

# GLF-CEM newsletter

**December 2020**

Volume 4, Issue 1

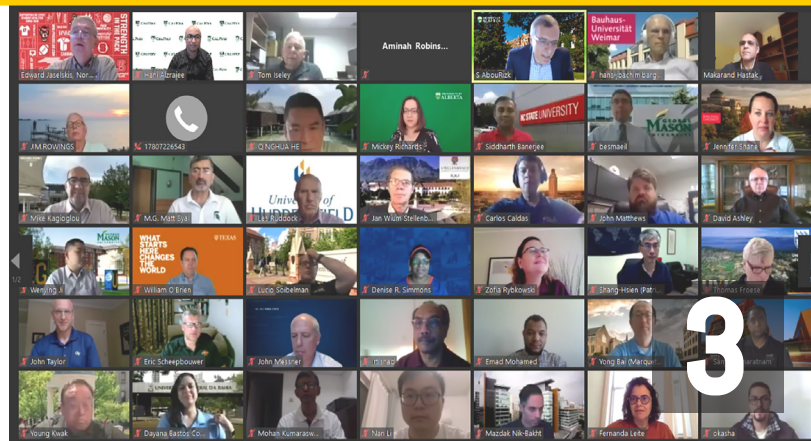


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The Global Leadership Forum for Construction Engineering and Management Programs



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# 2020 - 2022 Executive Committee



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North Carolina State University  
United States



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United States



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University of Alberta  
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India

Patricia Tzortzopoulos  
University of Huddersfield  
United Kingdom

# Welcome

## GLF-CEM MEMBERS + FRIENDS

I am honored to serve as GLF-CEM Forum Chair for the next two years and look forward to working with all of you to advance our vision of creating future academic and industry leaders in construction engineering and management. Since its inception nine years ago, this organization has grown and thrived due to its members' strong belief in the mission to build future leaders in the construction profession.

We have implemented some exciting initiatives, including a new Young Leaders Group led by Lucio Soibelman and Women in Construction led by Patricia Tzortzopoulos. Our new Membership Committee Chair, Carlos Formoso, is working on ways to increase the diversity of our membership internationally and to streamline the membership approval process. We thank Mark Hastak for his expert leadership of the KPI/Benchmarking Committee since its inception. With leadership rotation, the new Chair, Dayana Bastos Costa, is working with guest editors Yasangika Sandanayake, Thomas Ng, and Aparna Samaraweera on publishing papers in special journal issues. This group continues to benchmark CEM programs in the U.S. and investigate global data trends including the effects of COVID-19 on construction. Jan Wium continues to lead the Trends working subcommittee. Together, we are excited about moving our vision forward to strengthen the CEM community.

This issue's highlights include:

- The 2020 GLF-CEM Forum: Due to the COVID-19 pandemic, and for the first time in the Forum's history, the event was hosted in an online format and attracted approximately 80 attendees.
- The 2021 GLF-CEM Forum
- By-law changes regarding membership approval and discussion of a new role for the Advisory Committee
- Committee progress briefs
- The GLF-CEM welcomes five new members
- Highlights of the Schools of Engineering and the Built Environment at Western Sydney University

Kind Regards,

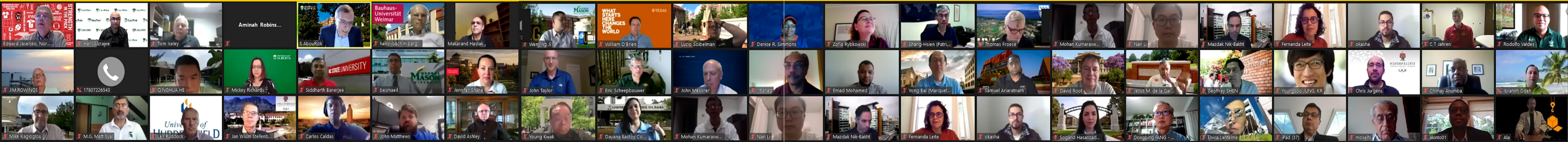
*EDWARD J. JASELSKIS*

**Edward J. Jaselskis**  
GLF-CEM Chair  
E.I. Clancy Distinguished Professor  
North Carolina State University

# Virtual Conference

## GLOBAL LEADERSHIP FORUM FOR CEM PROGRAMS

# 2020



**Dr. Edward Jaselskis**  
Chair, GLF-CEM

**E.I. Clancy Distinguished Professor**  
Civil, Construction and Environmental Engineering  
North Carolina State University  
United States

Due to the ongoing COVID-19 pandemic, the 2020 GLF-CEM was hosted in an online format in two three-hour blocks on June 9 and 10. The five-session event focused on various aspects of leadership, which included collaborations between industry and academia, program accomplishments across the globe, trends and benchmarking initiatives, and CEM research innovations.

### DAY 1: JUNE 9, 2020

The first day of the Forum opened with a welcome address

by Hans-Joachim Bargstädt, Chair of the GLF-CEM, followed by Mark Hastak's brief overview of the Forum and the challenges we face as civil and construction engineers. The morning's sessions, moderated by Simaan AbouRizk, focused on ways to promote innovation through university-industry partnerships. The first session discussed the new Construction Innovation Centre (CIC) at the University of Alberta and the second session discussed collaborations between academia and industry at the Trenchless Technology Center (TTC) at Louisiana Tech University.

#### FIRST SESSION:

Aminah Robinson Fayek and Jim Kanerva presented the Strategic Business Plan for the new CIC. Dr. Robinson Fayek then elaborated on the research roadmap, CIC services, metrics to evaluate the CIC, and the membership model. Based on interviews conducted for the research roadmap, the team was able to identify topics such as productivity and performance, health

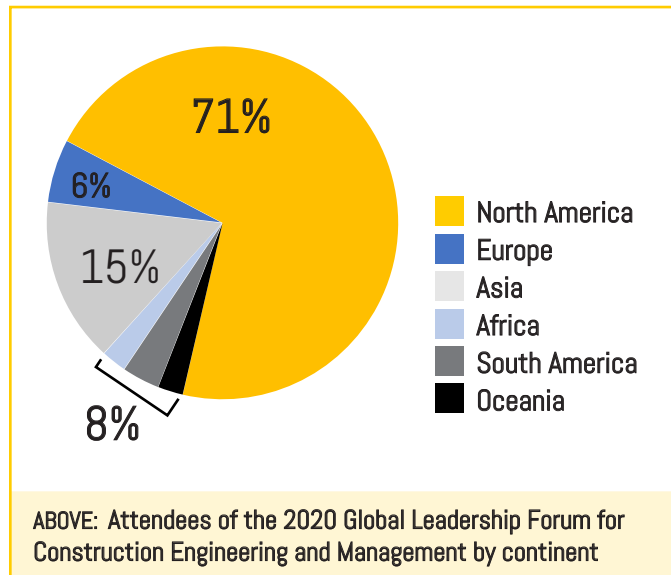
and safety, artificial intelligence, and automation and technology as the top 'what' (problems) and 'how' (methods) priorities. To provide first-class research, the CIC aims to partner with industry to provide mutual benefits to both parties. The CIC is also looking to expand its membership by partnering with various construction companies on a wide array of practical topics.

Next, Mr. Kanerva, CIC Executive Management Committee and Co-Chair of the CIC Scientific Advisory Committee, explained why industry wants to be part of the CIC and how this partnership can enhance mutual cooperation between academia and industry. As a case study, Mr. Kanerva discussed a recently launched project, 'Planning for Safety Using Big Data Analysis – Developing Safety Management Decision Support Systems'. This project involves many industry partners to collect data and integrate all management systems, including safety systems. This project is focused on the 'what' (productivity and performance, health and

safety) and the 'how' (AI/machine learning, automation and technology, simulation modeling, systems and data integration, big data analytics, internet of things) priorities that are incorporated in the research roadmap. To attain maximum benefit, each partnering company must have a champion to facilitate data-sharing, which will lead to effective data analysis and thus to better outcomes.

#### SECOND SESSION:

With the focus on promoting innovation through university-industry partnerships, Drs. Tom Iseley and John Matthews presented an introduction to the TTC at Louisiana Tech. Dr. Iseley has maintained strong emphasis on fostering industry connections for over 30 years and his presentation focused on taking fundamental research into practice. As an example, he explained the Easy-Sight New 3D Imaging technology with a demonstration and validation. Dr. Iseley also explained the BAMI-I Asset



Management Certification program, which is a four-day training course offered throughout the United States. Currently, strong collaborations are in place between academic institutions (including Purdue University, the Utility Investigation School, and other institutions in China and Hong Kong) and international companies for advancing technology transfer. Furthermore, a specialty school, the Auger Boring School, has a five-day program to advance knowledge in the field and a proposed new facility to support field training. Dr. Iseley explained that the key to the TTC's success is that a lot of time is spent understanding the industry. When industry representatives first came to the TTC, they were concerned about competition, but soon recognized that working together would benefit everyone.

Dr. Matthews explained the structure of the TTC, including the funding model for directors, staff and students, and the role of the Industry Advisory Board. He also gave examples of training programs and research projects within the TTC and noted that the TTC is not a regional center; rather, it consists of local, national, and international collaborators/stakeholders. For example, since 1998, the TTC has organized 200 municipal forums for water and sewer utilities across North America in over 50 cities. The Industry Advisory Board guides the TTC and contributes to and partners

with the TTC on research and development. Currently, the TTC has 54 industry members from various sectors, including but not limited to manufacturers, contractors, and municipalities, with municipalities as the key stakeholders. Research projects under the TTC include emissions analysis, liner materials, moving to natural gas, and robotics/fiber optics. As for challenges faced by the TTC, continuity of funding is a big issue, especially with budget cuts to the university or when the industry is depressed. The need is for balance of funding and not to rely on just one sector. The TTC is working to diversify its current funding sources and find new funding sources.

**DAY 2: JUNE 10, 2020**

The third session of the Forum targeted future trends in construction education and lessons learned from the current global pandemic. The fourth session focused on rapid facility delivery as it pertains to future trends in construction education. The fifth and final session focused on the work of the ASCE Construction Engineering Committee. Lastly, Edward Jaselskis and Hans-Joachim Bargstädt summarized the Forum and provided wrap-up comments.

**THIRD SESSION:**

Moderated by Jan Wium, the session was comprised of presentations by Drs. Chimay Anumba, Mike Kagioglou, Jeffrey Russell, and Lucio Soibelman. Dr. Anumba focused on improving teaching and learning based on industry and alumni input and by employing various mechanisms, such as expert guest lectures, virtual site visits via Zoom for live operations on constructions sites, and interactions of students with a variety of professionals. A few lessons learned from the industry that can be applied to the current COVID-19 situation include adaptability and resilience, effective communication (whatever the medium), and being well-equipped to adjust quickly to an unexpected phenomenon, both for faculty members and students. Dr. Anumba emphasized that inequities among students who are learning at home

(e.g. bandwidth, space) and challenges that pertain to synchronous delivery, proctoring, and integrity of assessments must be at the forefront of our concerns.

Dr. Kagioglou presented best practices for labs, team projects, exams, instructor-student interaction, and assessment integrity. A few lessons learned include having effective decision-making and communications in place (weekly staff meetings, coffee with the Dean), acknowledging that there is not time to wait to make things perfect and being willing to improve continually (take skills/lessons from lean construction), identifying vulnerable groups and providing support (laptops, food baskets/food vouchers, talks with landlords), reassigning staff to support students, and having the flexibility to reassign, replan, and implement. A few best practices are to encourage Ph.D. students to adjust their research work without access to labs, institute social distancing protocols in labs, offer virtual lab sessions for asynchronous delivery, address problems with software licenses, access to supercomputers, and proctoring software, and offer more intensive peer mentoring and industrial mentoring for students. The key take-away is that perfection is the enemy of the good; if you wait until you have all the information at hand, you are already late! Risk management is a key skill.

Dr. Russell explained the benefits of increased access to professional certificates, summer courses (>1000 courses online), and online delivery at the University of Wisconsin at Madison. The strategy is "digital by default" or "digital first". Pivoting from delivery of courses to remote delivery is different from offering courses online by design. Learning requires an intentional thought process, and teaching may not always lead to learning. Remote delivery is an iterative process that takes additional resources, more than just student evaluations. Technology can help us be more inclusive and address equity issues with regard to access, quality, and affordability.

Dr. Soibelman described the various capabilities of the University of Southern California system that

**PROGRAM AT A GLANCE**

**DAY 1: JUNE 9, 2020**

- Welcome Address  
Dr. Hans-Joachim Bargstädt
- Construction Innovation Center  
SESSION 1  
Dr. Aminah Robinson Fayek, Mr. Jim Kanerva
- Trenchless Technology Center  
SESSION 2  
Dr. Tom Iseley, Dr. John Matthews

**DAY 2: JUNE 10, 2020**

- Future Trends in Education  
SESSION 3  
Dr. Chimay Anumba, Dr. Mike Kagioglou, Dr. Jeffrey Russell, Dr. Lucio Soibelman
- Rapid Delivery of Future Trends  
SESSION 4  
Dr. Mohamed Al-Hussein, Dr. Anil Sawhney, Dr. Daniel Oliveira, Dr. Penghua Zhou
- ASCE Construction Engineering Committee  
SESSION 5  
Dr. Yong Bai
- Closing Remarks  
Dr. Hans-Joachim Bargstädt, Dr. Edward Jaselskis

offers hybrid teaching modes. The university had just three weeks to test remote delivery before the entire system moved online. Most of the students surveyed said that they would take a year off if the next year was taught online. A hybrid model of both in-person and virtual participation was introduced to lead to better outcomes. For example, Dr. Soibelman's lab is using virtual reality for lab classes and site visits. With regard to construction engineering, Dr. Soibelman stated that we need to rethink the construction process and how we teach construction engineering in terms of advanced pre-fabrication, 3D printing, robotics, and new supply

chain tools and methods. The industry is changing; e.g., in the future, humans will not be scheduling. Dr. Soibelman presented a video, 'Robot-Proof: Higher Education in the Age of Artificial Intelligence', by Joseph Aoun. A key take-away is that the COVID-19 crisis has given us an opportunity to rethink curriculum.

#### FOURTH SESSION:

Moderated by Mark Hastak and Dongping Fang, panelists Drs. Mohamed Al-Hussein, Anil Sawhney, Daniel Oliveira, and Penghua Zhou discussed future trends in construction education and lessons learned from the current crisis in terms of rapid facility delivery.

Dr. Al-Hussein's presentation was titled 'COVID-19 Based Framework to Reduce Human Interaction in Modular Construction'. When manufacturing workers went back to work, passing things from one person to another was no longer acceptable due to social distancing protocols. Dr. Al-Hussein cited four processes to enable change processes: digitization, advanced robotic techniques, linear manufacturing, and virtual reality.

Dr. Sawhney's focus was rapid delivery. The current health crisis has led to a decrease in productivity, which has strengthened the case for transformation in the industry with an increased need and push for industrialized construction. He stated that product transformation (additive manufacturing, robotic activity), delivery transformation (integrated product delivery), and digital transformation (physical integration with digital technologies) must be integrated. Examples of digital tools to implement rapid delivery include a COVID-19 labor planning app and a wearable sensor-based tracking tool.

Dr. Oliveira discussed the Construction Industry Institute's (CII's) rapid project delivery system. The CII brings together owners, contractors, service providers, suppliers, and academics to improve the business of organizations in the capital projects industry. Examples of CII research that are related to agile

delivery include industrial modularization, integration of suppliers, workforce and offsite construction, and flexible facilities.

Dr. Zhou provided a fascinating presentation on emergency hospital construction in Wuhan, China. The Huoshenshan Hospital was completed in nine days and the Leishenshan Hospital was completed in ten days.

#### FIFTH SESSION:

The Forum's final session covered the goals and ideas of the American Society of Civil Engineers (ASCE) Construction Engineering Education Committee. Dr. Bai presented a brief history of the Committee and stated that one of the Committee's primary achievements has been publishing the guide to Professional Engineering Licensure for Construction Engineers. With regard to collaboration opportunities and teaching and learning under COVID-19, Dr. Bai spoke about online pedagogy and effective online teaching methodologies, the assessment of student outcomes and meeting accreditation requirements, best practices for co-op/internships, and advancement of construction engineering education on the global stage (accreditation, curriculum, and professional licensure). For accreditation, universities are under pressure to reduce credit hours but also need to include new material.

#### CONCLUDING REMARKS

In summary, this forum offered unique perspectives on how to increase collaborations between academia and industry as well as investigated future trends in construction education and lessons learned from the current global pandemic. Drs. Jaselskis and Bargstädt thanked the planning committee and reiterated the importance of this global forum that addresses practical concerns of construction engineering and management worldwide.

# 2021 GLF-CEM

## VIRTUAL MEETING JUNE 14 - 15

## SAVE THE DATE!

The 2021 Global Leadership Forum for Construction Engineering and Management Programs will be held virtually on June 14 and 15, 2021.

Registration and speaker schedule will be available online in early 2021.

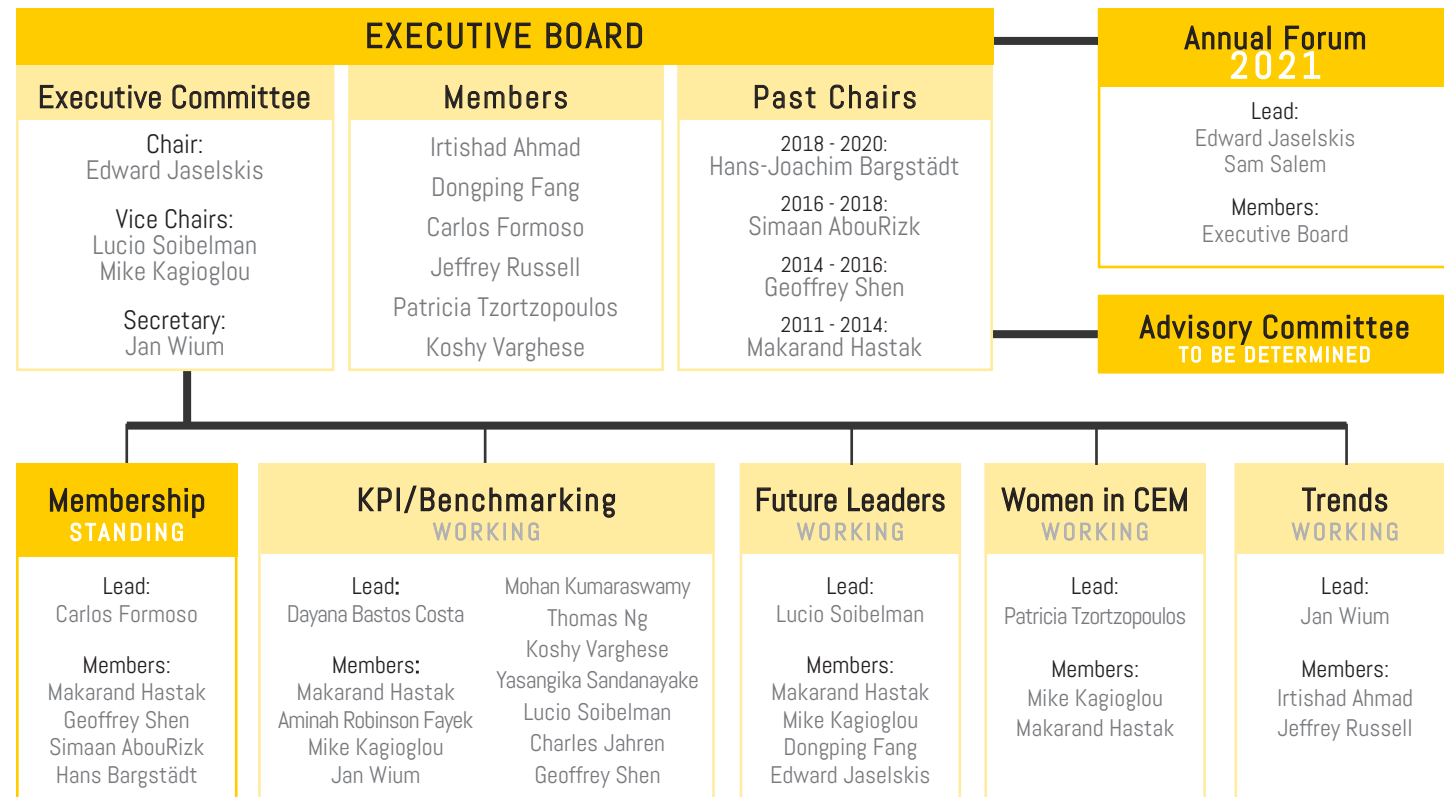
AN UPDATE OF THE GLF-CEM

# Committee Initiatives

The GLF-CEM was established in 2010 by a small group of CEM researchers aiming to promote educational excellence, international collaboration, and the position of engineering and management programs around the world. Our membership has more than doubled since this time, growing our organization's international impact and reach.

The Executive Committee has opted to engage the knowledge and ingenuity of its growing membership to address newly emerging opportunities and challenges in the field of CEM through the implementation of three key organizational changes. In May 2020, the GLF-CEM Executive Committee replaced the position of treasurer with a second Vice Chair position; created two new working committees, the Future Leaders and Women in CEM committees; and proposed the establishment of a new Advisory Committee, which is currently under review.

## Organizational Structure of the GLF-CEM Committees



The new organizational structure of the GLF-CEM Executive, Standing, and Working Committees were approved by the Executive Committee at the 2020 GLF-CEM Virtual Meeting.

## Future Leaders Committee

Lucio Soibelman is leading an initiative for developing new leaders and is currently organizing a group of young academic leaders to discuss leadership and establish what assistance they need to be successful. Thus far, a group of approximately 20 – 30 interested persons has been established, and a first meeting was held discussing the aims and group participation. At this meeting, more names were obtained. It was discussed that a session at the next GLF-CEM forum was necessary to report back on their vision in education, curriculum, research, and expectations. Furthermore, a mentoring program is in the works to match future leaders with seasoned faculty members to help build one-on-one relationships and find ways for these younger faculty to attend our annual meetings.

## Membership Committee

The Membership Committee is working on Guiding Principles for approving new members and maintaining a continuous process of applications to memberships and evaluations, so that there is no need to wait a year for confirmation of membership. A key change has recently been approved to allow ExCom members to vote people into full membership. Formal recognition would then be provided at the next annual meeting. This committee is also looking into the identification of new members and is making contacts to expand to other countries, especially South America, Africa, and Australia. The following actions are being taken currently:

1. Evaluating the existing list of members in order to identify countries or regions in which the number of members is small
2. Identifying institutions of leaders that should be involved in GLF-CEM with the support of the membership committee
3. Contacting potential candidates and sending them instructions on how to become a member and what we have to offer

## The GLF-CEM committees want your input!

We encourage members to share their research questions, results, and interests with our various GLF-CEM Committees:

### Membership Committee

Dr. Carlos Formoso  
Universidade Federal do Rio Grande do Sul  
[formoso@ufrgs.br](mailto:formoso@ufrgs.br)

### KPI/Benchmarking Committee

Dr. Dayana Bastos Costa  
Federal University of Bahia Salvador  
[dayanabcosta@ufba.br](mailto:dayanabcosta@ufba.br)

### Future Leaders Committee

Dr. Lucio Soibelman  
University of Southern California  
[soibelma@usc.edu](mailto:soibelma@usc.edu)

### Women in CEM Committee

Dr. Patricia Tzortzopoulos  
University of Huddersfield  
[p.tzortzopoulos@hud.ac.uk](mailto:p.tzortzopoulos@hud.ac.uk)

### Trends Committee

Dr. Jan Wium  
Stellenbosch University  
[janw@sun.ac.za](mailto:janw@sun.ac.za)

### Women in CEM Committee

Patricia Tzortzopoulos is leading an initiative on Women in Construction Engineering and Management. The initiative is focused on bringing together leading women in CEM to support balance and gender equality and help attract more women to the profession. A group of women academic leaders will discuss barriers and opportunities for women in CEM, including those in academia, academic leadership, and the profession. The group will be a forum for discussion, including a broad range of issues (e.g., areas of curriculum development) which may need to change to help attract more women to the profession, leadership skills development, as well as at other activities that may support women in CEM. The group will also support the organization of international events, such as webinars and links, with relevant professional bodies.

### KPI/Benchmarking Committee

We would like to welcome Dr. Dayana Bastos Costa as the new chair of this working committee and to thank the outgoing chair Professor Makarand Hastak for launching and steering this committee so admirably and helping us to achieve some worthy outputs. In summary, initiatives have been launched to develop KPIs in construction industry, research, program, and education. Interim outputs from USA, Hong Kong, India, and South Africa were presented at our annual meetings and in previous newsletters.

This group continues to grow in size and now targets to encourage, if not catalyze, the development of ground-breaking papers for potential publication in special issues in well-recognized international journals: (A) *ASCE Journal of Management in Engineering* "Impact on Architecture, Engineering, and Construction During and Post COVID-19" (abstracts due December 31<sup>st</sup>), Guest Editor: Islam H. El-adaway, Missouri University of Science and Technology and (B) CIB recognized *BEPAM Journal* "KPIs to Help Develop the Next Normal in Construction Practice, Teaching-Learning and Research" (papers can be submitted up to March 15<sup>th</sup>; abstracts can be sent earlier), Guest Editors: Yasangika Sandanayake, Thomas Ng, and Aparna Samaraweera.

Furthermore, currently Charles Jahren (Iowa State University) is working on benchmarking different construction engineering and management programs in the USA. Makarand Hastak and Hubo Cai (Purdue University) are studying the correlation of the Purdue Index for Construction and COVID-19. Another project, led by Mike Kagioglou (Western Sydney University), involves engaging with the office of the New South Wales Building Commission in Australia to use data that have not yet been analyzed. Suggestions and offers from those interested in developing KPIs are welcome, whether related to our industry, research, programs, or education.

### Trends Committee

Detailed progress reports of the Trends Working Committees can be found in previous issues of the GLF-CEM Newsletter, available at [www.uab.ca/glfcem](http://www.uab.ca/glfcem).



# interested in GLF-CEM membership?

Individual membership is open to persons who are involved in construction engineering and management programs. Institutional and practitioner memberships are also available. Elections will be carried out by the GLF-CEM Executive Committee.

Applicants for membership must have demonstrated a record of involvement in a construction engineering management educational program, preferably as a full professor or as an administrator.

**Contact us** to learn more or to begin your membership application today.

## JUST WANT TO ATTEND?

Individuals may also choose to attend the GLF-CEM as an observer. If you are interested in participating in one of our events or are interested in learning more about the GLF-CEM, please **contact us**.



# MEET OUR New Members



**Islam H. El-adaway**  
Professor

Civil, Architectural, and  
Environmental Engineering  
Missouri Uni. of Science and Tech.  
Rolla, USA  
[eladaway@mst.edu](mailto:eladaway@mst.edu)

**First Attendance:** 2020 GLF-CEM Virtual Meeting

Dr. Islam H. El-adaway is the Hurst-McCarthy Professor of Construction Engineering and Management, Professor of Civil Engineering, and Founding Director of the Missouri Consortium of Construction Innovation (MO-CCI) within the Department of Civil, Architectural and Environmental Engineering and the Department of Engineering Management and Systems Engineering at Missouri University of Science and Technology. Dr. El-adaway's research investigates how a system-of-systems approach can address multiple of the construction and infrastructure management challenges and has resulted to-date in 146 peer-reviewed papers (83 journal papers and 63 conference papers). Dr. El-adaway mentored 5 PhD students and 6 MSc students towards earning their respective degrees as well as receiving multiple awards and prizes. The efforts of Dr. El-adaway resulted in multiple honors and recognitions where his co-authored work with his graduate students was selected for the American Society of Civil Engineers (ASCE) Thomas Fitch Rowland Prize, 3 different times as ASCE Editor Choice Paper, and ASCE Best Paper Award. Also, he was selected 7 different times as an ASCE Outstanding Reviewer, and was invited by the National Academy of Engineering (NAE) to attend its Frontiers of Engineering Education Symposium as being one of the most innovative engineering educators. He is an Associate Editor for the ASCE's *Journal of Management in Engineering*, *Journal of Civil Engineering Education*, and *Journal of Practice Periodical on Structural Design and Construction*. He is a PE and FASCE in the US, and CEng and FICE in the UK.

**Yasangika Sandanayake**  
Professor, Head

Building Economics  
Faculty of Architecture  
University of Moratuwa  
Katubedda, Sri Lanka  
[ysandanayake@uom.lk](mailto:ysandanayake@uom.lk)



**First Attendance:** 2020 GLF-CEM Virtual Meeting

Dr. Yasangika Sandanayake is Head of the Department of Building Economics at the Faculty of Architecture, University of Moratuwa, Sri Lanka. She obtained her BSc in Quantity Surveying from the University of Moratuwa, Sri Lanka, and PhD from the University of Wolverhampton, UK. Yasangika is the Scientific Committee Chair of the annual World Construction Symposium since 2012 and is an Associate Editor of the *Built Environment Project and Asset Management Journal* (BEPAM), published by Emerald, UK. She will be the Lead Guest Editor of a Special Issue of BEPAM on "KPIs to Help Develop the Next Normal in Construction Practice, Teaching-Learning and Research" that was conceived after recent discussions of the KPI Committee of the GLF-CEM. In addition, she has been a resource person and invited speaker for many leading conferences and workshops.

Her research interests include Value Management, Performance Management, Lean Construction, Construction Supply Chain Management and Facilities Management. She has published over 80 journal and conference papers in the field of the built environment and has supervised a number of Doctoral and MPhil theses. Yasangika has received many national and international awards, including several EMERALD Research Awards and the FARU 2017 Award.



**Dayana Bastos Costa**  
Associate Professor

School of Engineering  
Structural and Construction Eng.  
Federal University of Bahia  
Salvador, Bahia, Brazil  
[dayanabcosta@ufba.br](mailto:dayanabcosta@ufba.br)

**First Attendance:** 2020 GLF-CEM Virtual Meeting

Dr. Dayana Costa has worked at the Federal University of Bahia since 2009. During this time, she had the opportunity to coordinate the Post-Graduation Program in Civil Engineering for five years. Currently, Dr. Costa is the Associate Head of the Department of Structural and Construction Engineering. She is also a member of the Steering Committee for the internationalization of

post-graduation programs at UFBA. Dr. Dayana Costa focuses her research on lean construction, production management, performance measurement and benchmarking, and sustainable management in developments, focusing on reducing environmental impacts on construction sites. Since 2015, she is studying integrating technology-based systems, such as Unmanned Aerial Vehicles, Building Information Modeling, and the Internet of Things for construction management. She is the coordinator of the Research Group in Construction Management and Technology (GETEC) at UFBA. She has been the principal investigator in several research projects granted by Brazilian governmental agencies, industry partnerships, and international collaboration network projects. From those research projects, academics publications were produced, including 26 journal papers, 27 book chapters, two edited conference proceedings, one edited book, and more than 120 conference papers. There are also technical productions disseminated to the industry, such as professional guides, case studies, and information systems.



**Patricia Tzortzopoulos**  
Professor, Associate Dean

Architecture and 3D Design  
Art, Design, and Architecture  
University of Huddersfield  
Queensgate, Huddersfield, UK  
[p.tzortzopoulos@hud.ac.uk](mailto:p.tzortzopoulos@hud.ac.uk)

**First Attendance:** 2016 GLF-CEM in Beijing, China

Dr. Tzortzopoulos holds a degree in Architecture and Urbanism from the Federal University of Rio Grande do Sul, Brazil, a masters degree from the same institution, and a PhD from the University of Salford, UK. She is a Professor of Integrated Design, Associate Dean for Research and Enterprise and director of the Innovative Design Lab research center at the School of Art, Design and Architecture,

University of Huddersfield, UK. In her role, she provides strategic direction and oversees research development across the School. Dr. Tzortzopoulos has developed research for the past 20 years focusing on different aspects of design and the built environment. Her interests cover design management, Lean Design and Construction, Value Generation, Building Information Modeling, as well as the design of healthcare facilities and social housing. She has developed a number of research projects examining the design process, including front-end design issues, requirements capture and management, evidence-based design, participatory design approaches, BIM in the retrofit of social housing, adoption of code checking in healthcare design, between others. Dr. Tzortzopoulos has been an active member of the International Group for Lean Construction since 1998 and served as reviewer and conference editor/organizer. She is an associate editor of the Brazilian Journal *Ambiente Construido*, has supervised research students and published widely.

For more details on her activities visit her institutional profile: <https://pure.hud.ac.uk/en/persons/patricia-tzortzopoulos-fazenda>



**John C. Matthews**  
Associate Professor

Civil Engineering and  
Construction Engineering Tech.  
Louisiana Tech University  
Roustan, USA  
[matthews@latech.edu](mailto:matthews@latech.edu)

**First Attendance:** 2020 GLF-CEM Virtual Meeting

Dr. Matthews has 16 years of experience in the installation, rehabilitation, and inspection of pipeline infrastructure systems. He is the Director of the Trenchless Technology Center (TTC) and

an Associate Professor of Construction Engineering Technology at Louisiana Tech University. Prior to joining LA Tech, he served as the Pipe Renewal Service Line Manager at Pure Technologies and as Water Infrastructure Lead at Battelle Memorial Institute. His research work has been presented at more than 150 conferences nationally and internationally and he has authored more than 220 publications in the field of trenchless technology. He is an active member of North American Society for Trenchless Technology (NASTT), American Society of Civil Engineers (ASCE), and American Water Works Association (AWWA), and currently serves on the North American Society for Trenchless Technology (NASTT) Board of Directors. He also serves as an Associate Editor of the ASCE *Journal of Pipeline Systems Engineering and Practice* and on the Editorial Board for *Trenchless Technology* magazine.

MEMBERSHIP LIST  
**Our Members**



Since 2011, the GLF-CEM has been open to persons involved in construction engineering and management programs around the world. To date, our membership is comprised of

**96 members from 74 institutions in 20 countries.**

**AUSTRALIA**

**Curtin University**  
 Xiangyu Wang

**Queensland University of Technology**  
 Martin Skitmore

**RMIT Australia**  
 Ron Wakefield

**BRAZIL**

**Federal University of Bahia**  
 Dayana Bastos Costa

**Universidade Federal do Rio Grande do Sul**  
 Carlos Formoso

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# SCHOOLS OF ENGINEERING AND THE BUILT ENVIRONMENT AT WESTERN SYDNEY UNIVERSITY

The Schools of Engineering and the Built Environment at Western Sydney University in Australia offer Bachelor of Construction Engineering (Honors) and Bachelor of Construction Management (Honors) programs. The University is ranked in the top 2% of universities worldwide by the Times Higher Education (THE) World University Rankings 2019-2020 among young universities under 50 years old, and is ranked number 3 in the world for impact and number 1 for employer for equality.

## BACHELOR CONSTRUCTION ENGINEERING | HONORS

The Bachelor of Construction Engineering is a unique four-year full-time undergraduate engineering honors degree program that was launched in 2010. The program is designed to train engineers with the key and complementing skills of both civil engineers and construction management professionals. The degree consists of core subjects in structural engineering, geotechnical engineering, project management and construction technologies. Students also have a chance to complete electives from other non-engineering disciplines and are able to complete specialization units leading to a sub-major in either structures or construction economics. Graduates work in the fields of construction, structural design, project management, quantity surveying, and estimation in both private and public sectors.

The Bachelor of Construction Engineering degree was designed to utilize the strengths in both the School of Engineering, which has the largest cohort of Civil Engineering students, and the School of Built Environment, which has the largest number of students in Construction Management in Australia. The degree is accredited by Engineers Australia, a signatory of the Washington Accord. This unique program is offered by only two other universities in Australia.

The program is also available as a dual degree combination with the Bachelor of Business, and with concurrent degrees such as the Bachelor of Applied Leadership and Critical Thinking, Bachelor of Data Science, and Bachelor of Entrepreneurship. Work Integrated Learning (WIL) is an integral part of the

curriculum, which is designed to improve students' work readiness. The academic staff within the School of Engineering that are responsible for the delivery of the Bachelor of Construction Engineering have a range of experiences in both teaching and research covering roads, bridges, airports, and residential and commercial buildings.

## BACHELOR CONSTRUCTION MANAGEMENT | HONORS

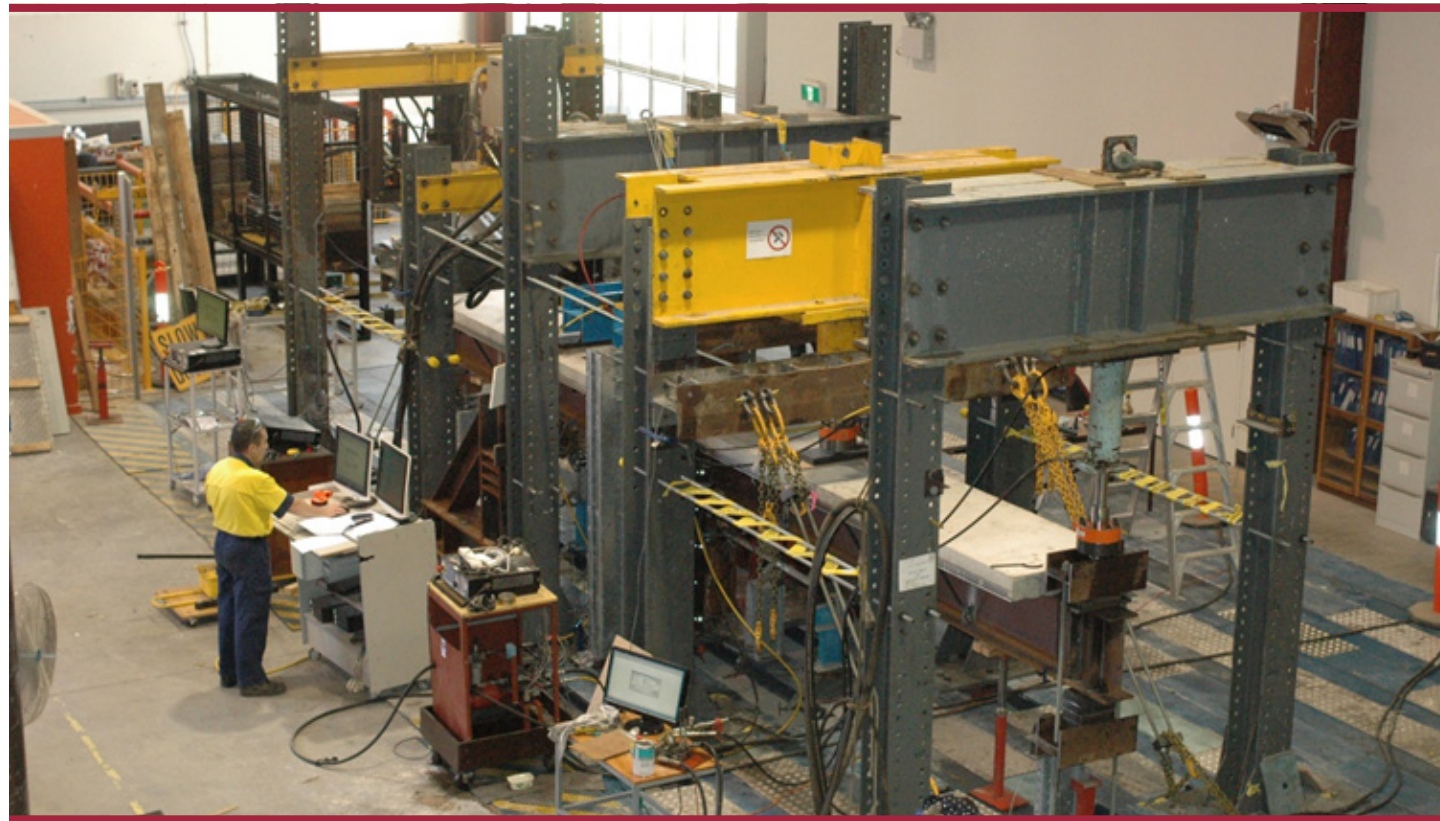
The flagship program in the School of Built Environment is the Bachelor of Construction Management (Honors). This is largest program of its kind in Australia with nearly 1,500 students. The program boasts an impressive record of 94% full-time graduate

“The flagship program in the School of Built Environment is the Bachelor of Construction Management (Honors). This is largest program of its kind in Australia with nearly 1,500 students. The program boasts an impressive record of 94% full time graduate employment.”

## FOCUS ON PROGRAMS

employment. In addition, 93% employers highly rate the graduates. The program is nationally accredited by the Australian Institute of Building (AIB), the Australian Institute of Quantity Surveyors (AIQS), and internationally by the Chartered Institute of Builders (CIOB). Bachelor of Construction Management (Honors) is a four-year program with two major options; Quantity Surveying and Building Surveying. The program is designed with an ideal

mix of theoretical, practical, and hands-on knowledge to address current and future industry changes. It enables students to learn what it takes to be a world-class professional, managing building and construction works in the 21<sup>st</sup> century. It offers a range of exciting career opportunities such as construction manager, project manager, site manager, contract administrator, quantity surveyor, building surveyor, estimator, facilities manager,



▲ ABOVE: Strong Floor in Structural Lab at Western Sydney University

▶ RIGHT: Library at Penrith Campus at Western Sydney University

building economist, property manager/developer, and building consultant. With the 1,200 hours of industry-based experience requirement before graduation, the program is offered with flexible and condensed timetables to enable students to undertake industry cadetships and other work-integrated learning activities.

## OTHER CONSTRUCTION PROGRAMS

In addition to the two aforementioned programs, other closely linked undergraduate construction programs at Western Sydney are the Bachelor of Building Design Management, which parallels the Construction Management program but incorporates elements of building design; the Bachelor of Construction Technology, which is a 3-year program and early exit to Bachelor of Construction Management (Honors) program; and the Diploma in Construction Management/Bachelor of Construction Technology, where students start their first year in WSU The College and transfer to the university in their second year. There is a double degree offered with the School of Law on Bachelor of Construction Management Studies/Bachelor of Laws, which shares nearly 50% of the subjects. Students can take a variety of



electives and are able to take units from across different areas, hence promoting an inter and cross disciplinary perspective. In addition to the University Medal for first-class high-achieving students, there are various student competitions, awards, scholarships and industry projects that our students take part in while they are at Western.

## RESEARCH AREAS

Research in the School of Engineering and the School of Built Environment is carried out collaboratively through the Center for Infrastructure Engineering and the Center for Smart Modern Construction. The research centers aim to contribute to the development of a smart and sustainable construction industry that is capable of dealing with challenges of the 21<sup>st</sup> Century using concepts and technologies brought forward by the 4<sup>th</sup> Industrial Revolution in five research themes; Sustainability, Industrialization, Digitalization, Resilience and Urbanization. WSU have the state-of-art facilities (showed left). The research at Western Sydney University in the areas of Materials Engineering and Civil Engineering have regularly been ranked Above World Standard and at World Standard, respectively, in the Excellence in Research Australia (ERA). Civil Engineering at Western Sydney University is also ranked in the top 75 worldwide by the Academic Ranking of World Universities (ARWU).

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Have something to share?

# The GLF-CEM Committee wants to hear from you.

We are looking for announcements, opinion pieces, images, and research highlights to include in our next issue. Have something to share? **[Click here.](#)**

And don't forget to let us know how we're doing—**[click here](#)** to take our short survey.