M.ASCE.,** NYSDOT; **James (Jim) Starling, P.E., M.ASCE,** Past CI President, Denver International Airport

Track 6D - LADR Workshop

This session will include multiple paper presentations from *Journal of Legal Affairs and Dispute Resolution*. See the separate LADR Book of Abstracts for details.

Moderator: Ulrike Quapp

LADR-948 System Dynamics as an Assistive Tool to Delay Analysis in Identifying Productivity Losses

Speaker: Shrouk Garib, The American University in Cairo

LADR-870 Identification of Resilience Dimensions in Critical Transportation Infrastructure Networks

Speaker: Apurva Pamidimukkala, University of Texas at Arlington

LADR-931 Development of a Framework for Risk Assessment in Building Demolition Works

Speaker: Dilip A Patel, Sardar Vallabhbhai National Institute of Technology

LADR-921 Investigating the Critical Success Factors of Claims Management in the Construction Contracts

Speaker: Chengyi Zhang, University of Wyoming

Break

2:30 - 2:45 p.m.

Technical Session 7: Industry Tracks 7A, 7B, 7C, and 7D

2:45 - 3:45 p.m. (1 PDH)

Track 7A – Engineering Ethics: Holding Each Other Accountable

How good are engineers at holding each other accountable? Moral theories that underpin professional ethics in engineering will be presented. ASCE's Code of Ethics will be evaluated as a guide for ethical action and policing strategies will be analyzed.

Speaker: Carlos Bertha, Ph.D., COL (Ret., USAR), A.M.ASCE, US Air Force Academy

Track 7B - Marine Cofferdams: Considerations in Construction and Design

The design of marine cofferdams requires close collaboration between contractor and designer. Issues such as rock, seals, installation /removal sequencing, and vertical loads have critical design impact. This presentation will cover different methods of achieving sheet pile toe resistance in rock. The effect of construction sequence on wale design will also be explored.

Moderator: Reuben Zylstra, P.E., M.ASCE, Foothills Bridge Co. Speaker: Michael Garlich, S.E., P.E., F.ASCE, Collins Engineers, Inc.

Track 7C – Impacts of Global Pandemics on Heavy Construction Projects; Lessons Learned and Case Studies of COVID-19

This session will include a retrospective analysis of the COVID pandemic and its impacts on future construction claims and contracts administration. Lessons learned will be discussed. The impact of COVID cases on heavy civil projects claim management, the supply chain, labor availability, and other implications will also be explored.

Moderator: Hossein Atei, Ph.D., MBA, P.E., P.Eng., F.ASCE University of Illinois, Chicago

Speakers: Joseph R. Hellenbrand, P.E., PSP, M.ASCE, Capital Project Management, Inc.; Thomas Mitchell, P.E., M.ASCE; MBP; Mohammed Mehany, Ph.D., M.ASCE, Colorado State University; Dave Ponte, P.E. CCM, CFCC, M.ASCE, Ankura

Track 7D - LADR Workshop

This session will include multiple paper presentations from *Journal of Legal Affairs and Dispute Resolution*. See the separate LADR Book of Abstracts for details.

Moderator: Wendy Wendrowski

LADR-927 Contract Documents Defects: Do Contract Drafters Know What They Want and Say it Clearly?

Speaker: Mohamed-Asem Uthman Abdul-Malak, American University of Beirut

LADR-925 Protest Denied: A Qualitative Meta-Analysis of Failed Challenges to Government Contracting

Speaker: Young Joo Kim, University of Maryland

LADR-989 Publicly Appointed and Sworn Experts in Civil and Structural Engineering – Outdated Role or Key Pillar of the Legal System

Speaker: Ulrike Quapp, HTWK Leipzig, University of Applied Science

Networking Break

Technical Session 8: All Industry Tracks/ Plenary

4:15 - 5:15 p.m. (1 PDH)

This plenary session, organized by ASCE's Construction Institute Board members, focuses on the post-COVID-19 work environment and return-to-the-office work models. Different approaches to return-to-work practices in the construction industry are explored, with specific emphasis on management of current and new employees in both office and field settings.

Moderator: Ryan Sauer, A.M.ASCE, 2023 CI President, PC Construction.

Speakers: Jim Starling, P.E., M.ASCE, Denver International Airport; Jordan Henshaw, P.E., A.M.ASCE, CIANBRO; LeAnne Napolillo, P.E., F.ASCE, HNTB; Yvonne Owusu-Safo, P.E., M.ASCE, Transland Engineering Group, Inc.; Travis Mohr, A.M.ASCE, Kiewit Infrastructure Co.



Track 8D - LADR Workshop

4:15 p.m. – 5:15 p.m.

This session will include multiple paper presentations from Journal of Legal Affairs and Dispute Resolution. See the separate LADR Book of Abstracts for details.

Moderator: Lance Vandemark

LADR-953 Development of Effectiveness Index for Electronic **Ticketing in Highway Construction**

Speaker: Apurva Pamidimukkala, University of Texas at Arlington

LADR-963 Exploring Economic Impacts of Sustainable Construction Projects on Stakeholders: The Role of Integrated Project Delivery

Speaker: Cheng Siew Goh, Heriot-Watt University

LADR-928 Revoking the Exercised Termination of the Construction **Contract: Implications and Lessons Learned**

Speaker: Mohamed-Asem Uthman Abdul-Malak, American University of Beirut

LADR-960 Critical Factors Affecting the Bid Cost of Building **Construction Projects**

Speaker: Kishor Shreshta, Washington State University

Reception

5:30-7:00 p.m.

Join us for some fun at the Shark Bar at Ballpark Village. Make a splash and unwind with fellow attendees. Stop by the Registration desk for shuttle and walking instructions.

Saturday | March 4

Indoor Mindfulness Activity

6:45 - 7:15 a.m.

Join CI Manager, Rachel Settle, to start the last day of CI Summit off with a relaxing and centering mindfulness practice. No physical activity required. All are welcome.

Continental Breakfast

7:30 - 8:00 a.m.

Technical Session 9: Industry Tracks 9A, 9B, 9C, and 9D

8:00 - 9:00 a.m. (1 PDH)

Track 9A - Building the Eads Bridge

The Eads Bridge in St. Louis is an essential chapter in bridge design and construction history, and 2023 will mark the 149th anniversary of the opening of the Eads Bridge. This presentation will bring the story of the Eads Bridge to life, providing a unique learning opportunity. Session attendees will learn about the contributions of James Eads to the construction profession, the challenges of building the Eads Bridge, and the means and methods used. Also, events planned for the 150th anniversary of the Eads Bridge will be outlined.

Speaker: Paul Giroux, Dist.M.ASCE, NAC, Kiewit

Track 9B - Facilitating Accelerated Project Delivery

Unprecedented investment has occurred in America's infrastructure both to stimulate the economy that has been impacted by the recent pandemic and to improve long-term safety and quality of life. The administration has put out a comprehensive plan titled The Biden-Harris Action Plan for Accelerating Infrastructure. This session will provide specific insights into opportunities that one could leverage to accelerate program/project delivery. Some fundamental principles will also be identified that should be considered and embraced by thought leaders, planners, designers, and builders to help their clients deliver on their promise.

Speaker: K. N. Gunalan, Ph.D., P.E., D. GE, F.ASCE, Pres. 20 ASCE, NAC, AECOM, Craig Ruyle, P.E., M.ASCE., NYSDOT

Track 9C - Materials Innovation for Sustainable and Resilient Asphalt Pavements

This session will feature the most recent studies on using new additives and recycling materials for sustainable, environmentally friendly, and climate-adaptive asphalt pavement. Attendees will learn about the application of new additives and recycling materials and associated performance benefits and challenges.

Moderator: Zhanping You, Ph.D., P.E., F.EMI, F.ASCE, Michigan Tech

Speakers: Baoshan Huang, Ph.D., P.E., M.ASCE, University of Tennessee; Jenny Liu. Ph.D., P.E., M.ASCE, Missouri S&T; Gary Fitts, P.E., M.ASCE., Kraton Polymers U.S. LLC; Louay Mohammad, Ph.D., P.E., F.ASCE, Louisiana State University; Wayne Lee, P.E., F.ASCE, University of Rhode Island

Track 9D - Designing with the Shop and Field in Mind-General Safety and Design Considerations

Jobsites can present many risks to workers and to the general public. The vital role of engineers in creating a safer environment throughout the design, fabrication, and construction processes will be discussed in the context of costly recent disasters. Hazards and available controls that offer solutions that can be implemented at early stages will be evaluated. A general discussion on the definition of safety as it relates to engineering will be encouraged.

Speaker: Chad Morrison, P.E., F.ASCE, Berlin Steel

Networking Break

9:00 - 9:30 a.m.

Technical Session 10: Industry Tracks 10A, 10B, 10C, and 10D

9:30 - 10:30 a.m. (1 PDH)

Track 10A - Women in Construction: A Business Model for Success, Sponsored by WTS St. Louis

This panel discussion will highlight the many contributions of women in the construction industry, drawing from the panelists' experience and their unique perspectives. Specific focus will be on current workforce opportunities and challenges, tips for networking, and how to navigate professional advancement in an ever-changing world.

Moderators: Crystal Allen Dallas, Excel Business Concepts; Jennifer Pangborn, WSP

Speakers: Paula Hart, Hart Engineering; **Jordan Henshaw, M.ASCE, P.E.,** Cianbro Corporation; **Vivian Martain,** Millstone Weber; **Stacey Smith, P.E.,** Associate DBIA, MoDOT

Track 10B – Advancements in Digital Technologies for Digital Project Delivery – Part I

The importance of digital data and technologies in various phases of the project life cycle is increasingly being realized by construction project stakeholders. As a result, technology solution providers often develop their own proprietary tools, and any data collected using their tools cannot be read by tools developed by other technology solution providers. To solve this interoperability issue, project stakeholders have begun to standardize and adopt common technologies such as Industry Foundation Classes (IFC). This session will present examples of such initiatives, including agnostic 3D model viewers for the bidding platform.

Moderator: K. Joseph Shrestha, Ph.D., C.Eng, M.ASCE, East Tennessee State University

Speakers: Terry Bills, *Esri;* **Adrien Patane,** *Trimble;* **Alexa Mitchell,** *HDR;* **Phil Bell,** *Progression Dynamics*

Track 10C - Current Practices in Asphalt Pavement Preservation and Construction

This session will gather experts from academia, industry, and highway agencies, to present their perspectives on current practices associated with all aspects of asphalt pavement design, construction, preservation, repair, performance assessment, and QC/QA. A panel discussion will be held at the end to highlight new prospects, opportunities, and challenges in the field.

Moderator: Shihui Shen, Ph.D., P.E., F.ASCE, Pennsylvania State University

Speakers: Dingxin Cheng, California Pavement Preservation Center; Cheng Ling, PIKE Industries; Hao Wang, Ph.D., M.ASCE, Rutgers University; Jason Blomberg, P.E., MoDOT – Construction and Materials; Heidi Schaefer, Alaska Department of Transportation & Public Facilities

Track 10D - Ethical Issues in Prevention through Design

The importance of safety on construction sites has been highlighted recently by ASCE's Industry Leaders Council. This presentation will apply the current ASCE Code of Ethics to an emerging safety management technique called Prevention through Design (PtD) , also known as Design for Construction Safety and Safety by Design. The concept of PtD is to have designers (engineers and architects) explicitly consider the safety of construction and maintenance workers during the design phase of a capital project. The session will demonstrate that the PtD concept is aligned fully with the ASCE Code of Ethics, the ASCE Construction Site Safety Policy (PS 350), and the concept of the Triple Bottom Line. Specific examples of how PtD can be implemented and an overview of the PtD process will be provided.

Speakers: Mike Toole, PhD, PE, F.ASCE, The University of Toledo

Networking Break

10:30 - 11:00 a.m.

Technical Session 11: Industry Tracks 11A, 11B, 11C, and 11D

11:00 a.m. - 12:00 p.m. (1 PDH)

Track 11A - Mental Health and the State of the Construction Industry

This interactive discussion will challenge attendees to reflect on the current status of the construction industry as it relates to Mental Health, Suicide Awareness/Prevention and Substance Misuse, and how the historic culture of the industry affects the current challenges facing us. It will also explain what the industry is doing to enact positive change and what resources are available to support the industry.

Speakers: Brandon Anderson, AGC of Missouri; **Ricky Reams,** Murphy Company

Track 11B - Advancements in Digital Technologies for Digital Project Delivery - Part II

The importance of digital data and technologies in various phases of the project life cycle are increasingly being realized by construction project stakeholders. As a result, technology solution providers often develop their own proprietary tools, and any data collected using their tools cannot be read by tools developed by other technology solution providers. To solve this interoperability issue, project stakeholders have begun to standardize and adopt common technologies such as Industry Foundation Classes (IFC). This session will present such initiatives, including agnostic 3D model viewers for the bidding platform.

Moderator: K. Joseph Shrestha, Ph.D., C.Eng, M.ASCE, East Tennessee State University

Speakers: Andrew Martin, Infotech; Ron Gant, Infotech; Chad Schafer, Infotech

Track 11C - Managing Risk Associated with Utility Infrastructure and Development of New ASCE **Utility Infrastructure Standards**

Utility owners are rarely contractual parties to the infrastructure project development process, yet their existing pipes and cables, and support structures have significant effects on project risk, schedules, and budgets. Utility owner records for design plan base conditions have not addressed this problem; these records are often inadequate or incompatible for designer needs, especially within congested urban corridors. ASCE has developed two standards, ASCE/UESI/CI 38-22 (ASCE 38) and ASCE/UESI/CI 75-22 (ASCE 75), to assist engineers in managing risk associated with utility infrastructure. This session will present these two newly published utility standards, associated recent technologies, and new legislative efforts to routinely employ these best practices.

Speakers: Donald W. Haines, A.M.ASCE, Utility Mapping Services, Inc.; James H. Anspach, P.G. (r), Dist.M.ASCE, NAC, lowa State University

Track 11D - Implementing New Build America, Buy **America (BABA) Requirements**

This panel will present updates on the new Build America, Buy America (BABA) requirements that went into effect in May 2022 for all federal funding on infrastructure. These new requirements strengthen investment in manufacturing and jobs in the US by reinforcing domestic preference for products used on all infrastructure products that receive federal funding. A panel of multiple federal agencies (including EPA and DOT) will provide an overview of updates on BABA implementation for their financing programs.

Speakers: Leslie Corcelli, Office of Wastewater Management, U. S Environmental Protection Agency; Darren Timothy, Office of the Assistant Secretary for Transportation Policy, Department of Transportation (DOT)

Closing Plenary Luncheon

12:00 - 1:30 p.m. (1.5 PDH)

Call to Order and Closing Remarks

Ryan Sauer, A.M.ASCE, CI President 2022–2023, Vice President at PC Construction Company



Introduction for the 2023 Construction Management Award - Cl Management **Practice in Construction Committee: 2023 Construction Management Award**

Daniel Gross, PE, M.ASCE, Benesch

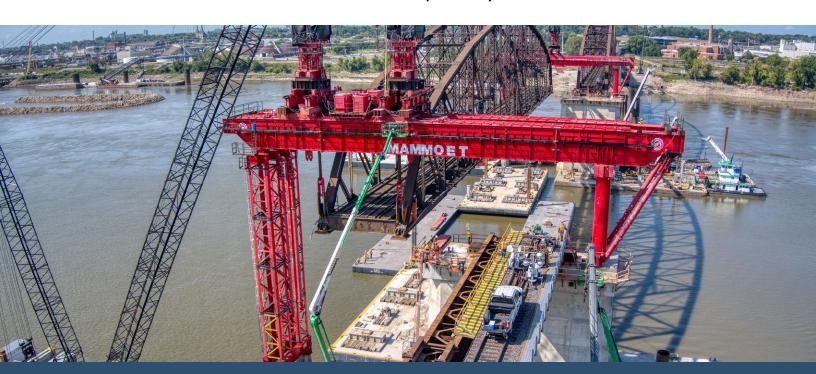
Merchants Bridge Truss Planning & Construction

The rehabilitation of the historic Merchants Bridge in St. Louis focuses on replacing the three river truss spans, strengthening the existing river substructures and improving the adjacent approaches. This session details Walsh Construction's and Mammoet's replacement of the steel truss spans at the Terminal Railroad Association of St. Louis' Merchants Bridge as part of its rehabilitation. Increasing the capacity and dependability of the bridge will assist in meeting the projected freight and passenger rail demand. This session will also explore how, with the improvements implemented, upgraded and more efficient track service for this twin-track bridge will reduce maintenance and extend the lifespan of this vital river crossing, enabling it to continue to be an important national link between Illinois and Missouri into the next century.

Moderator: Daniel Sieve, Senior Project Manager, Walsh Construction Company II, LLC.

Speakers: Eric Fields P.E., Esq., Chief Engineer, Terminal Railroad Association (TRRA) of St. Louis; Nick Staroski, P.E., M.ASCE, Transystems.

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[NEW] Quiet Room | Sterling 7

CI Summit is providing a quiet room for all attendees in the Sterling 7 Studio, which is in the hallway near the registration desk. You can work, think, pray, chill out, or meditate in the quiet room, but please don't talk to other attendees. You can listen to headphones. You are also welcome to use computers and phones if they have their sound muted and you don't have a voice conversation through them.

If you and someone else in the quiet room want to chat, please leave the room. If others are talking or making noise in the quiet room, and you are comfortable reminding them of the rules, please do so. Otherwise, please contact the registration desk for help.

Conference Attire

The dress code for the conference is business casual (slacks, casual dresses). Meeting room temperatures will vary, so wear layered clothing to ensure your personal comfort. We also recommend that attendees wear comfortable shoes.

Meeting Room Overcrowding

ASCE will make every effort to schedule popular events in rooms large enough to accommodate anticipated attendance. Since many events are extremely popular, it is wise to select alternative events as you plan your conference schedule. ASCE and the hotel personnel are REQUIRED to follow local fire regulations and may ask participants in rooms filled to capacity to choose another event.

Medical Emergencies

ASCE hopes that your visit to St. Louis and the CI Summit will be free of medical incidents. However, if you become ill at the Hyatt Regency St. Louis at the Arch, please contact the front desk and tell them you have a medical emergency that requires immediate

No Smoking Policy

ASCE supports a "No Smoking" policy. Smoking is prohibited in the Hyatt Regency St. Louis at the Arch, and all venues hosting ASCÉ events.

Program and Session Cancellation

ASCE reserves the right to cancel programs and/or sessions because of low registration. In the unlikely event of a cancellation, all registrants will be notified and will receive a full refund, if applicable. Programs and sessions are subject to change, and ASCE reserves the right to substitute a program, session, and/or speaker of equal caliber to fulfill educational requirements.

Professional Development Hours (PDHs)

You may earn PDHs, which are nationally recognized units of record, by attending conference concurrent sessions. ASCE follows NCEES guidelines on continuing professional competency. Since continuing education requirements for P.E. license renewal vary from state to state, ASCE strongly recommends that individuals regularly check with their state registration boards on their specific continuing education requirements that affect P.E. licensure and the ability to renew licensure. For details on your state's requirements, please go to www.ncees.org

Badge Policy and Ribbons

Your conference registration name badge is your admission to the educational sessions. Please wear your badge at all times. Tickets are required for the pre- and post-conference events, meals, and special events. Please be sure to bring your tickets with you to each event as you will not be admitted without a ticket. Ribbons will be available at the registration desk. ASCE recommends that you remove your badge when leaving the

** Recycle Your Badge Holder**

Please help ASCE stay "green" and reduce extra costs by returning your badge holder at the end of the conference in the receptacles provided by the registration desk.

Recording Policy

Photographic, video or audio recording of any education session is strictly prohibited without prior written permission from both ASCE and the session presenter(s).

Release/Waiver

Photographic Release: By submitting the registration form for this conference, I hereby release any photographs or recordings that may be incidentally taken of me by ASČE during these events to be used for any purpose.

Liability Waiver: I agree and acknowledge that I am participating in ASCE events and activities at my own free and intentional act; and I am fully aware that possible physical injury might occur to me as a result of my participation. I give this acknowledgement freely and knowingly that I am, as a result, able to participate in ASCE events, and I do hereby assume responsibility for my own well-being. I also agree not to allow any other individual to participate in my place.

Lactation Room

If you are in need of this private space during the conference, please see the registration desk.

Interested in becoming more involved with CI? Want to have your voice heard? Join one of our committees!



Who We Are

American Society of Civil Engineers (ASCE) established the Construction Institute (CI) in October 2000. CI is 1 of 9 technical institutes, and has over 16,000 members worldwide. We are a member-driven organization and represent owners, industry practitioners, academia, contractors, and consultants. Members of all backgrounds and experience levels, including students are welcome.

Get Involved — There is something for everyone!

The Construction Institute has 8 Councils, each of which is chaired by a member of the CI Board. Each Council has several technical committees reporting to it, which collect information on various technical and industry issues and disseminate it to ASCE and CI membership.

Councils/committees: To learn more about each committee and its purpose, visit our website at: go.asce.org/ci-committees.

- CI Summit Council
- Construction Implementation Council
 - Construction Quality Management and Inspection
 - Construction Safety Committee
 - Management Practices in Construction
 - Temporary Works Committee
- Design Interface Council
 - Digital Project Delivery
 - Specifications
- Publications Council
- Construction Standards Council
 - Schedule Delay Analysis Standard Committee

- Research and Planning Council
- Bituminous Materials
- Construction Engineering Education
- Construction Research Council
- Risk Management Council
 - Attorney Committee on Design and Construction
- ° Claims Avoidance and Resolution
- Young Professionals Council

How to Join Cl

To join a committee, please visit go.asce.org/ci-committees and complete an application form for either a technical committee or a standards committee.



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Exhibit Hall Hours

Thursday, March 2 2:00 – 7:00 p.m.

Friday, March 3 10:30 a.m. – 4:00 p.m.

Saturday, March 4 7:30 – 11:00 a.m.

Exhibitors

BFW Engineering

The Bacon Farmer Workman and Marcum Engineering family of companies are committed to providing multi-disciplined, full-service engineering excellence through planning, design, and construction observation phase services for Civil, Structural, Transportation, Mechanical and Electrical projects of diverse complexities.

Hill International

Hill has managed delivery of some of the most complex building projects in the world —the Etihad Towers in Abu Dhabi, the reconstruction of the World Trade Center site in Manhattan, and the United Nations Headquarters in Geneva. Our expert team intuitively understands the unique circumstances around each project, effectively managing everything from site constraints to critical IT systems to ensure that your project proceeds as planned.

Gransberg & Associates

Consultant to US and international construction companies and consulting engineering firms, as well as many public owners, provides des,ign-build (DB), construction manager/general contractor (CMGC), and construction manager-at risk (CMR) contracting, as well as value engineering, contract dispute resolution, arbitration, and expert witness testimony services.

Kiewit

In the building market, Kiewit specializes in arts and culture, aviation, commercial/mixed-use, federal, healthcare, higher education, hospitality, sports/entertainment, and transportation/industrial construction. Our capabilities include preconstruction, general contracting, building information modeling, construction management, engineering, sustainability, and self-performed scopes of work.

Matrix Construction Products

MATRIX Construction Products, LLC (MATRIX) provides high quality polymer and bentonite products and additives to the construction drilling industries.

Reconstruct

Reconstruct® makes the built world a better place to live, work and play. With offices in Silicon Valley and the Midwest, Reconstruct's Visual Command Center™ brings together reality capture, drawings and models and schedule. This provides construction project stakeholders more efficient workflows in documentation, progress tracking and quality control.

Texas Department of Transportation

The Texas Department of Transportation is a government agency in the state of Texas. Though the public face of the agency is generally associated with the construction and maintenance of the state's immense state highway system, the agency is also responsible for overseeing aviation, rail, and public transportation systems in the state.

Utility Mapping Services

Established in 2002 Utility Mapping Service Inc. (UMS) is a Utility Engineering (UE) firm focused on the Subsurface Utility Engineering (SUE) industry. We are experts in establishing the georeferenced position of existing utility infrastructure and then accurately depicting that infrastructure in accordance with Standard ASCE/CI 38-02.

Univ of Arkansas Online

University of Arkansas Online programs give you the flexibility to balance family, work and school responsibilities. Online programs are designed by academic departments on the Fayetteville campus to offer you another path to earning a degree from a top-tier public research university.

Whiting-Turner

Whiting-Turner provides construction management, general contracting, design-build, and integrated project delivery services on projects small and large for a diverse group of customers. We constantly strive to exceed each client's expectations through innovation, collaboration, and best practices. With over 50 locations nationwide, Whiting-Turner has a strong presence throughout the US.

WTS St. Louis

WTS is an international organization dedicated to building the future of transportation through the global advancement of women.



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