

Building On 25 Years



Construction Industry Institute®

CI Charter Members

1983

2008

Davy McKee Corporation	▶	Aker
Aluminum Company of America	▶	Alcoa
Atlantic Richfield Company (ARCO) Sohio Construction Company Standard Oil Company (Indiana)	▶	BP America, Inc.
Bechtel Petroleum, Inc.	▶	Bechtel, Inc.
Blount International, Ltd.		
Texaco Inc.	▶	Chevron
The Lummus Company	▶	CB&I
The Dow Chemical Company Union Carbide Corporation	▶	The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.	▶	DuPont
Exxon Research & Engineering Company	▶	ExxonMobil Corporation
Fluor Corporation	▶	Fluor Corporation
General Electric Company		
Gulf Interstate Engineering		
Guy F. Atkinson Company of California		
International Business Machines Corporation		
BE&K Construcion Company Brown & Root, Inc Kellogg Rust Inc.	▶	KBR
Owens-Corning Fiberglas Corporation		
The Procter & Gamble Company	▶	The Procter & Gamble Company
Shell Oil Company	▶	Shell Oil Company
Morrison Knudsen Corporation Stearns-Roger Engineering Corp.	▶	URS Corporation
Texas Eastern Corporation		
H. B. Zachry Company	▶	Zachry Construction Company



DETERMINED TO REDUCE CONSTRUCTION COSTS

and improve the construction industry in the United States, The Business Roundtable launched a significant initiative in 1977, known as the Construction Industry Cost Effectiveness (CICE) Project. The study addressed major business challenges such as increased shareholder demands, globalization, and computerization, all of which exacerbated the economic issues facing corporate America at that time. The results of those efforts led to the creation of the Construction Industry Institute in 1983 by 28 leading companies.

From the beginning, owners, contractors, and academics shaped a unique, inclusive forum with the creation of the Construction Industry Institute. This visionary group of stakeholders focused on adding business value by improving the safety, design, cost and quality, and the planning and execution of major engineering and construction projects. Today's four-fold increase from the original 28 charter members attests to the relevance of CII in today's global marketplace. Our founders and those who have since contributed to CII can look back with pride on what they have accomplished. Their contributions to the industry are shining examples of what people can do when they work together for the common good. The industry, member organizations, and the individual contributors have all benefited.

CII has brought about numerous important achievements over the years. From the beginning for example, CII embraced collaborative research between member organizations and leading academic institutions. One outcome of this was the development of CII Best Practices, those proven methods and practices that enable our members to improve project performance. A clear measure of success from following these Best Practices is the impressive safety performance of CII members compared to others in the industry. This and other achievements point to the advantages of collaboration. Those new to CII will find a rich history and culture in which to collaborate as well as ample opportunities to make a difference.

I believe The Business Roundtable's vision in the 1980s of improving the competitiveness of the industry continues to be realized today. We owe a great deal of gratitude to those visionaries, leaders such as Charlie Brown, DuPont; Ted Kennedy, BE&K; Richard Tucker, The University of Texas at Austin; and their Business Roundtable colleagues. As we commemorate CII's 25th anniversary milestone, it is important to note that our current and future direction is a bright and challenging one. The principles with which CII has operated are as important today as ever. The continual focus on value creation and the quality of the growing list of member organizations provide many opportunities for CII to create even greater value in the years ahead. Congratulations to CII and all of its members!

A handwritten signature in black ink that reads "Emerson T. Johns". The signature is written in a cursive, flowing style.

Emerson T. Johns
2008 CII Chairman
DuPont

“My engagement with CII has continued since its inception in the mid-’80s. Early on I used the CII safety processes and CII publications such as ‘Organizing for Project Success’ to structure large technical projects. Now, I see CII continuing to demonstrate true value to the construction industry with the many advance tools such as PDRI, Project Health Indicators, and Project Delivery Selection. I personally encourage the use of many of CII Best Practices within Intel, assured that these directly contribute to improvement in project performance.”

— Bob Predmore
Intel Corporation



A pre-CII project site

Recognizing

the 25th Anniversary of CII's Founding

CELEBRATION, MILESTONE, ANNIVERSARY — just a few ways that we describe a momentous occasion, a significant event, a time to enjoy.

And that is what the Construction Industry Institute is doing in recognition of 25 years of improving the industry through research and implementation, professional development, benchmarking, and knowledge management. It is a high-water mark for the thousands of industry participants who have helped CII: the owners, the engineers and contractors, the suppliers, the faculty and graduate students from universities and colleges. Together, we all can celebrate the past and look to the future.

CII, formed in 1983, resulted from recommendations from an intensive, five-year study of the engineering and construction industry. In the late 1970s,

The Business Roundtable — the top 200 chief executive officers in the U.S. — took note of the staggering inflation and labor disputes that were sending the nation's economy into a deep, downward spiral. Construction, while contributing some eight to ten percent of the gross domestic product, had positioned itself as the top industry in the country at that time. But along with its poor safety record, construction found itself at the forefront of worrisome cost and schedule overruns and in the center of nasty standoffs between management and labor over wage demands.

Given the economic crisis at hand and the overwhelming fragmentation of this

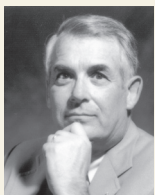
top industry, The Business Roundtable commissioned a study — the Construction Industry Cost Effectiveness (CICE) Project — and over the next five years garnered the wisdom of 250 industry practitioners from more than 125 top companies.

The Roundtable concluded upon completion of the CICE study in 1982 that the construction industry needed massive improvements — improvements that the industry itself could actually bring about. The Roundtable published 23 reports from the CICE Project, each report being printed and distributed over a million times. Over two hundred recommendations were offered, yet one was unique: establish an organization to pursue research in construction management and technology applications.

Construction leaders compared their R&D efforts with other industries and found construction woefully lagging. The aerospace, pharmaceutical, and automotive industries, for example, were pouring resources into R&D, with their research budgets averaging between three and seven percent of their sales volume. Practically no research in construction could be identified, however, and the very survival of the U.S. engineering and construction industry was brought into question.

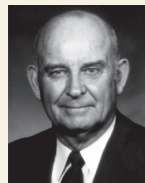
Responding to the Roundtable's recommendation for establishing a research effort, 28 charter members united in 1983 to form the Construction Industry Institute. The purpose of CII was to bring the major participants in the construction process — the owners and the contractors — into a cooperative environment to fund and guide research. Academia, a third partner, would perform credible, quantitative studies of topics selected by CII members. The benefits would be shared with the industry at large.

Leadership would now be extremely important and a key CICE participant would become CII's first Director. Dr. Richard L. Tucker, a tenured professor in the College of Engineering at The University of Texas at Austin, had previously investigated productivity improvements on large yet troubled industry projects



and had made significant contributions in the technology area of CICE. Other UT Austin engineering professors contributed to CICE. The university's engineering college had more than 50 graduate students involved in research. Obviously, UT had a powerful calling card when it came to construction research, yet it was Tucker who was the natural leader. An impressive figure who had gained the confidence of the industry representatives involved in CICE, he was well respected by his academic colleagues as well. Tucker was heavily involved in the ASCE Construction Research Council and a similar effort by the National Science Foundation, and knew where research expertise on a variety of industry topics resided in the nation's universities. This knowledge would soon provide the research credibility that CII needed. Tucker's position as CII Director also linked the new research institute to The University of Texas at Austin, which would serve as administrative headquarters for CII.

With Tucker at the helm to direct the research activities, CII also needed a visionary leader to anchor the dream to reality. The Roundtable and Tucker knew that retired Lt. Gen. Carroll H. Dunn, the project director of CICE, would be invaluable as a mentor. Dunn, who had a stellar career with the U.S. Army Corps of Engineers followed by an impressive record in the private sector, was soon asked to lend his expertise by serving as an ex-officio member of every committee created by the new organization. CII would later pay tribute to Dunn by naming its highest honor the Carroll H. Dunn Award of Excellence and bestowing the original award to Dunn himself.



CII was officially chartered on October 28, 1983, at The University of Texas at Austin with a two-fold mission: to perform research to improve construction planning and execution and to address the fragmentation of this huge and important industry. And now 25 years later, we celebrate CII and its rise to a principal industry forum, not only in the United States, not only in North America, but around the world. It's emulated from Europe to Australia to Hong Kong. But it remains unique; there is only one CII. Let the celebration begin!

“Those companies that actively participate in CII find opportunities to interact with others who share similar core values and come together for the common purpose of improving not only their own bottom line but the industry as a whole. The opportunity to work with fine people from well-respected companies, the strong support of the CII staff and the expertise of academic partners, all focused on a similar goal, has been one of the best experiences of my career.”

— Carol Arnold
DuPont



Photo: Zachry Construction Corporation

Recipients of the Carroll H. Dunn Award

The Construction Industry Institute established the Carroll H. Dunn Award of Excellence in 1985 to honor an individual for significant achievements in improving the engineering and construction industry. The award is CII's highest honor and is recognized as one of the most prestigious awards of its kind in the construction industry. This award is not presented annually.



Carroll H. Dunn
BRT
(1985)



Charles D. Brown
DuPont
(1986)



Ted C. Kennedy
BE&K
(1988)



Robert H. Miller
DuPont
(1989)



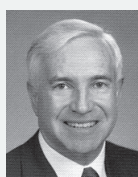
Louis Garbrecht, Jr.
Texaco
(1990)



Clarkson H. Oglesby
Stanford University
(1991)



James M. Braus
Shell
(1992)



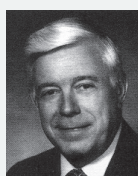
Gary D. Jones
BE&K
(1993)



Jack E. Turner
Dow Chemical
(1994)



Daniel J. Bennet
ABC
(1995)



John W. Morris
U.S. Army Corps of
Engineers
(1996)



Richard L. Tucker
CII
(1997)



Edward W. Merrow
IPA
(1998)



Don J. Gunther
Bechtel
(1999)



Arthur J. Fox
ENR
(2000)



H. B. Zachry
Zachry
(2001)



Joseph J. Jacobs
Jacobs
(2002)



James B. Porter, Jr.
DuPont
(2004)



Alan L. Boeckmann
Fluor
(2005)



Daniel W. Halpin
Purdue University
(2006)



David J. Nash
BE&K
(2007)



Ralph R. Peterson
CH2M HILL
(2008)

Construction Industry Institute Leadership

Chairmen



Louis Garbrecht, Jr.
Texaco
(1983–84)



Jack J. Agresti
Guy F. Atkinson
(1985)



Robert H. Miller
DuPont
(1986)



Gary D. Jones
Morrison
Knudsen
(1987)



Robert A. Valentine
General Motors
(1988)



Ted C. Kennedy
BE&K
(1989)



Joseph W. Martinelli
Chevron
(1990)



D. Keith Dodson
John Brown
(1991)



Collin D. Aikman
Union Carbide/
BE&K
(1992)



Richard R. Bryan
H. B. Zachry
(1993)



Joseph K. Haegelin
Texaco, Inc.
(1994)



Doy F. Cole
Kellogg Brown &
Root
(1995)



Donald M. Rasmussen
Union Carbide
Corporation
(1996)



John Nobles
Burns &
McDonnell
Engineering Co.,
Inc. (1997)



Gerald H. Greene
Procter &
Gamble
(1998)



George F. Eichleay
Eichleay
Engineers Inc.
(1999)



James B. Porter, Jr.
DuPont
(2000)



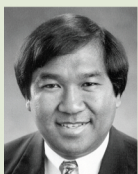
Harold L. Yoh III
Day &
Zimmermann
(2001)



William W. Brubaker
Smithsonian
Institution
(2002)



John B. Zachry
Zachry
Construction
Corporation
(2003)



Lester L. Sturgeon
Abbott
Laboratories
(2004)



Dennis A. Schroeder
BE&K
(2005)



G. Wayne Burchette
Eastman
Chemical
(2006)

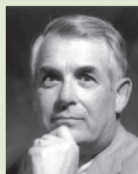


J. J. Suarez
CSA Group
(2007)



Emerson T. Johns
DuPont
(2008)

Directors



Richard L. Tucker
(1983–98)



Kenneth E. Eickmann
(1998–2003)



Hans A. Van Winkle
(2003–06)



Wayne A. Crew
(2007–present)

Timeline

The History of the Construction Industry Institute

1977

The Business Roundtable initiates the Construction Industry Cost Effectiveness (CICE) Project.

More than 250 construction experts, representing more than 125 companies as well as universities and industry organizations, join together to identify the fundamental issues hindering the competitiveness of the U.S. construction industry, and to develop a program for resolution.

Jan
1983

The CICE Summary Report, *More Construction for the Money*, is published.

Of 223 recommendations, a number support the immediate need for owners, contractors, and academia to create a national research and development effort to *“develop and disseminate knowledge to improve management and execution of engineering and construction projects and to advance the use of technology in the industrial construction sector.”*

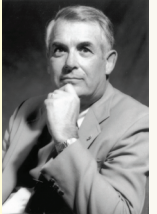
Feb
1983

Key principals from the engineering and construction industry, The Business Roundtable, and academia gather in Houston, Texas, to address the CICE recommendations. **The result – strong consensus for action, a transformative step toward formation of the Construction Industry Institute (CII).**

Oct
28
1983

The Construction Industry Institute formally chartered.

Twenty-eight major owner and contractor organizations establish the CII headquarters at The University of Texas at Austin under the direction of Dr. Richard L. Tucker. A unique partnership of owners, contractors, and academics embarks on its mission: *“to improve the cost effectiveness of the construction industry, thereby strengthening the competitive position of American industry in the international marketplace.”*



Dec
1983

The first meeting of the **CII Board of Advisors funds seven critical research topics.** Board members volunteer to lead and to staff Task Forces with their personnel. Leading academics are selected to conduct these research studies.

- Evaluate the Impacts of the CICE Recommendations
- Site Productivity Measurement
- Constructability
- Contract Roles and Risk Allocation
- Control Systems
- Materials Management
- Industry Data and Statistics

1970s

1980s

May
1984

CII Board of Advisors approves funding for three additional research

Task Forces:

- Design
- Technology
- Quality Management

Dec
1984

The Implementation Committee established as a CII standing committee to promote and facilitate effective implementation of CII research findings.

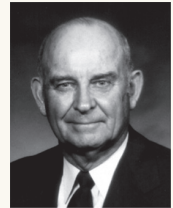
1985

The CII Academic Council is formed to improve academia's knowledge of CII and CII's understanding of academia for more effective partnering among academia and industry.

Aug
1985

First CII Annual Conference attracts 221 attendees from 109 companies, universities or government agencies to Keystone, Colorado. Presentations include research findings from eleven Task Forces, and presentations from the Contractor Associations Council and the Implementation Committee.

CII presents its most prestigious award, named in honor of Lieutenant General (Ret.) Carroll H. Dunn, in recognition of Dunn's exceptional service to the nation and the construction industry throughout his career and his pivotal role in the formation of the Construction Industry Institute. Dunn was also selected as the first recipient of this new award.



Jul
1986

CII releases the first Task Force research publications:

- 1-1, CICE Impact on the Construction Industry
- 3-1, Constructability: A Primer
- 5-1, Impact of Various Construction Contract Types and Clauses on Project Performance
- 6-1, Project Control for Engineering
- 6-2, Scope Definition and Control
- 8-1, Evaluation of Design Effectiveness

Aug
1987

The 1987 CII Chairman of the Board of Advisors challenges each member organization to implement at least one CII research finding and recommendation during the coming year.

Apr
1990

Board of Advisors establishes three goals to be accomplished by 2000:

- Reduce recordable injuries by 25 percent
- Reduce total project costs by 20 percent
- Reduce project schedules by 20 percent

Aug
1991

CII releases its first education module – Optimizing Project Schedules. Education modules, based on CII research, support member in-house training, university continuing education programs, and industry groups. These modules expand awareness of CII's research findings.

Nov
1992

Education Committee established as a CII standing committee to direct and manage the development of the CII education modules and the delivery of classes utilizing these modules.

Jan
1993

Benchmarking & Metrics Committee established as a CII standing committee. Its mission is to collect and analyze data on capital project delivery, provide the construction industry with metrics of performance norms, and quantify the impacts and value that result from use of CII practices.

Process Industry Practices consortium established as a separately funded element of CII to develop cooperative engineering standards for common elements of process industry facilities.

Apr
1997

CII enters the Internet age with the **launch of its first Web site.**

Aug
1997

Breakthrough Strategy Committee established as a CII standing committee to identify and recommend high payoff and higher risk studies "beyond the box."

Distribution of CII's publication library via Compact Disc begins; a more popular and cost effective method of transmitting CII knowledge.

Jul
1998

Implementation Strategy Committee creates the **CII Implementation Champions Program and the CII Implementation Model** to guide and enhance the organizational change necessary to implement CII research recommendations.

Nov
1998

Implementation Champion Workshops (now Performance Improvement Workshops) initiated to develop effective implementation resources within each participating member organization.

Apr
1999

Knowledge Management Committee established as a CII standing committee to guide CII in Knowledge Management implementation and to complete development of the CII Knowledge Structure.

Nov
1999

Benchmarking & Metrics Committee introduces CII Project Central, a secure project benchmarking web portal that enables members to submit confidential project data and retrieve reports customized via the Internet.

CII deploys the Knowledge Structure to organize the knowledge contained in its many publications and implements a process for designating CII Best Practices – those CII practices with member-validated beneficial results. The Knowledge Structure makes identification and sorting of all CII published knowledge possible via the Web.

1990s

20

Timeline

The History of the Construction Industry Institute

**Feb
2000**

FIATECH consortium established as a separately funded element of CII to focus on development of the Fully Integrated and Automated Project Process for capital projects.

**Jul
2000**

CII Education Modules content also made available as online courses; adds to the growing Internet resources available to CII members.

**Nov
2001**

CII adds Products Online to its offerings, providing 24/7 access to CII knowledge from any location in the world. This significantly enhances CII members capability to instantly obtain critical CII information.

**Jun
2004**

Research assessment surveys identify a need for Industry Specific Benchmarking studies.

The CII Benchmarking & Metrics program expands to incorporate benchmarking studies for separately funded studies, beginning with pharmaceutical and oil and gas sectors.

**Jan
2006**

CII and the McCombs School of Business at The University of Texas at Austin partner to develop the annual **CII Executive Leadership Program** with the mission to develop future executive leaders for the design and construction industry. The three-week program involves learning from world-class professors and top industry executives and builds peer networks.

**Aug
2006**

CII Academic Committee established as a CII standing committee (formerly Academic Council) to provide a means for academics to be more active by participating in CII deliberations and decision-making.

**Mar
2007**

The CII Knowledge Management Committee unveils CII Communities of Practice, virtual communities promoting knowledge-sharing on a particular topic. The first three **CII Communities of Practice are Safety, Sustainability, and Globalization.**

**Jun
2007**

Web Seminars introduced to meet the growing demand for expanded knowledge of CII research findings. The Professional Development Committee (formerly Education Committee) expands electronic dissemination of knowledge through seminars and provides seminar recordings through CII's Products Online.

**Feb
2008**

CII's education effort transitions to the CII **Professional Development Continuum**, providing a comprehensive program for individuals with limited industry experience who aspire to become project managers. The continuum defines expectations of professional competence across 57 areas of competency and providing resources for development.

**Aug
2008**

CII celebrates its 25th Anniversary with its Annual Conference's return to Keystone, Colorado. CII continues to grow and improve — while remaining strong and viable as a forum for owners, contractors, and academics to work together, developing and sharing better ways to plan and execute capital facility delivery programs.

000s

CII Programs

Photo: Construction Industry Institute



Research

"Our institute is unique. The research being funded cannot be compared to anything else because no other organization is taking the combination of Owners, Contractors, and Academia in a non-profit setting and doing true research to better the process of managing the capital investment process."

— Dennis Schroeder
BE&K

CII RESEARCH IS A UNIQUE, cooperative collaboration of owners, contractors, and academics to address and resolve high-priority problems faced by the capital facilities industry. Working together, they develop a mutual understanding of problems of the industry to identify practical and effective solutions.

CII has consistently adhered to highly credible research standards, beginning with its initial studies in 1983. The close partnership between academia and industry is a hallmark of CII research and differentiates CII research results

from those of other professional groups. The research teams, composed of representatives from the owner and contractor organizations and academia, refine the scope for the research effort, participate in data gathering and quantitative analyses, and provide the industry with credible research results covering a wide array of topics.

The CICE Project greatly influenced CII in the early days, particularly in the selection of CII's initial research projects. Many topics investigated by the CICE project were identified as high priority issues for CII. Early CII research

projects investigated safety, productivity measurements, constructability, contracts, design effectiveness, cost and schedule controls, and materials management.

From its beginning with a handful of topics and participating universities, the CII research program has now grown into a multi-million dollar effort. More than 55 universities have contributed to the program. In turn, those universities' graduate programs in construction management have benefited by awarding hundreds of post-graduate degrees to participating students. Many of those graduates have moved into the industry in both owner and contractor organizations. Others have remained in or returned to academia and provide guidance to aspiring engineers and constructors.

Today, research at CII includes topics that have a large impact on major projects: scope definition, front end planning, risk allocation, and of course, safety. CII also

examines related industries for possible new insights. For example, CII funded research with the primary objective of evaluating practices and processes used by the shipbuilding industry's global leaders in Asia to identify those practices that have made the greatest impact in enabling those industries to achieve lower costs and shorter delivery schedules. This research into the shipbuilding industry revealed significant gains can be made through application of a product-oriented approach to construction projects.

While the research topics evolve from year to year, what remains unchanged is the dedicated involvement of industry practitioners from member organizations who direct and guide the research, teamed with the investigative and analytic skills of the academic researchers and their graduate students. CII continues to improve the industry, an effort that started with the founding of the CII research program in 1983.

"Having participated in more than a dozen research, education, standing CII committees, and teams over the past 21 years, I have seen and experienced first hand the truly special collaboration between owners, contractors, and academics. These efforts have produced new knowledge and useful products positively impacting the industry. But in my opinion the most valuable legacy of CII's first 25 years has been the outstanding personal and professional development of the thousands of volunteer participants, the strengthening of knowledge and leadership in academia, and particularly the development of leaders through the graduate students involved in the research."

— Edd Gibson
University of Alabama



Photo: M. A. Mortenson Company, Lara Swimmer Photography

CII Programs

Photo: Zachry Construction Corporation



Implementation

“CII membership is a lot like a membership in a health club — you need to not only show up, but you must also do something (participate) to capture any value.”

— Allan Johnson
Cargill

ALTHOUGH THE CII RESEARCH program was quickly established, the members soon realized that without implementation the funded research would not help improve project execution or correct the industry’s fragmentation. By 1987, a movement had begun within CII to bring the implementation of research findings to the forefront. Members were challenged to implement one finding from the work of the CII research task forces and report to the Board of Advisors one year later on the results. Over time this implementation “challenge” would change the way CII viewed its mission and

purpose, and thus would lead to changes in organization of the staff and in the CII processes. Ultimately, it would bring about significant changes to the format of the Annual Conferences.

To handle the new emphasis on implementation, CII staff was expanded. An associate director for implementation was needed to be responsible for day-to-day efforts in this new area. This put implementation on an equal footing with research and broadened CII’s mission to encourage the industry to benefit through the use of CII research results. Member



organizations began to desire publicizing their implementation success stories, and the natural venue for these reports was the Annual Conference. Soon, member organizations were competing to have their implementation case studies included in the program. The Conference grew from a simple sequence of research task forces “reporting out” to a wide-ranging program that included case studies by owners and contractors alike. Testimonials by a wide range of members explained how CII research results were used in their projects and produced beneficial results, measuring project success in terms of improved safety, lower costs, shorter schedules, and higher quality.

Today CII implementation efforts are spearheaded by the Implementation Strategy Committee (ISC). In addition to creating the CII website, the ISC has established such notable CII programs as Implementation Champions, the Implementation Tool Box, and the CII Knowledge Structure. The electronic form of the Knowledge Structure

enables individuals worldwide to quickly and efficiently locate, review, and download electronic versions of CII products pertaining to their topic of interest, 24/7. In addition, the ISC mentors new Implementation Champions by supporting engagement with CII programs and services, and by developing implementation skills.

The ISC also conducts one of the most popular venues for CII implementation activity, Performance Improvement Workshops (originally Implementation Champion Workshops). These three-day workshops are held twice yearly, often in close proximity to the Board of Advisors meetings. Attendance has grown, with recent offerings averaging well over 125 participants. Attendees learn specifics about CII products and how to use them. In addition to the information exchanged, this learning process fosters relationships between experienced implementers of CII knowledge and others seeking greater expertise to achieve project success.



“Participation in research, training and implementation of CII Best Practices has been a ‘two-fer’ for Smithsonian. Our participants get valuable leadership experience and exposure to broader segments of our industry. In addition, the course work has helped increase our buying power by reducing waste in so many areas of capital construction. Involvement with CII has been one of our very best business decisions for facilities engineering and operations in Smithsonian.”

— William (Bru) Brubaker
Smithsonian Institution

CII Programs

Photo: Mustang Engineering, L.P.



Professional Development

CII PROFESSIONAL DEVELOPMENT

helps individuals reach their full potential by developing the skills needed in today's capital projects environment. An activity that blends CII's research and implementation programs, the professional development effort began in the early 1990s under the banner of the CII Education Program, converting CII research results into educational modules.

One of the first applications of the new CII education modules was the creation of a series of courses, one week in

length and delivered by three regional universities with close ties to CII: The University of Texas at Austin, Clemson University, and Arizona State University. With the emergence of the Internet Age in the 1990s, a program was initiated to convert the content from these modules to separate online courses delivered via the web, now available anytime, at any place with Internet access.

One of CII's most important recent professional development efforts is the Executive Leadership Program, an intensive three-week course developed

in conjunction with the distinguished McCombs School of Business and conducted annually at The University of Texas at Austin campus. The construction industry has foregone the opportunity to develop nearly a generation of senior executives and leaders. Fortunately, the Executive Leadership Program offers a means to fill that void by developing high-potential engineering and construction executives. The program provides the critical skill sets that will enable participants to compete for the highest executive positions in the capital facilities industry and generates a source of superb future leaders for their sponsors.

The program instructors are the best from the renowned McCombs School of Business at UT Austin and other universities plus exemplary executives from CII member organizations. The program brings participants to Austin for three weeks of concentrated learning with only limited contact with their home offices. The lasting peer relationships that develop among the group are also a valuable and intangible benefit. The tremendous feedback since its beginning in 2006 indicates the program has a bright future for CII and for the industry.

Current efforts by CII in professional development also include Web Seminars, Registered Education Provider Program, and the Professional Development Continuum. The Registered Education Provider Program provides members of CII and the general public with a corps of qualified instructors who are familiar with CII publications and are available to teach at CII member organizations and other venues.

The Professional Development Continuum is a resource to assist companies and individuals to plan for the professional development of their work force. Presently designed for the development of project managers with less than five years industry experience, the continuum describes the professional competency expectations across 57 areas of competency and provides information about resources for professional development.



“CII is absolutely the best resource available for continuously improving a Project Delivery System. Participation by either an Owner or Contractor organization in CII brings with it the valuable opportunity of rapid personnel development largely due to the interaction of people with the common objective of improving the efficiency of capital deployment. People develop and execute projects. People exposed to CII produce ever-improving project results”.

— Bernard Fedak
Aker

CII Programs

Photo: Bechtel Group, Inc.



Benchmarking & Metrics

MUCH AS THE IMPLEMENTATION challenge expanded CII from a research-only effort to a program for transforming the industry, the development of the Benchmarking & Metrics effort validated the benefits of applying CII knowledge. “What gets measured gets improved” has been the unifying slogan of those involved in the effort since it began, employing metrics to verify that CII research results improve the capital facility delivery processes.

CII has been collecting and analyzing benchmarking and metrics data on capital facility delivery since 1996, a program that provides two essential services:

- benchmarking project-level performance for participating organizations.
- conducting special studies that support CII’s mission to improve the capital facility delivery process.

Benchmarking & Metrics services are provided to members and subscribers at a number of levels. One program analyzes Best Practice use and the resulting impacts on project safety, cost, schedule and quality. Best Practice benchmarking evaluates data from submitted projects to determine the degree to which selected CII Best Practices are implemented, quantifies improved project outcomes, and identifies potential benefits that could be gained through greater implementation. A confidential Key Report of the analysis is provided to each submitter.

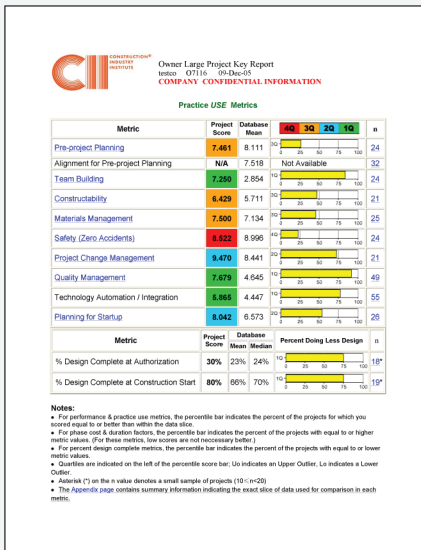
Another effort evaluates engineering and construction productivity. CII's productivity metrics are collected at the project level and the resulting performance data assist organizations to better manage their productivity for both engineering and construction.

Currently, validated project data, based on a comprehensive questionnaire, are submitted via a Web portal, CII Project

Central, for inclusion in CII's benchmarking database. This user-friendly system enables real-time analysis of the data and provides timely information to guide important management decisions. The robust CII database now contains nearly 1,700 projects and represents a total installed cost of approximately \$75 billion.

Recently Benchmarking & Metrics activities expanded in response to requests for special studies targeting specific industry sectors, including pharmaceutical, oil and gas, and others. Additional special studies have been performed for specific client organizations such as the National Institute of Standards and Technology (NIST) where CII performed several studies related to national security. Another significant special study is with the Construction Owners Association of Alberta (COAA) involving work on the massive Oil Sands Projects. Each special sector study or individual client study is supported by funding from the sponsors active in that study.

Project "Key" Reports



Industry Reports



“CII is the one place that owners, contractors, and academia work jointly on key initiatives to improve our industry. The depth of knowledgeable resources that actively participate is unparalleled in the industry. CII is also the one industry forum that through research provides deliverables and tools that its members can immediately put into practice. The benchmarking metrics from its members consistently validate the value of participation and membership. The opportunity to network and learn from industry leaders is also invaluable.”

— John Dalton
Mustang Engineering

Additional CII Awards

Richard L. Tucker Leadership & Service Award

The Richard L. Tucker Leadership & Service Award recognizes an individual who has contributed significantly to the advancement of the CII mission and to the success of CII as an organization. It is named in honor of Dr. Richard L. Tucker, who personally led the effort to create the Construction Industry Institute in 1983 and who served as the first CII Director from its inception until his retirement as Director in 1998.



J. Kent Underwood
Solutia Inc.
(2004)



Gerald H. Greene
Procter & Gamble
(2005)



James A. Scotti
Fluor Corporation
(2006)



Dr. William W. Badger
Arizona State University
(2007)



James G. Slaughter, Jr.
S&B Engineers & Constructors, Ltd.
(2008)

Outstanding CII Researcher



Michael C. Vorster
Virginia Polytechnic University (1995)



G. Edward Gibson, Jr.
The University of Texas at Austin (1996)



Stuart D. Anderson
Texas A&M University (1997)



Garold D. Oberlender
Oklahoma State University (1998)



W. Edward Back
Texas A&M University (1999)



Jeffrey S. Russell
University of Wisconsin-Madison (2000)



Edward J. Jaselskis
Iowa State University (2001)



Carl T. Haas
The University of Texas at Austin (2002)



Jimmie W. Hinze
University of Florida (2003)



G. Edward Gibson, Jr.
The University of Texas at Austin (2004)



James T. O'Connor
The University of Texas at Austin (2005)



Awad S. Hanna
University of Wisconsin-Madison (2006)



Paul S. Chinowsky
University of Colorado-Boulder (2007)



Paul M. Goodrum
University of Kentucky (2008)

Outstanding CII Implementer



Richard J. Jessop
Ontario Power Generation (2001)



Mohammad S. Al-Subhi
Saudi Aramco (2002)



Bernard J. Fedak
U.S. Steel Corporation (2003)



Melissa Herkt
GlaxoSmithKline (2004)



Brett A. Phillips
S&B Engineers & Constructors, Ltd. (2005)



H. A. (Speedy) Warner
Anheuser-Busch (2006)



Allan J. Johnson
Cargill (2007)



Donald G. Giles
U.S. Steel (2008)

Outstanding CII Instructor



Jorge A. Vanegas
Georgia Institute of Technology
(1995)



Stanton K. Nethery
Dow Chemical
(1996)



Steve R. Sanders
Clemson University
(1997)



G. Edward Gibson, Jr.
The University of Texas at Austin
(1998)



Donald G. Shaw
Ontario Hydro
(1999)



Gary L. Aller
Arizona State University
(2000)



W. Edward Back
Clemson University
(2001)



Edward M. Ruane
J. A. Jones Construction
(2002)



James M. Neil
Morrison Knudsen
(2003)



Emmitt J. Nelson
Shell Oil Company
(2003)



Michael R. Peters
Washington Group International
(2004)



W. Edward Back
Clemson University
(2005)



Jay C. Hoover
NASA
(2007)



James M. Gramling
URS Corporation
(2008)

CII Benchmarking User Awards

- 2000** Owner: Champion International
Contractor: Jacobs Engineering
- 2001** Owner: General Motors Corporation
Contractor: BE&K
- 2002** Owner: Aramco Services Company
Contractor: Dillingham Construction Holdings
S&B Engineers and Constructors Ltd.
- 2003** Owner: Rohm and Haas Company
Contractor: CDI Engineering Group Inc.

- 2004** Owner: GlaxoSmithKline
Contractor: Aker Kværner
- 2005** Owner: 3M Company
Contractor: BE&K
- 2006** Owner: Eli Lilly and Company
Contractor: Jacobs
- 2007** Owner: Abbott
Contractor: Alstom Power
- 2008** Owner: Merck & Co., Inc.
Contractor: Jacobs

CII Professional Development Awards

- 2007** Owner: DuPont Engineering
Contractor: Washington Group International
- 2008** Owner: Smithsonian Institution
Contractor: CCC Group, Inc.

CII Value Delivered

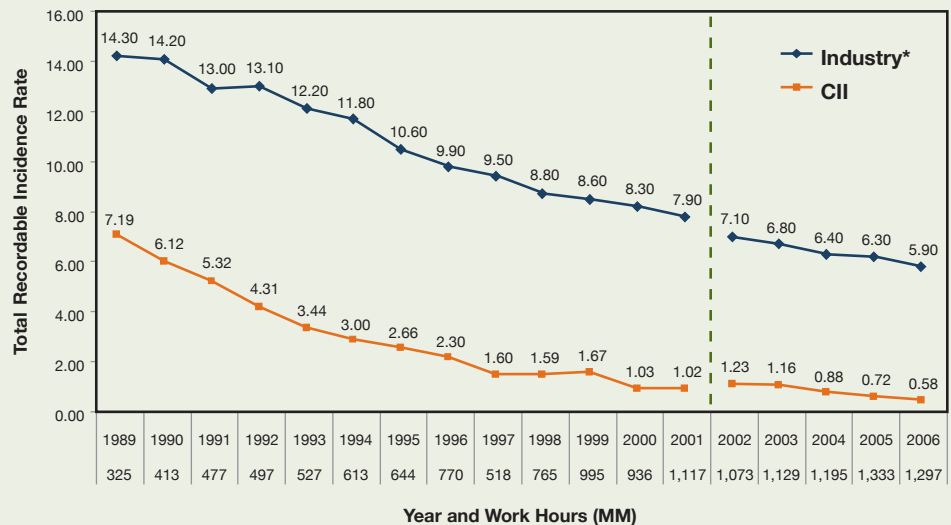
Safety

Construction's safety record in the late 1970s garnered the attention of The Business Roundtable as it began a five-year investigation into improving this fragmented, vital industry. Accidents, incidents, near-misses, and fatalities were at extraordinary levels, yet this "accidents happen" culture was largely accepted across the industry.

CII established specific improvement goals early on — goals to improve safety by 25 percent, and to reduce cost and schedule by 20 percent. Within a short time, CII members achieved the 25 percent improvement in safety. The results from CII's continued safety research generated significant additional improvement in safety performance over the years (see Total Recordable Incidence Rate graphic). The remarkable reduction in safety statistics reflects CII's member organizations' commitment to the concept of zero injuries as the only acceptable standard for accidents on a construction project.

CII's research program strongly emphasizes construction safety. Since

Total Recordable Incidence Rate



1985, CII has conducted nearly continuous safety research, with investigations into topics such as: zero accidents, design for safety, making zero accidents a reality, achieving zero injury objective on shutdown projects, owners' role in safety, and target safety. Most recently CII initiated research into the project site leader's role in improving construction safety. The purpose of this research is to investigate

the impact of the behavior of the project site leader on his/her employees' safe behavior, attitudes, and actions that drive safety performance.

In March 2007 CII established a Safety Community of Practice, bringing together safety practitioners to discuss the latest trends and techniques, thereby supporting continued improvement in this important area.

Work Force Development

The construction industry is a people industry. Many CII efforts have addressed the work force, not only in safety (as discussed nearby), but in other areas as well. Now, with the graying of both the field and office work forces, topics in this area maintain an important position in the CII research program.

Early on, CII studied employee effectiveness, project organization, and the construction work force. These efforts were followed by more specific investigations into continuing education for supervisors, workers' compensation insurance, and project team

communications. By the mid-1990s, CII drilled even further into the work force topic by looking at such issues as high performance work teams, attracting and maintaining a skilled work force, craft productivity improvement, and multi-skilling of craft capabilities.

By 2003, CII had begun researching programs and techniques to attract and maintain the next generation, those young people now entering the work force, as the Baby Boomer generation begins their exodus. This research included topics such as Addressing the Shortage of Skilled Craft Workers in the U.S., Attract, Recruit, and

Retain Construction Leaders, and The Work Force View of Construction Productivity.

In 2006, CII developed the Executive Leadership Program. This three-week program (see Professional Development, pages 14-15) is intended to enhance the executive leadership capabilities and strategic business skills of future leaders in the industry. Through a series of lectures, case studies, and simulations from both industry leaders and professors from the UT Austin McCombs School of Business, students gain important insights into value creation in the capital asset business and build collaborative relationships with peers across the industry.

Front End Planning

The Cost Influence Curve, a key to the constructability research efforts at CII, has also played a part in the overall research program. Much of the body of CII research has followed the axiom that cost and schedule are most easily influenced early in project planning. The result has been a wealth of front end planning research findings, including several CII Best Practices. These stand as testament to the validation of the impact of the Cost Influence Curve itself.

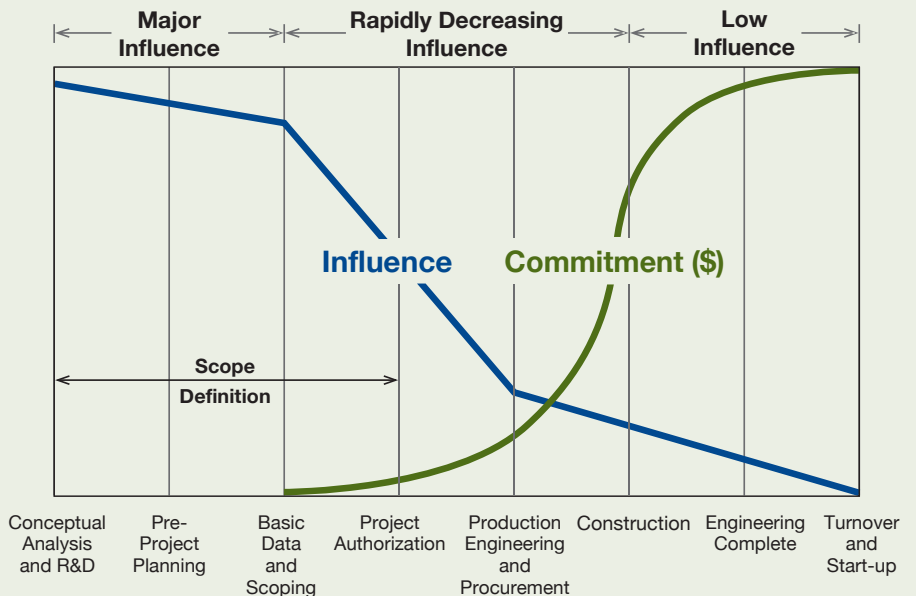
In 1994, the Pre-Project Planning Research Team developed CII's most widely used product to date, the Project Definition Rating Index (PDRI). The initial research developed the concepts based on industrial projects, and a similar tool was later developed for general and commercial buildings. The PDRI is a powerful and easy-to-use analytical tool that measures the completeness of project scope definition by identifying and precisely describing each critical element in a scope definition package. The PDRI enables a project team to quickly determine factors that have a high probability of causing undesirable project

outcomes. It is intended to evaluate the completeness of scope definition at any point prior to detailed design and construction. The family of PDRI publications are now in their third editions.

With regard to the Knowledge Area designation, in 2005 CII dropped the

term "pre-project planning" in favor of the broader concept of "front end planning." Related research projects have resulted in such tools as the Owner-Contractor Work Structure and Project Delivery and Contract Strategies. The benefits of CII's front end planning research are now well known in the industry.

Cost Influence Curve



Constructability

Constructability was one of the initial research topics funded by CII. Much was made of the definition of "constructability," as Webster's meaning of the word of the same spelling was "the ability to be constructed." CII and its Constructability Task Force chose a different definition; they preferred to define constructability as "early input of construction expertise to aid design."

A key impetus for research in this area was the issue that designers frequently did not adequately consider construction processes. They created ideas for facilities that could be difficult and therefore costly to construct. In the extreme, some designs literally could not be constructed. For example, cranes may not exist to handle the loads required by the design or the design may not provide sufficient space to accommodate all the required installed equipment.

Constructability research proved that the earlier construction expertise was involved in the design of a project and the earlier construction issues were considered in the design decisions, the more cost-effective was the design concept. Decisions made early in a project's life are much more likely to positively influence cost and schedule. If those same construction problems are raised only much later in the field, the impacts of any resulting changes could be expected to negatively influence cost, schedule and quality (see Cost Influence Curve).

The constructability concept was compelling and the Constructability Task Force took credit for the new definition of constructability, a concept that greatly enhanced a capital facility project's "ability to be constructed" within the owner's cost and schedule envelope.

"We could not have anticipated in 1984, when General Motors first joined CII, the dividends our association with this institute would begin to pay in just a few short years. The formation of GM's Worldwide Facilities Group in the early 1990s consolidated the many facilities departments within GM into one global center of expertise, and CII research became a significant enabler to the success of our construction activity. Today, our Project Planning, Project Delivery, Construction Safety and Benchmarking processes are all rooted in CII research, and General Motors is looking forward to the next 25 years of active CII involvement."

— Gary Steinmetz
General Motors Corporation

Current CII Members

Owners

Abbott
The AES Corporation
Air Products and Chemicals, Inc.
Alcoa
Amgen Inc.
Anheuser-Busch Companies, Inc.
Aramco Services Company
Archer Daniels Midland Company
BP America, Inc.
Bristol-Myers Squibb Company
Cargill, Inc.
Chevron
CITGO Petroleum Corporation
Codelco-Chile
ConocoPhillips
DFW International Airport
The Dow Chemical Company
DuPont
Eastman Chemical Company
Eli Lilly and Company
ExxonMobil Corporation
General Motors Corporation
GlaxoSmithKline
Hovensa L.L.C.
Intel Corporation
International Paper
Kaiser Permanente
Kraft Foods
Marathon Oil Corporation
National Aeronautics & Space Administration
Naval Facilities Engineering Command
NOVA Chemicals Corporation
Occidental Petroleum Corporation
Ontario Power Generation
Petroleo Brasileiro S/A - Petrobras
Praxair, Inc.
The Procter & Gamble Company
Progress Energy, Inc.
Rohm and Haas Company
Sasol Technology
Shell Oil Company
Smithsonian Institution
Solutia Inc.
Southern Company
Sunoco, Inc.
Tennessee Valley Authority
Tyson Foods, Inc.
U.S. Architect of the Capitol
U.S. Army Corps of Engineers
U.S. Department of Commerce/NIST/Building and Fire Research Laboratory
U.S. Department of Health & Human Services
U.S. Department of State
U.S. General Services Administration
U.S. Steel

Contractors

Adolfson & Peterson Construction
Aker
Alstom Power Inc.
AMEC, Inc.
Atkins Faithful & Gould
Autodesk, Inc.
AZCO INC.
Baker Concrete Construction Inc.
Barton Malow Company
Bateman Engineering N.V.
BE&K, Inc.
Bechtel Group, Inc.
BIS Frucon Industrial Services Inc.
Black & Veatch
Bowen Engineering Corporation
Burns & McDonnell
CB&I
CCC Group, Inc.
CDI Engineering Solutions
CH2M HILL
CSA Group
Day & Zimmermann International, Inc.
Dick Corporation
Dresser-Rand Company
Emerson Process Management
Fluor Corporation
Foster Wheeler USA Corporation
Grinaker-LTA/E+PC
Gross Mechanical Contractors
GS Engineering & Construction Corporation
Hargrove and Associates, Inc.
Harper Industries, Inc.
Hatch
Hill International, Inc.
Hilti Corporation
Hyundai Engineering & Construction Co., Ltd.
J. Ray McDermott, Inc.
Jacobs
JMJ Associates Inc.
KBR
Kiewit Construction Group, Inc.
M. A. Mortenson Company
Mustang Engineering, L.P.
Parsons
Pathfinder LLC
Pegasus Global Holdings
Primavera Systems, Inc.
R. J. Mycka, Inc.
S&B Engineers and Constructors, Ltd.
The Shaw Group Inc.
Siemens Power Generation, Inc.
SNC-Lavalin Inc.
Technip
URS Corporation
Vale
Victaulic Company
Walbridge
The Weitz Company, Inc.
WorleyParsons Limited
Yates Construction
Zachry Construction Corporation
Zurich



Colleges and Universities

Involved with CII from 1983 to 2008

- University of Alabama
- Arizona State University
- Auburn University
- Baylor University
- Boise State University
- Bucknell University
- University of California-Berkeley
- Carnegie Mellon University
- Cincinnati University
- Clemson University
- University of Colorado at Boulder
- Colorado State University
- Columbia University
- Drexel University
- East Carolina University
- University of Florida
- Universidade Federal Fluminense (Brazil)
- Georgia Institute of Technology
- Georgia Southern University
- University of Houston
- Idaho State University
- University of Illinois
- Iowa State University
- University of Kansas
- University of Kentucky
- Lehigh University
- University of Maryland
- Mesa State College
- University of Michigan
- Mississippi State University
- University of New Mexico
- North Carolina Agricultural and Technical State University
- North Carolina State University
- North Dakota State University
- Ohio University
- Oklahoma State University
- Oregon State University
- The Pennsylvania State University
- University of Pittsburgh
- Polytechnic University
- Purdue University
- San Diego State University
- San Jose State University
- Southern Illinois University
- Stanford University
- State University of New York-Albany
- The University of Texas at Austin**
(Founding University and CII Headquarters)
- Texas A&M University
- Virginia Polytechnic Institute and State University
- University of Washington
- Washington State University
- University of Waterloo (Canada)
- University of Wisconsin-Madison
- Worcester Polytechnic Institute
- Xavier University

Closing Thoughts

From the Executive Director



Since CII was formed 25 years ago, tremendous improvements have been realized in the construction industry, and many of those changes are founded on the work of CII. Today more than 110 major companies are aligned to continue that great work. We have many solid examples of the positive changes that result from such alignment, and the dramatic improvements in safety culture and performance are obvious beneficial results. Nevertheless, 25 years later, the construction industry is still challenged by fragmentation, impacted by weather and the business cycle, and is experiencing significant shortages in highly skilled technical and trade personnel. Amazingly though, in 2006 our industry contributed almost five percent to our nation's GDP and employed 11.7 million persons, over eight percent of the nation's work force. As 25 years ago and still true today, construction activities affect nearly every aspect of the U.S. economy and are vital as an engine for economic growth.

The forces that led to the creation of CII 25 years ago – increased shareholder demands, globalization, and computerization – are growing ever stronger and the industry environment is evolving rapidly as the pace of business accelerates, uncertainties grow, and capital project delivery becomes more complex. In the next 25 years the transformation to a truly global economy and the burgeoning explosion in technology will create an environment where distance is no longer a constraint, communication is instant, resources will be traded on a global scale, visual communication will overcome language barriers, and complexities will continue to grow. In addition to the existing forces that led to the creation of CII, this new enormously challenging environment for project delivery will have new drivers acting upon it that must be considered in construction research. Emerging now and certainly to be among these new drivers are sustainability and environmental security, homeland security, disaster resilience, infrastructure renewal, information technology, and robotics.

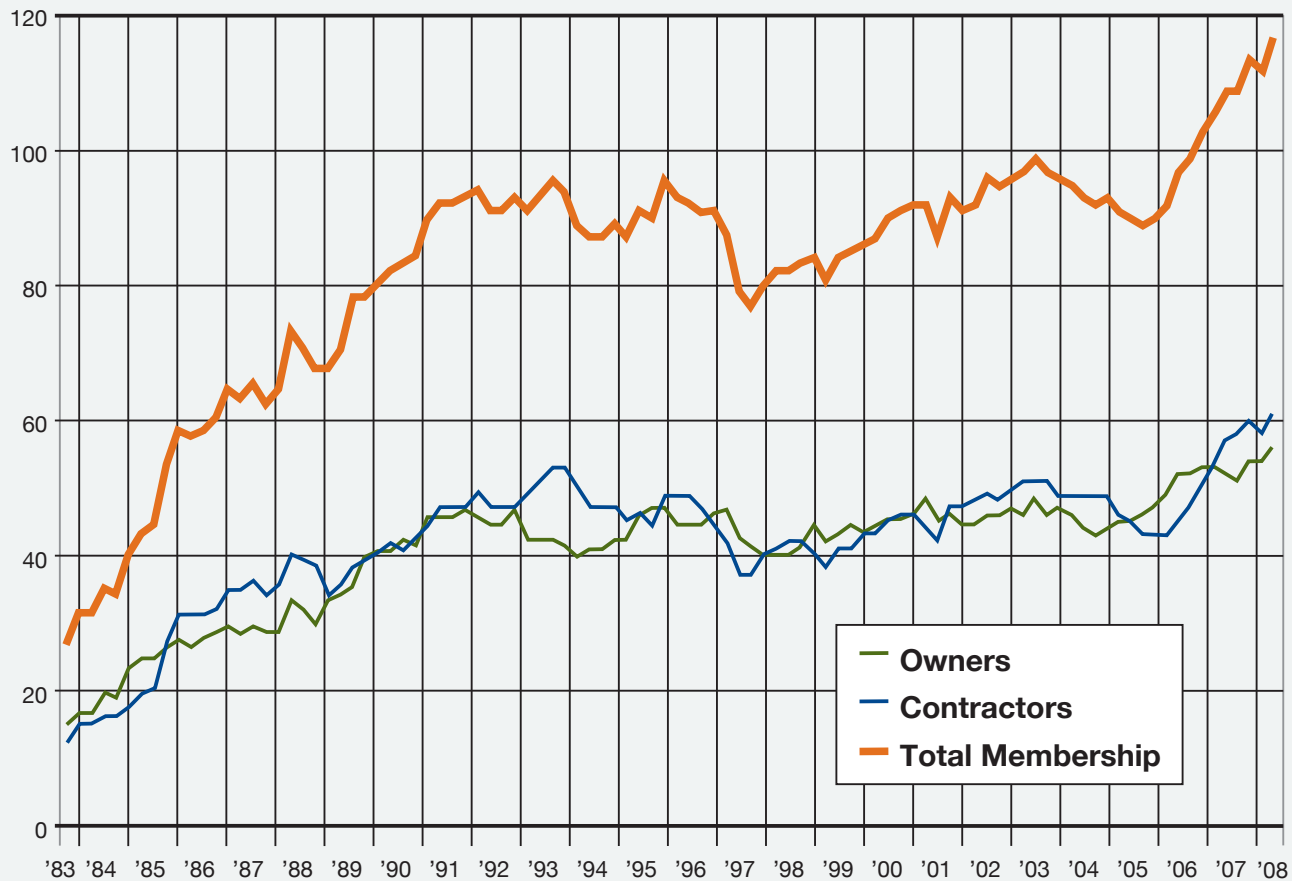
The visionaries who created CII recognized that a highly collaborative and inclusive industry organization, embracing research and the derived products, would improve the safety, cost, schedule, and quality of the capital delivery processes and create significant value for the institute's member companies, individual participants from member companies, academia and the U.S. construction industry. This will also be true over the next 25 years. CII's focus on research creates continual value for all stakeholders. CII members place a premium on safety, ethics, continuous improvement, and leadership. This value and this trust are the foundation that will make CII an ever growing leader in this increasingly demanding industry. Dr. William W. Badger has forecast, "We will build more things in the next 30 years than in the last 2000."

CII's contributions are many but have only just begun.

A handwritten signature in black ink, appearing to read "Wayne A. Crew". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Wayne A. Crew
Executive Director
Construction Industry Institute

CII Membership



Acknowledgement:

Thanks to the many people who contributed to this printed summary of CII's first 25 years. Some of those include: Harold Helland, Abbott; Edd Gibson, University of Alabama; Bernard Fedak, Aker; Dennis Schroeder, Susan Wasley and Cherie Kosak, BE&K; Alasdair Cathcart, Bechtel; Richard King, Bob Germinder and Dave Hile, Black & Veatch; John Nobles and Bill McCully, Burns & McDonnell; Aivars Kruminis, CB&I; Sue Steele, CH2M HILL; Allan Johnson, Cargill; Emerson Johns and Carol Arnold, DuPont; Melissa Herkt, Emerson Process; Jim Scotti and Ed Ruane, Fluor; Gary Steinmetz, General Motors; Hans Van Winkle, Hill International; Bob Predmore, Intel; Andy Johnson and Bill Kallmeyer, KBR; Paul Campbell, Mortenson; John Dalton and Dena Lee, Mustang Engineering; Irv Kieback, Procter & Gamble; William (Bru) Brubaker, Smithsonian Institution; John Zachry and Keith Manning, Zachry Construction; Richard Tucker, Robert Jortberg, Charles McGinnis, Robert Ryan, current members of the CII Staff: Kim Allen, Nuria Ayala, Terri Buvia, Christi Buratti, Michael Burns, Wayne Crew, Juikin Dai, Deborah DeGezelle, Manuel Garcia, Rusty Haggard, Kelly Lenig, Stephen Mulva, Donna Rinehart, Bernie Rosenblatt, Steve Thomas, Sam Shinn and Jewell Walters, and Stevan Wilson.



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