CRITICAL COLLABORATION
The mission of CII is to provide a research and development platform to create and drive innovative solutions that tangibly improve business outcomes through an academically-based, disciplined approach.

CII envisions an efficient capital projects industry that builds predictable value for member organizations, society and stakeholders. Leveraging new ideas, unique forms of collaboration, and knowledge across the capital project and facility lifecycle, CII provides unmatched advocacy for the built environment.
DEAR CII MEMBERS:

YOUR INSTITUTE IS PROVIDING UNIQUE AND DECISIVE LEADERSHIP for the trying times our industry is facing. While CII accomplished much in 2019, the size and scale of the financial and managerial challenges that this industry will confront in the next few years compel us to do more. The opening rounds have already claimed several legendary firms, even amidst a robust and growing economy. This is not a time for complacency. Nor is it the time to delude ourselves into thinking the things that have made us successful to date will continue to do so. As a scholar of this business and its finances for 25 years, I’m absolutely sure of one thing: No individual or company will be immune to the extensive industry-wide transformation that must be made now and in the years ahead. Your Institute is prepared to lead this transformation with the innovative research, tools, and business and executive training these challenges demand.

CII will lead our industry precisely because of its distinctly different and uncommon approach. Unlike others, CII is not an industry association or a trade group. We don’t lobby or try to persuade anyone to produce or amend regulations. Rather, your Institute is the world-class research and development (R&D) center for the capital projects industry. As a not-for-profit headquartered at The University of Texas at Austin, we believe that “what starts here changes the world.” By any objective or quantitative measure, CII punches way above its weight – producing the research, practices and improvements our industry has depended on for 37 years. And, we’re just getting started.

CII IN ACTION

In 2019, CII delivered on our four themes of People, Process, Technology and Business Model.

For two years in a row, we’ve had record attendance in our Executive Leadership Program (XLP), in our Communities of Business Advancement (CBA) and in the number of members enrolled in our online education courses. We have focused on helping our members’ employees not only learn about CII Best Practices, but also develop the leadership, business and executive skills they will need to lead our industry. CII is also helping our members engage with each other and build valuable peer-to-peer networks through our committees, communities, and research teams. We know it is working: Surveys and feedback indicate that our members’ employees are getting the information they need to advance their careers. In 2020, look for CII to add new online courses and other educational opportunities.
At CII, process improvement begins with research. Thanks to the work of our staff and the Funded Studies Committee, I am confident that we currently have the best research program in the Institute’s history. The diligent work of our industry sector committees was on full display for the first time at the 2019 CII Annual Conference as each group shared the final results of its research (see pages 4 – 5). By design, CII’s sector committees have focused on creating the near-term wins our members need. By contrast, our five overarching research programs — Workforce 2030, AI Engine for Advanced Work Packaging (AWP), Integrated & Collaborative Delivery, Cultivating Change, and Circular Economy — are focused on creating breakthroughs and innovations. The 2020 CII Annual Conference will feature three AWP research projects and one topic on collaborative scheduling.

The future success of our members and industry is data-dependent with technology paving the way. In 2019, our Deployment and Technology committees worked to develop the CII Data Warehouse and Digital Thinking Ecosystem, respectively, as they are foundational to the Institute’s future.

The Data Warehouse has been designed for electronic submission via Application Program Interface (API) – the first benchmarking system of its kind. Over the coming years, the CII Data Warehouse will be able to incorporate researcher-developed algorithms and present a new array of predictive analytics for project planning, estimating, and funding.

CII’s Digital Thinking Ecosystem builds on our Horizon 360 and Path to the Future efforts, and challenges our current ways of delivering projects for the better. Our prediction is that this new Ecosystem will move the industry away from being activity-based to being information flow-based. It will unify the control of our processes and coordinate distributed stakeholders in a transparent way. It will also leverage the power of openness and simulation, creating a collective span of control unavailable through vertical integration or current contracting methods.

CII began investigating a new business model for capital projects with the launch of the Operating System 2.0 (OS2) Industry Affiliates Program (IAP) in July. By the end of the year, the OS2 IAP had $2.1 million of research funding from six sponsors. The objective is to examine different arrangements of project stakeholders in something akin to a “digital project neighborhood,” leveraging technologies such as blockchain and dynamic risk models. A commercial model of this type could possess a cost structure and time savings such that return on investment (ROI) triples. Our hope is that the improved outcomes translate into twice as many projects being approved and that a fiscally-sound and innovative industry re-emerges.

POWERFUL TRENDS

Although my crystal ball is far from perfect, I believe several trends will impact CII and our members. First, there will be vastly fewer “traditional owners.” Many who remain will move their facilities’ creation and maintenance programs to specialized entities or master limited partnership (MLP) companies that feature a strong dividend. This move away from direct owner involvement could also include the sale and leaseback of legacy facilities as investors migrate capital from publicly-traded stocks to private equity firms. Second, specialization will continue
as technology advances. Companies with innovative point solutions will become nodes on a network or platform where AI is used to help optimize ROI. This will mean even less value for conglomerate-type firms. Third, a renewed and intense focus on the triple bottom line (that is, the social, economic, and environmental impacts) will define capital projects and programs to a much greater extent than it does today.

Despite CII’s good financial performance in 2019, current trends and changing realities are driving CII to take a fresh look at its competitive positioning and business model. While the Institute is not an industry association, we are still mixed with the “alphabet soup” of industry organizations that mistakes CII’s distinction as the world’s R&D center for capital projects. It compels us to undertake a rebranding effort in 2020. The Institute will likely use the opportunity to transition our current “all-inclusive” membership model to one that is focused on both the search for innovation through our overarching research programs and the direct applicability of our best practices through the products and services our industry relies upon.

CII’s Strategic Planning Committee has already identified that the Institute must work to create “product bundles” of existing practice that are continually updated with the latest findings. One path to their creation may be The University of Texas’s IAP structure used for OS2, as well as Process Industry Practices (PIP), which continues to operate well. Like PIP, future “Product IAPs” could coalesce the funding necessary to research and develop bundles for: 1) AWP-Enabled Execution, 2) Project (Planning) Assurance, or 3) Operational Efficiency, for example. CII Product IAPs might merge existing knowledge with new research in areas such as agile project management, lean project controls, project production management, smart infrastructure monitoring and/or carbon accounting. As with all CII activities, the ultimate reason to pursue these product bundles is to foster meaningful partnerships that create improved outcomes for our members and industry. We need your ideas and passion to be successful — contact us to get involved!

In closing, I want to thank you, the members, for continuing to support the Institute, its staff, and the great things we are accomplishing together. I value and appreciate the support and energy that you give to me as well. Each year, I speak with dozens of groups and companies and often begin with the fact that our industry is the most noble because of its ability to improve the world’s standard of living and peoples’ quality of life. We do this in a way that is unmatched by any other industry. But there are aspects of this industry that are still flawed with demanding challenges ahead. This is precisely where the purpose of CII continues to be so valuable — to innovate and improve the viability and reach of our members to make a difference around the world. It’s also why I’m now in my 13th year at the Institute, because I know there’s no better place for me to positively impact the industry I love.

Sincerely,

Stephen P. Mulva, Ph.D.
Director
REAL CHALLENGES, REAL RESULTS

Cutting-edge solutions for costly problems that plague capital projects

In 2019, CII’s diverse research teams delivered innovative tools that can be used today to increase the business value of current and future capital projects. From virtual reality to interactive software and step-by-step guides, the tools aim to drive greater predictability in schedules, costs and construction planning, get products to market faster and help companies turn regulation uncertainties into opportunities.

Virtual Reality Boosts Accuracy

Using virtual reality to visualize construction models and environments isn’t new. But applying Immersive Virtual Reality (IVR) to design review and planning tasks is, and it can decrease uncertainty in safety, rework, and productivity.

This research addresses the lack of visualization methods, mapping logic between industrial needs and emerging information and communication technologies, and the need for an implementation guide. The team tested IVR in design review and it boosted accuracy significantly. As a result, the team developed a comprehensive step-by-step guide with implementation strategies, hardware and software setup, training for developers, model preparation procedures, and a cost-benefit analysis. It also offers a vision for and opportunities to continue developing IVR for the industry.

Improve Cost Performance Up to 24%

When planning a project, whether it is over or under budget can actually be a choice. This research team built on the powerful Project Definition Rating Index (PDRI) method to develop the tools and approach that can improve cost outcomes up to 24%. The new tool, PDRI MATRS (Maturity and Accuracy Total Rating System), assesses both the level of maturity of a project definition and the degree of confidence in that maturity estimate. As a result, companies can gain a clearer picture of capital projects during front end planning, helping to increase predictability and project performance.

Learn More, Get Involved

For the full research, enter the report number at www.construction-institute.org/resources/knowledgebase. To get involved in CII research, contact kdelaney@cii.utexas.edu.
**Smart Standardization Drives Value**

When the upstream, midstream, and mining sector considered facility standardization to combat rising costs, the results were compelling: an increase in cost effectiveness, agility, predictability, safety, and quality. But there are tradeoffs. So the team developed a four-part solution for companies to evaluate their options. Elements include the economics of standardization to weigh the benefits and tradeoffs; a standardization decision-making model, which is a user-friendly software tool for an early, high-level, systematic review of key issues; 15 critical success factors and enablers; and innovative technologies and approaches that feature the top six technologies from intelligent automated data collection to simulations to wireless networks on construction sites. The research team is now developing a new work process and business case analysis model it plans to deliver in 2020.

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**Get Products to Market Faster**

As manufacturing becomes smarter, more agile and more responsive, facilities must become more flexible. How and when to incorporate flexibility into facility design is different for each company. This research team created the Flexibility Decision Support Suite to give companies in the manufacturing and life sciences sector an objective, fact-based way to manage and adapt to evolving processes and uncertain market demand. The suite is made up of the Strategy Selection Guide to help companies choose whether they need a dedicated, scalable or general purpose facility; a cost evaluator that can be customized to help gauge investment; and an idea generator to jump-start brainstorming and resolve design conflicts. There is also a general process map to navigate the array of CII tools for data-driven decision making, getting a product to market faster, and early optimization and predictability.

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**Future-Proof to Capitalize on Regulatory Change**

Regulatory complexity and minutiae can be overwhelming and costly. This research team from the Power, Utilities, and Infrastructure sector identified specific actions companies can take to better navigate the regulatory maze and unlock hidden value. The result is a guide that enables owners, operators and contractors to be more proactive, flexible and resilient. It offers a framework and a detailed process map, a comprehensive set of key actions, and good practices for implementation. By simplifying the complex, companies can minimize risks and maximize opportunities created by regulatory change to capture value.

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CII is your company’s R&D lab for capital projects. Research teams include members from academia, within industry sectors and across the capital projects industry. They ask tough questions, generate bold ideas and produce real-world solutions.
Improved shareholder value and profit are the product of safe and effective work plans and advanced and accurate data.

Together we have achieved:

- 88% ▲ in workplace safety
- 16% ▲ in materials management
- $8 million (on average) saved for every $100 million spent

Advancing Our Industry

As a learning organization, CII offers members opportunities throughout the year to research breakthrough ideas that tackle tough challenges and develop real solutions. Members collaborate, learn and share extensive knowledge and experience through clinics, interactive workshops, online learning, and the flagship CII Annual Conference & Innovation Showcase.

More than 650 industry leaders gathered to share ideas, learn and network at the 2019 CII Annual Conference & Innovation Showcase in San Diego. Participants engaged in breakout sessions and heard inspiring keynote speakers while research teams presented the latest results, tools and opportunities for attendees to enhance the safety and improve the efficiency of capital projects.
LEADING WITH EXCELLENCE

Carroll H. Dunn
Award of Excellence

Mike Rowe

Mike Rowe is a celebrity, dedicated philanthropist and an advocate for our entire industry. He gained fame by depicting the dignity of hands-on work in his television show, Dirty Jobs. Just as impressive is his work to reinvigorate the skilled trades. For more than a decade, Mike has been actively running his foundation, mikeroweWORKS, which focuses on issues related to a widening skills gap, an aging workforce, and millions of unfilled trades jobs. The foundation awards scholarships to students pursuing careers in manufacturing, construction, automotive technology, and other STEM-related occupations. He also works closely with SkillsUSA, a partnership of students, teachers, and industry that provides educational programs, competitions and scholarships. As a spokesperson for Go Build Alabama, Mike educates young people on the value of learning a trade, dispels misconceptions about the construction industry, and inspires them to consider joining America’s future skilled workforce.

The Dunn Award is CII’s highest honor to recognize significant achievements in improving the capital projects industry.

Richard L. Tucker
Leadership & Service Award

Mike Elliott

Mike Elliott was an able manager of projects of all sizes, bilingual in Spanish and English, and a dedicated volunteer who truly believed in the mission of CII. He served as a mentor and leader to many and always emphasized that “great projects are built by a strong team of great people working together.” In 1980, Mike joined Phillips 66, where he managed both upstream and downstream projects, including an award-winning multi-billion-dollar project in Venezuela. He was experienced in all project phases from business development through project completions to operations, and was a true champion of CII Best Practices. Mike represented Phillips 66 on the CII Board of Advisors for years and served in its highest position, as CII’s Chair, in 2016 – the year before he passed. He also served on a CII research team that sought to improve the performance of projects and he coauthored a design and construction manual.

CII was honored to present this award to the Elliott Family at the 2019 CII Annual Conference to recognize the major contributions Mike made to CII and to our industry.

James B. Porter, Jr.
Award for Technology Leadership

Deborah McNeil

Deborah McNeil is an inspiring capital execution and improvement leader, and a strong advocate of infusing technology across our industry. Starting out as a process engineer for Union Carbide, Deb has nearly four decades of experience in the chemical industry in capital execution activities, leadership, work process improvement, and engineering design automation efforts. She spent the last 19 years making a huge impact on capital projects for The Dow Chemical Company. Because of her belief that technology helps owners improve craft and field productivity, Deb was actively involved in Fiatech since its inception and proved absolutely instrumental in merging Fiatech into CII. Deb demonstrates the highest levels of dedication and commitment to everything she is a part of, and CII is better because of her efforts.

This award recognizes individuals who advance technology or innovative processes in the capital projects industry.
TRANSFORMING OUR INDUSTRY

As the premier research and development center for the capital projects industry, CII and its members create and deliver innovative solutions that are driving tangible business value and advancing our industry.
CONTRACTORS  CONT’D

Haskell
Hatch
Hitachi Document Solutions
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JGC Corporation
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Kiewit Corporation
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Oracle USA, Inc.
PCL Constructors, Inc.
POWER Engineers, Inc.
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Saulsbury Industries
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Sinopec
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TechnipFMC plc.
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thysenkrupp Industrial Solutions (USA), Inc.
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Victaulic
Wanzek Construction, Inc.
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Zachry Group
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OUR TEAM

Stephen P. Mulva
Director

Kim Allen
Director of Operations

John Palmer
Associate Director for Technology

Jennifer Bien
Associate Director for Membership and Communications

Michael Pappas
Associate Director for Deployment

Terri Buvia
Executive Assistant

Pam Wooten
Manager of Shared Services

Deborah DeGezelle
Manager of Information Services

Hong Zhao
Manager of Financial Services

Daniel Oliveira
Associate Director for Funded Studies

Ebenezer Adewumi
Ila Awasthi
Nuria Ayala
Michael Burns
Erika Corbell
Kristi Delaney
Kelly Lenig
Susan Quaglino
Pipper Ramsey
Donna Rinehart
Bernie Rosenblatt
Wanzek Construction, Inc.
Wood
Worley
Zachry Group
Zurich

CII STAFF

CII MEMBER LIST AS OF 12.31.19

RESEARCH ASSISTANTS

Amelia Celoz
Zhe Yin
VALUE THROUGH COLLABORATION

PIP develops and implements common industry practices for facility design, procurement, construction, operations, and maintenance that help reduce a facility’s total cost of ownership. Members share their collective wisdom by collaborating to define and document best practices for all members to use while pursuing a long-term goal of digitally delivering PIP practices. Together, members stay on top of emerging trends in more than a dozen PIP practices that are arranged by disciplines, including: Process, Mechanical, Piping, CSA, I/E, and Data Management.

Process Industry Practices (PIP) is a self-funded consortium of process industry owners and engineering construction contractors organized under the Institute inside the Cockrell School of Engineering at The University of Texas at Austin.

OWNERS

3M Company
AdvanSix
Aera Energy
Air Liquide Advanced Materials
Arkema
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Bayer Group
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Hess Corporation
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Honeywell UOP
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Preferred Engineering
Ref-Chem
S & B Engineers and Constructors
Samsung
SNC-Lavalin
TechnipFMC
UniversalPegasus International
Worley
Zachry
FINANCIALS

Construction Industry Institute, The University of Texas at Austin
2019 Financial Report | December 31, 2019

DOES NOT INCLUDE FINANCIAL INFORMATION FOR PIP

YTD (12/31/2019)

REVENUES

- Contract & Grants $219,419
- Member Dues 4,689,577
- Events / Meetings 1,146,122
- Education / Training 740,572
- Licensing and Commercialization 95,344
- Administrative Services (Subsidiaries) 111,238

TOTAL REVENUES 7,002,271

EXPENSES

- Research at UT 627,312
- Research External 1,080,216
- Development at UT 39,250
- Development External 150,267
- Marketing 45,616
- Events / Meetings 1,077,525
- Education / Training 325,255
- Administrative Services 238,139
- Staff Salary and Fringe Benefit 3,034,944
- Travel 225,462
- Overhead - UT (26,786)
- Overhead - Research Project (9,891)
- Director’s Discretionary 23,431

TOTAL EXPENSES 6,830,740

CHANGE IN AVAILABLE FUNDS BALANCE 171,531

BEGINNING AVAILABLE FUNDS BALANCE 1,692,020

ENDING AVAILABLE FUNDS BALANCE $1,863,551

COMPOSITION OF AVAILABLE FUNDS

- Required reserves $1,375,000
- Director’s discretionary 76,569
- CCIS 76,771
- Other available funds 335,211

ENDING AVAILABLE FUNDS BALANCE $1,863,551
INDEPENDENT ACCOUNTANTS’ REPORT
ON APPLYING AGREED-UPON PROCEDURES
DECEMBER 31, 2019

To the Management and Board of Advisors
Construction Industry Institute
Cockrell School of Engineering
The University of Texas at Austin

We have performed the procedures enumerated below, which were agreed to by Construction Industry Institute’s (Institute) management, on Member Dues and Available Funds reported in the Institute’s 2019 financial report to be included in its annual report. The Institute’s management is responsible for Member Dues and Available Funds reported in the 2019 financial report. The sufficiency of these procedures is solely the responsibility of the Institute’s management. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

Our procedures and associated findings are as follows:

• We obtained from management the 2019 financial report to be included in the annual report.
• We obtained from management certain financial reports from *DEFINE, The University of Texas at Austin’s software that accounts for the Institute’s financial transactions.
• We obtained from management the QuickBooks company file that the Institute uses to supplement *DEFINE for financial reporting purposes.
• We have provided below a reconciliation of the Institute’s “member dues” revenues from membership payments reported in *DEFINE to the 2019 financial report.
• We have provided below a reconciliation of the Institute’s ending “available funds” balances from *DEFINE to the 2019 financial report.

Reconciliation of Member Dues per *DEFINE to the 2019 financial report:

Membership payments received per *DEFINE: $ 4,612,255

Reconciling items:

Add: 2019 member dues accrued (receivable) 584,378
Add: 2019 member dues received (deferred) in prior year 198,000
Less: 2018 member dues accrued in prior year (426,000)
Less: 2020 member dues deferred (277,200)
Less: Miscellaneous reconciling items (1,856)

Member dues reported in Annual Report $ 4,689,577
Reconciliation of Available Funds per *DEFINE to the 2019 financial report:

Free Balances per *DEFINE: $102,684
Add: Encumbered funds (not yet spent) 1,628,311

Adjusted Free Balances per *DEFINE: 1,730,995

Reconciling items:
Add: 2019 member dues accrued (receivable) 584,378
Add: PIP O/H accrued (receivable) 111,238
Add: Cockrell O/H rebate (receivable) 212,540
Add: Other accounts receivable 12,072
Add: Prepaid expense 125,000
Less: 2020 member dues deferred (277,200)
Less: 2020 Executive Leadership Program revenues deferred (363,100)
Less: Accounts payable and accrued expenses (195,601)
Less: CCIS Funds (76,771)
Less: Miscellaneous reconciling items –

Ending Available Funds Balance per Annual Report $1,863,551

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. We were not engaged to and did not conduct an audit or review, the objective of which would be the expression of an opinion or conclusion, respectively, on Member Dues and Available Funds reported in the Institute’s 2019 financial report. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of Management and the Board of Advisors of the Institute and is not intended to be and should not be used by anyone other than these specified parties.

Austin, Texas
February 14, 2020

3724 Jefferson Street • Suite 307 • Austin, Texas 78731 • (512) 420-8997 Main • (512) 420-2399 Fax
www.dunaganjack.com
CII is a consortium of nearly 140 leading owners, engineering-contractor, supplier and related professional firms from both the public and private arenas. These organizations have joined together to enhance the business effectiveness and sustainability of the capital facility lifecycle through CII research, related initiatives, and industry alliances. CII is unique as the research and development forum for the engineering and construction industry.