



The Official Newsletter of the Construction Institute

First-Ever CI *Student Days* a Huge Success!

More than 150 college students from 12 California and Nevada Universities, 17 volunteers from two California Sections and representatives from 10 sponsors descended on San Francisco, CA, from September 26-28 for CI's first *Student Days* Conference. Held in conjunction with the ASCE San Francisco Section annual meeting and in partnership with ASCE's Sacramento Section, *Student Days* provided students and industry professionals numerous opportunities to meet and get to know one another, in

addition to introducing students to the real-world opportunities open to them in their futures as practicing engineers.

On Friday, the students were invited to attend the technical sessions on water infrastructure provided to the San Francisco Section members, the networking reception, and the dinner and awards ceremony featuring Will Kempton, the Director of the California Department of Transportation, as keynote speaker.

The student events began early Saturday morning, with tours of the Bay

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DON'T FORGET

Be sure to check out the *Construction Zone* online by visiting www.cizone.org



Students approach Bay Bridge project site.

Bridge and San Pablo Dam construction project sites. A number of students cited the tours as their favorite part of the weekend. Joe Izzo, a Junior at California State University, Fresno, called the Bay Bridge tour "magnificent," asserting that it was one of the most "enjoyable" and "unique" moments of his life. Katherine Miyai, a senior at California State University, Sacramento, praised the tour as "probably the most amazing thing that we'll ever do in our whole entire

CONTINUED ON PAGE 8 ►

CI Makes Changes to Organizational Structure and Welcomes New Board Members

At the January CI Board meeting, the Governors are expected to approve the new CI bylaws, which will allow more flexibility in the institute's organizational structure and Board of Governors make-up. CI is divided into Directorates, which are areas of practice overseen by standing committees. Presently, there are six: Construction, Materials, Owners, Engineering, Services, and Education and Research. Under these standing committees lie CI's technical activities, including the technical and standards committees.

The most significant change in CI's structure is that the Board composition will no longer be defined by the Directorates. Thus, Directorates will be established based on industry needs and overseen by a Governor. As an example, the Board approved the establishment of the Younger Members Directorate in June, and appointed Stephen Dale of Smith Pachter McWhorter to the Board of Governors as the Chair of the Directorate.

CI's new leadership is looking forward to implementing these changes and bringing new vitality to the institute. ♦

Become a CI Corporate Member!

CI Corporate Members, in conjunction with the CI President and Board of Governors, play a key role in identifying industry needs and future trends to help shape the annual and long-term initiatives of the Construction Institute. The vision and support of corporate leaders allows CI to develop programs and outreach relevant and responsive to industry needs.

CI Corporate Members, through annual \$2,000 dues, benefit from:

- A voice at the table during CI Board of Governors' Meetings
- Direct links to today's best and brightest engineering students and young professionals
- Influence to shape regional events
- Open conversation with faculty, researchers and students from leading construction engineering university programs to define the research needed by industry
- Company's logo prominently featured in CI's publications and at conferences
- 12 Individual Memberships under corporate membership umbrella

For more information please contact Erin Santiago at esantiago@asce.org.

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2008 Construction Engineering Scholarship Recipient Named

Robert Antes, a junior in the College of Engineering at Lehigh University, has been chosen to receive the 2008 Construction Engineering Scholarship.



Antes, an active member of Lehigh's ASCE Chapter and a member of the Steel Bridge Competition Team, is also a member of the Phi Eta Sigma National Honors Society, Alpha Phi Omega

Community Service Organization, and the Orientation Leaders for incoming first-year students.

In addition to his academic achievements, Antes has worked as an intern for T & M Associates of Middletown, New Jersey for the past two summers. Among other projects, he spent a summer supervising a jobsite in Carteret, New Jersey, overseeing the work of a construction crew and

inspecting the installation of underground piping. He also oversaw and inspected the installation of a new water service main on the Weldon Asphalt Complex in Harrison, New Jersey, which was to service the cement plant to be constructed in the rear of the complex. His other tasks included conducting sidewalk investigations, supervising roadway paving, performing preliminary bond estimates for roadway and site improvements, and authoring report documentation for the New Jersey Department of Environmental Protection.

Congratulations to Robert on receiving the 2008 Construction Engineering scholarship!

The Construction Engineering Scholarship is awarded to a student or students pursuing a degree concentrating in Construction Engineering at an ABET accredited university who demonstrate strong

academic achievement and leadership. Applications are accepted each year with a deadline of April 1st and notification in June, and can be downloaded at http://content.constructioninst.org/honors_awards.html. The CE Scholarship is endowed by friends of the Construction Institute. If you would like to contribute to the scholarship fund, please contact the CI office at 703-295-6390 or ci@asce.org. ♦

Have a part in taking the construction industry in a new direction. For more information, contact CI at 703-295-6390 or ci-newsletter@asce.org.

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Monolithic Domes

By Carol Lanham

Two Oklahoma school districts made headlines recently when they joined several others in the state in opting for unconventional buildings that are gaining a reputation as one of the greenest alternatives in the construction industry. Tiny Dibble and Geronimo are among eight Oklahoma school districts building Monolithic Domes, steel-reinforced concrete structures which are not only energy efficient, but have the added advantage of offering near-absolute protection from tornadoes and hurricanes.

Given Oklahoma's location in the center of tornado alley, the appeal of a building that can double as a tornado shelter makes sense. That may explain why there are more Monolithic Dome schools in Oklahoma than any other state in the nation. Dibble and Geronimo join Locus Grove, Buffalo, Hinton, Beggs, Okima and Texoma in building the unusual structures. Dome schools can also be found in Arizona, Texas, Kansas, Missouri, Minnesota, Florida, and Idaho.

In these times of rising energy costs, however, the buildings' energy efficiency may be an even bigger draw than their disaster resistance. "We have found that the energy savings over a period of 20 years will pay for the cost of the building," says David B. South, president of the Monolithic Dome Institute (MDI) in Italy, Texas. That also may explain

why a record number of Monolithic Domes are being built throughout the nation for use as churches, gymnasiums, storage facilities, and even houses.

The construction method used to build Monolithic Domes is as unusual as the buildings, themselves. The process begins with the placement of a ring beam footing and the pouring of a circular steel-reinforced concrete slab floor. In many cases, a stem wall is then erected to give the building straight walls and a more conventional look. Next, crews attach an Airform, a tarp made of tough, single-ply roofing material, which is inflated using giant fans.

"...energy savings over a period of 20 years will pay for the cost of the building."

Once the Airform is inflated, work moves to the interior where treated wood is attached to frame the windows and doors. Three inches of polyurethane foam is then sprayed on the rest of the Airform, and a grid of steel rebar is attached to the foam. In the final step, crews spray on a layer of Shotcrete that ranges from 4 inches at the top to 8 inches at the base. The result is a permanent and virtually indestructible structure.

While domes still make up a tiny fraction of the commercial and residential buildings constructed nationwide, their green appeal has been on the rise in recent years. For starters, they meet the definition of sustainability. Their spherical shapes cover the most amount of space

with the least amount of materials. In fact, they generally require 50 to 75 percent less material to cover the same space as a square conventional building. Not only does the round design help conserve natural resources, it also adds to the building's energy efficiency. Because there is less surface area, not as much heat escapes in the winter or seeps in during the summer.

Since the domes are made of concrete, they have the added advantages associated with the concrete's thermal mass. When the interior of the dome is heated or cooled, the concrete warms up or cools off, and then maintains that temperature for a long period of time. Consequently, the interior temperature stays relatively constant. When the insulation is placed on the exterior of the building, the dome becomes even more immune to temperature swings.

Some environmentalists balk at the use of concrete, which does have a high embodied energy. But since the Monolithic Dome is a thin-shell structure, it uses considerably less building materials than a traditional concrete building, thereby reducing both energy use and pollution. The concrete's embodied energy is further diminished through the use of regional materials that reduce the environmental impact resulting from transportation. Since the lifespan of domes may be measured in centuries, there is the added advantage associated with the buildings' permanence.

Most builders and architects are still unfamiliar with the buildings, but the Monolithic Dome Institute provides training several times a year in this unusual construction process. More than 1,500 people have participated in the five-day workshops offered by the MDI since their inception in 1993. "We've had people travel from as far away as Nigeria, Australia, and Taiwan," said Gary Clark, who teaches dome-building techniques at the workshops. Participants get more than just classroom time too. "Each group that comes to our workshop actually gets hands-on experience in building a Monolithic Dome."

In a world that is still not used to thinking outside the box, dome structures can be baffling and even a source of consternation. Some communities have

Churches are another popular use for Monolithic Domes. Faith Chapel Christian Center near Birmingham, Alabama is currently building six new domes around its huge sanctuary, pictured here. Already the largest Monolithic Dome of its kind in the nation, the so-called Word Dome measures 280 feet in diameter and seats 3,200. The smaller domes will become the church's new activity center, and will house a 12-lane bowling alley, a youth disco, an adult bistro, and an athletic center.





Beggs Independent School District is among eight school districts in Oklahoma that have opted for Monolithic Dome construction. Construction was recently completed on a 160-foot diameter gymnasium and event center that can double as a community disaster shelter.

rejected school bond issues when the proposal involved construction of a Monolithic Dome. Churches often have to educate their congregation on the advantages the buildings offer before they're willing to go along with their proposal. Stem walls and rectangular extensions can be added to domes to give them a more conventional look. However, modifications come at the expense of some loss in both energy efficiency and strength.

While Monolithic Domes are still a long way from reaching the mainstream in the United States, they are catching on faster in less-developed parts of the world where there is an overwhelming need for safe, affordable housing. Well aware of this need, South founded Domes for the World, a non-profit organization dedicated to providing affordable, permanent housing in developing countries. In 2007, the organization completed its first village of 71 dome homes in Indonesia. The homes are so-called EcoShells, which are essentially Monolithic Domes without insulation, and they have been built in such diverse areas as India, Mongolia and Southern Sudan.

It may take awhile before Monolithic Domes go mainstream, but they are likely to continue dotting the North American landscape as environmental concerns come to the forefront. And Oklahoma may just turn out to be in the vanguard when it comes to this trendsetting option for going green.

More information on Monolithic Domes can be found on MDI's Web site at www.monolithic.com. The opinions expressed in this article do not necessarily reflect the opinions and policies of ASCE and CI. ♦

Sacramento Construction Institute Chapter holds Folsom Bridge Technical Presentation and Project Tour

On August 28, 2008, members of the Sacramento CI chapter attended a Folsom Bridge Technical Presentation and Project Tour. The event, held at the Lake Natoma Inn in Folsom, CA, brought together more than 200 design and construction professionals, along with a number of city and public works agencies, to learn about post-tensioning and the construction effort on the new Folsom Bridge at the Folsom Lake crossing. The Folsom Bridge is a component of the American River Watershed Project. It is a Federal project that is being constructed by Kiewit and administered by the US Army Corps of Engineers, and was designed by the joint venture team of CH2M Hill and URS.

CI Officers from both the Sacramento and San Francisco Construction Institute Chapters welcomed guests and conducted the project tour.

More details on the project and the tour are available at <http://www.doklibrary.com/articles.php?id=43>. ♦



ADDITIONAL MEMBERSHIP INFORMATION

For more information about ASCE membership, please visit:

www.asce.org/membership/howtojoin.cfm

For more information about CI membership, please visit:

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Construction Management for Owners

by Larry J. Smith, P.E., CCM,
F.ASCE

Chair, Sacramento
Construction Institute
Chapter—Area Engineer, U.S.
Army Corps of Engineers



Larry J. Smith

Change is inevitable. It has never before been more profoundly observed, with four generations presently making up our workforce. Our profession is in transition, as boomers prepare for retirement and companies groom, develop, and shift younger employees into roles with increasing responsibilities.

Every four years, the American Society of Civil Engineers grades the nation's infrastructure (Excellent – Poor). In its most recent Infrastructure Report card, ASCE estimated that \$1.6 trillion are needed over a five year period to bring us to a "good" condition. The U.S. Army Corps of Engineers has started its military construction program that will total \$40 billion over the next five years, and represents the largest program in the Army's history since WWII. Add in the Corps's \$10.3B Civil Works program, and there is no doubt that the construction industry is poised for change.

Federal, State and other public sector agencies traditionally deliver projects using Owner Construction Management with similar goals: deliver the highest quality projects; stay within the budgets authorized; and, deliver by the needed dates. Owner Construction Management must begin a transition toward obtaining assistance from industry by the use of CM Services or the transition to Agency Construction Management.

CMAA Chairman, William Van Wagenen, CCM, reports four critical trends for the Construction Management Industry over the past ten years: "Technology; a growing talent shortage; evolving and expanding project delivery strategies; and better recognition and definition of construction management." Each of these trends poses a challenge to my agency and other agencies practicing Owner Construction Management.

Technology

More than one-third of construction project and program owners responding to a CMAA/FMI Survey of Owners indicated they have used Building Information Modeling (BIM) on one or more projects. The Corps of Engineers is placing emphasis on standardization of designs toward adapt build using delivery methods adapted from CM@Risk. It is also setting LEED Silver goals for its Military Construction Program.

CMAA is updating its Standards of Practice in three new areas: Risk Management; Sustainability; and Building Information Modeling (BIM), in response to trends in changing technology. Again, new skills and new standards are rapidly unfolding, that transition our workforce and our responsibility to lead and set the example.

Growing Talent Shortage

The U.S. Army Corps of Engineers has initiated a pilot for a national recruiting program to quickly identify and meet critical staffing needs. This program seeks to effectively staff critical disciplines identified at a national level. The Corps has identified shortfalls for Construction Managers, Quality Assurance Representatives, Project Engineers and Resident Engineers. To bridge the shortage of talent, the plan is not just looking at new graduates and interns, but is focusing on mid-career candidates from outside the public sector.

During the Society of American Military Engineers 2008 Joint Engineer and Training Conference, a panel of construction industry representatives voiced concern that CM contractors are not qualified to evaluate the specified procurement method, and asserted that the Government needs to delineate CM contractor qualifications in the RFP. These concerns echo the need for caution, as public agencies performing agency CM struggle with critical staffing recruitment efforts or supplementing themselves with CM Services.

In today's competitive environment, we must: evaluate ourselves and our employees by putting the long term goals for our profession into perspective; define priorities and look for opportunities to improve; and lead by example — serve as a role model to the team while setting high, but attainable expectations. By demonstrating our own personal commitment to tasks, we will set the standard others can follow.

Federal agencies are adopting the CMAA Standards of Practice into their day-to-day practice of agency CM. By making a decision for their Construction Leaders to obtain CM Certification, a new standard is set for other owners to strive toward. Regardless of the project delivery method used, public sector construction managers benefit from following professional CM Standard of Practice throughout the design and construction phases of all projects. CM Certification responds to the trend of understanding and defining construction management for all phases of the project.

Today's graduates in Civil Engineering and Construction Management can consider a wide range of opportunities, whether it is in project planning, design, program management, project management or construction management. Our aging infrastructure and retiring baby boomers will all lead to the trends described by Chairman Van Wagenen.

Evolving and Expanding Project Delivery Strategies

There continues to be a growing trend in public sector construction away from traditional design-bid-build project delivery methods. Partners, customers, and cost sharing agencies are all expressing concerns with the quality, final cost, and schedule resulting from a project delivered by the lowest bidder. Changes, claims, delays, and increasing complexity of market conditions are driving the need for alternative project delivery methods.

Project delivery methods of Military and Civil Programs are moving to Design-Build, Construction Management

at Risk (CM@R) and Early Contractor Involvement (ECI). Watching these changes, many public sector owner construction managers are struggling with their changing roles and obtaining the skills required to coordinate the efforts of the designer and the contractor and/or design builder to meet the expectations of partners or customers.

Better Recognition and Definition of Construction Management

Today's engineering and construction leaders are finally waking up to the realization that training and mentorship

are essential in bringing up tomorrow's leaders. It's exciting to learn that CI is creating programs for future leaders in the engineering and construction industry. CI's *Younger Members Directorate* responds to the dilemma of finding and developing talent. CI's recent *Student Days Conference*, Co-sponsored by CI, and ASCE's San Francisco and Sacramento Sections, was also an exciting response to this challenge, as it provided opportunities for students and colleagues to meet with construction industry leaders, fine tune resumes, and make contacts for future career opportunities.

Owners and Construction Managers will always face change. Our industry is adapting, but, more importantly, we are facing change head on with programs designed to respond to critical trends. It is essential that we continue to recruit and train talent, and that we develop new skills and leadership in construction management. Local Chapters of CI, along with new initiatives, such as *Student Days* and the *Younger Members Directorate*, are just a few examples of trends we must continue to pursue and support. ♦

UPCOMING BOOK RELEASE

e-Business in Construction

by C. J. Anumba, Ph.D., C.Eng, F.ASCE and K. Ruikar, BArch, MSc, EngD

Filling what we believe is a current void in construction industry-focused e-business literature, *e-Business in Construction* (Wiley-Blackwell Publishers, July 2008; ISBN: 978-1-4051-8234-8) covers a wide range of topics, from the fundamental principles of e-business in the construction context, to technological support, to the complex socio-economic challenges for e-business adoption in the industry.

It is argued that for construction sector organizations to reap the benefits of e-business they must be 'ready' with respect to four critical aspects of their operations—technology, management, process and people. VERDICT—a tool specifically developed to help organizations measure their e-readiness is described in detail. Case studies involving both e-business product suppliers and construction end-user companies show that key issues often arise when implementing e-business. The construction context for e-business is explored, demonstrating how the procurement process for some construction components can be re-engineered through the use of a leading e-business tool. Using IDEFO modeling, opportunities are highlighted for using innovative e-business tools within the construction process, offering possible

business benefits to different stakeholder groups within the supply chain. Case studies on the impact of two e-business applications on conventional processes are presented from both the system supplier and the end-user perspectives.

An e-business infrastructure for multi-disciplinary teams extends beyond the physical hardware and routers that support the network connections enabling e-business transactions. These systems are expanding beyond the core area of document/drawing management towards support for various key AEC business processes. Agent technology can make AEC-specific e-business more effective and more efficient. We present a vision for e-business using an agent-based prototype system.

Likewise, an engineering e-Hub facilitates computer-mediated collaborative engineering services and workflows. An Electronic Union (E-Union) integrates the information and services provided by different e-business systems for construction products procurement. The book explores the promise of emerging Web technologies (such as the Semantic Web) and describes the potential for the future application of Semantic Web technologies in construction e-business.

Trust is a cornerstone of e-business. However, every venture presents the opportunity for legal issues and risks associated with various aspects of e-business. The book describes in detail some of these possible risks, such as contract formation, validity and errors; jurisdiction; privacy; authentication, attribution and non-repudiation; and

agency. Using examples and hypothetical cases, we describe the critical issues in these areas, emphasizing the need for construction sector organizations to fully understand the legal risks and to take steps to manage them.

Drawing on industry case studies, the book discusses the key issues that often arise in implementing e-business and suggests how these can be avoided or overcome. A survey of e-business implementation in the U.S. construction industry explores the extent to which the U.S. construction industry has redefined its way of doing business based on e-business, and discusses the future implementation potential for various industry participants.

Equipped with practical industry examples and perspectives from across Europe and North America, we believe this book will appeal to a global audience. We based it on sound research, scholarship and practical experience, and we hope it will become essential reading for construction researchers and industry practitioners. ♦

For more details visit:

www.blackwellpublishing.com/book.asp?ref=9781405182348&site=1

About the Authors:

Chimay J. Anumba PhD, DSc, Ceng, F.ASCE is Professor and Head of the Department of Architectural Engineering, Penn State University.

Kirti Ruikar BArch, MSc, EngD is a Lecturer in Architectural Engineering, Loughborough University.

CI Student Days A Huge Success!

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lives." Buses brought the students to Treasure Island, where Bay Bridge site worker guides led the students around to various parts of the site, including to the top of the temporary connector, and explained different aspects of the job, welcoming student questions and comments.

After returning from the tours, the students attended informative sessions on LEED and Building Information Modeling, followed by a seminar on what happens after graduation. Marvin Oey, CI's Director, counseled students to ponder considerations other than salary when looking at job offers. Larry Smith, P.E., F.ASCE, Chair of CI's Sacramento Chapter, talked to the students about the benefits of continuing their ASCE memberships after graduation, outlining his path from student member to Fellow. He celebrated the opportunities his ASCE membership has afforded him, including professional development, networking and leadership experience. Following the talks, sponsor recruiters and ASCE members, including leaders from CI's Younger Members Directorate, sat down with individual students and critiqued their resumes and offered interviewing advice. Zofia Rybkowski, a Ph.D. student from the University of California, Berkeley, observed, "The students felt honored to be to be embraced and supported by the profession."

Sunday's program opened the students' eyes to the many aspects of real-world engineering. Jon Balzer, a recent UC Berkeley graduate who is an Office Engineer for Granite Construction, pointed out the many differences between what they are learning at school and what actually occurs on a job site. His enthusiasm was infectious, as he showed photos of the projects he has worked on. Kent Sasaki presented examples of potential ethical dilemmas students might encounter professionally, in his presentation on Ethics in Engineering. Several distinguished professionals from the Army Corps of Engineers, Christine Altendorf, Leo Fluor, John Revolinsky, and Dan Hart of Kiewit,



Students interact with sponsor representatives during speed networking session.



Students applaud for Bay Bridge pre-tour presentation.

described their varying career paths and encouraged the students to be open to considering new opportunities and routes that are not necessarily in their current plans. Their advice also included encouraging the students to find mentors to enrich their professional development and to accelerate their career progression.

One of the most highly anticipated events of the weekend was Sunday's speed networking session. Students were broken into small groups and assigned tables. Sponsor representatives

proceeded to rotate to each table, presenting information about their companies and answering students' questions. The sponsors were able to meet all the students and get to know them, and the students found out the wide range of opportunities available to those graduating with engineering degrees. "I always knew civil engineers had many job opportunities, but the speed networking opened my eyes to many different companies," enthused Stephanie Pavela, a senior at San Jose State University. During lunch, the



winners of the CI Scholarships were announced and presented with certificates. The weekend was topped off by a job fair, providing the students additional time to question and converse with the sponsors.

Smith believes the students transformed over the course of the weekend, observing that, "Students had begun to change into civil engineers." He believes they experienced the notion that civil engineering projects can change lives... "Putting names and faces and passion in front of students will keep them interested in what our profession does." ASCE San Francisco Younger Members Forum member Collette Buzzone, who volunteered at the conference, also lauded the event's success. "It was exciting to see the students – [they] were definitely passionate about learning new things, about getting out there and getting their feet wet." Overall, the students, presenters and recruiters expressed positive reactions to the weekend. Izzo summed it up by revealing, "I knew it was going to be educational... I didn't know it was actually going to be exciting!" ♦

Thank you to our CI Student Days sponsors!



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William A. Marino
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**Seeking Constructability Case Studies**

Working to build a constructability resource library, the CI Constructability Committee has developed an online case study format to collect and publish data from construction engineering experiences in the field. Previous efforts undertaken by the committee described constructability state-of-practice and created a catalog of constructability references. The committee seeks now to maintain an ongoing dialogue between professional practitioners, service providers, academics, and students to capture and re-use constructability knowledge through case studies. With the goal of extending and expanding the constructability community, the case study results would provide a basis for publications and training courses to enhance the awareness and pitfalls of potential constructability issues, as well as serving as a data source that could be mined to capture requirements for automated constructability checking programs.

If you would like to submit a case study or multiple case studies, please visit <http://content.constructioninst.org/ConstructabilityCommitteeWebsite.html#CaseStudy>. ♦

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Whose Schedule Is It, Anyway?

An Alternative Approach to Construction Project Scheduling

by Craig Lindquist, P.E., M.ASCE

Construction scheduling takes many forms, some more effective than others. The most widely accepted format for scheduling is a Critical Path Method (CPM) network. Regardless of the method employed, the schedule is a key component of virtually every construction project. If the project completes on time, the scheduling effort is considered a success. If not, it is likely to become the focal point of a costly dispute.

The conventional approach to scheduling is to specify in the contract that the contractor prepare and manage the schedule, with little or no input from the owner (who doesn't want to be involved in "means and methods"), although the owner has the most to lose if the completion date is missed. Because construction schedules are typically subjective interpretations of activity durations and logic, the schedule is not something that can be quantitatively specified or evaluated. Many owners simply accept whatever is submitted by the contractor. Others choose to evaluate the schedule that was prepared for their project. Those who choose to evaluate will spend a great deal of time and money doing so; potentially, as much as the contractor did preparing the schedule, and those who don't might encounter difficulties during the project.

There is a distinction to be made between two separate components of scheduling. The primary component of any schedule is the plan. The plan for the work must be developed by the contractor and its subcontractors, within the confines of the contract documents. The schedule document, itself, is simply the "capture" of the contractor's plan into the CPM scheduling software.

With this distinction in mind, it is in the owner's best interest to take an active role in the capture of the plan into the schedule document. Thus, the owner will fully understand the implications of all constraints, lags and how the activities are tied together logically, which determines the float, or lack thereof, in any schedule. In order to do this, it is necessary to specify and develop a collaborative scheduling specification in the contract.

The best way to accomplish this is for the owner to engage a third party, impartial, consultant to "capture" the plan, because such an approach is most likely to develop a high level of trust among the consultant, owner, contractor and subcontractors. Developing trust between the project team members is not a new concept, as there is a similar level of trust involved in any successful "partnering" program. In fact, the two concepts have been quite successfully combined on a major project for the State of Missouri, where a single consultant provided the third party partnering and scheduling consulting services, completing a \$115 million prison project without a single formal claim.

When regularly updated, this collaborative scheduling

approach that includes the owner, designers, contractor and subcontractors has many benefits, including:

- timely schedule development with less overall effort/expense on the part of the contractor and owner;
- buy-in and “ownership” of the schedule by all project stakeholders;
- an open/transparent process for developing and updating the schedule;
- timely evaluation of the impact of weather, changes and/or unforeseen conditions; and
- the ability to address scheduling disagreements immediately, greatly increasing the chances that issues will be worked out “on the fly,” and not result in a dispute or claim at the end of the project.

When implemented, this “Owner-Controlled Scheduling Program” (OCSP), has established a monthly forum for honest, candid discussion of the myriad of issues that affect every construction project. Each project utilizing the approach has been completed in accordance with the contract, without any formal claims or disputes.

This OCSP approach requires the rethinking of long-standing attitudes that the “conventional approach,” consisting of the contractor developing and managing the schedule, is the only option. However, based on the number of claims and disputes that arise on “conventionally scheduled” projects, perhaps the time has come to explore a new approach. Remember when OCIPs were first proposed?

Craig Lindquist, a member of CI's Claims Avoidance and Resolution Committee, is President of CCS Group, Inc., a St. Louis based engineering and construction consulting firm, specializing in project management, CPM scheduling, dispute resolution, and specialized structural engineering. CCS has successfully implemented this Owner Controlled Scheduling Program with the State of Missouri, Division of Facilities Management, Design and Construction, the University of Missouri and Lincoln University of Missouri. Craig can be reached at craig.lindquist@ccsgroupstl.com or through their website, <http://ccsgroupstl.com/>. The opinions expressed in this article do not necessarily reflect the opinions and policies of ASCE and CI. ♦

Run for ASCE Office

In the recently concluded 2008 ASCE elections, Geo-Institute (G-I) former Governor Blaine Leonard was elected as ASCE President-elect and Ron Smith, former G-I President, was elected to the ASCE Board of Direction as Technical Region Director. Both will be sworn into office on Saturday, November 8, 2008 in Pittsburgh.

Next year, it could be a CI member! Each year, the Construction Institute has the opportunity to nominate a candidate for ASCE President-elect, and a candidate for Technical Region Director. If you are interested in seeking CI's nomination, please send a letter of interest and resume to Marvin Oey by November 15, 2008. ♦

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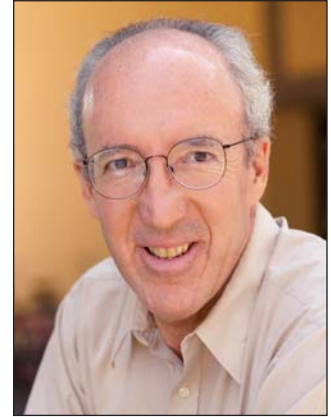
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Two CI Members Elected ASCE Distinguished Members



Joseph A. "Bud" Ahearn



Raymond E. Levitt

CI Members Retired Maj. Gen. Joseph A. "Bud" Ahearn, P.E., Dist.M.ASCE, NAC, and Raymond E. Levitt, Ph.D., Dist.M.ASCE, were recently named Distinguished Members of the American Society of Civil Engineers (ASCE). Formerly known as honorary membership, distinguished membership is the Society's highest accolade and recognizes those who have achieved eminence in a branch of engineering. The active roster of distinguished members is comprised of only 193 of the Society's more than 140,000 members worldwide. They will be formally inducted on Thursday, November 6, 2008, at ASCE's Annual Civil Engineering Conference in Pittsburgh.

Ahearn, a senior executive with CH2M HILL in Denver, is being honored for his demonstrated leadership in the design and construction industry, his advocacy for innovation as a means to improve industry productivity, performance and quality, and his dedicated military service. In his current position at CH2M HILL, Ahearn serves as the executive sponsor for the \$11 billion U.S. Forces Korea Relocation program. During his 16-year tenure with the company, he has served in several capacities, including transportation business group president, eastern region manager and senior vice president, federal programs director and principal-in-charge for two major transportation corridor projects in California. In addition, he has served as vice chairman of the board, where he worked in collaboration with senior executives to effectively represent the firm and was responsible for strategic planning, governmental affairs, strategic communications and leadership development.

Prior to joining CH2M HILL, Ahearn served in the military for 34 years, retiring with the rank of major general of the U.S. Air Force. As the Air Force Civil Engineer, he was responsible for the war fighting readiness of combat engineering forces and for shaping financial strategy, developing budgets and executing infrastructure programs totaling more than \$10 billion annually.

Ahearn has been actively involved in ASCE's Civil Engineering Forum for Innovation (CEFI) and, as a founding sponsor, an active board member of Engineers Without Borders-USA. He is a former

national president of the Society of American Military Engineers and the 2008 recipient of their Golden Eagle Award for exemplary industry leadership. He is also a founder and leader of the Science, Technology, Engineering and Math Education Coalition in Denver, an honorary member of the American Institute of Architects and a member of the National Academy of Construction. In addition to his numerous military awards, Ahearn received the Air Force Order of the Sword—the highest honor the Noncommissioned Officer Corps of the U.S. Air Force can bestow, the University of Notre Dame College of Engineering's Honor Award for Professional Achievement and the Newman Medal from the Society of American Military Engineers for outstanding military engineering achievement in Europe.

Ahearn received his bachelor's degree in civil engineering from the University of Notre Dame and his master's degree in engineering administration from Syracuse University. He is a resident of Greenwood Village, Colorado.

Levitt, who is being honored for his achievements in construction engineering and management research, and for his work in developing new theory, methods and tools to design optimal work processes and organizational configurations for highly concurrent facility and product development teams, currently serves as director of Stanford's Collaboratory for Research on Global Projects (CRGP) and as academic director for the award-winning Stanford Advanced Project Management executive education program.

Additionally, he developed the Virtual Design Team (VDT) research group at Stanford, which predicts project cost, schedule and quality for alternative organizational designs with increasing accuracy. VDT was initially validated and calibrated against data from utility repairs by the Pacific Gas and Electric Company following the 1989 Loma Prieta earthquake and North Sea oil platform experiences. In March 1995, the VDT group accurately predicted a four-month delay of Lockheed Martin's LMLV1 – a prototype launch vehicle adapting missile technology for commercial satellite launch vehicles. In July 1996, Levitt took leave from Stanford to commercialize the results of the VDT research. It has subsequently been used to design organizations that can shrink 'time-to-market' for a variety of complex new products and services.

Currently, Levitt's research group is conducting ethnographic and case study research to understand the behaviors of, and interactions among, participants from different national origins on global infrastructure and industrial projects. Results of these observations are being used to extend VDT so it can help managers design more optimal organization structures for global construction projects and multinational, multi-sectoral post-conflict resolution efforts.

Levitt is a previous recipient of ASCE's Computing in Civil Engineering and Peurifoy Research awards and is an active member of ASCE's Construction Research Council. In addition, he co-founded and served as the initial trustee of the New England Chapter of the Project Management Institute.

Levitt received his bachelor's degree in civil engineering from Witwatersrand University in South Africa and his master's degree and doctorate in construction engineering and management from Stanford University. He is a resident of Stanford, California. ♦

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ASCE Member with CI as 2nd Institute	\$20 annually
Corporate Member	\$2000 annually

The CI membership year runs from January 1 to December 31. For more information on CI membership and an explanation of the membership levels, contact CI at 703-295-6390 or via email at ci@asce.org. You can also visit our Website at www.ConstructionInst.org.

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1801 Alexander Bell Drive
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