2010 ANNUAL REPORT

MANAGING TODAY
TO **EXCEL** TOMORROW

The Construction Industry Institute, based at The University of Texas at Austin, is a consortium of more than 100 leading owner, engineering-contractor, and supplier organizations from both the public and private arenas. These organizations work together to enhance the business effectiveness and sustainability of the capital facility life cycle through CII research, educational initiatives, and industry alliances. A research organization creating a wealth of expert knowledge and practical information, CII provides vital leadership to the engineering and construction industry.

PURPOSE

The purpose of CII is to measurably improve the delivery of capital facilities.

VISION

CII is a leader in the construction industry, creating and implementing research-based knowledge that measurably improves the effectiveness and sustainability of capital facilities delivery. The increased business success CII member organizations experience prompts participating industry leaders to make breakthroughs in the life cycle value of capital facilities.

MISSION

CII creates global, competitive, and market advantages for its members through its research-based, member-driven creation of knowledge and CII Best Practices. The institute's ability to disseminate this knowledge and assess its implementation gives members a decisive industry edge. Employees of CII member organizations cooperatively engage with leading academics to generate CII knowledge; this unprecedented partnering of industry and academia creates the perfect forum for investigating the most significant opportunities for industry improvement. Participating industry employees and academics all benefit from the professional development and career advancement this collaborative effort provides.

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REMARKS FROM THE **CHAIRMAN**

Reflecting on 2010, I am pleased to see that, in spite of the continuing economic challenges facing the industry, CII and its member companies stand healthy and ready for 2011. CII membership remains steady and, after two years of managed cost reductions, we have stabilized the budget. The 2010 annual conference was well attended and, according to attendee feedback, was one of CII's best—with one research team's work inspiring an ENR cover story.

At the fall Board of Advisors meeting, we rolled out the first results from our new CII scorecard. Although these metrics continue to evolve, the initial report indicates a robust organization that is making a difference in the industry. The major key result areas give a snapshot of CII's recent growth:

- **Industry Leadership** – Most of our member companies are listed in the Fortune 500 or ENR 400, and CII was cited in numerous industry publications during 2010.

- **Stakeholder Value and Satisfaction** – Member retention and involvement remain high, as does reported member satisfaction. Even in the current economic climate, member participation in CII events in 2010 was high.

- **Participant Value and Satisfaction** – Members continue to derive high value from participation in research teams, standing committees, and communities of practice. They also express high satisfaction with the CII Annual Conference and Performance Improvement Workshops.

- **CII Process and Product Improvement** – CII research products get consistently high marks from members, and the production rate for new products is good—having improved dramatically over the rates of previous years.

- **Fiscal Responsibility** – CII remains a fiscally stable entity with ample reserve margins; we manage our resources in full compliance with our own ethics policies, as well as those of The University of Texas at Austin.

As I hand the chairman's reins to Rick Haller of Walbridge, I know CII is on track as the knowledge leader for the construction industry. My confidence comes from knowing that CII has an excellent staff, headed by Wayne Crew, and dedicated leaders from member companies. CII's reliable production and dissemination of its research, along with its members' tireless commitment to CII committees and teams are the backbone of its success.

Throughout this report, please note the contributions of CII Executive Committee members on how their organizations achieve excellence with CII practices and principles. Their examples of CII's influence on their project management and execution strategies illustrate exactly how CII members lead the industry.

Going forward, your sustained engagement will enable CII to provide more and more high-impact resources to all member organizations; and as we proceed on this journey to improve our performance, we will continue to make a significant positive impact on the entire industry. Thank you.

—David McKinney

FOUR CORE KNOWLEDGE PROCESSES

Having begun in 1983 with only 28 charter members who shared the CII vision, the institute is now recognized in the engineering and construction industry as the knowledge leader for project success. CII has four core knowledge processes: creation, dissemination, assessment, and management.

Knowledge Creation: CII research teams—groups that include academic investigators and employees of both owner and contractor organizations—generate best practices and breakthroughs for the construction industry. CII Benchmarking & Metrics processes create additional knowledge, producing ongoing applied research that establishes industry norms for construction performance.

Knowledge Dissemination: Knowledge created by CII is disseminated to institute members and to other organizations and individuals in the engineering and construction industry. CII distributes this knowledge through research publications, implementation guides, educational materials, workshops, and conferences.

Knowledge Assessment: CII Benchmarking & Metrics collects, analyzes, and assesses the impact of CII knowledge as it is initially implemented and integrated into member organizations' work processes. Once proven through member benchmarking, the industry at large incorporates this knowledge into its capital project work processes.

Knowledge Management: Since 1983, CII has produced over 475 research documents and hundreds of other presentations and publications. Knowledge management adds value to CII by organizing and facilitating access to CII's extensive body of knowledge. By establishing communities of practice—virtual interest groups that share and develop knowledge—CII knowledge management provides another way to advance the institute's mission.

Through these knowledge processes, CII advances human knowledge and fulfills its mission of enhancing the business effectiveness, sustainability, and global competitiveness of CII members.

REMARKS FROM THE **DIRECTOR**

Wow! As I think back on 2010, that is the first word that comes to mind. The U.S. Department of Commerce reports that, in 2010, the U.S. construction spend was $814 billion—the lowest it has been in over 10 years. I remember reporting just three years ago how strong the 2007 spend had been; it had increased some 16 percent over the previous year and was at the highest level of all time.

CII has not been immune to the economic crisis: our membership stood at 98.5 standard members (104 total members) at year's end—slightly below our forecasts and representing a 14 percent decline from our peak in 2008. As you would expect, CII's spend has decreased along with this trend; but, without cancelling any commitments, we will achieve balanced income and expense streams in 2011.

The PDRI for Infrastructure Research Team reported its findings at the 2010 conference, completing the CII "trilogy" on front end planning. This addition to the already published PDRIs for buildings and industrial projects rounded out this knowledge area. It is good to be able to say that CII's research-based front end planning resources now maximize the probabilities of project success for every type of non-residential project. Additionally, the Construction Productivity Research Team reported their Phase II findings, which included best practices for maximizing electrical craft productivity. Six other research teams also presented their findings on an array of topics. These included two safety topics, BIM Project Execution Planning, Communicating Owner Value Interests on Projects, and Building Successful Global Engineering and Construction Organizations. CII also heard from its first research project with participation from academics in China, the Product Integrity Concerns in Low-cost Sourcing Countries Research Team. These research efforts represent the largest and most significant additions to CII's body of knowledge during my tenure at CII.

Dissemination efforts were also strong in 2010. Working with our academic subject matter experts, we completed and released new education modules for front end planning, and designed and conducted three web seminars. Additionally, we held two Performance Improvement Workshops, one in the spring and one in the fall. They were well attended (with 142 combined attendees), and attendees gave them their best evaluation scores to date. The Implementation Strategy Committee published its revision of IR 166-3, *CII Best Practices Guide: Improving Project Performance, Version 3.* Lastly, leaders from CII member organizations again stepped up to teach the CII Best Practices graduate course in the fall of 2010. One hundred sixty-five graduate students—all potential future industry leaders—from nine universities learned how CII members improve capital project performance by implementing CII Best Practices.

2010 was the first full year of effort for the CII-CMAA Best Practices-Best Practitioners Alliance. The CMAA Owners' Forum and the CMAA Annual Conference both featured presentations of CII research findings, and CII invited CMAA to make presentations at both the CII Annual Conference and the spring Performance Improvement Workshop. The alliance also initiated its effort to map CII Best Practices onto the CMAA Standards of Practice, and was making great progress by the end of the year. We are now discussing how we might collaborate with CMAA on a Performance Assessment System.

CII's Performance Assessment System (formerly known as the Next Gen System) made significant progress in 2010. Data migration to this new system from the legacy Benchmarking and Metrics System is already underway. By the end of 2011, every member entering projects into the new system will be able to generate key reports and mine data online. Only CII provides such capabilities.

I am particularly pleased with our progress at designing and implementing the new CII Scorecard. CII Chairman, David McKinney, reports on its first results in his reflections on the year. (See page 1.) More important than the actual scores, though, is how much the scorecard helps us better focus our resources to bring maximum value to CII members. Even during its development, the scorecard spurred us to improve our editing and publishing processes, as well as our body of knowledge review process. This attention generated the new CII Knowledge Management System, which electronically administers the knowledge review process. By benchmarking our own performance with the scorecard, we are using a CII core knowledge process to more quickly produce and disseminate our findings and then to ensure their relevance.

It is a huge effort to bring owners, contractors, and academics together to conduct and implement construction research. We do it all to point the way to improved capital project delivery. At the annual conference in Orlando, I made the point that, although our conference theme had been "Managing Today to Excel Tomorrow," it was more accurate to say that CII members really always *lead* today to excel tomorrow. That has been the secret to our success from the beginning—we produce and implement the right practices and processes at the right times.

Thank you for guiding our efforts and for participating in CII activities. I hope you enjoy looking back over what we accomplished in 2010. Your energy and effort have made us the industry's knowledge leader—let's continue that tradition as we move ahead together.

—Wayne Crew

CII **MEMBERSHIP LIST**

OWNERS

Abbott
Air Liquide
Air Products and Chemicals, Inc.
Ameren Corporation
American Transmission Company LLC
Anheuser-Busch InBev
Aramco Services Company
Archer Daniels Midland Company
Architect of the Capitol
Barrick Gold Corporation
BP America, Inc.
Bristol-Myers Squibb Company
Cargill, Inc.
Chevron
CITGO Petroleum Company
ConocoPhillips
The Dow Chemical Company
DuPont
Eastman Chemical Company
Eli Lilly and Company
Eskom Holdings Limited
ExxonMobil Corporation
GlaxoSmithKline
Hovensa, LLC
International Paper
Irving Oil Limited
Kaiser Permanente
Marathon Oil Company
National Aeronautics & Space Administration
NOVA Chemicals Corporation
Occidental Petroleum Corporation
Ontario Power Generation
Petroleo Brasileiro S/A – Petrobras
Praxair, Inc.
The Procter & Gamble Company
SABIC – Saudi Basic Industries Corporation
Sasol Technology
Shell Global Solutions US Inc.
Smithsonian Institution
Southern Company
Teck Resources Limited
Tennessee Valley Authority
TransCanada Corporation
U.S. Army Corps of Engineers
U.S. Department of Commerce/NIST/BFRL
U.S. Department of Energy
U.S. Department of Health & Human Services
U.S. Department of State
U.S. General Services Administration

CONTRACTORS

Aker Solutions
Alstom Power Inc.
AMEC, Inc.
Apex Engineering, Inc.
AZCO INC.
Baker Concrete Construction Inc.
Bateman Engineering N.V.
Bechtel Group, Inc.
Bentley Systems Inc.
BIS Frucon Industrial Services, Inc.
Black & Veatch
Burns & McDonnell
CB&I
CCC Group, Inc.
CDI Engineering Solutions
CH2M HILL
Coreworx Inc.
CSA Group
Day & Zimmermann
Dresser-Rand Company
Emerson Project Management
eProject Management, LLC
Faithful+Gould
Flad & Associates
Fluor Corporation
Foster Wheeler USA Corporation
Grinaker-LTA/E+PC
Gross Mechanical Contractors, Inc.
GS Engineering & Construction Corporation
Hargrove Engineers + Constructors
Hilti Corporation
Jacobs
JMJ Associates, Inc.
KBR
Lauren Engineers & Constructors, Inc.
M. A. Mortenson Company
McDermott International, Inc.
Mustang
Omniware
Oracle USA, Inc.
Parsons
Pathfinder LLC
S&B Engineers and Constructors, Ltd.
The Shaw Group Inc.
Siemens Energy, Inc.
SNC-Lavalin Inc.
Technip
URS Corporation
Victaulic Company
Walbridge
Wanzek Construction, Inc.
WorleyParsons
Zachry
Zurich

RESEARCH

As the mainstay of the institute, research at CII follows a process guided by the CII Research Committee. Composed of 16 senior industry representatives and three leading academic researchers, the committee meets a minimum of four times a year to guide the research process. At these meetings, the committee implements a topic generation process through which it identifies the industry's key engineering and construction issues. Once the new topics have been generated, the committee solicits input from the CII Board of Advisors to help prioritize them, and then allocates CII resources to the universities chosen to perform the research.

To choose these universities, the committee requests that all interested academics submit their qualifications for performing the research. Upon selection of the principal academic investigators, the committee sponsors a 15- to 20-member industry-led research team for each topic—staffed by CII member organization employees—to work with the academics to guide the research and find practical solutions for industry. The committee annually initiates six to eight new research teams to address selected topics, typically from three categories of research: 1) best practice/core improvement; 2) current and emerging trends; and 3) strategic and future topics. These teams normally work for two years to conduct their research, prepare publications documenting their findings, and report out at CII's annual conference.

The following nine research teams reported their findings at the 2010 CII Conference:

1. Craft Productivity Research Program, Phase II (University of Waterloo, University of Kentucky, and The University of Texas at Austin);
2. Product Integrity Concerns in Low-cost Sourcing Countries (University of Florida and Tsinghua University);
3. Building a Successful Global Engineering and Construction Organization (Columbia University and The Pennsylvania State University);
4. A Standardized Approach to Identifying and Defining Owner Value Interests and Aligning the E&C Response (Texas A&M University);
5. Project Definition Rating Index Tool for Infrastructure Projects (Arizona State University and University of Alabama);
6. Project Site Leadership's Role in Improving Construction Safety (University of Kentucky and Virginia Technical Institute and State University);
7. Industrial Engineering Techniques for Improving Field Project Operations (Clemson University);
8. Real-time Pro-active Safety in Construction (University of Florida and Georgia Technical Institute); and
9. Building Information Modeling (BIM) Project Execution Planning (The Pennsylvania State University).

At the conference, CII recognized Dr. Hyung Seok "David" Jeong, Assistant Professor in the School of Civil and Environmental Engineering at Oklahoma State University in Stillwater, Oklahoma, as the 2010 CII Outstanding Researcher. Dr. Jeong was recognized for his work from 2007-2009 to conduct research and develop tools to address the coming shortage of construction estimators. Because this shortage poses a crisis for the industry, the software tool his team produced to help construction firms recruit, train, and retain estimators already stands as a significant and lasting contribution to CII and to the industry.

After the conference, CII shifted its focus to the active research teams scheduled to report their findings at the 2011 annual conference. These teams will address the following topics:

1. Reimbursable Contracts (The University of Texas at Austin and The Pennsylvania State University)
2. Optimizing Jobsite Organization (The University of Texas at Austin)
3. Applicability of CII Best Practices by Industry Sector and Project Type (Texas A&M University)
4. Innovative Project Delivery Processes – Is There a Better Way? (University of California at Berkeley and University of Washington)
5. Enhanced Work Packaging: Design through Work Face Execution (The University of Texas at Austin)
6. Construction Productivity Program – Phase III.

Looking beyond these active teams in 2010, CII also launched five new research teams:

1. Driving to Zero with Safety Leading Indicators (University of Florida and University of Colorado)
2. Modularization (The University of Texas at Austin)
3. Managing Indirect Costs (Iowa State University and Michigan State University)
4. Methods for Dealing with Uncertainty – Applying Probabilistic Controls in Construction (University of Colorado)
5. Project Management Skills of the Future (Arizona State University).

ANTI-CORRUPTION

To anyone who has been involved in global construction for any amount of time, it is clear that corruption, bribery, and graft are rampant in many parts of the world—in both emerging and developed economies. While many may believe that corruption does not actually hurt anyone, it is in fact tragic. Bribery and graft create an unlevel playing field, destabilize governments, and distort growing economies. This ultimately means that families and children have fewer resources available for them to break out of the cycle of poverty.

In accordance with CII Best Practices regarding corruption, Fluor adamantly supports anti-bribery and anti-corruption initiatives. Working with high-ranking government officials and industry leaders at the 2005 World Economic Forum in Davos, Switzerland, Fluor CEO, Alan Boeckmann, took part in a new global initiative focused on rooting out graft, greed, and corruption in the global construction industry. This initiative, called the Partnership Against Corruption Initiative (PACI) delineates eight guiding principles in response to the worst forms of global corruption. These principals track almost directly with CII Best Practices. The 150 signatories to the initiative—many of them CII members—have all publicly acknowledged the PACI principles and have pledged to provide transparent public reports. We salute the CII members who have joined PACI and strongly support the organization's work.

— Glenn Gilkey

Fluor CEO, Alan Boeckmann (center), celebrates with other signatories of the Partnering Against Corruption Initiative (PACI) at the 2005 World Economic Forum in Davos, Switzerland. PACI is a business-driven global effort that tracks with CII Best Practices.

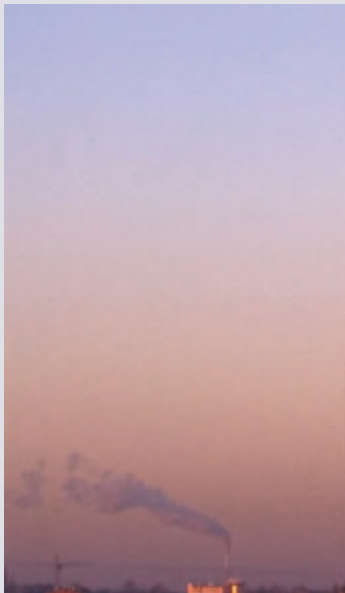
Photo courtesy World Economic Forum

RESEARCH (CONTINUED)

While research topic development, team resourcing, and the start-up of new teams are the major activities of the Research Committee, the committee was also able to reexamine the CII research process in 2010, with particular emphasis on continuous improvement. After having scrutinized the entire CII research process—one that has evolved over the years—the committee presented its recommendations concerning research team expectations, requirements, resource issues, and constraints to the Executive Committee and to the Board of Advisors for adoption. These recommendations prompted the following changes:

- adjusting the topic approval and award processes in order to give teams more time to perform research
- only requesting qualifications from academics instead of full research proposals in order to ensure that the design of the research is a joint industry-academic effort
- asking all members of the Board of Advisors to nominate research team members as they vote on research topics.

These changes to the process were approved by the Executive Committee in September and were officially adopted by the Board of Advisors in October. While the view remains that CII research is unique and delivers applied research findings that are instrumental to industry advancement, the committee will continue to seek improvement to enhance member value and to contribute to the advancement of human knowledge.



BREAKTHROUGH

In 2010, the CII Breakthrough Strategy Committee (BTSC)—a group charged with keeping CII informed on innovations and advances in the industry—authored the following white papers:

- Prediction Markets
- Translucent and Transparent Materials
- Construction Robotics
- Weldless and Quick Connecting Systems.

The BTSC continues to open each of its meetings with an "innovation moment" and still schedules creativity visits/presentations to stimulate ideas and thinking. Creativity visits were made at the following companies in 2010:

- Bentley Systems – Weston, Florida
- IDEO – Orlando, Florida
- Velocity & Perimeter Institute – Waterloo, Ontario, Canada

The BTSC has embarked on "BTSC 2.0" to increase CII member awareness of the BTSC and its activities. As part of this initiative to show CII how much the committee serves as a source for fresh ideas and as an avenue for new membership, the BTSC is planning a "Technology Corner" for the 2011 CII Annual Conference in Chicago.

In 2010, the BTSC was joined by new members from Architect of the Capitol, Coreworx, Dow Chemical, and ExxonMobil. Michelle Kayon of Architect of the Capitol was named the new BTSC co-chair, replacing Steve Deloach of the Smithsonian. Nicole Boston of FIATECH joined the committee, along with Dr. Carlos Caldas of The University of Texas at Austin. One important change made in 2010 is that the three academics will now each assign a graduate student to assist with the BTSC. This will improve the committee's productivity and the depth of the white papers it produces.

ACADEMIC

The Academic Committee is CII's primary forum for the academic community. The duties of the Academic Committee include designating subject matter experts in support of the research process, identifying and grooming new academic researchers for success on CII projects, and helping ensure that CII research is competently done within the classic research framework.

In 2010, the Academic Committee saw the completion of its first study, *CII Products and Academic Applicability*. Conducted jointly by the University of Alabama and Auburn University, the study investigates the degree of CII product use in both graduate and undergraduate curriculums. The study's findings promise to reinforce the already strong relationship between CII and the academic community. Texas A&M University is conducting a second study—entitled *Tomorrow's Construction Industry Graduate - What Does the Construction Industry Need?*—to identify the necessary skill set of new professionals who will be entering the capital project delivery workforce in 2015. Both of these studies were designed to support the academic curriculum and to meet industry needs.

The committee supported the annual conference through its continuing sponsorship of the conference poster competition. This yearly event benefits everyone involved: it gives graduate students working at schools not funded by CII exposure to the CII research model and it allows conference participants to see valuable non-CII sponsored research. The 2010 competition was strong, with more than 30 posters submitted, and 10 selected for conference presentation. The award for best poster went to Mani Golparvar-Fard of University of Illinois, Urbana-Champaign. His poster addressed Automated Remote Tracking and Visualization of Construction Progress with D4AR Models.

The Academic Committee also took steps in 2010 to help promote CII-sponsored research by organizing a special CII session at the American Society of Civil Engineers Construction Research Congress in Banff, Alberta. Since the ASCECR Congress is the premier academic forum for construction industry research in North America, it was to CII's credit that one of the papers presented at the CII session received the Congress' award for best paper.

KNOWLEDGE **DISSEMINATION**

IMPLEMENTATION

The mission of the Implementation Strategy Committee (ISC) is to promote the implementation of CII practices within CII member organizations. To fulfill this mission, the ISC designs activities and implementation resources that give members hands-on experience at implementing CII knowledge and work practices. In 2010, the committee sponsored two highly successful Performance Improvement Workshops (PIWs): one in the spring, held in Ft. Lauderdale, Florida; and the other in the fall, in Houston. The combined attendance for the two events was 142 participants. The popular workshops enable members to hone their CII Best Practice implementation skills and to learn about new CII products; they also provide peer-to-peer connections for sustained implementation support.

Fundamental to the ISC is its support of the Implementation Champions program. Now in its thirteenth year, this program is available to help CII member companies improve their implementation of CII Best Practices and processes. Member companies can also use the web-based CII Implementation Tool Box, another resource developed and maintained by the ISC to promote implementation. The tool box gives Implementation Champions a focused entry into the world of CII resources—including Implementation Planning tools—and contact information for support. This resource also provides website links to products, workshops, and conference presentations. In 2010, ISC members continued to help validate emerging industry practices through the Program for Early Implementation.

The committee also oversees the Implementation Assistant tool, a resource developed by the ISC to benefit implementers of CII practices. This online tool allows implementers to create implementation plans based on the guidance provided by Implementation Resource 246-2, *The Implementation Planning Model: Steps to Success*. With the tool, implementers can initiate and track implementation plans, establish milestones, and use metrics for effective implementation. Also, managers can use it to monitor the progress of implementation initiatives within their organizations.

At the 2010 Annual Conference, CII presented the Implementer of the Year Award to two deserving recipients: Scott Haven of SABIC and Tracie M. Griffitt of Jacobs. The award recognizes members for outstanding achievement in the implementation of CII practices.

Haven led 14 key project resources in the U.S. and Europe to form SABIC's implementation steering team. The team accomplished three objectives: 1) integration of the Project Definition Rating Index (PDRI) into SABIC's project tollgate process; 2) adoption of Education Module 213-21 for the firm's front-end planning training; and 3) the benchmarking of two projects. Additionally, SABIC's team incorporated the use of metrics into the firm's small-site-based project planning boards.

The ISC attributes the consistently high evaluations it gets for its Annual Conference presentations and for its PIWs to Griffitt's leadership and commitment. For the conference presentations in both 2009 and 2010, she coordinated and managed a diverse group of ISC practitioners. She also volunteered as the ISC's plenary presenter and implementation session moderator both years. In April 2008, she taught 150 workshop attendees methods for addressing barriers to implementing high-performance work processes. Workshop attendees consistently comment on Griffitt's remarkable dedication and resourcefulness.

In 2010, the committee sponsored a revision of the *CII Best Practices Guide: Improving Project Performance*. This publication is designed primarily to help CII Implementation Champions and others lead the implementation of CII Best Practices. It offers CII Best Practice performance data on each practice to anyone considering implementation or to anyone with an interest in learning more about CII Best Practices and the implementation process. The publication provides implementation self-assessments on each CII Best Practice and gives guidance on selecting the starting practices for a CII Best Practice implementation program.

PRODUCTIVITY

Over the past two decades, our steady adoption of lean principles at Walbridge has meant enhanced productivity and exceptional project outcomes. For our lean initiative and for many others, CII's deep and rich pool of research has been crucial to developing new approaches and enhancing existing practices. And CII Best Practices are fundamental to our continuing success, especially the best practices in the areas of front end planning, constructability reviews, materials management, and zero accidents techniques.

FRONT END PLANNING

Let me provide a case in point. Walbridge recently implemented numerous CII-influenced best practices on a high-profile project, the new $152 million, 366,000-square-foot North Quadrangle Residential and Academic Complex at The University of Michigan (U-M). This unique living and learning center—the first residential structure built at U-M in more than 40 years—is a gateway between downtown Ann Arbor and the campus. Extensive front end planning helped us integrate our knowledge into various design, planning, and construction phases. This was important, since we were coordinating our efforts with several stakeholders: university administrative personnel; separate housing and academic departments; city and state officials; and two architects (one of whom was added after considerable pre-construction work had been completed).

CONSTRUCTABILITY

Walbridge conducted numerous constructability reviews to ensure that the university's program goals and levels of finish and functionality were met. For example, we extensively reviewed specifications and properties of various brick types with the owner and A/E before soliciting bids. Pursuing pinpoint accuracy with brick finishes may seem to be over-kill, but, because the U-M campus features a rich tapestry of deep red brick in its buildings, choosing the right brick is critical to meeting expectations and delivering lasting enhancements. CII Constructability Best Practices made all the difference here.

MATERIALS MANAGEMENT

Because the project's 10-story residential tower and seven-story academic building were designed to take up almost an entire square block, little space was left for material lay down and storage. We used CII Materials Management Best Practices to develop a comprehensive program to ensure that materials were available when needed, and to contain costs for delivery and on-site handling.

SAFETY

Walbridge's strong, historic safety commitment meshed well with CII's zero accidents techniques and helped us deliver an exemplary site-specific safety record. We communicated and modeled CII–Walbridge beliefs on safety, including the conviction that injuries are preventable and that workers should be empowered to act on safety issues. Every day, we held three on-site safety huddles, short breaks during which employees could evaluate work processes, ask questions about new work procedures, and identify hazards immediately. During our three and a half years at North Quad, we conducted more than 24,000 individual huddles and safety-related meetings.

Our experience at North Quad demonstrates how effective it has been to incorporate CII Best Practices and research into Walbridge's lean principles and productivity knowledge. It has helped us consistently achieve project objectives in a timely, accurate, and cost-effective manner. We look forward to future success with CII.

—Rick Haller

To build the University of Michigan North Quad complex in Ann Arbor—a structure designed to cover almost an entire city block—Walbridge depended on CII Materials Management Best Practices to develop its materials management plan.

PROFESSIONAL DEVELOPMENT

The mission of the Professional Development Committee (PDC) is to enable implementation of CII research, plan future educational opportunities for CII members, create outreach programs, evaluate trends in industry education, and develop new educational vehicles.

The Registered Education Provider Program, now in its fifth year, provides CII members and the general public with a qualified corps of instructors—available to teach CII principles and methods at member organization campuses and other venues. Key CII programs and events offer professional development hour credits that participants can use to fulfill their professional continuing education requirements.

In addition to its classroom-based programs, the committee oversees the CII online education program. Members and non-members alike can access the CII curriculum and benefit from fully interactive and professionally developed online courses. The current online curriculum covers partnering, the development and alignment of project objectives, constructability, construction safety, planning for start-up, front end planning, and scope control and change management.

The PDC also facilitates the CII Professional Development Continuum—a user-friendly online planning resource—to help organizations plan the career development of new construction project managers. The continuum illustrates how CII's publications, education modules, and online and instructor-led courses address competency areas across the project life cycle.

In 2010, the PDC recognized faculty and higher education programs with two awards, the CII Distinguished Professor Award and the CII Curriculum Partner Program Award. The CII Distinguished Professor Award recognizes full-time or adjunct faculty who incorporate published CII research findings into the courses they teach. The 2010 awardees were Professors Stuart D. Anderson (Texas A&M University), G. Edward Gibson, Jr. (Arizona State University), and Janet K. Yates (North Dakota State University). The CII Curriculum Partner Program Award recognizes higher education programs that incorporate published CII research findings into their curriculums. The 2010 recipients of this award were the Department of Construction Management at Colorado State University, and the Zachry Department of Civil Engineering at Texas A&M University.

At the 2010 Annual Conference, the PDC presented Fluor Enterprises with the CII Outstanding Professional Development Award. Fluor's learning community is diverse, with employees working on many different types of complex and challenging projects—around the world and across several industries. The firm's size and scope demands a professional development program that is virtual and flexible, allowing training when and where it is needed as business demands change. To create these learning opportunities, the firm launched the Fluor University website in 2009, giving salaried employees global, 24/7 access to Fluor's learning and development resources. These resources include a comprehensive course catalog with 1,700 courses, 1,500 online courses, 200 instructor-led courses, *Books 24/7*, and other valuable external resources linked within the site. The site also offers courses developed by Fluor.

Fluor's online portal helps employees navigate the world of learning within the company and allows them to work with their supervisors to better plan and orchestrate the training they need for career advancement. Increasing employees' knowledge about specific functional areas is an integral part of career growth and planning. Most of the Fluor-designed courses were developed by Fluor functional groups; they incorporate CII research to ensure that the most pertinent knowledge is presented.

The PDC held its fourth offering of the CII Best Practices Course in the 2010 fall semester. The course—offered to graduate students in civil engineering and construction management—was held at The University of Texas at Austin and broadcast to eight distance learning sites: Colorado State University, Vanderbilt University, Virginia Tech, Florida International University, University of Colorado, University of Houston, Southern Illinois University Edwardsville, and Arizona State University. Executives from CII member organizations and selected CII associate directors serve as course lecturers each year, offering students insights into the workings of the engineering and construction industry. Teaching the course gives the executive lecturers valuable contact with tomorrow's industry leaders.

In conjunction with the 2010 CII Annual Conference in Orlando, Florida, the PDC held its first offering of two four-hour instructor-led courses on best practices. Dr. Steve Sanders from Clemson University taught *Developing, Implementing, and Managing a Partnering Relationship* in advance of the opening of the conference. Dr. G. Edward Gibson taught *Front End Planning* after the conference closed. Over 25 organizations participated in these successful offerings.

The PDC also sponsored and developed two new education modules in 2010, EM 241-21 *Construction Input Assessment in Front End Planning* and EM 242-21 *Front End Planning of Renovation and Revamp Projects*. Education modules are developed to assist companies with in-house training and presentations; they are designed by industry experts and adult learning instructional designers using CII original research.

During 2010, the PDC developed and successfully presented three web seminars: *CII Implementation Assistant*, *Design for Construction Worker Safety*, and *Planning for Start-up*. Each one-hour session included a live question-and-answer session. Over 65 organizations participated in these events. More web seminars are planned for 2011.

KNOWLEDGE TRANSFER

ConocoPhillips understands that the efficient and effective transfer of knowledge to future project leaders is critical to the company's long-term success. Thus we recognize the value of knowledge sharing, continuing education, training, and professional development. To guarantee knowledge transfer at ConocoPhillips, our project development organization has developed a variety of programs and tools to allow experienced employees to share their knowledge with others in a productive and manageable way. Two of these programs are particularly effective: the Summit Program and the company-wide Networks of Excellence facilitate the exchange of critical information.

THE SUMMIT PROGRAM

First introduced in 2008, the Summit Program is a 15-month intensive training program for recent university graduates with engineering and construction degrees. The program involves both classroom training and six-month assignments on capital project teams. Participants of the Summit Program work with experienced ConocoPhillips employees from various disciplines. This rotational program promotes knowledge transfer, establishes mentoring relationships, and expands participants' networks to key company and joint-venture partner leaders around the globe.

NETWORKS OF EXCELLENCE

To promote knowledge sharing on a global level, ConocoPhillips encourages technical professionals within the company to actively participate in our Networks of Excellence (NoEs). An NoE, like a CII Community of Practice, is a group of individuals within the same discipline (e.g., construction management) collaboratively addressing work challenges. Communicating through an intranet site that is monitored by experts in ConocoPhillips offices around the world, these individuals share best practices and lessons learned.

Each NoE has an "Ask & Discuss" board, a key benefit of the networks that allows individuals to ask and answer questions related to the specific discipline in real time. The core team members of each NoE are encouraged to consistently monitor the questions posted and to provide their professional recommendations in response. Once a solution or answer has been identified, the question is closed and stored for future reference in the network's knowledge library. The NoE is not only a key enabler of knowledge transfer from experienced employees to young professionals, it has also become a critical tool for ConocoPhillips employees and contractors in all categories.

ConocoPhillips recognizes, as CII recognizes, that education and training for career professionals is key to advancing the company in the future. We realize that providing a vehicle for sharing expertise enables individuals to make value-added contributions to their projects, while developing successful and meaningful careers within the company. We stand firm in our commitment to create a learning culture for all of our future project professionals around the world.

—Glenn Doran

Summit Program trainees on assignment at a ConocoPhillips project. The program puts CII wisdom about knowledge transfer and professional development into action; it gives new hires exposure to the expertise of experienced employees across disciplines, establishes mentoring relationships, and expands professional networking opportunities.

KNOWLEDGE **ASSESSMENT**

BENCHMARKING & METRICS RESEARCH

The CII Benchmarking & Metrics Committee (BMC) and the BM&M staff regularly gather, analyze, and disseminate quantitative information on project performance for member organizations and research teams. Now entering its fifteenth year of operation, CII's database of member projects has become a cornerstone of the institute's mission and work. Increasingly, the CII Benchmarking program has become the "go to" source for companies and research teams alike. In 2010, the program provided project performance information to more than half of CII's active research teams. The benchmarking database has also allowed CII to pilot a new concept: the Performance Assessment Laboratory (PAL). Because the PAL model leverages talented faculty and graduate students from some of the world's leading universities, we see that the benchmarking program will be better able to meet the needs of the increasingly global CII membership. Our increased capacity will mean more significant contributions to knowledge about benchmarking and project delivery. Typically, a PAL is established as an outgrowth of the work CII has been doing in particular sectors (e.g., the upstream oil and gas sector) through external grants to fund research at CII. With the increasing importance of benchmarking, and with the emergence of the PAL laboratories, benchmarking at CII seemed to reach a critical mass in 2010—the committee is poised for even more growth in 2011.

The BM&M staff spent the entire year developing and refining CII's new Performance Assessment System (PAS), with a scheduled two-phase launch in 2011.The PAS is the most comprehensive benchmarking tool now available; in addition to being completely internet-based and open-source, its online data-mining capabilities have been significantly improved. The system will also enable participating members to perform their own internal benchmarking. By early 2011, CII members will have project information and self-generated analyses literally at their fingertips.

By the end of 2010, the BM&M program had added 65 new projects to its database, bringing the total number of projects to 1,947. Not counting the effects from inflation, the combined worth of these projects was $194 billion TIC. CII members have expressed excitement about this significant achievement, since a database of this size permits good comparisons for virtually any project of any size imaginable. The impact of this achievement not only bolsters CII's research program, it is also improving CII's analytic capabilities in such areas as safety and productivity. In 2010, the CII Benchmarking Program accomplished the following:

- established the Upstream (Offshore) Oil and Gas PAL for the Gulf of Mexico and West Africa projects at The University of Texas at Austin (Petroleum and Civil Engineering)
- completed development of the Upstream (Offshore) Oil and Gas Performance Assessment System (PAS) and launched this at a potential PAL site in Brazil
- completed the sixth round of annual data collection for the Pharmaceutical and Biotechnology Benchmarking Program, bringing the complete database to 220 projects
- submitted a proposal for the funding of CII's Healthcare Facilities Benchmarking Program, expecting to move forward in 2011
- signed a contract for Phase II of the Construction Owners Association of Alberta (COAA) Major Projects Benchmarking System for onshore pipeline and oil sands projects
- published CII's annual safety report; completed three summary reports and several refereed journal articles and conference proceedings.

In an effort to gather more project data from more CII member companies, the BMC piloted the CII Summer Intern/ Benchmarking Associate Program in 2010. Five companies participated: Abbott, ConocoPhillips, Eli Lilly & Co., SABIC (Fluor), and TVA. CII learned that this program provided a powerful learning experience for both the interns and the hiring companies. Through benchmarking, each intern was exposed to a wide range of projects, and each CII member obtained significant insights into the performance of their capital facility programs. Because the summer intern program represents a breakthrough for data collection, the committee members will continue to support it and advocate it among their fellow CII members.

BENCHMARKING ASSOCIATES TRAINING

In 2010, three training sessions were held for Benchmarking Associates—the CII member organization employees responsible for entering data into the CII BM&M System. Host cities included Austin, Texas (CII), Abbot Park, Illinois (Abbott), and Houston, Texas (Worley Parsons).

BENCHMARKING AWARDS

At the CII Annual Conference in August, the 2010 CII Benchmarking User Awards were presented to Tampa International Airport in the owner category and to Jacobs in the contractor category. Both companies have impressive, sustained benchmarking programs.

KNOWLEDGE **MANAGEMENT**

The principal purpose of the CII Knowledge Management Committee (KMC) is to enable members to leverage collective industry wisdom through the CII Knowledge Structure—a systematic online categorization of CII research products. The committee manages and maintains the structure and is responsible for approving all changes to it, including the placement of new products and the archiving of outdated ones. The knowledge structure categorizes research publications into 14 knowledge areas, and further subdivides them into CII Best Practices, other practices, and information topics. Within each knowledge area, the publications are listed by product type (i.e., according to whether they are implementation resources, research summaries, educational materials, or research reports) and by date of publication.

In 2010, the KMC expanded CII's Communities of Practice (COPs)—groups whose members share an interest in or a passion for an industry topic. These COPs provide a virtual environment in which members can deepen their knowledge and understanding through ongoing interaction and collaboration. At the beginning of 2010, the standing COPs addressed safety, sustainability, globalization, partnering, modularization, information management, and front end planning. By the end of the year, the KMC had launched three new COPs: the Next Generation Leaders COP, the New Board of Advisors Members COP, and the Risk Management COP, bringing the total to 10.

A key accomplishment in 2010 was the development and launch of a new Knowledge Management System (KMS)—an online tool that allows our knowledge area managers (KMC members) to more efficiently and effectively conduct the product reviews that keep CII's body of knowledge current. Once a predetermined interval has passed since a product's last review, the system electronically notifies the appropriate knowledge area manager that a review is pending. The progress of the review is tracked from initiation through completion, and, following committee approval, each completed review is dated and reposited into the KMS. Because reviews are now conducted by product family the committee's productivity is greatly enhanced.

Through its efforts, the Knowledge Management Committee continues to provide CII member value by managing and providing continuous access to CII's vast body of knowledge, promoting best practices, and creating opportunities for knowledge sharing and knowledge transfer through its Communities of Practice program.

VIRTUAL TEAMS

As Hargrove has grown over the years, we have faced the challenge of maintaining the flexibility of a small local firm while leveraging the critical mass of expertise and resources necessary for delivering major projects. By implementing the management concepts and enabling technologies presented in CII research on "Virtual Teams," Hargrove has created a network of interconnected and functionally integrated local offices to meet this challenge. The research shows that, to function properly, virtual teams must spend time together, build trust, and have a common understanding of terms and execution processes. To build a strong virtual team, Hargrove invited all project managers and functional leaders to attend a virtual seminar on CII Best Practices every Friday in 2010. As we study together in a virtual environment, we train our teammates in the enabling technologies we need to master, and we all gain a common understanding of how a high-performance virtual team executes a project.

Last year, we successfully completed construction of our second recycled fiber facility. Our customer wanted to use Hargrove team members who had helped him complete a successful recycled fiber project on the Gulf Coast a few years before. The new project was planned for a location 600 miles away from this facility—closer to our Georgia office—and involved a waste water upgrade that was best suited to our environmental team there. We built a virtual design team with the right people from different locations; we had boots on the ground at the mill, an environmental and structural design team in Georgia, and people from the process and mechanical design team that had made the Gulf Coast project so successful. The project was not only a success in its own right, but it helped build the owner's confidence in our Georgia office, which now routinely serves his company's day-to-day needs.

Because our people were already virtual teammates when we took on the project, our organizational response was flexible, effective, and impressive. The fact that our performance resulted in more business from our client was evidence that our investment in CII Best Practices generates growth.

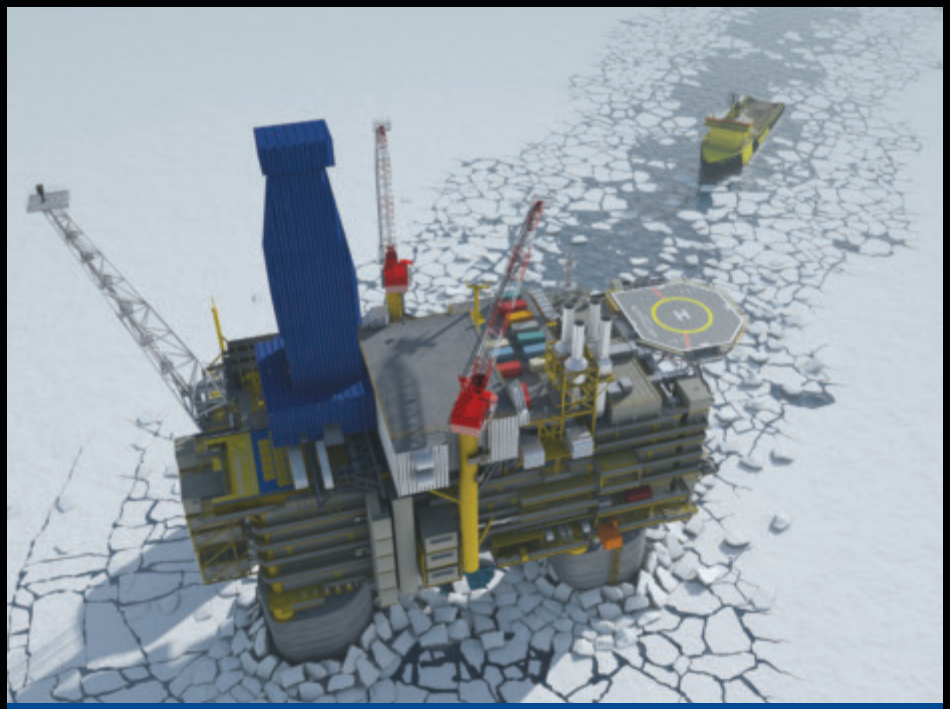
—Jim Backes

ESTABLISHING A LEARNING CULTURE

As most CII members know, establishing a culture of learning and developing an effective knowledge management system are crucial to the challenges that lie ahead for the industry. WorleyParsons has long embraced the vision of being a learning organization, believing that committed, empowered, and technically capable people give us our greatest competitive advantage. To make this vision a reality, we have established systems and procedures that make our employees aware of the knowledge they have at their disposal, and that provide the means for sharing and applying this knowledge at the point of execution.

While global networks and advanced communications technology are essential, the real key to success has come from addressing people issues; standardized procedures for capturing lessons learned, identifying subject matter experts, and effectively disseminating knowledge through communities of practice and virtual execution teams enable WorleyParsons employees to find and make full use of the information they need. CII research on working on virtual teams, developing effective lessons learned programs, and assessing our maturity as a learning organization have all been major influences on our model.

As for most major EPC companies, our strategies are driven by market trends, forecasts of key business drivers, and the ability to successfully predict the time and location of future opportunities. When, earlier in the decade, it was becoming clear that hydrocarbon production would increasingly depend on the more challenging and remote reservoirs—particularly, the offshore deepwater stores—the objective quickly became a matter of leveraging our existing technical expertise to win major projects and establish execution centers in these more difficult locations. The challenge was in transferring this expertise, much of which was located in various pockets of the world, to the new projects in a timely and comprehensive way. Our success at this was a direct result of already having had the elements for becoming a learning organization in place; they were integral to how we did our business.



By leveraging CII research on creating virtual teams, capturing lessons learned, and establishing subject matter experts, WorleyParsons managed the market shift to deepwater production. These elements of a learning organization were already in place when the company began work on the sub-arctic deepwater project shown in this rendering.

By utilizing communities of practice to share lessons learned, establishing subject matter experts as members of a virtual execution team, and deploying remote work teams to meet local execution requirements, we were able to secure a major project. More importantly, this success paved the way for us to quickly establish a new and sustainable execution center for continued market growth.

With the research-based guidance of CII Best Practices and principles, we were able to take advantage of a profound market shift. That is why we continue to rely on CII whenever we set priorities and develop management initiatives; when the market shifts again, we will be ready.

—Chris Parker

MEMBERSHIP

The Membership Committee (MC) is responsible for executing the membership process, including recruitment of new members and member retention. The committee also assesses member participation and works to maintain CII's balance of owner and contractors members. As part of our 2010 effort at enhancing our ability to assess member participation, the committee focused much of its energy on analyzing the 2009 CII Member Value & Satisfaction Survey. At special MC meetings at the spring and fall Board of Advisors meetings, the committee decided to conduct the survey every two years in order to understand and respond to members' needs and ideas.

Another accomplishment in 2010 was the scoping of a new CII website feature for members. This new feature will promote early involvement among new members and increased engagement with all members. The first phase will be unveiled at the 2011 spring Board of Advisors meeting. Offering 24/7 access, this new interface will enable CII members to access participation records, download history, and obtain other information previously only available through CII staff.

BRANDING IMPLEMENTATION

The purpose of the Branding Implementation Committee (BIC) is to make CII immediately recognizable as the industry's knowledge leader—both to CII members and to the industry at large. To accomplish this goal, the committee has developed a sustainable branding plan, the centerpiece of which is a campaign to consistently and effectively promote and improve awareness of CII events and products. In 2010, the committee continued to guide the consistent incorporation of CII's brand identity into all CII communications and publications. It also worked to keep improving the messaging, look, and feel of the CII website.

The BIC developed and implemented its 2010 communications plan, with an emphasis on publications, *CII eNews* articles, CII Annual Conference communications, and media relations. For the first time, the CII Annual Conference was covered in national, regional, and local industry publications. Moreover, the annual conference presentation of the CII Product Integrity Concerns in Low-cost Sourcing Countries Research Team was featured in an ENR (*Engineering News-Record*) cover story on the presence and proliferation of counterfeit products in the construction supply chain. The article was anchored by the CII findings, and featured interviews with several team members.

BIC efforts will continue to focus on 1) developing consistently branded CII communications, 2) expanding media coverage of CII's increasingly global events and activities, 3) increasing media references to CII research and products, and 4) improving the usefulness and appeal of the CII website.

ANNUAL CONFERENCE

The theme of the 2010 CII Annual Conference—*Managing Today to Excel Tomorrow*—focused on CII's continuing commitment to improve the delivery of capital facilities. CII speakers showcased new research, many with ready-to-use implementation resources. **Cindy Richartz**, Manager of the Technical Center of Excellence for Abbott, served as the conference chair. The conference keynote speakers were **Jeremy Rifkin**, President of the Foundation on Economic Trends, **Craig Martin**, President and CEO of Jacobs, and **Joe Knight**, Co-Owner and Senior Consultant for the Business Literacy Institute. The following featured speakers rounded out the conference presentations: **Bill East**, Research Civil Engineer for the U.S. Army Corps of Engineers; **David Wyss**, Chief Economist for Standard & Poor's; and **Charlie Thornton**, Founding Principal and Consultant of Thornton Tomasetti. Students from the Orlando-based ACE Mentor Program made presentations on their accomplishments and future professional plans. Also, graduate students from engineering programs at universities across North America presented posters detailing their non-CII-funded research.

Bernard J. Fedak was recognized at the conference as the seventh recipient of the Richard L. Tucker Leadership and Service Award. Bernie has actively participated in CII as a past employee of both U.S. Steel and Alcoa, and now as a project executive for Aker Solutions. He has chaired the Membership Committee twice, served on the Executive Committee and the Strategic Planning Committee, and is a past recipient of CII's Distinguished Service Award and its Implementer of the Year Award. Bernie's leadership and varied contributions have made him a role model for other CII members.

CII's highest honor, the Carroll H. Dunn Award of Excellence, was presented to James G. Slaughter, President of S&B Engineers and Constructors, Ltd. Jimmy is the twenty-fourth recipient of the Dunn Award, joining a distinguished line of individuals who have shown the highest degree of personal dedication to improving cost, schedule, and safety. A long-time CII member, Slaughter served on the Executive Committee for two years, and chaired the Strategic Planning Committee twice. He has also provided leadership for important CII research efforts over the years. Jimmy has made a difference, not only within S&B and CII, but in the entire engineering and construction industry.

PROCESS INDUSTRY **PRACTICES**

In spite of the recent downturn in both the overall economy and the process industry, Process Industry Practices (PIP) continued to grow and prosper in its eighteenth year. Throughout 2010, we pursued our new vision: *Progressive owner, engineering, and construction companies all use PIP global Practices "as is," creating value by minimizing Total Cost of Ownership and by facilitating knowledge capture*. Our harmonized, standardized practices—covering eight engineering disciplines for the engineering, procurement, construction, and maintenance of process facilities—continue to be adopted and implemented by more and more companies worldwide.

PIP is an independently funded industry consortium that has grown under the CII umbrella. In 2010, PIP member companies applied key resources to develop tactical support of five strategies identified in the 2010 Strategic Plan. These five strategies include the following: 1) pursue related/adjacent industries for membership; 2) increase cooperative involvement with suppliers, vendors, manufacturers, and licensees; 3) increase participation on committees and teams; 4) increase implementation of practices; and 5) drive executive support of PIP.

Because the development of PIP Practices involves harmonizing member companies' internal standards, these practices are applicable to the needs of numerous non-members in the process industry and in related industries worldwide. PIP has achieved industry-wide knowledge management by having published more than 465 practices, an output that represents over 93 percent of the practices identified for development.

Our net growth of three members and two new subscribers and licensees in 2010 brought the total of companies who regularly use PIP harmonized practices to 106. The global profile of PIP subscribers—companies in Australia, Bahrain, Canada, Egypt, Japan, Saudi Arabia, South Africa, Trinidad & Tobago, and the Virgin Islands—adds to the already wide international reach of PIP implementation through our member companies. Our distribution licensees, IHS and Thomson Reuters/Techstreet, also make PIP Practices available to companies throughout Europe, Asia and the Far East, and South America.

As a result of the enthusiastic efforts of member company volunteers and the support they get from their management, PIP makes significant progress in regularly updating and revising the practices. Member involvement also enables us to increase awareness, acceptance, and use of PIP Practices. Because delivering piping material and valve specifications to clients electronically in 2010 was slower than expected, our plan in 2011 is to accelerate our efforts to incorporate all piping practices into our electronic database.

In October of 2010, we held our first discipline-specific implementation workshop, focused on the piping discipline. The workshop gave members an excellent forum for sharing their piping practices implementation success stories. In response to the positive feedback we received, we are now planning quarterly sessions for other disciplines in 2011 and 2012. PIP member companies report that they continue to realize considerable savings through implementation of PIP Practices; they confirm that the cost of purchasing PIP Practices is significantly lower than developing and maintaining their own internal standards. The more PIP Practices are used in process industry initiatives, the more the industry participants see that it results in less redesign and rework and more efficient project interfacing.

In 2010, we also completed our multi-year website enhancement project, which involved modernizing the public interface and improving the search feature in the members-only area. We are developing plans for further upgrades to increase the usefulness of this vital member resource.

MEMBERS - OWNERS

3M Company
Aramco Services
Archer Daniels Midland
Arkema
Ascend Performance Materials
BP
Celanese
Chevron
CITGO
ConocoPhillips
DuPont
Eastman Chemical
Evonik Degussa
Flint Hills Resources
FMC
Holly Corporation
Honeywell
Huntsman
Kemira
Momentive Specialty Chemicals
Monsanto
Mosaic Fertilizer
Occidental Oil & Gas
Pasadena Refining
PPG
REC Silicon
Rentech Inc.
SABIC
Sekisui Specialty Chemicals
Solutia
Sunoco
Tesoro
UOP
Western Refining

MEMBERS - CONTRACTORS

Aker Solutions
BE&K (a KBR Company)
Bechtel
Brinderson
Burns & McDonnell
CB&I
CDI Engineering
CH2M HILL
Chemtex International
ENGlobal
Fluor
GE Energy
Jacobs
KBR
Merrick and Company
Middough
S&B E&C
Samsung Engineering America
Shaw E&C Group
SK Engineering & Construction
SNC-Lavalin
Technip
URS Corporation
WorleyParsons

SUBSCRIBERS

Agrium
Ambitech Engineering
Anderson Development
Bahrain Petroleum Co. (BAPCO)
BHPBilliton Nickel West
ChevronPhillips Chemical
Coffeyville Resource Refining and Marketing LLC
Emerson Process ControlENPPI-USA
Harris Group Inc.
Harvest Operations Corp.
HOVENSA
INVISTA S.à r.l.
Kraton Polymers
L-Con Engineers & Constructors
Lloyd Engineering
Northwest Upgrading
ONEOK
Petroleum Company of Trinidad & Tobago
Plasco Energy
Sasol
Saudi International Petrochemicals Co. (SIPCHEM)
Seadrift Coke
Sherwin Williams
Sinclair Oil Corporation
Sumitomo Chemical Company Ltd.
The Williams Companies
University of Texas at Austin
Valero
Wink Engineering

LICENSEES

API
ASME
Autodesk
Bentley Systems
Codeware
ConcepSys Solutions
IEEE
IHS
Intergraph
ISA
Lee College
National Institute of Building Sciences
National Insulation Association
Pi/FlexPlant
St. Paul Technical College
Texas A&M-Corpus Christi
Thomson Reuters/Techstreet
University of North Dakota

FIATECH

2010 saw continued growth and improvement for FIATECH—in terms of membership, project execution, and participation. We also introduced a portfolio of value-added deliverables at the annual FIATECH Technology Conference & Showcase and at our annual member meeting. FIATECH continues to follow the Capital Projects Technology Roadmap, our consensus vision for advancing technology, automation, and interoperability across the lifecycle of capital facilities.

As we advance our strategy and deliver benefits to our membership, we also improve the entire capital projects industry. Some examples of our impact in 2010 include our sustained support of accelerating the delivery of the ISO 15926 standard. This effort provided the industry with an interoperable tool that can be used to integrate disparate systems and software packages. We also continued our focus on implementation, both in our projects and in our delivery targets. Throughout the year, FIATECH also created strong commitments and partnerships that leverage member investments with those of others working on related efforts worldwide. Our impact and influence are increasing. We have much to be proud of and even more to look to forward to.

PROJECT DELIVERY AND DEVELOPMENT

2010 was another strong year for FIATECH, with 23 active projects that include the following:

- specification automation
- collaborating with a neutral 3D model
- managing material libraries and catalogs
- supplier information exchange with design to support construction
- leveraging passive RFID
- RFID valve tagging
- operational facility roadmap directory
- advancing IT for ALARA planning and implementation
- ePlan/BIM
- replicable buildings and digital signatures
- user acceptance of mobile IT
- ISO 15926 primer
- engineered equipment life cycle application tools.

In the fall, FIATECH published *RFID for Materials Management and Productivity Improvement*, the first comprehensive reference book available on the use of radio frequency identification (RFID) technology in the supply chain to achieve financial benefits.

INFORMATION EXCHANGE AND KNOWLEDGE NETWORKING

FIATECH held its 2010 Technology Conference & Showcase in Austin, Texas. The conference had 25 percent more attendees than it did in 2009, including 25 solution providers demonstrating their emerging tools. FIATECH's fall member meeting in Philadelphia featured workshops and sessions showcasing FIATECH's Capital Projects Technology Roadmap activities and projects. Members also learned about the 30+ project proposals submitted by members for 2011. FIATECH hosted 23 webinars in our Technology Tuesday webinar series, attended by nearly 1500 participants.

INDUSTRY RECOGNITION

FIATECH honored nine outstanding entries with a Celebrating Engineering & Technology Innovation (CETI) Award, during the CETI Gala at our annual conference. We also recognized 15 all-stars from our membership with Superior Technical Achievement Recognition (STAR) Awards. John Voeller, Senior Vice President, Black & Veatch, was given the James B. Porter, Jr. Technology Leadership Award for his industry contributions.

INDUSTRY IMPACT

FIATECH participated in over 40 industry events in 2010, both in the U.S. and abroad. At these gatherings we shared the demonstration, deployment, and implementation projects that have positively affected our members' bottom lines and advanced the industry.

GLOBAL LEADERSHIP

Over 35 percent of FIATECH members and partners are headquartered in countries outside the U.S. Among the countries represented by our members are Australia, Brazil, Canada, Finland, France, Greece, Korea, Malaysia, Norway, Sweden, Turkey, Russia, and the U.K.

FIATECH MEMBERS & PARTNERS

AIA Building Connections
ALCIM
Arizona State University
ARX
Aspen Technology
Auburn University
Autodesk
AVEVA
Avolve Software
Bechtel
Bentley Systems
buildingSMART Alliance
Burns and Roe
Chevron
CH2M HILL
CIFE at Stanford University
City of Salem, Oregon
Clark County, Nevada
Consolidated Contractors Company
Construction Industry Institute (CII)
Construction Opportunities in Mobile IT (COMIT)
Construction Sciences Research Foundation
Coreworx
Dassault Systemes
Drexel University
DuPont
Electric Power Research Institute
Emerson
ExxonMobil
Fluor
Georgia Institute of Technology
GlencoIS
HAL
Hatch
Honeywell
Hydraulic Institute
IBS
IFS
Intergraph
International Council for Research and Innovation in Building and Construction (CIB)
Istanbul Technical University
Jacobs
Kaiser Permanente
Korea Advanced Institute of Science and Technology
Korea Institute of Construction & Transportation Technology Evaluation and Planning (KICTEP)
Loughborough University
Meridian Systems
National Center for Manufacturing Sciences (NCMS)
National Institute of Standards and Technology
Noumenon Consulting
OnTrack Engineering
Oracle
Peter Kiewit Institute at the University of Nebraska
Petronas
POSC Caesar Association (PCA)
Process Industry Practices (PIP)
Queensland Energy Resources
S&B Engineers and Constructors
Salt Lake City, Utah
Shaw Group
Siemens PLM Software
Solibri
Target
TC9
Tecgraf/PUC-Rio University
Texas A&M University
The Dow Chemical Company
The Engineering Essentials Company
University of Alabama
University of Alberta
University of Calgary
University of Michigan
University of Salford
University of Southern California
University of Texas at Austin
University of Washington
University of Waterloo
VNIIAES
VTT Technical Research Centre of Finland
WorleyParsons
Zachry

CII **AWARDS**

CARROLL H. DUNN AWARD OF EXCELLENCE

The Carroll H. Dunn Award of Excellence is the highest recognition bestowed by the Construction Industry Institute. The award, established in 1985, bears the name of the original recipient, the late Lt. Gen. Carroll H. Dunn, U.S. Army. The purpose of the award is to recognize an individual who has had singular and notable responsibility for significant advancements in improving the construction industry.

James G. "Jimmy" Slaughter, Jr.

Jimmy Slaughter became active in industry research and project improvement efforts soon after S&B, the firm founded by his father, joined CII in 1991. Initially he chaired the research team that developed both the Project Definition Rating Index (PDRI) and CII's alignment tools. The PDRI, which quantifies the extent of project scope definition, is today the most well known of the CII implementation resources. The research was ground-breaking, and the team offered its findings only one year after commencing the study. It was a landmark achievement—for CII and for the industry.

Noted initially within CII for his leadership on research efforts, Jimmy soon became influential in other areas of CII. He chaired the CII Strategic Planning Committee twice, in 1997 and 1998. During his tenure as chair, he was the principal author of the committee's Vision 2020 document, which looked ahead to the issues and trends that are now beginning to come to light. Also during this time, he saw the great potential of the fully integrated and automated project process (FIAPP). His and others support for FIAPP led to CII's establishment of the FIATECH consortium in 2000.

From 2004-06 he served on the CII Executive Committee. He was also a driving force behind the CII benchmarking efforts on productivity measurements and hosted two workshops at Northside, the personal retreat he and his wife, Shirley, built north of Houston. It is Jimmy's visionary nature, in addition to his leadership skills, that influence those around him.

Even more than his influence within CII, however, Jimmy has made a difference in the industry. Through S&B, he provides outstanding training for craft workers. The prime mover on safety within S&B, he is past president of the Houston Area Contractors Safety Council. In fact, his company has been the industry leader in safety for more than 20 years. And recently, in a time of craft shortages, he specifically designed a program to bring women into the construction industry. This bold and decisive move resulted in well-paying jobs for those who otherwise may not have had such opportunities. Jimmy takes care of others.

He is a current member and a past president of the National Academy of Construction, the industry's most prestigious honorary organization of more than 100 elected members. He helped found the National Construction Forum, a branch of the NAC, to unite companies and universities in an effort to improve the capital investment process. He also led an NAC-Federal Facility Council (FFC) workshop on dispute avoidance and resolution. A major accomplishment by Jimmy and a testament to his leadership, the workshop brought industry leaders together for honest and open discussions of this important topic. The FFC recently published a report on this joint effort with NAC.

RICHARD L. TUCKER LEADERSHIP & SERVICE AWARD

This award recognizes an individual who has contributed significantly to the advancement of the CII mission and to the success of CII as an organization.

The Construction Industry Institute selected **Bernard J. Fedak of Aker Solutions** as the seventh recipient of the Richard L. Tucker Leadership & Service Award. Fedak first became involved in CII as an employee of Alcoa, then participated as a representative of U.S. Steel, and remains active today. Fedak was recognized for his contributions at the 2010 CII Annual Conference in Orlando, Florida.

SUSTAINABILITY

For the Architect of the Capitol, the organization charged with maintaining and enhancing the buildings and grounds of some of the nation's most iconic structures, sustainability is just a smart way of doing business. Historic preservation—the greenest of the building arts—plays a central role in our efforts to make the Capitol more eco-friendly. Our holistic approach to sustainability, preservation, and operations defines and distinguishes our work, and CII Best Practices have helped us make significant progress on a number of energy and sustainability projects, programs, and initiatives.

These CII Best Practices include the following:

- establishing expectations of outcomes among all project participants
- measuring performance against recognized industry leaders
- initiating constructability analyses
- institutionalizing the use of the PDRI
- emphasizing front end planning
- team building
- quality management.

Our stewardship of the Capitol's infrastructure and grounds—16.5 million square feet of building space and more than 460 acres of land—involves maintaining, preserving, and enhancing such important edifices as the U.S. Capitol, the Supreme Court, the House and Senate Office Buildings, and the Library of Congress. Our focus on energy conservation and the sustainable operation, maintenance, construction, and modernization of these national treasures has yielded a more sustainable and energy-efficient Capitol, improved awareness and understanding of resource-conserving behaviors, and improved services.

Examples of some Architect of the Capitol projects, programs and initiatives include the following:

- expanding a program to install building metering, conduct building energy audits, and implementing in-house energy projects and Energy Savings Performance Contracts
- installing a building automation/direct digital control system and occupancy sensors
- developing a strategic, long-term Capitol Power Plant energy plan and reduction of plant coal usage
- developing a sustainability plan to reduce the Capitol carbon footprint
- creating a sustainability roundtable of recognized industry experts to study state-of-the-art strategies for sustainability and energy savings
- instituting an additional recycling, storm water management, and the Sustainable Sites program.
- implementing outreach, communication, and education programs.
- rolling out planned maintenance, renovation, retrofits, and fixture upgrades.

—Anna Franz

Inspectors work on the exterior of the U.S. Capitol dome to identify maintenance requirements and opportunities to improve the structure's water and weather resistance.

ADDITIONAL CII **AWARDS**

DISTINGUISHED SERVICE AWARD

This award recognizes individuals who have generously contributed their time and talents to the advancement of the CII mission.

Distinguished Service Awards were presented to the following CII leaders at the Spring 2010 CII Board of Advisors meeting:

- Charles H. McFall, Jr., Tennessee Valley Authority
- Susan M. Steele, Jacobs

Distinguished Service Awards were presented to the following CII leaders at the Fall 2010 CII Board of Advisors meeting:

- Harold Helland, Abbott
- Robert Herrington, Jacobs

OUTSTANDING CII RESEARCHER AWARD

This award recognizes an author of completed CII research, who has significantly contributed to the improvement of the construction industry. The Construction Industry Institute selected **Dr. Hyung Seok "David" Jeong** of Oklahoma State University, as the sixteenth recipient of the Outstanding CII Researcher of the Year Award. Dr. Jeong was recognized for this honor at the 2010 CII Annual Conference in Orlando, Florida.

OUTSTANDING CII IMPLEMENTER AWARD

This award recognizes a significant contribution to enhancing the implementation of CII Best Practices and research findings. The Construction Industry Institute selected **Scott Haven** of SABIC and **Tracy Griffitt** of Jacobs as co-recipients of the tenth Outstanding CII Researcher of the Year Award. They were recognized for this honor at the 2010 CII Annual Conference in Orlando, Florida.

CII BENCHMARKING USER AWARD

This award recognizes an owner member organization and a contractor/supplier member organization that have made exceptional use of and contributions to benchmarking. **Tampa International Airport** was named the winner of the CII Benchmarking User Award for owners. Jacobs is a four-time winner (2001, 2006, 2008, and 2010) of the CII Benchmarking User Award for contractors.

CII PROFESSIONAL DEVELOPMENT AWARD

This award recognizes exceptional commitment to the development of construction industry professionals by an owner member organization and a contractor/supplier member organization. **Fluor Enterprises, Inc.** won this award in 2010 for their establishment of Fluor University, an online resource for information, training, and professional growth for their employees worldwide.

CII DISTINGUISHED PROFESSOR AWARD

The Distinguished Professor Award recognizes full-time or adjunct faculty who incorporate published CII research findings in the courses they teach.

Dr. Stuart D. Anderson is the Zachry Professor in Design and Construction Integration II in the Zachry Department of Civil Engineering at Texas A&M University. His teaching and research focus is in Construction Engineering and Management (CEM). He uses his experience working in industry and as a principal investigator on a number of CII research teams to enhance his course content.

Dr. G. Edward Gibson has developed almost all of the CII materials related to front end planning—most notably the Project Definition Rating Index (PDRI) tools—and has been involved in many CII committees, research projects, and educational development efforts for the past 22 years. Since 1995, he has taught a front end planning class—at both the graduate and undergraduate levels—incorporating CII research results. Edd taught the class from 2007 to 2009 at the University of Alabama and now teaches it at Arizona State University.

Dr. Janet K. Yates introduces CII publications to students through her lecture material and homework assignments. She expects students to reference CII publications in the research work they do and she occasionally bases test questions on CII publications material. Other topics that she is considering for future semesters include estimating, productivity improvement, project controls, and contracts.

CII CURRICULUM PARTNER PROGRAM AWARD

The Curriculum Partner Program Award recognizes higher education programs that incorporate published CII research findings in their curriculum.

Texas A&M University

CII products—implementation resources, research summaries, and research reports—are used in two of the courses in the graduate program in Construction Engineering and Management within the Zachry Department of Civil Engineering at Texas A&M University. The program offers two master's degrees, a Ph.D. degree, and a Doctor of Engineering degree.

Colorado State University

In the fall semester of 2009, the Department of Construction Management at Colorado State University added the CII Best Practices course to its curriculum as a graduate-level technical elective course. Because the course is also open to qualifying juniors and seniors, it promotes interaction between undergraduate and graduate students. It also exposes them to CII Best Practices as they prepare to begin their careers.

SAFETY

Southern Company's approach to construction safety management has been a work in progress over the last 10 years, with a focus on continual improvement and the integration of safety into the construction contracting process. Much of our effort has been based on CII's nine Zero Accidents Best Practices. Our practical vision is zero incidents and injuries as a result of zero at-risk behaviors—a philosophy we expect our contractors to adopt.

Management leadership and support have been vital to establishing safety as a core Southern Company value and have provided the foundation of a safety culture that extends beyond the company. Our process is designed to influence, not manage, contractor safety performance and is based on five areas: 1) Contract Preparation and Award, 2) Contractor Qualification, 3) Orientation, 4) Monitoring Contract Compliance, and 5) Performance Evaluation. These basic principles guide the entire construction safety strategy.

Our safety initiative at the Alabama Power Plant Miller Flue Gas Desulfurization (FGD) Project is a great example of these principles in action. Construction Site Manager Dan Yates has been integral to the great success we have seen on the project. Under his leadership, designing for safety and having workers plan safety into their jobs were two CII principles that were addressed early in the project. During the design stage, members of the project team—personnel from the design, construction, project management, start-up, and plant operations groups—met frequently to discuss and address any issues associated with safe construction, operations, and maintenance. The construction management team also met frequently with craft supervision and observed the work daily to ensure that safety was properly planned into our tasks.

Our construction management team and skilled craft workers were actively involved and led our safety program, using our safety professionals as a resource. This approach required active participation in daily job safety briefings, weekly site assessments, craft safety committees, and formal reviews of first aids and other incidents. We also focused on leading indicators by observing behaviors, giving feedback, and frequently trending these observed behaviors. Management's visibility and support to craft personnel, along with positive feedback, also encouraged workers to have a questioning attitude and to inform management of hazards and at-risk situations.

After implementation of this approach, the Miller Project worked approximately 1.5 million hours with zero OSHA recordable incidents. Field personnel made 2,721 individual observations, with 99,187 behaviors observed. Of these, 1,211 behaviors were identified as at-risk, 51 of which were highly at-risk and one life-threatening. Interventions corrected these situations before any incident or injury could result. Additionally, in 2010, we addressed more than 600 near misses and/or safety suggestions brought forward by our safety committee through site inspections and Safety Awareness Forms (SAFs).

Having achieved such measureable results, we will continue to manage safety on future projects using CII principles and practices .

—David McKinney

Designing for safety and having workers plan safety into their routines were two of the CII Safety Best Practices Southern Company used on this project for the Alabama Power Company. The project's outstanding performance led Southern Company to make its safety management plan the standard for future projects.

Sources and Uses of CII Resources in ($000)

SOURCES	Inc		Net
BEGINNING BALANCE			
Carried Forward from 2009		1,107	
Reserve		750	1857
SOURCES			
Membership Dues	3,408		3,408
Product Sales:			
Revenue	86	86	
Production & Sales Expense		(186)	(100)
Other Sources (PSP, etc.)	127		127
TOTAL SOURCES			3,435
USES			
Programs:			
Research		1,196	
Implementation		201	
Professional Development		191	
Best Practices Program		51	
Knowledge		57	
Benchmarking & Metrics		795	
Executive Leadership Program		23	
Breakthrough		17	
		2,531	
Benchmarking & Metrics Revenue	393	(393)	
Other Program Revenue	312	(312)	1,826
Conferences:			
Annual Conference		809	
		809	
Attendance Fees	560	(560)	249
Supporting Activities:			
Support of Members & Director's Groups		632	
Academic Committee		92	
Other Activities		57	
		781	
Supporting Activity Revenue	87	(87)	694
Information Systems		149	149
General Expense:			
Administration		330	
Other Activities		198	
		528	528
TOTAL USES	4,973		3,446
NET			(10)
ENDING BALANCE			1,847

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